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TANGKI NAHRIM Software As A Harvested Rainwater Volume Estimation For Iukl Compose

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ABSTRACT

Water is fundamental to our quality of life, to economic growth and to environment. Rainwater is one of the primary sources of all usable water in the planet. Rainwater harvesting (RWH) is an ancient practice of capturing rain runoff from roofs and other surfaces and storing it for later purposes. A variety of issues, such as: i) Urban growth, ii) Limited water supplies, iii) Ageing stormwater infrastructure and iv) Environmental sustainability, have prompted a renewed interest in this practice, which has become common in the developed countries such as Germany, Japan, and Australia and in developing countries such as India and Malaysia. In this study, we use Tangki NAHRIM software to calculate the captured rainwater volume, optimum rainwater tank size; quantify the impact of rainwater demand, captured rainwater volume, and tanks in managing institutional water demand at IUKL Campus in Selangor - Malaysia. This project achieves several goals such as: i) Promote environmental awareness through actively participating in storm water management, ii) Utilizing rainwater collected from building's roof as a catchment area which deliver relatively clean water source, iii) Reduce reliance and consequently the pressure on municipal water resource and iv) Avoiding the use of relatively expensive water source for toilet flushing within non-potable category application.

Keywords: Rainwater Harvesting, Tangki NAHRIM, Stormwater

INTRODUCTION

Rainwater harvesting (RWH) systems are used for thousands of years, especially in the areas where water supplies are limited by climate or infrastructure [1]. RWH system is foreseen as a solution to several problems and is being promoted almost in every country as a sustainable mean. The real benefits of RWH exceed the domain of the needs of water for domestic or agricultural purposes. They also include water management, flood control, and aquifers' replenishment to name a few.

LITERATURE REVIEW

For thousands of years, RWH was integrated into ancient cultures all over the world, like the Anti Atlas region in Morocco, the Mayan Civilizations in Central America, and the isolated Pacific Island of Fiji [2]. Developing an effective stormwater management system is imperative to help preventing the detrimental results from the increase of flooding. RWH is shown to unravel these flooding-related stormwater problems as well as provide a resource for water-stressed regions [3,4]. It is estimated that over 100 million people in the world currently utilize RWH [5]. One of the notable strategies that is adopted by Malaysia is the "integrated stormwater management and green buildings: stormwater management and road tunnels (SMART)" (The United Nations World Water Development Report 2015). The UN report stresses on the needs and the challenges that require multi-sectorial, inclusive and comprehensive strategies, like "water-energy-food" planning [6].

Considering the situational facts that rainwater is one of the purest forms of natural water that nature provides us delivered right on rooftops. Nevertheless, without proper water management this valuable and pure gift usually is wasted through its run off into storm water drains. Eventually ends up causing flood and soil erosion on its way to the rivers, aquifers and sea.

At present, Malaysia is blessed with abundant rainfalls and it primarily depends on rainwater falling over the country where it is collected into large reservoirs and as ground water [7]. The countryside areas in South and South-East Asian countries are well known for their practice of rainwater harvesting and can be dated back to about the ninth or tenth century to the small-scale collection of rainwater from roofs and simple brush dam constructions. The average precipitation [8], estimated around 3,000 mm a year.

This paper presents a study about investigate the feasibility of implementing RWH system within IUKL Campus to promote the awareness and importance of water resources and to improve the management of sustainable water resources through the utilisation of rainwater in Malaysia. In this paper, we address the following problems:

- 1. IUKL Campus has a lot of buildings with large roof areas and contributes to a lot of stormwater.
- 2. Using high-quality water class for potable use and wasted for toilet flushing uses.
- 3. Paying potable water tariff which is normally high cost relatively for the toilet flushing purposes.

The objective of this research is to use harvested rainwater properly by calculating the optimum tank size of water security using TANGKI NAHRIM software.

METHODOLOGY

The methodology that is adopted to determine the potential RWH use for the study site is indicated in the flow chart in figure 1.

The area under investigation is infrastructure university Kuala Lumpur (IUKL), one study site is selected among the IUKL camp block 9. A quantitative analysis is conducted to estimate the potential captured volume of rainwater for selected building using Tanki NAHRIM software base on precipitation historical data 15 years and total water demand for non potable uses is calculated using the actual monthly water consumption for building under study based on the meter reading, comparison of rainwater volume versus water demand to estimate rainwater storage tank.



Figure 1: conceptual framework for assessing RWH installation at the IUKL campus site.

Study Area

The area under investigation is the main Infrastructure University Kuala Lumpur IUKL campus, which is, located in Bangi, within Selangor state, Malaysia. The building block number 9 is part of the Main IUKL Campus, with roof area 1382 m².

The implementation of the project started by studying and inspecting all of the available buildings within the campus site. It is decided to start with one block within IUKL campus site. This building was Block 9.

Rainwater quantification considers collecting the necessary data, starting from the selected site, buildings functionality, and particular data pertinent to the addressed research topic. Alos, previous precipitation daily records, in order to estimate the potentially captured volume of rainwater; water usage profile for selected building, to estimate water demand; and

comparison of rainwater volume versus water demand, to estimate rainwater storage tank volume.

The quantity of rainwater volume analysis significantly depends on the quality of the weather input data. For purposes of this research, data was obtained from the Malaysian Meteorological Department (MMD) of the Ministry of Science, Technology, and Innovation (MOSTI). As most suitable for this research, PORM BANGI Weather Station was selected, as it is a part of the National Weather Station network, which is located 500 meters to the south of the IUKL Campus border.

For the purpose of this research, daily precipitation data for the period 2000-2014 was used. The focus of the analysis was on monthly mean values, in order to define annual precipitation regime, along with maximal daily values, in order to define extreme values.

Records of water usage data were obtained from the Administration Office at IUKL University. 2014 average water volume pumped from the municipal water station for the selected building block 9, within the university campus, was 7552 m³ per year, of disinfected potable water per year. With an estimated population of over 800 persons attending the building during working hours at block 9, the average water consumption equates to 42 liters/person/day.

IUKL University is in many ways like a small town, meaning that there are different types of buildings with different design codes for water usage. Furthermore, water demand varies with the type of building, and therefore buildings in the IUKL were sectorally categorized to determine the amount of water used for flushing toilets.

Even though water usage data was provided for each building on the IUKL, the percentage of used water for potable and non-potable sources is not measured separately at IUKL University campus site. Therefore, the proportion of used water for non-potable uses was estimated to be 45% for institutional building (Block 9) [9], based on previous research [10].

Rainwater Storage Tank Volume Estimation (Rainwater versus Demand)

For the purpose of the research, this analysis considers: water balance determination for Block 9 building using monthly rainfall data; and harvested rainwater storage sizing using annual and monthly demand assessment in Tangki NAHRIM software.

Monthly Water Balance for Block 9 Building

To calculate the RWH potential supply, it is necessary to determine a water balance for selected block 9. Firstly, the monthly rainwater supply is calculated using the monthly rainfall data for IUKL university campus, Selangor State-Malaysia. Block 9's total roof area in square meters (m²), and the following equation [11]:

RainwaterPotentialSupply = Precipitation*Kroof*A(1)

Where, Kroof = 0.9 because the first 10% of rainwater typically is lost to initial abstractions such as transpiration, evaporation, and surface wetting (Malaysian EF). The toilet water usage demand for the selected building (Block 9) is calculated by assuming that "design building occupants" would flush a toilet three times a day at 6 liters per flush. By collecting and utilizing 2737 m³ of the rainwater that runs off the (Blocks 9) building, 45% of the potable water used for flushing toilets could be conserved, for Block 9.

Harvested Rainwater Storage Sizing

There is a standardized approach to define the size of rainwater harvesting storage, which takes into consideration the estimated precipitation volume that is bearing the timing of water consumption/demand. In fact, the software has been developed by the National Hydraulic Research Institute of Malaysia (NAHRIM), and it has been called Tangki NAHRIM. The approach that is used in this research considers at the beginning an annual assessment and downscaling in time to a weekly water balance to clarify the precipitation water demand discrepancies at different temporal storage capacities. Additionally, the multi-temporal analysis is intended to focus on the need for a weekly water balance approach to analyz and design RWH systems for use at IUKL campus.

To conduct the technical analyses; precipitation data records for Bangi and the annual water consumption data for IUKL were obtained. The monthly water consumption data were summed to the annual level. Then the use of water for non-potable purposes were calculated based on the function of the building under study. One criteria based on the European standards was adopted from the literature. Finally, the area of the rooftops for the selected building was used to develop the daily water balance study.

The daily precipitation data were summed to the annual level (by calendar year)and multiplied by the area of each of the selected building for study (1382 m²) to determine the annual precipitation volume that is associated with this selected building. Annual comparison of the precipitation volume and annual water use volume (based on the year 2014 meter records) was performed as an initial assessment of the required amount of water that could be potentially available and supplied by captured rainwater specific to this building. Building function estimated the number of occupants, holidays, summer and semester breaks were all taken into consideration in calculating the water use. This rate is based on the Malaysian guideline of water resources recommended consumption for sanitation purposes.

Tangki NAHRIM Software Package

The main objective of developing this software, named Tangki NAHRIM, by the National Hydraulic Research Institute of Malaysia (NAHRIM) was to serve as a guide to estimate the best size for rainwater tank. However, the development of this software led to additional favorable features and capabilities.

Based on historical precipitation data, the dimension of the catchment area and the required/expected water demand for a hypothetical tank size, the software can calculate the amount of captured rainwater, total rainwater volume delivered reliability of the system, utilization coefficient of rainwater, storage efficiency, and the status where the tank is empty as a percentage time. Moreover, the software can provide an estimation of monthly water availability as a reliability indicator. The domain of application of the software can be expanded by adding additional station to the code and/or precipitation data to explore the various areas according to the user interest and availability of data for a certain location.

The basic idea of Tangki NAHRIM is the water balance between potential availability and probable consumption:

$$I - O = \frac{dS}{dt} \tag{2}$$

Where S is a volume of rainwater stored in the tank, I is the inflow rate to the storage tank, and O is the outflow rate from the storage tank. The water balance accounts for inflows to and outflows from the storage system to compute the daily change in the stored amount of

harvested rainwater. The inflow volume is based on calculating the amount of precipitation that can be captured, where the runoff volume in (m^3) based on the daily precipitation amount in (mm), the runoff coefficient, and the catchment area in (m^2) . The rooftop runoff coefficient can range depending on the material of the roof cover and slope. A typically assumed value of 0.9 was used to represent rooftops surface based on the engineering practice.

The volume of outflow is estimated to be the daily water demand. The total water demand is calculated using the actual water monthly consumption for building under study based on the meter records for the year 2014. Then the average daily water use amount was calculated by taking into consideration, the non-potable portion of water use in toilet flushing, the number of holidays, summer breaks, semester break, and the weekend days.

Moreover, Tangki NAHRIM software is designed to study the impacts of tank size change on the technical feasibility of RWH in IUKL. The explicit representation of the daily water demand in Bangi area permits those variables to be modified to represent future conditions and then to use Tangki NAHRIM to determine the performance (percent of water demand provided by captured precipitation) based on the modified tank size.

Rainwater harvedting System Performance

From the acquired data of the software, the user can conclude three performance measures ('reliability', 'satisfaction' and 'efficiency') associated with each selected tank size. These measures can be interpreted as per the need of the RWH user and defined as;

- 1) A high 'reliability' means that the RWH user will not need to fetch extra water from another source for most of the year.
- 2) A high 'satisfaction' means that most of the RWH's water can come from its RWH tank.
- 3) A high 'efficiency' means that most of the roof run-off is being used, little is being wasted by overflowing the tank andwhich imply that the performance is 'roof limited'.

FINDING AND DISCUSSION

All of the figures and graphs that represent the analysis results depict the fact that rainwater catchment that is used for some type of indoor water use reduces the institutional building's

effect directly on water supply and indirectly on the stormwater system.

This research work presents arguments for the use of rainwater catchment as a proactive way to mitigate numerous impacts of the built environment. The benefits that are related to rainwater catchment will hopefully outweigh the costs associated with such practices.

The adopted software package 'Tangki NAHRIM' shows many interactions related to water use and storage tank size. The most surprising results of the study was the toilet scenario, Block 9 with 75m³storage tank can divert the stormwater being discharged from Block 9 in a year, considering roof area and population for this block 9.

For this study of Block 9, this equates to diverting 2737 m^3 of stormwater per year from only 1382 m^2 of roof areas of Block 9, thereby saving 2737 m^3 from being withdrawn from the watershed.

Site Data Calculations

To evaluate the effectiveness of installing rainwater harvesting system, the study must involve at first, the site precipitation profile, roof characteristics, water demands, and finally the water demand for the intended purpose or use, as in our case, toilet flushing and general cleaning. The selected building for this research where chosen to be Block 9.

Site Data and Results for Block 9

Block 9 is an institutional building with 800 occupants approximately, the roof area is 1382 m^2 , and the material of the roof qualify it for 0.9 as runoff coefficient. Using this basic information for the site, water demand from the meter reading for the year 2014 and the precipitation data of the area, with the building function in mind. The Tangki NAHRIM software was used to calculate the potential rainwater that can be captured annually calculated on an average bases taking in consideration the precipitation data. From the water demand of the building during the year 2014 and the function of the building (institutional building), the toilet flushing percentage was taken to be 45% of the total water used. The tank size was chosen to provide one week (5 working days) of water supply sourced from rainwater, which is according to the demand was chosen to be 75 m³.

Figure 2 shows Block 9 simulation input data for Tangi NAHRIM program

Tangki Nahrim 2008 Choose Rainfall Station A BLK NINE IUKL	Tangki Nahrim 2008 Roof Characteristics Length m.	Tangki Nahrim 2008 Daily Water Usage No. of persons 1000
Show Rainfall Station	Width 21.5937 m. Area 1382.00 sq. m. Recommended 1 mm 1st flush depth 1 mm 1st flush vol. 1.382 cu. m. Type of roof surface (Run-off coefficient)	Cooking/drinking 0 litres Bathing 0 litres Washing 0 litres Toilet Flushing 14975 litres General cleaning 25 litres Gardening 0 litres
	C Concrete Tiles 0.8 C Zink / Metal 0.9 C Others	Avg./person 15.00 litres

Figure 2: Input data for Tanki NAHRIM software are rooftop dimensions for area calculation, first flush depth, Type of roof surface, No. of persons as water consumer, Daily required water for toilet flushing and general cleaning, and tank size (75m³).

Figure 3 shows Block 9 simulation result of Tangi NAHRIM program. While Figure 4 illustrates the monthly reliability and tank status when tank size 75m³

W	Rainf	all Simulatio	on	_ 🗆 🗙
	Tang	ki Nah	rim 2008	
Day Mth Year 31 12 2014 Size	of tank 75 cu.	. m.	<u>Run Simulation</u>	
A BLK NINE IUKL data for Simulation Run	6 years period,	no. of day	s simulated = 2	192 days.
Rainwater captured (m3)	9.41 Analysis Relial	Results	50.01 %	
Total rain vol. delivered (cu.m)	B.23 Dem	and vol.		
Avg. per day	7.49 A	lainwater zation (%)	82.02	Simulation of water in tank
vol. not meet	187 Storage E (1-(overflor	fficiency w/inflow))	87.97	Siliciation of water in tank
No. of Days with no rain 1	317			
No. of Days with no rain & tank empty	953 % time ta	ank empty	54.15 %	
4		<i>a</i>	I≡	a
Re-do		Report	More Results	Close

Figure 3: Tanki NAHRIM output data, reports the total captured rainwater based on the roof dimension and the precipitation data, total delivered rainwater based on the rainwater data profile and selected tank size, average daily availability, reliability ratio, rainwater utilization percentage, and storage efficiency based on selected tank size.

	Rain	fall Results		>
	Tangki I	Vahrim 2008		
Monthly Res	sults	Condition of Water	r in Tanl	k –
Reliability = Volume / Dem	Delivered and Volume	% Time :		
P	ercentage	1. Tank Full	4.56	
January	56.51	2. 3/4 - Full	7.34	l.
February	43.25	3. 1/2 - 3/4	8.44	1
March	58.36	4. 1/4 - 1/2	10.90	ľ
April	70.78	5. Empty - 1/4	14.51	
May	48.14	6. Tank Empty	54.15	
June	28.98	TOTAL	100	R
July	34.87			
August	46.89			
September	55.80			
October	59.07			
November	83.29		-	
December	62.17		Cha	

Figure 4: Monthly reliability and tank status when tank size 75m³

Table 1 shows the results of basic parameters of Block 9.

Table 1: Basic parameters	of selected building as	study site Block 9
---------------------------	-------------------------	--------------------

No	Parameters	Block 9
1	Building Type / Function	Educational
	Water Demand Criteria for Toilet Flush	
2	% of the Total Water Consumption BFP	45%
	BFP = Building Function Percentage	
3	Roof Area (m ²)	1382
4	Roof Type	Metal – Coated
5	Runoff Coefficient	0.9
6	Number of Years for Simulation	6
7	Number of Days for Simulation	2192

	Water Consumption/Demand:	
	(Source: Meter Reading)	
8	Annual Water Consumption (m ³)	7552
	Av. Monthly Water Consumption (m ³)	594
	Av. Daily Water Consumption (m ³)	20.7
9	Number of Working Days (NWD) Days	226
10	Effective Daily Water Demand (m ³):	33.42
10	Annual Water Demand (m ³)/ NWD	55.72
11	Daily Water Demand/Toilet Flush m ³	
11	= EDWD x BFP m ³	15
	Estimated Daily Rainwater (m ³):	16429 - 75
12	Estimated Delivered Rainwater (m ³) /	2192 - 7.5
	Number of Simulation days	
	Effective Available Daily Rainwater	- 265-
13	(m ³):	$7.5 \times \frac{365}{226} = 12.11$
	Annual Water Demand (m ³)/ NWD	2201
14	Estimated Demand Percentage	%81
15	Estimated Annual Saving of Water (m ³)	≈ 2737

The outcomes of the research was to proof that technology play a major role to mitigate the risk of water shortage by applying the RWH system which is alighned with previous study [12]. The calculation of this work was based on the proportion of used water for non-potable uses was estimated to be 45% for institutional building (Block 9) [9], based on previous research [10]. As of the result shows the high percentage can cover the demand for toilet flush and general cleaning in the selected building; Block 9, by obtaining 81% of the nonpotable water and sufficient to reduce flooding as confirmed in [13], and will participate in green technology [14], in addition to prevent enter the drainage system and avoid the blockage [15].

CONCLUSION

Demand on water resources is expected to increase dramatically in the near future due to the population growth and expansion of urbanization, industrialization and irrigated agriculture.

Adopting the concept of sustainability and conservation of water resources can help to cope with the global water shortage.

With these result, it was clearly established that rainwater utilization contributes to the economic viability of implementing the RWH system. Successful implementation of rainwater harvesting system at IUKL Campus is a significant contribution to future rainwater harvesting system development. More important, it will also support the development of a sustainable approach to any building in Malaysia. Universities, governmental research entities, and government agencies are playing an important role to promote the practice of installing RWH system and offering incentives for fees of concerned authorities.

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- Web link; <u>http://static.sdu.dk/mediafiles/4/8/4/%7B484CB39B-4E43-49AF-A01F-</u>C8E3EFAF4813%7DResidential%20end%20uses_of%20water.pdf

Mechanical Characterizations Of Doped And Calcined Tio₂ Based Varistors Processed With Different Binders

Arman Meshkinnejad, Shahida Begum

ABSTRACT

Binder is one of the crucial processing aids to process electro-ceramic. In this study, TiO₂ varistor powder was doped with 0.4 wt% Tantalum Pentoxide (Ta₂O₅), 0.25 wt% Tungsten Trioxide (WO₃), 0.2 wt% Cobalt Trioxide (Co₃O₄), and 0.5 wt% Bismuth oxide (Bi₂O₃). The doped powder was calcined at 600°C with the holding time of 30 minutes. The calcined powder was ball milled using three different binders, namely Poly Vinyl Alcohol (PVA), Poly Ethylene Glycol (PEG) and Latex (B-1022) and calcined again. The prepared varistor samples were characterized in terms of green and fired density, axial and radial shrinkage, Vickers hardness, compressive strength and XRD. It was found that both the calcination process and addition of binders influenced the physical and mechanical properties. The effect of PVA binder was significant in comparison to the samples which was processed without binder and not calcined. The fired density of 3896 kg/m³ and Vickers hardness of 708.7 were achieved with addition of PVA. Hence, it can be concluded that both the calcination and binder addition have significant influence on processing electro-ceramic powder.

Keywords: doped TiO₂ varistor; binder; calcination; mechanical characterization

INTRODUCTION

The varistor is a passive electrical component [1] which is used in electrical circuits to protect sensitive devices, such as integrated circuits, against unexpected changes in the supplied voltage. The name varistor stands for variable resistor, which means that its resistance depends on the applied voltage. The resistance of the varistor has a strong dependence on the applied voltage. This unusual behaviour of the varistor can be used to protect sensitive integrated circuits from spikes in their voltage supply [2&3].

The nonlinear current–voltage characteristic is the main electrical property of a varistor, which can be expressed by the equation $I = KV^{\alpha}$, where α is the nonlinear coefficient, a fundamental parameter used to scale the nonlinearity [4].

Several kinds of ceramics exist in the field of varistor materials. Sintered SiC compacts at first, afterward ZnO-based varistors were developed [5]. Other materials such as WO₃, SnO₂, SrTiO₃ and TiO₂ are also considered for varistor fabrication [6-9]. TiO₂ powder is one of the base materials for low voltage applications due to its intrinsic electrical performance. However, this material is doped with different dopants to enhance the performance characteristics [10].

In the varistor processing route, addition of binder, calcination of varistor powder and sintering temperature play an important role. These processing routes are identified to affect the green and fired density and strength, grain growth, porosity and other characteristics of the varistor [4, 11&12].

In this study, the TiO_2 variator samples were prepared with addition of Ta_2O_5 , WO_3 , Co_3O_4 , and Bi_2O_3 as dopants. The results of mechanical characterizations of TiO_2 variator samples when processed with PVA, PEG and Latex binders are compared with the calcined and non-calcined samples without addition of any binders.

Experimental

Five different samples were created with and without calcination taking nanosized TiO₂ as base powder. The sample identification for experimentation is given in Table 1. Each sample powder was ball milled for one hour taking 1 kg zirconia ball as milling media and 200 ml deionized water as solvent. The prepared slurry was dried in an oven overnight at a temperature of 60°C. The powder was grinded and calcined at 600°C in a low temperature furnace. The calcined powder was ball milled again using 1.3% of three different binders. Solution of PVA and PEG were made in a magnetic stirrer using deionized water before adding for ball milling. Thence, the prepared powder was dried overnight and calcined again.

Sample	Powder Composition	Calcination	Binder
1		No calcination	No Binder
2	98.65% TiO ₂ + 0.4% Ta ₂ O ₅	Calcined	No Binder
3	$+ 0.25\% WO_3 + 0.2\% Co_3O_4$	Calcined	PVA
4	+ 0.5% Bi ₂ O ₃	Calcined	PEG
5		Calcined	B-1022

Table 1: Identification of varistor samples

Pellets of 20 mm diameter were made from the prepared powder in a laboratory scale hydraulic press with pressure of 40 kg/cm² to prepare the green body of cylindrical shape. The pellets were sintered in a high temperature furnace at 1400°C with 2 hours holding time. The heating and cooling rate of the samples were maintained at 10°C/min. The sintered pellets were grinded and polished to level and remove the impurities from the surface of the samples.

For the mechanical and physical characterization of the samples, the green and sintered densities and shrinkage rates of the samples were measured. Moreover, Vickers Hardness of the samples were evaluated by Vickers hardness machine of model Wolpert Wilson Instrument 401MVD.

The XRD pattern of the samples was evaluated by Shimadzu 600 apparatus to identify the crystalline material structure and phases. The X-Ray Diffraction was operated with Cu-K α radiation source (λ =0.1548 nm) at voltage of 35 kV and 30 mA. The scan range of 2 θ from 20° to 60°, scan speed of 2 degree/min and the scan step of 0.02° were applied.

In this study, 5 samples were prepared for each experimental condition, and the average values were considered.

RESULTS AND DISCUSSION

The results are based on green and fired density, shrinkage, micro hardness, compressive strength and XRD. It has been found that the properties were influenced by calcination and addition of various binders.

Green Density

The variation of green density with and without calcination and addition of different binders is shown in Figure 1. The green density of the samples shows reduction with the calcination process. However, the green density of the calcined samples was increased by addition of PEG and Latex binders. But the addition of PVA binder decreased green density of varistor discs.

Calcination process resulted in fine and low-agglomerated ceramic powder [13]. Furthermore, the binders bridge the particles of the mixed ceramic powder together by adsorbing on their surfaces [14]. Moreover, binders help the grains rearrangement to dispel the intra-granular porosity and making the packing configuration denser by acting as a wet agent [11&15]. Sample 1 prepared without calcination and addition of any binder obtained the highest green density which is 1555 kg/m³.



Figure 1. Variation of green density with calcination and different binders.

Fired Density

The effects of calcination and addition of different binders on fired density are presented in Figure 2. As the results indicate, the calcination process remarkably increased the sintered density. Moreover, the addition of PVA binder increased the sintered density too. Though, the fired density shows reduction with the presence of PEG and Latex binders. However, the maximum fired density of 3896.07 kg/m³ was gained by sample 3 which prepared with calcination and addition of PVA binder. The binders are burnt out during the sintering process which is dependent on the melting point of binder. Hence, the heating rate is crucial. The used

heating rate might have caused rapid vaporization and created pores in case of PVA, PEG and latex binders as the melting points are 230°C, 250°C and 100°C respectively.

In the sintering process, pores are eliminated by the grains rearrangement which increases the density of ceramic sample [11]. Meanwhile, addition of binder higher than 0.5 wt% in the composition can lead poor fired density despite high green density. The reduction of fired density is a result of left pores and some remainders after the binder vaporization which prevents densification while sintering [14].



Figure 2. Variation of fired density with calcination and different binders.

Shrinkage

The variations of radial and axial shrinkage with calcination and addition of different binders are indicated in Figure 3. The lowest radial and axial shrinkage were achieved by sample 1 without calcination and addition of binder. In the other words the calcination process increased the shrinkage rate in both radial and axial directions.



Figure 3. Radial and axial shrinkage with calcination and different binders.

The radial shrinkage of the samples shows reduction with addition of binder. Furthermore, presence of PEG and Latex binders reduced the axial shrinkage likewise. Though, the addition of PVA binder increased the axial shrinkage, which was gained 29.1%. The highest amount of radial shrinkage 27.95% was obtained with sample 2 which was processed with calcination and no presence of binder. Higher shrinkage rate indicates more increase in densification which associates with fewer voids and more compact ceramic sample.

Mechanical Properties

The effect of calcination and addition of different binders on the Vickers hardness is shown in Figure 4. Base on the results, calcination process increased the Hardness and compressive strength. Moreover, addition of different binders increased the mechanical properties regardless of fired density, which can be considered as better intra-granular connections or different average grain size. The highest amount of Vickers hardness was achieved by sample 3 with addition of PVA binder.



Figure 4. Vickers hardness variation with calcination and different binders.

X-ray Diffraction (XRD)

XRD analysis was performed to provide the crystal structure and phases information of the ceramic samples. The XRD patterns of ceramic samples are indicated in Figure 5. The results show seven outstanding diffraction peaks at 27°, 36°, 39°, 41°, 44°, 54° and 57° which are

consistent with reference [11]. Furthermore, crystal planes assigned at (110), (101), (200), (111), (210), (211) and (220) affirming pure TiO_2 composition.

The XRD patterns exhibited the highest peak at (110) and $2\theta = 27^{\circ}$. Base on the results, the amount of peak intensity counts was dramatically increased by calcination process. Moreover, the peak intensity of calcined samples was reduced with addition of PVA and PEG binders. Sample 5 with addition of Latex binder shows the highest intensity counts of 2539 at 27°. The higher intensity can be considered as higher crystallinity and a greater atomic number which results in higher scattering factor of TiO₂.



Figure 5. XRD pattern of TiO₂ discs prepared with various binders.

CONCLUSIONS

The physical, mechanical properties and phase evaluation of nanosized TiO_2 doped with various dopants and calcined with different binders were evaluated. It was found that fired density and strength were significantly improved when the varistor powder is processed with PVA binder and calcined. The enhancement in strength of the nanosized TiO_2 signifies the reduction of porosity and enhancement of density of TiO_2 based ceramic varistor. XRD revealed the presence of TiO_2 as main phase and higher intensity was obtained with latex binder. Physical, mechanical and XRD results show the evidence of the influence of the binder and calcination temperature on the processing of TiO_2 powder. It can be envisaged

from higher fired density and hardness that the grain size and porosity were effected which would facilitate the performance of varistor.

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Effects of Bed Roughness on Discharge

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ABSTRACT

In recent years, water recourses works and other hydraulic engineering projects have been developing. The knowledge of open channel hydraulic is essential for every engineer when it comes to hydraulic structure work. In this paper, the two main coefficients, namely Manning's and Chezy's coefficients which are used in finding the flow resistance in an open channel and different bed conditions were focused on reviewing previous works. Consequently, it was found that any factor that increases flow resistance increase the roughness coefficient, and the factors that decrease flow resistance decrease the roughness coefficient. Roughness varies with the change in stages of discharge and like the seasonal changes in vegetation. However if the size and shape of the cross-section of the stream of fluid is constant the flow is considered uniform. The value of n expected is lower when the bed material is smooth, and also when it's not affected by changes in the depth of flow. In conclusion, roughness coefficient and flow rate were influenced by slope and the bed roughness. Although the Chezy's was formulated long before any other methods, the Chezy's constant still remains without any set of value hence somewhat of a mystery.

Keywords: Open channel flow, Coefficients of resistance, Manning's, Chezy's coefficient, Roughness and Uniform flow

INTRODUCTION

An open channel is a duct in which the liquid flows with a free surface exposed to atmospheric pressure. The flow channel is one of the most important tools available for the teaching of hydraulic principles. The flow channel has been designed to allow students a wide range of experiments on water flow in open channel under different flow conditions and analyze the effects of test models of various shapes on water flow. It also allows the verification of the

Chezy equation and manning's friction factor. Flow resistance on rough and inclined beds has been a challenge in hydraulics [1].

Resistance to flow in open channels is due to viscosity propulsion or pressure force created on wet surfaces. The various types of obstacles and roughness present on the bed and sides of rivers increase roughness in the flow path, cause loss of water energy, slows the flow, raises the river water surface, and generates flow in flat plains [2].

Further, determination of flow resistance for calculating discharge, velocity and sediment transport is essential. Calculation of water velocity near inclined surfaces, like the inclined spillways and drops, is needed to determine the hydraulic and geometric characteristics of downstream structures.

Also, the coefficient of flow resistance is considered as a main factor in the simulation models of natural waterways. The coefficient is a function of velocity, depth, and type of bed roughness [1].

Resistance Coefficients Of Open Channel

Chezy (1775) and Manning (1890) are relationships used frequently, The method of calculating coefficients reflecting the resistance derived from the roughness of flow profile is the most important issue in using these relationships; these coefficients are respectively recognized as the Chezy roughness coefficient (c) and the Manning roughness coefficient (n), and thew determining these coefficients has been a subject of considerable interest for hydraulic engineers.

In an open channel, if the depth of flow is constant, then it is treated as "uniform depth". In some cases, the uniform depth flow can be accomplished by adjusting the bottom slope so that it precisely equals to the slope of the energy line. Physically, the loss of potential energy of the fluid as it flows downhill is exactly balanced by the dissipation of energy through viscous effects.

Considering the flow in an open channel, the cross-sectional area is constant in shape and size. If the cross-sectional area is A and the "wetted perimeter" (i.e. length of perimeter of the cross

section in contact with fluid) is P, then a new parameter may be defined as "hydraulic radius" i.e.

Chezy Resistance Factor

The fundamental relations used to determine the uniform flow rate in open channel are semiempirical and are governed by Chezy and Manning equations.

A French hydrologist, Antoine Chezy in 1769 after *reviewing* the general, developed the Chezy's formula laws. The approximate character of Chezy's equation for uniform flow in an open channel is widely acknowledged which can be seen from the numerous formulae for the Chezy's coefficient quoted in the literature of (Leliavsky 1959; Chow, 1959). The Chezy's formula is expressed in terms of velocity as follows:

 $V = C\sqrt{RS}\dots\dots\dots(2)$

This equation (2) known as "Chezy equation" in which *C* is termed Chezy coefficient Where V = mean velocity (m/s) R = hydraulic mean depth (m) S = slope of energy line

Manning's Roughness Coefficient

In open channel, the manning formula has been widely used to determine roughness coefficient. It also is most frequently used in the computation of open channel flows. Manning's formula is an empirical parameter that applies to uniform flow in open channels and is a function of velocity, cross sectional area and slope of channel. The variations of roughness coefficient occurs due to the various contributing factors which affects the flow and discharge coefficient such as surface roughness, vegetation, irregularity of channel, conduit alignment, silting/scouring, obstruction and discharge of water/fluid (Chow, 1973).

As an alternative to other resistance coefficients, Manning's formula was established in 1885 by an Irish Engineer Robert Manning and later published in (Manning, 1891) It has been developed and modified over time, which consequently becomes preferable to engineers in the carrying out frictional constant calculations and practical applications. The formula mathematically written as;

- With V = mean velocity
- R = Hydraulic radius
- S = slope of energy line
- n = Manning's constant.

Random roughness is used to characterize surface micro-relief. Height measurements were employed in a procedure developed by Allmaras et aL (1967) for calculating random roughness. To reduce the variation among measurements, the effects of slope and oriented tillage tool marks were mathematically removed. Manning formula is used to estimate flow in open channel situations where it is not practical to construct a weir or flume to measure flow with greater accuracy. The friction coefficients across weirs and orifices are less subjective than n along a natural (earthen, stone or vegetated) channel reach. Cross sectional area, as well as n', will likely vary along a natural channel. Accordingly, more error is expected in predicting flow by assuming a Manning's n, than by measuring flow across a constructed weir, flumes or orifices [5].

LITERATURE REVIEW

Literature related to Manning's n

M. Greco, et.al., (2013) studied on Manning's roughness through the entropy parameter for steady open channel lows in low submergence. The objective of the work, therefore, is to investigate the direct dependence of Manning's roughness on the entropy parameter in the case of low depth and submergence. The experimental tests were carried out on a free surface flume of 9 m length and with a cross section of 0.5 x 0.5 m. The distance of 4 m was chosen. The experiments were performed in steady flow conditions for different values of discharge (0.007 - 0.076 m³/s) and slope (0.05 - 1 %). The result of the analysis shows how the dependence of $y_{0/y_{max}}$ on D/d and *i* improves the assessment of Manning's roughness, considering y_{max} equal to 3/4 of the water depth, *D*. Such result further enforces the relationship between the entropy parameter and the hydraulic and geometric characteristics of the flow. Basing on experimental

data collected in a flume on a steady flow in low submergence. Manning formula, as we know it today, as well as to the acceptance that the Manning's coefficient C should be the reciprocal of Kutter's n. In the United States, n is referred to as Manning's friction factor, or Manning's constant. In Europe, the Strickler K is the same as Manning's C, i.e., the reciprocal of n.

Others theoretically investigated the development of bed shear velocity and shear stress based on specific assumptions on flow type (still/ turbulent, water depth), size of bed particles, flow distribution, and channel roughness (Kim et al. 2000). Historically, Manning's roughness coefficient can be selected from simple lists of channel descriptions (Chow, 1959).

The Manning equation was developed for uniform flow in which the water-surface profile and energy gradient are parallel to the streambed, and the area, hydraulic radius, and depth remain constant throughout the reach. It is assumed that the equation also is valid for the non-uniform reaches usually found in flood.

Literature related to vegetated channel

Rhee, D.S. et.al., (2007) used three Korean natural vegetations Zoysia matrella (Korean zoysia), Pennisetum alopecuroides (L.) Spreng. (Korean native vegetation) and Phragmites communis Trin. (Korean reed) in flume tests to see the effect of vegetation in the channel on flow resistance. It was observed that the resistance coefficients are higher when plants are green rather than when they are dormant. The Manning's "n" values for green state tend to a constant value of about 0.012, whereas for dormant state it was observed to be about 0.001.

Hassan, (2010), studied an approach for estimating the equivalent Manning coefficient, total flow conveyance, depth average velocity distribution and bed shear stress of trapezoidal channel cross-section with different roughness of flexible vegetation along the wetted perimeter was developed based on a 2D velocity distribution in experimental flume for both submerged and emergent conditions. However, the flow conveyance model was validated in the field and it was found that the model overestimates the discharge especially for vegetation on bed and side banks (Hassan, 2010). This overestimation may be simply because of using synthetic material to represent vegetation roughness during his experiments.

There is a direct relationship between vegetative effective roughness and local plant deformation (deflected plant height). In that sense, the dimensionless function based on Kouwen's investigations is confirmed. Density, stiffness, and geometric moment of the vegetative model,

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combined with flow conditions, causes resistance to flow. The use of the average interplant length scale a, and its use in the presented modified Kouwen parameter seems a better predictive indicator. (David Velasco. 2003)

Literature related to Sand-Bed Channels

An understanding of the basic factors that affect roughness coefficients in channels and overbanks are needed for the selection of Manning's n. In general, the roughness coefficient is a measure of the effect that bed material, channel geometry, vegetation type and density, and other factors have on flow resistance.

The variation with stage and discharge is particularly important in higher-gradient mountain streams. The general approach to evaluate roughness outlined in this section consists of evaluating the channel roughness (base n value), modifying the base value by adjustment factors, and evaluating the roughness of the overbanks. The discussion is further divided into natural, agricultural, and urban conditions.

Resistance to flow in sand-bed (movable) streams varies greatly, depending on the velocity of flow, grain size, shear, and other variables, because the moving bed material takes on different bed forms. The flows that produce bed forms are classified as lower, transition, and upper regime (Simons and Richardson, 1966). Bed forms of lower regime flows consist of plane bed, ripples, and dunes. Bed forms of upper regime flows consist of moving plane bed, standing waves, and antidunes.

The roughness coefficients for the lower and transition regimes depend on grain size and bedform roughness at a particular time and are very difficult to assess. Generally, as the flow increases dune formation greatly increases, and the roughness is much greater than the upperregime flow roughness. The n values in sand channels increase directly with particle size. To determine the roughness of a sandbed stream, an initial n value based on the median particle size is selected.

Achanta R. Rao conducted an experiment on the design of plane sand bed channels affected by seepage his objective was to ascertain the effect of seepage on the hydrodynamics of the channel. Hence experiments are conducted on a higher scale tilted flume of an effective length 25 meters (length of seepage zone is 20 meters) and width 1.8 meters in the Hydraulics 29 | Page

laboratory of Indian Institute of Science, Bangalore. Initially, the sand-bed is made plane for all the experiments with a required bed slope So. Then inflow discharge Q is allowed. A tailgate at the downstream end of the channel is used to adjust the flow depth. After reaching stable conditions, slow seepage flow qs (suction or injection) is allowed to set the condition to pseudo incipient motion. Before and after the application of seepage, the water surface elevations are measured with an accuracy of ± 0.015 mm of water head at regular intervals along the channel by using a digital micro manometer in order to determine the water surface slope Sw. it has been observed that suction reduces the stability of the bed particles and reduces their mobility.

In 2006 Ismail, Z and Shiono, K. (2010), derived some equations which was carried out by using only laboratory data with plane beds made of sand and gravel, with both uniform and graded sediments. Omid M. H. (2010) et al conducted an experiment on effects of bed-load movement on flow resistance over bed forms. In 2010, Ji-Sung KIM et.al estimated

Literature related to Gravel Bed Channel

Zarina Md Ali and Nor Ashikin Saib (2011), conducted an experiment on the Influence of bed roughness in open channel. The purpose of this study is to determine the influence of gravel bed channel on flow rate and roughness coefficient in open channel. The experiments were conducted in a rectangular flume with glass sides with a flat bed. The size of flume is 10m long, 0.30m wide and 0.46m deep. The experiments were carried out by using fixed flow rate; 0.020m³/s, 0.025m³/s, 0.030m³/s and 0.035m³/s by adjusting the water pump level. The depth of flow was measured at all sections by measurement apparatus. At each section, four points of depths were to be taken with three points of velocity. Fowrate and roughness coefficient were influenced by bed roughness. Besides, influence of bed roughness has more effect at steeper slope, although the study was done in small-scale. The roughness coefficient n obtained by flume gravel bed surface is bigger than flume with smooth bed surface. The differences of flowrate, Qtheory and Qexperiment ranged of 17 to 25%.

Wen C. WANG, and David R. DAWDY (2014), worked on the flow resistance for gravel bed channel. The purpose of this work was to develop a reliable resistance formula in terms of the Darcy-Weisbach friction factor f. The data was screened and used to establish the formula. Existing resistance formulas produce a wide range of friction-factor estimates for gravel bed streams. The existing formulas have considered that f is a function of relative $30 \mid Page$

roughness D_{84}/R only, where *R* is the hydraulic radius and D_{84} is the particle size referred to the intermediate diameter that equals or exceeds that of 84 percent of bed sediments. In this paper, *f* is considered as a function of Froude number in addition to the relative roughness. *f* for $D_{84}/R>1$ displays a different trend than that for $D_{84}/R<1$ perhaps due to the invalid assumption of a logarithmic velocity distribution for $D_{84}/R>1$. An *f* formula for $D_{84}/R<1$ has been established.

For a short reach of gravel-bed stream, in a glaciated catchment with a characteristic diurnal discharge hydrograph, a strong positive relationship was found between the volume of water passing through the reach and the volume of erosion in the reach, for points early on the rising limb of the hydrograph. This relationship broke down later in the Manning's roughness coefficient for a gravel-bed river reach using field measurements of water level and discharge, and the applicability of various methods used for estimation of the roughness coefficient was evaluate. Ali1 Md Z. and Saib N. A. (2011) did the laboratory experiment to determine the affects of gravel bed to roughness characteristics in channel.

Thus, early in the hydrograph, this relationship provides an indication of the capacity of this reach to move sediment, either locally eroded material or sediment supplied from upstream, and this paper applies this relationship to a six week discharge hydrograph to predict the potential transport volumes. From these predictions, it calculates the minimum volume of bed material that must have been supplied to the reach from upstream, per hour, to maintain its observed elevation, Stuart N. Lane (2000).

CONCLUSION

This report compares several methods of determining the effect of roughness coefficients. The roughness of beds depends on so many factors, which includes the surface roughness of the bed material, cross-section geometry, vegetation, obstruction to flow, type and channel variations. In general, all factors which cause the turbulence and retardance of flow, and hence energy losses increase the roughness coefficient while those that cause smoother flow conditions tend to decrease the roughness coefficient. The vegetative roughness coefficient tends to remain constant or rise as the submergence starts to occur.

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Zahra Askari,	Hossein Afzalimehr	and Vijay P.	Rohullah (2015)	'prediction	of Flow Velocity
near	Inclined	surfaces	with	varying	Roughness.

The Performance Of Concrete Using Pre-Treated Crumb Rubber With Partial Replacement Of Fine Aggregate

Mwaya Temina Sendwa

ABSTRACT

There is lack of proper disposal of tire rubbers in many countries around the world and this has greatly affected the environment. Many tires are thrown in damp sites and left to pile up causing landfills. The tires are usually burnt and this causes them to release a lot of gases like carbon monoxide leading to air pollution. Apart from that the damp sites cause a breeding site for mosquitoes and rats that can spread diseases to the people in the community. One of the ways in which the tires can be disposed off without destroying the environment can be using them in the partial replacement of aggregate in concrete. Previous researchers have shown that rubber tire aggregate can be added to concrete for structural constructions mainly for rigid pavements. Other uses among others include partition walls, concrete blocks for architectural applications, culverts, sidewalks, driveways and some road construction applications. This paper studies different volumes of crumb rubber (0%,5%,10%,15% and 20%) being partially replaced as fine aggregate. It investigates how using crumb rubber that is pre-treated with sodium hydroxide (NAOH) in concrete will be able to minimize the loss of flexural, compressive, split tensile strength and slump tests as well as improve the bond between crumb rubbers and cement paste. Different experiments will be carried out to examine both hardened and fresh concrete properties of rubberized concrete.

Keywords: rubberized concrete, compressive, flexural, crumb rubber, split tensile

INTRODUCTION

Most countries in the world today are focusing on finding solutions in which they can eradicate global warming. They are focusing on ideas of sustainability and many technologies that can minimize the damage of nature. Research has shown that the construction industry has contributed to some of the damage of the environment due to the high volume of garbage it produces. Recycling of waste is a possible alternative way of preserving nature. Despite the negative way the construction industry has affected nature in the past, it is a promising sector that can make use of recycled waste materials.

Large portion of solid waste around the world constitute of tire rubber. With the increased number of cars, the disposal of tires seems to have tripled over the years. Tires are non-biodegradable; hence they are burned and in certain countries are used as fuels which pose as a great threat to the health of people in different communities unless carefully considered. In order to reduce the environmental problems being caused by wrong disposal of tires, they can be used in concrete.

Most researchers have shown great interest in the use of tire rubber in concrete production. In the previous studies, it was observed that the size, surface texture and volume of the rubber particles have a great effect in the mechanical properties of the reformed concrete. Researchers have shown a significant decrease in unit weight, compressive strength and flexural strength of concrete as the percentage of rubber particles is increased. The low compressive strength are due to the weak bonding between the cement paste with the rubber particles as well as the low strength of the rubber particles used in replacing the high strength coarse or fine aggregates. The reduction of the properties mentioned above is greatly influenced by the percentage of rubber particles in the concrete. According to (Deshphade, Kulkari, & Gunde) it was stated that when rubber particles are added in cement paste (rubber particle had a size with maximum 500µm), NAOH solution was used in order to decrease hydrophobic nature of rubber surface. At first, the surface of rubber particles were modified by saturated NAOH solution for a few minutes. The rubber particles that were treated by NAOH show an improved bond with cement paste, indicating that there was also an improvement in flexural strength by this procedure.

	FACTS	NUMBERS
1	Number of tires generated	273 million
2	Approximate weight of scrap tires	3.6 million tons
3	Number of scrap tires in stock piles	300 million
4	Number of tires processing facilities	498
5	Scrap tires used in civil Engineering	30 million
	applications	
6	Scrap tires processed into crumb rubber	18 million
7	Scrap tires processed use for fuel	125 million
8	Number of states with scrap tires legislation	48
	regulations	
9	Number of states that ban whole tires from	33
	landfills	
10	Number of tires processing facilities	12
11	Number of states with no landfill restrictions	5

Figure 1: facts about scrap tires

Materials And Experimental Procedure

In order to prepare the recycled crumb rubber concrete specimens, fine aggregates were placed in a solution of saturated NAOH for an hour at room temperature. Then the fine aggregate were replaced by waste materials of crumb rubber in different percentages of (0%, 5%, 10%, 15%, and 20%) in separate concrete mixes. All inorganic impurities in the sand used should be gotten rid of and passed through 2.36 mm sieve and retained on 150micron. For each mix, cubes of 150 X 150 X150 mm, cylinders of 150 mm diameter by 300 mm height, and small beams of 100X 100 X 500 mm were prepared. All specimens will be fabricated and then cured in water for 7 and 28 days in accordance with British Standard. For each concrete mix, slump tests will be performed and recorded at the casting time of the specimens. After 24 hours of casting cubes, beams and cylinders will be taken out from the mould and then submerged in water tank for curing. The mix design was 1 part of cement, 1.5 parts of fine aggregate and 3 parts of coarse aggregate (1:1.5:3).

Slum and split tensile tests were carried according to BS EN 12350-2, Compressive strength test was according to BS EN 12390 and the flexural test was according to BS 1881-118.

LITERATURE REVIEW

A. Detailed examination figure shown below shows that increasing the crumb rubber upto 10% exhibited a linear relationship between the increase of crumb rubber and the compressive strength, showing a loss of about 24% of the compressive strength at 10% rubber content. Therefore, this result limits the use of the modified concrete when strength is the prime requirement. However according to (Haolin Su, 2015) when the crumb rubber is pre-treated with saturated NAOH, there is little improvement in the compressive strength.



Figure 2: variation of compressive strength at 7 and 28days

A primary concern in designing concrete for use in highway applications is the flexural strength of concrete. Its information is useful in the design of pavement slabs and airfield runway as flexural tension is critical in these cases. The flexural strength or the modulus of rupture of concrete is an indirect measure of the tensile strength. The value of modulus of rupture depends upon the dimensions of the beam and above all on the arrangement of the loading. It is observed that with the increase in the crumb rubber, the flexural strength decreases. However, it is noticed that at the later age rate of strength reduction, due to increase in percentage of crumb rubber was steeper than that of the compressive strength .It can be concluded that, with the large percentage replacement of fine aggregates, flexural strength decreases drastically.

(Khatib and Bayomy 1999) reported that increasing of the crumb rubber content in the mix resulted in a decrease in both the slump and the unit weight of the mixtures. Despite the decrease in measured slump, observation during mixing and casting showed that increasing the crumb content in the mix still produced a workable mix in comparison with the control mix. Despite the decrease in the unit weight of the mix (due to the lower unit weight of the rubber), the unit weight remained within the acceptable range for the total aggregate volume when up to 20% crumb rubber content was used.

Studies have shown that there is an improved bond between cement paste and crumb rubber if the rubber particles have rougher surface or are pretreated. A better and improved bonding may develop with the surrounding matrix, and that may increase compressive strength. Pretreatments differ. Some include washing rubber particles with water to acid etching, plasma pretreatment, and various coupling agents. In acid pretreatment, rubber particles are soaked in an acid solution for a period of 5 minutes, and then rinsed with water. This improves the strength of concrete containing rubber particles through a microscopic increase in the surface texture of the rubber particles. (Eldin & Senouci) soaked and thoroughly washed rubber aggregates with water to remove contaminants, while (Rostami, et al.) used water, water and carbon tetrachloride solvent, and water and a latex admixture cleaner. The outcome was 16% higher compressive strength compared to the control sample.

Amongst the surface treatments tested to improve the hydrophilicity of the rubber surface, a sodium hydroxide (NaOH) solution gave the best outcome. The particles which were surface-treated with NaOH saturated aqueous solutions for 20 minutes, and later on, scanning electron microscopy(SEM), water absorption, density, flexural strength, compressive strength, abrasion resistance, modulus of elasticity and fracture energy measurements were performed using test specimens (w/c= 0.36) containing 10% of as-received or 10% of NaOH-treated rubber. The test results showed that the NaOH treatment improves the bond of tire rubber particles to cement

paste, and mechanical properties such as flexural strength and fracture energy were improved with the use of tire rubber particles as addition instead of aggregate. The decrease in the compressive strength was significantly lower than that have been reported in the earlier literature.

CONCLUSION

The tests performed on hardened concrete show that the use of rubber aggregate in concrete mixes produces a significant reduction in concrete compressive strength when the rubber aggregate content is increased. However, if the amount of rubber in the concrete is restricted, a normal strength concrete can still be produced. The use of NAOH to coat the crumb rubber contributes to a slight higher compressive strength which can be thought about for possible use in structural applications. However the use of crumb rubber in concrete is not advisable and thus can be used only for minor jobs.

Flexural strength of concrete with percentage replacement inclines to increase with decrease in the percentage replacement of crumb rubber. Nevertheless, a greater advantage is observed when crumb rubber is treated with saturated Sodium hydroxide. This can be a reassuring study which can lead to use of crumb rubber for higher structural applications.

Due to low specific gravity of crumb rubber it can be added to flowable fill to produce a lightweight material. Bulk density decreases as the amount of crumb rubber increases. Flowable fills mixed with crumb rubber produce bulk densities that are 60% to 80% of the typical bulk density of standard flowable fills mixed with sand. A lightweight flowable fill produced with crumb rubber provides the construction industry with a material that imparts less stress on the soil beneath it, thus moderating the potential for soil settlement, mainly when constructing on soft and compressible soils. Reduction of bulk density from using crumb rubber does not negatively impact the strength of flowable fill. This lightweight material is strong enough to meet minimum strength requirements. However, it is not so strong that it cannot be excavated in the future. The range of measured strengths compares well to those typically achieved with standard flowable

fill. Other benefits of crumb rubber when used in flowable fill include improved ductility and higher thermal insulation

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Family Interaction Space in Malaysian Terrace House Design

'Adil Farizal Md Rashid

ABSTRACT

Family interaction in considering spaces for residential has been neglected since the needs of the quantity of housing is seen more important as Malaysia is developing. This paper highlights the findings of a research done entitled "Design of Living Room as Malaysian Family Interaction Centre". A sample of 189 respondents from houses in housing estates of Bandar Baru Bangi has been taken and Statistical Package for Social Science (SPSS) software used to analyse the findings. Family interaction in considering spaces for residential has been neglected since the needs of the quantity of housing increases as Malaysia is developing. The current trend of developers, architects, designers make home as much to fulfil only the necessary needs of the occupant as shelter solely. This has much affected the house design to consider spaces for family

interaction as part of a happy family. Spaces of interaction considerately the living room has much becoming too small even for the whole family to do simple things such as watching television and relaxing. Therefore, most of the family members spent time much more outside such as shopping mall, recreation centre and others while most of the time use after back from work is where family spent time together in a house. As the house space did not allow a good solution for everybody at home, the teenagers find solution by spending time with friends outside the house more and this will result demise of morals. It is hope by these findings will improve the realization of the industry player not to neglect the need of family interaction space to be adequate in order to make sure the quality of life of the occupant. There is relation between house satisfactory and the design of the house especially the main living space that has seen decrease since 1980's to 2000. There are tremendous of housing projects held by developers and supported by government but still the quality of the house built is never been taken so seriously. Most of design failures start with concept – therefore concept of focusing on 'maximizing quantity' has been used by neglecting 'maximizing quality' has made Malaysian scheme of terrace housing as a bad template to be repeated throughout the vision of Malaysia for 2020. In short, the development of a true family centred housing design is still far from reach in the Malaysian housing estate context and has to be taken consideration to ensure the quality of housing built.

Keywords: Family, house, interaction, built environment.

Terrace Housing Dilemma

In the early 1990's Malaysia is demanding for more houses to be built. This is due to the rapid development growth of soft and hard infrastructure. As more and more developers appear in the picture to bring housing development to its need, the neglecting of the quality has grown from bad to worst. Developer does not focus on making sure the housing units that were built to cater the social and physical needs of the family occupying them anymore, but more towards profit oriented. Borrowing from the western design and development of housing, terrace house scheme is seen as the best alternatives to cater the needs of housing quantity due to its land use economical and faster construction method. The urgency needs for more housing has made developers racing to get their best bid in residential development especially the middle-house

level. There are many reasons why the house scheme is used and approved by the authority. First, terrace houses are built next to each other so that the land use can be maximized in a set plot of land granted by the authority to the developers for housing development. Secondly, the design of the terrace house itself made the authority easier to conduct management of approvals and birocracy procedures undertaken to ensure the housing are built up to the required specifications. Since then, in 2010 residents realized the terrace house they lived in does have its own limitation and contra. Lacking of space for family interaction, low quality of the terrace house built, thermal comfort problem and others has raised a lot of questions whether terrace house scheme is suitable for Malaysian family and its climate. A lot of research has been conducted to find the source of the problem to this dilemma and provide solutions to it but, there has been no dedicated action taken to solve it. The social aspect is one of the most neglected and therefore, in this paper will reveal the current situation of the actual terrace house scheme and the probability design solution to it. It is a study of social to the house design and its impact to the community. Alias with the Malaysian 10th Plan (Rancangan Malaysia ke-10) this study will provide necessary information and perhaps more solution for the current terrace house situation throughout the country. It is a research that is supposed to bring better living quality to all peoples and the environment.

RESEARCH OBJECTIVES

The objectives of this paper it to find out what is the family interaction happen in the existing house. These findings will give the overall understanding which is the family interactions do happen in the current design of a modern house and how people rate it according to the availability and Nurizan Yahya (1998).

Sampling Method

The research methodology used in the study is described in this chapter. A study on the geographical area is where the study to be conducted, the study design and the population and

sample are described. The instrument used to collect data, including methods implemented to maintain validity and reliability of the instrument are described.

There are external variable influences that need to be avoided during data collection. During the haze from middle of September 2015 till end of November 2015, the researcher need to hold the data collection because one of the question in the questionnaire will most be affected because the usage of the interior of the house is influenced by the uncomfortable situation disaster at the external of the house. Any influence during the data collection will definitely influence the variation and this will result anomaly in the final result of the data collection. As researcher is doing the data collection alone and with own limited budget, the data collection is taken gradually from middle of September 2015 till middle of February 2016. This mean that the data collection alone taken most of two and half month (September 2015, December 2016, January 2016 and February 2016). This is not included with the month of November 2015 till December 2015).



Figure 1: Research questionnaire flow

Sampling from Small Populations

Below are the formula that is used in findings the sample size formulated by Evan Morris (2000):



Where

 \Box n is the required sample size

 \Box N is the population size

 \Box p and q are the population proportions. (If you don't know what these, are set them each to 0.5. \Box z is the value that specifies the level of confidence you want in your confidence interval when you analyse your data. Typical levels of confidence for surveys are 95%, in which case z is set to 1.96.

 \Box E sets the accuracy of your sample proportions. If you want to know what proportion of individuals are in favour of some policy, with an accuracy of plus or minus 3%, then E is set to 0.03.

Terrace house = medium cost house

* Each point must have where the reference – other research statement

- A study on the geographical area where the study to be conducted, the study design and the population and sample are described. The instrument used to collect data, including methods implemented to maintain validity and reliability of the instrument are described.
- 2) The research consists of housing studies regarding social and cultural background and interactions with and effects on individuals, families, and communities in medium cost housing area. Medium cost housing consist of terrace house range within RM 250,000 to RM 450,000 in Selangor state (2015).
- 3) The houses selected are single and double storey medium cost houses. The research involves a study of the family interaction need in the way to design an ideal housing scheme for Malaysians. This involves observation, surveys and note taking of the previous design by Traditional Malay House, Colonial House and Modern House to relate to the current family interaction needs in a house. The survey is randomly conducted at different hours of the day among different age-group users.

Characteristic of Research

The research consists of housing studies regarding social and cultural background and interactions with and effects on individuals, families, and communities in medium cost housing

area. Medium cost housing consist of terrace house range within RM 250,000 to RM 450,000 in Selangor state (2011). There are not so many urban studies related to family interaction in house design, therefore this study gives is essential to address the problems in the rapid changes happen the modern society to the typical medium cost housing in Bandar Baru Bangi, Malaysia.

The houses selected are single and double storey medium cost houses. The research involves a study of the family interaction need in the way to design an ideal housing scheme for Malaysians. This involves observation, surveys and note taking of the previous design by Traditional Malay House, Colonial House and Modern House to relate to the current family interaction needs in a house. The survey is randomly conducted at different hours of the day among different age-group users. Random study areas are selected within the district of Bandar Baru Bangi is chosen because it has one of the highest concentrations of population and housing areas, most of the areas are under the jurisdiction of Majlis Perbandaran Sepang (MPS). Therefore, the rules and regulations of the house design are strictly according to MPS authorities. The following shows the statistics of medium cost house residential units in Bandar Baru Bangi.

8	Inco	ming supply data 4						
By state Inco		ing units	By type	Mean hsehold size (persons)	Population 2010	Population 2011	Population 2012	Total add'l housing units needed
KL	37,194	Low cost Terraced Semi-D Detached Condo / SOHO	4,335 667 476 1,105 30,611	4	1,682,000	1,766,100	1,854,405	42,626
Selangor	123,636	Low cost Terraced Semi-D Detached Condo / SOHO	27,380 43,166 9,485 8,168 35,437	4.1	5,287,000	5,551,350	5,828,918	130,846

Table 1: Supply of Residential Units in Sepangdistrict as at 4Q10 2012

*Note: Incoming Supply of Residential: Under construction + Start Source: Nomura, news reports, Valuation and Property Services Department, Ministry of Statistics Malaysia, 2012.



Chart 1: Research Methodology Flow

Data Sampling

- A study on the geographical area where the study to be conducted, the study design and the population and sample are described. The instrument used to collect data, including methods implemented to maintain validity and reliability of the instrument are described.
- 2) The research consists of housing studies regarding social and cultural background and interactions with and effects on individuals, families, and communities in medium cost housing area. Medium cost housing consist of terrace house range within RM 250,000 to RM 450,000 in Selangor state (2015).
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interaction needs in a house. The survey is randomly conducted at different hours of the day among different age-group users.



Figure 2: Satelite View of Bandar BaruBangi Housing Estates

Source: Google Map

No.	Housing Area	Number of Respondents (Houses surveyed that has family)	Number of Population (Houses)
1	Taman DesaSurada	85	282
2	Taman RamalSuria	29	96
3	Taman Desa Dahlia	20	65
4	Taman Ramal Desa	31	103
5	D'8 Seksyen 8 Bangi	24	80
	Total	189	626

"Bandar BaruBangi (literally translated from Malay to English as New Bangi Town) is a township - recently crowned as "Knowledge City" - situated in the district of Hulu Langat, in 49 | P a g e

Selangor, Malaysia, named after the small town of Bangi situated further south. It is located between Kajang and Putrajaya (formerly Prang Besar) and is about 25 km away from the capital city, Kuala Lumpur." – *Source: https://en.wikipedia.org/wiki/Bandar_Baru_Bangi*.

FINDINGS

Software package for statistical analysis (SPSS) is used after all the data entry is done to get the result of the research. SPSS is used to analyse the data keyed in from the questionnaire done. In this topic more detailed information and findings are discovered from the house design created and the background sample reaction to the design.





















Legend (Likert Scale format):

Scale	1	2	3	4	5
Description	Not at All	Very Little	Uncertain /	Moderately	Mainly
			Not		
			Applicable		

Chart 1: Pie chart existing room / space as best family interaction centre.

Best Interaction Space in Existing House

The above charts explains that the highest respondent mainly use space for family interaction (where family spends time together the most) is the living room 171 / 189 (90.48%). This is because among all the current houses design have living room and it is the most common space used by all family members for activities together such as watching television, studying and others. The ranking is seconded by family area 167 / 189 (88.4%) and followed by kitchen 166 / 189 (87.8%). Family area is mostly a secondary space either already pre-designed in the first place by the housing developers or renovated by house owner to accommodate large family. Kitchen is the third because it is a space for cooking activities by family member or combined by the dining area for family interaction during eating.

Worst Space for Family Interaction

The most space not use at all for family interaction is car porch, bathroom and store each is 186 / 189 (98.4%). Bathroom, car porch and store is not used by family members to gather for family interaction because it is not suitable and more to infrastructure of a house than a living space. This is seconded by house terrace at 168 / 189 (88.9%). This is because house terrace does not have the adequate amount of space size to cater all family members at the same time. This is a common practice in all houses design.

Household Size and Size of Living Room

House size is a very important factor in determining the size of house for a better comfort ability of the occupant. As mentioned by the UN (1996), one person is supposed to be dedicated 14metre square each. As for this research do question the respondent on how they perceive their house space (in this case living room for family interaction), the size of a family do affect the required living room space for family interaction to happen. It is a very important data to be analysing if any of architect or developer want to make a better quality house in term of social aspects.

A house design in tropical country such as Malaysia also need to be designed to have internal courtyard for better thermal comfort and ability of the house occupants to have more leisure in their private garden. By introducing an internal courtyard will benefit the living space to be more conducive and human feel connection with environment and its surroundings.

Table 3: Cross tabulation between total number of household and existing living ro	om
--	----

Please state the total number of your household * Ex	xisting living room size is enough for the purpose of family
gathering	Crosstabulation

Coun	t
------	---

		Existing living				
	2.00 3.00 4.00 5.00					
Please state the total	3.00	0	3	13	0	16
number of your	4.00	3	12	74	1	90
nousenoid	5.00	0	11	28	3	42
	6.00	0	4	25	1	30
	7.00	0	2	1	0	3
	8.00	1	1	6	0	8
Total		4	33	147	5	189

The above table clearly shown that the more the number of occupant, the more the size of space needed for family gathering. There are 74 respondents from a family size of 4 that do agree that their existing home living room space is adequate for their family gathering. Most of their house living room space is 4 meter width x 5 meter length and 3 meter height. This is however contradicting with the UN Habitat (1996) that mentioned ratio one occupant is to 14 meter square. This clearly shown that the Malaysian people began to adapting the natural condition of their home as more and more houses built by developers are getting smaller than what had been built 30 year ago. However, as Malaysian try to adapt the current design of the housing scheme, mismatch between house design and the user's values and lifestyles will lead to dissatisfaction (Ozaki 2002). This is also the gap that mentioned by Tipple (2000) that considered as "housing stress". Bell et al. (2001) do mentioned that when a certain attributes become inadequate, a coping response is used by the occupant.

However, the rate of satisfactory of the current house physical condition is very poor. As shown in table 4.0, total amount of 133 / 189 respondents do not satisfy with their existing physical condition of their house. This is due to many complains about the house is too small for their family and most of them are spending more time outside whenever there is spare time. For them, their house is enough for them to having a rest after hard day job. This is what has been mentioned by E. Os, E. Endut, M. Saruwono (2010) that the current trend of modern Malaysian family does not use their homes for family interaction but most are for relaxation and rejuvenation.

Table 4: Cross tabulation between total number of household and satisfaction to the physical condition of the existing house

Please state the total number of your household * I'm satisfied with the physical condition of the house that I'm living now Crosstabulation

		I'm satisfied v	I'm satisfied with the physical condition of the house that I'm living now1.002.003.004.005.00				
		1.00					
Please state the total	3.00	10	2	3	0	1	16
number of your	4.00	72	14	0	3	1	90
nousenoiu	5.00	21	19	1	0	1	42
	6.00	23	5	1	1	0	30
	7.00	1	1	1	0	0	3
	8.00	6	0	0	2	0	8
Total		133	41	6	6	3	189

Count



Chart 2: Bar graph showing the Likert scale space best for family interaction

SPACE	1	2	3	4	5	TOTAL
Master Bedroom	3	0	1	21	164	189
Bedrooms	3	0	1	19	166	189
Kitchen	0	0	2	21	166	189
Living Room / area	0	0	3	15	171	189
Living Room / area	1	0	2	21	165	189
Dining Room / area	1	0	2	21	165	189
Dining Room / area	1	0	2	21	165	189
Family area	3	0	1	18	167	189

Terrace	168	2	14	2	3	189
Balcony	17	3	19	80	70	189
Bathrooms / Toilets	186	0	1	1	1	189
Car Porch	186	2	1	0	0	189
Store / Utility	186	2	1	0	0	189
Guest Room	144	21	17	6	1	189
Front Lawn	19	20	36	51	63	189
Backyard	125	29	17	13	5	189

Scale	1	2	3	4	5
Description	Not	Very	Uncertain	Moderately	Mainly
	at All	Little	/ Not		
			Applicable		

Existing Space for Family Interaction

The above charts and tables do explain that the distribution of the space or room mainly used for family activities are the most common space dedicated for it – Living Room and Family room. However, kitchen is interestingly becoming the third choice of becoming the family interaction space because of the activity in it. Kitchen is also is so called the 'heart of the house' Alive V. James and Loukas Kalisperis (1999) because it does show how many the women of the house is the main character of this space of the house. One of the first renovation of the house begins here where the owner sees an important needs for a bigger kitchen to accommodate the current lifestyle of Malaysian that do cook a lot for their family and visitors. The current size of kitchen designed by architects is too small for this. To top up that, most Malaysians are also need bigger kitchen to accommodate the needs of occasion such as feast and gathering dinner.

CONCLUSIONS

House is always a very important need for any human as for their shelter and place to call a home. Therefore, a house design supposed to adequate for family to grow and develop. However, the current trend of housing estates began to cut off the entire most important element in a house that is a space to socialize between house members for a better living. Social element has been neglecting from the category in designing of houses because of cost, birocracy and profit based industry player. House design are becoming smaller and on that sense, more members of the house rather spending their time outside of the house for recreation and relaxation. This is contradicting to the fact that a home (house) supposed to be the place to find them.

These findings, rather interesting and new, it is shown that there is something to do with the housing scheme in Malaysia that people began to realize that house are built for them are now 'building them' in all aspects of psychology, sociology and how they live in everyday live. We are currently noticing there are a pattern of degradation of nation productivity that is indirectly actually reacts to the dissatisfaction of their house in whole.

To become a develop country; Malaysia has to change the housing scheme in order to ensure for the better good of the peoples. Social aspects are seemed to be neglected severely and when the bad social impact happens, everyone is blaming everyone.

A better approach of house design in Malaysia has to be taken seriously in order to ensure the stability of the house quality – no matter what level it is. From low-cost housing to high-cost housing, efforts on how to make it better for social needs of a house is required. In this case, the size of the living room does matter to make it happen.

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Soil Erosion Blocks Made By Self-Compacting Alum Sludge Concrete

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ABSTRACT

Alum Sludge (AS) also known as aluminium hydroxide-containing sludge is a by-product of chemical coagulation process of hydrated aluminium sulphate addition to water. It was noted that more than 2.0 million tons of water treatment sludge are generated yearly by the water operations plants all through Malaysia. To avoid the matter of potential contaminant build-up, it had decided that to employ alum sludge and reuse it in Soil Erosion Protection Blocks making by Self-Compacting Alum Sludge Concrete. The objectives of this paper are to estimate and select the role of significant infrastructure investments to reuse AS in soil erosion protection blocks and to give the manufacturers an alternative choice for selecting raw material (cement or alum sludge) and choose the additional optimum materials properties and ratios, and to contribute efforts towards green technology that can have direct positive impacts towards the environment, manufacturer as well as the consumer. In this study, treated alum sludge (TAS) by furnace at 750°C is used as a partial replacement of cement in the making soil erosion protection blocks and matched it with physical requirements of articulated concrete block. This work investigates the opportunity of using TAS as a partial replacement of cement for a new type of concrete which is SCC. TAS was partially replaced at 15% and 20 and tested for its compressive, maximum water absorption and minimum density up to 28 days of age and was evaluated according to standard requirements. The results achieved, it is revealed that alum sludge can be used as cement replacement material up to 20% replacement of cement.

Keyword: Blocks of soil erosion, aluminium hydroxide, SCC, treated alum sludge.

INTRODUCTION

The attention by researchers in using the waste materials in construction sector is growing due to the focus on sustainable construction; the raw alum sludge(RAS) produced from drinking water

plants is disposed in landfill. RAS should be treated before to disposal. As well as, it is heavy metals that raw alum sludge (RAS) may contain (Sotero-Santos, et al., 2007). RAS is a pozzolanic material which could be reused after treated by thermal curing up to 750° C. In addition, using TAS in producing SCC in articulated concrete block is required to grind it for achievement specified fineness. The replacement of cement by alum sludge leads to perverse of natural resources as well as reduce the impact of alum sludge in our environment. Efforts have been made in using waste as the replacement of cement. Hydrated alumina oxides and iron oxides in water treatment sludge result from using mostly aluminium sulfate made it in form of alumina sludge (Evuti & Lawal, 2011). The alum sludge was completely at a solid stage after 24 h drying in an oven at 105 ± 5 ^oC (Sales, De Souza, & Almeida, 2011) and then ground in until the grains achieved a common size by using the suitable mill to produce required size materials that be suitable for using as construction materials (Sales & de Souza, 2009).

A Report by (Babatunde & Zhao, 2007) described some physical properties of AS. They found that samples of AS after 24 hours of drying in an oven with 105±5 °C, it has moisture content equal to75%, while bulk density was found to be 1.3g/cm³. On the other hand (Awab, Paramalinggam, Rahim, & Yusoff, 2012) also conducted study on alum sludge. Their results were 28.1- 29.3% and 2.66 g/cm³ for moisture content and bulk density respectively. In order to determine the qualitative description of AS, SEM was used for this purpose and from SEM micrographs shown in figure 2.12 and 2.13, AS is not homogeneous material results from the unregularly shape of AS particles which varies between 2 to5µm and SEM provided an idea that AS is amorphous in the environment (Awab et al., 2012; Yang et al. 2006). (Awab et al., 2012)conducted a characterization of alum sludge for reuse and disposal. ((Yen, Tseng, & Lin, 2011)studied the replacement of clay, lime stone, sand and iron slag by sludge generated from drinking water treatment plant.(Goncalves et al., 2004) conducted systematic study on the utilization of the sludge generated during the process of producing potable water. He used sludge after thermal treatment at 105°C, 450°C, 700°C and 850°C. Also, he determined the minimum temperature that sludge can be used at least 450°C.(Zamora et al. 2008) conducted an experimental work to produce mortar and concrete by incorporating of sludge generating from water plant.(Rodríguez et al., 2010) investigated the reuse of drinking water treatment plant sludge as an addition for the cement manufacturing.(Sahu & Dave, 2013)investigated the feasibility of using drinking water treatment plant residue with fly ash to produce mortar. (Reis & Cordeiro, 2013) proposed a solution for sludge generated by chemical, physical and biological steps to treat water for public supply. A solution for this sludge is used after removing its water, recycling the water removed and using the dried sludge in other activities. Possible uses as a raw material in the construction sector are studied. They could be developing a natural system of dewatering. With this technology the sludge is stored in large unit which are shaped as a big bag. It is made of geotextile woven high strength polypropylene. By filling this unit and decreasing the percentage of liquid of the sludge it is considered as a natural thermal drying which may be open. This suggests possibilities for novel investigative studies with natural thermal drying.

Finally, the dewatering sludge can be used.(Blanco et al. 2013) studied the utilization of several industrial wastes to be reused in different stages of cement making. Articulating Concrete block construction has gained importance and has become a valid alternative to other types of concrete block. The essential ingredients of concrete are cement, aggregate (sand, gravel) and water. Articulating Concrete blocks are made in a different shapes and sizes. Hollow blocks are the most common type of articulating concrete blocks. The total void area can amount to 50% of the gross cross-sectional area.

Alum sludge can be used as pozzolanic material to produce soil erosion protection blocks by using SCC. There are many advantages to this technique, For example; replaced cement by alum sludge will be reducing the total expenses. Furthermore, it will also preserve our environment by reducing the huge amount of alum sludge which is mostly disposed in landfills.

Materials And Investigational Technique

Cement

The cement used in all concrete mixes is an ordinary Portland cement type I (OPC) which conforms to ASTM C-150 and the chemical composition of this cement is stated in table

Aggregate

The grading, particle shapes, and the amount of fine and coarse aggregate are important factors in the production of SCC. Local sources in Malaysia are used. The result of the grading of the fine and coarse aggregates is shown in figure 1.



Figure 1: Grading curves of Aggregates

Alum Sludge

Alum sludge (AS) is a waste material generated in massive quantities from plants that use aluminum salt as coagulant. It considered as a pozzolanic material by calcining it using furnace at temperature of 750 0C for 2 hours. The treated alum sludge (TAS) is left until cool. Then it is grounded using the Cross Beater (Rotor Mill SK 100) with14 different apertures sizes ranging from 80 μ m to 10mm (see APENDIX A). Also a Los Angele abrasion test machine (LAAT) is used to grind the substance into required fineness. The chemical analysis and physical properties of RAS and TAS are tabulated in table 1.

Table 1: Chemical Composition of OPC, RAS and TAS.

Pozzolanic materials	Chemical composition (% by mass)							Physical properties		
	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	MgO	CaO	Na ₂ O	K2O	SO ₃	Specific gravity	fineness
OPC	20.09	5.60	3.44	1.53	65.12	0.09	0.39	2.96	3.1	330
RAS	43.29	32.19	5.52	0.33	0.17	0.13	2.08	0.22	2.36	702
TAS	48.82	39.42	5.30	0.44	0.91	0.08	2.17	0.09	2.57	1100

Water

Ordinary drinking water is used without any additives

Superplasticizer (SP)

SP which supplied by BASF Sdn Bhd with a commercial name Glenium Ace 388.is an aqueous solution of a copolymer - based superplasticizer designed for the production of SCC was used with typical properties of light brown in color and pH of 6.6.

Physical Requirement for Articulating Concrete Block

The physical requirement of the articulating Concrete block is shown in the table 2 below.

Minimum compressive		Maximun	n water	Minimum density		
strength(MPa)		absorption	(kg/m3)	(kg/m3)		
Avg. of 3	Individual	Avg. of 3 Individual		Avg. of 3	Individual unit	
units	unit	units unit		units		
28	24	146	187	2082	2002	

Table 2: physical requirement of the articulating Concrete block

The percentages of 5%, 10%, 15%, 20% and 25% were selected to replace cement by alum sludge. The details of mixtures are given in table 3 which explains that SCCOPC100 mix was represented the casting with totally of OPC as a binder, while SCCAS mixtures were represented the casting with partially replacement of the above percentages as a binder. Binder content and water to binder ratio were fixed at 500 kg/m3, 0.4, respectively, for both SCCOPC and SCCAS with four levels partially replaced. Mixing procedure is important to obtain the required workability and homogeneity of the SCC mix. It is an important to preserve drum laboratory moist, clean and no contain free water. In this study the procedure of working tracks the laboratory working process described by (M. Emborg, 2000), which is briefly stated in the following points: Adding the fine aggregate to the mixer with 1/3water, and mixing for 1 minute. After that, the coarse aggregate is added to the last 1/3mixing water and 1/3 of superplasticizer, and mixing for 1 ½ minute, then the mixture is left for 11/ 2 minute for rest. Then, the remaining
2/3 of the SP is added and mixed for 1¹/₂ minutes. The mixture is then discharged, cast and tested. The total time of mixing is 5 minutes. A detail of mold was used in casting the articulating concrete block for erosion by SCC are shown in appendix A.

Mix	Cement	AS	Sand	Gravel	Water	SP content per	SP	w/h
details	Kg/m ³	Kg/m ³	Kg/m ³	Kg/m ³	L/m ³	100kg of cement	L/m ³	W/D
SCCOPC100	500	-	894.6	745	200	1.1	4.5	0.4
SCC95AS5	475	25	894.6	745	200	1.1	7.5	0.4
SCC90AS10	450	50	894.6	745	200	1.1	8.25	0.4
SCC85AS15	425	75	894.6	745	200	1.1	8.75	0.4
SCC80AS20	400	100	894.6	745	200	1.1	11.5	0.4
SCC75AS25	375	125	894.6	745	200	1.1	12.0	0.4

Table 3: The details of mixtures

The mixtures were tested to satisfy the requirement of SCC by many tests according to (EFNARC, 2005). The tests of fresh SCC were achieved by filling ability with Slump-flow by Abrams cone, filling ability by T50 cm slump flow, also filling ability by V-funnel, Segregation resistance by V-funnel at T5minutes and Passing ability by L-box test.

Water absorption

The test procedure includes preparing three of $100 \times 100 \times 100$ m cubes from each mixture after 28 days of tap water curing. Specimens were taken out and dried at 105 °C until weight become constant (A) and then immersing it in water for 72 hours, and weighing it again. The increasing in weight as a percentage of the original weight is expressed as its absorption.(ASTM C642, 1997) is used to determine the total amount of water absorption, in this method there is no shape limitation for testing concrete specimens but each sample must not less than 800g. Two different values of the concrete samples capability of water absorption will be calculated as follows:

Water absorption $\% = \frac{(B-A)}{A} x100$

Where: A: is a mass of oven-dried sample (g), B: is a mass of surface-dry sample in air after immersion (g).

RESULTS AND DISCUSSION

Fresh SCC

The fresh characteristics of SCC mixtures are given in table 4. From visual inspection, there was no bleeding or segregation of SCCOPC and SCCAS with four levels partially replacement. The results were satisfied the criteria of filling ability and passing ability excepting the mix namely SCCOPC75TAS25 and SCC75AS25. Slump flow was in range of 701mm to 843mm which gave a good indicator of the horizontal free flow of SCC mixture without of obstructions. T50cm was in the range of 3.84 to 5.23 sec. The funnel test result was in the range of 6 to 8.5 sec. while the tendency to segregation was evaluated by funnel with refilling with concrete and left for 5 minutes to settle which was in the range of 6.76 to 11.8. Also passing ability was determined by the L-box test which was in the range of 0.82 to 0.92 The estimation of the results was conducted according to (EFNARC, 2005).

Table 4: Fresh SCC results

Mix. ID	Slump flow (mm)	T ₅₀ (sec)	V-funnel	TV 5min(sec)	L-Box (%)
SCCOPC100	843	3.84	6	6.76	0.82
SCCOPC95TAS5	832	3.91	7.13	9.8	0.91
SCCOPC90TAS10	781	4.00	7.32	10	0.90
SCCOPC85TAS15	701	5.23	8.5	11.8	0.92
SCCOPC80TAS20	553	7.84	16.15	21.78	061
SCCOPC75TAS25	395	-	-	-	-

- No slump-flow test was achieved on the mix

Compressive strength

The study of the effect of alum sludge on the compressive strength of articulating concrete block, three blocks for each percentage are used within this test. Figure 2 shows the average of the results of compressive strength test at 7and28 days gained from blocks. The results appear that the compressive strength of mix with 15% alum sludge is larger than the compressive strengths of concrete replacement by the other ratios and control mix; however, the results comply with physical requirements and more than 28 MPa stated in table 2 of the physical requirement of articulating concrete block. This is due to the positive effect of alum sludge which leads to increase the strength.



Figure 2: Results of Compressive Strength (MPa) for articulating concrete block

Water absorption

The results of water absorption are presented in figure 3. There was clearly observed that water absorption of SCC85AS15 is the lowest compared to SCCOPC and SCCAS which was 3.76 and 3.3% of water absorption for age 28 and 56 days while the highest ratio of water absorption was recorded from SCC75AS25 which was 4.87 and 4.58% of water absorption for 28 and 56 days. It attributes of the pozzolanic reaction which leads to denser microstructure and hence reduce the pore volume in matrix concrete.



Figure 3: Results of water absorption for articulating concrete block



Using ordinary Portland cement with AS as replacement by mass reduced the density of the SCC. The densities of SCC samples reached maximum 2,401 kg/m3 and minimum 2,309 kg/m3with 0% AS and 25% AS respectively. The density comes from 25% AS is considered the lowest due to the specific gravity of AS has a much lower than cement as shown in figure 4. These densities come by measuring the dimension and weight of cubes that used in casting (100x100x100) mm before crushing.



Figure 4: Results of percentage reduction in density with alum sludge

CONCLUSION

Regarding to compressive strength, Block indicates at 7days compressive strength as 29.4 N/mm² while increase to 42 N/mm² at 28 days with replacing cement by AS at 15% which is considered the optimum ratio. Substitution cement by AS at level of 15% reduces water absorption by 20%, compared to control SCC. Replacement of AS in cement reduces density by 0.2%, 0.7%, 3.3%, 3.6% and 4.2% at a ratio of replacing cement by AS of 5%, 10%, 15%, 20% and 25%, respectively.

Generally, Alum sludge SCC concrete increases the compressive up to 15%, due to pozzolanic concrete that possessed lower absorption capacity compared to that with control SCC. The success of development of usage alum sludge as a binder by replacing cement in Articulating Concrete block construction was giving a promising to reduce the cost and preserve the environment by this reusing. It has been shown to be excellent binding and have sufficient pozzolanic properties to serve as partial cement replacement.

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APPENDIX A

- ✓ Alum sludge in a state of wet and dry from ABASS drinking water treatment plant, Putrajaya.
- ✓ Manufacture of mold for Soil Erosion Block as well as tests on it.





Determination Of Temperature Rise And Temperature Differentials Of Cemii/B- V Cement For 20mpa Mass Concrete Using Adiabatic Temperature Data

Go Chee Siang

ABSTRACT

Experimental tests were carried out to investigate the temperature rise characteristics of Portland-Fly-Ash Cement (CEM II/B-V) concrete under adiabatic conditions. The CEM II: B-V cement with Blaine fineness of 418.6m²/kg and 444.6m²/kg were used and the ash replacement ratio in cement was up to 25%. Estimation on the adiabatic temperature rise curve using CIRIA 660 method [4] was adopted to verify hot-block test results by simulating the heat generation of the concrete under adiabatic condition. Effects of various factors, including cement content, PFAC replacing ratio, insulation materials, initial placing temperature of concrete, etc., on the temperature rise and distribution in a mass concrete hot block were discussed. Test results found that the concrete with 25% fly ash replacement in cement has exhibited a significant decrease in the peak value of the temperature rise and maximum temperature rise rate as against the conventional Ordinary Portland Cement (CEM I). The result showed that the temperature development and distribution profile, which is directly contributed from the heat of hydration of cement with time, is significantly affected by the type of insulation material, initial placing temperature, geometry and size of concrete mass, and heat exchange to environment. The heat of hydration data established (by method of CIRIA) through this Stage 2 of 4 experimental programme may then be used as part of the input parameter for thermal analysis in determining the risk level of thermal cracking potential as well as the comparison of degree of heat of hydration model based on formulae presented in public research by Schindler and Folliard using LUSAS finite element programme which will be further analysed in Stage 4 of 4 of thermal-mechanical coupled analysis. The determination of coefficient of thermal expansion (CTE) will be presented in Stage 3 of 4 of this research whereby the established CTE value using granite aggregate will form part of the input parameter for thermal analysis during Stage 4 of 4 of this research. The repeatability of hot block test was also being assessed utilizing method of coefficient of determination (r^2) on adiabatic temperature rise between two units of identical hot-blocks installed and conducted in two different locations using identical concrete mix design, hot- block size, insulation and construction sequence. The results are compared in terms of adiabatic temperature rise rate and the time of its occurrence during the period of the test.

Keywords: Mass concrete, Portland-fly-ash cement (CEM II/B-V), initial placing temperature, adiabatic temperature rise, LUSAS, CTE, Thermal Analysis, Repeatability, r²

INTRODUCTION

Temperature rise effect on mass concrete construction has been widely noticed [1, 2]. In general, the major concerns related to the temperature rise in mass concrete structure practice are concrete degradation and concrete cracking at early age. The cracking of mass concrete at early age is attributed to the thermal tensile strain/ stress, which is induced by the internal and external restrains under non-uniform temperature distribution across the mass concrete [3].

A large temperature differential between the interior and exterior of a concrete element may lead to thermal cracking. Adiabatic temperature measurements are used to simulate the conditions in the interior of a large concrete element so that the maximum heat development potential in any concrete mix can be measured [4]. This data may then be used as input parameter for subsequent studies in minimizing the risk of thermal cracking which will be further analysed in the later stage of this research.

The term adiabatic refers to a process occurring without the gain or loss of heat. In large concrete elements, the interior is considered to be hydrating in an essentially adiabatic process. Because of the low thermal conductivity of concrete, the heat of hydration from its

interior is prevented from being released into the environment, thus a negligible amount of heat is lost.

Owing to the acceptable field data of this kind is not available locally, the peak core temperature, limiting differentials and temperature gradient were thus be established for conditions at the job site; this was verified basing on trial hot-block tests at prescribed initial placing temperature as well as the anticipated concrete section thickness, rather than merely follow ideal initial placing temperatures of 20°C and maximum core-surface temperature of 20°C as stipulated in various local project contract specifications [5, 6, 7, 8]. To avoid surface cracking caused by heat generated in the concrete,

(a) BS 8110-2: 1985, Table 3.2- Estimated limiting temperature changes to avoid cracking [9] has specified that limiting temperature differential when R = 0.36 is 27.7°C when granite aggregate concrete was adopted for mass concrete production and construction.

(b) European Standard ENV 206:1992 [10] suggests that the limit on the temperature difference between the center and the surface is 20°C and the average maximum temperature limit of concrete is 60°C. The limits imply that during the concrete heating and cooling period, the resulted thermal strain/ stress, which is caused by internal and external restraints under even higher temperature and higher temperature difference, may exceed the limit of the tensile strain / stress of the concrete.

The above rationale is supported by ACI Committee 305 [11], which specified that:

(i) For construction in hot weather, "...it is impractical to recommend a maximum limiting ambient or concrete temperature because the humidity and wind speed may be low, permitting higher ambient and concrete temperatures. A maximum ambient or concrete temperature that will serve a specific case might be unsatisfactory in others."

(ii) Which further recommends that "...at some temperature between about 24°C and 38°C, there is a limit that will be found to be most favorable for best results in each hot weather operation, and such a limit should be determined for work."

Due to the reduced rate of hydration, the use of fly-ash partially to replace OPC (CEM 1) is one of the recommended practices to considerably reduce the temperature rise in mass concrete. Moreover, a number of factors, such as cement type, content of cementitious material, initial concrete placing temperature, geometry and size of concrete mass, insulation, and boundary conditions, etc., affect the temperature rise and temperature distribution profile in mass concrete.

Since hydration occurs at the surface of cement particles, therefore finely ground cement will have a higher rate of hydration. As finely ground cement has a higher specific surface area, which means there is more area in contact with water for more complete hydration. The finer particles will also be more fully hydrated then coarser particles. However, the total heat of hydration at very late ages is not significantly affected.

Concrete temperature rise test under adiabatic condition is normally an approach in laboratory to evaluate the exothermic characteristics of the hydration of the concrete. In this case, plain concrete trial blocks with an array of thermocouples and strain gauges are used to assess the characteristics of the temperature rise and the maximum temperature difference in the concrete were conducted with due consideration given on the selection of concrete block size and geometry, insulation, thermal couple locations and effect of construction sequences which will be analysed in thermal modelling stage.

This experimental program is to investigate the temperature rise characteristics of Portlandfly-ash cement concrete under adiabatic conditions. The results [12, 13] of temperature rise characteristics and the developed analytical technique allow the better understanding of the temperature rise and distribution in the mass concrete trial block were discussed and presented.

Experimental Set-Up

For Stage 1 testing, two (2) hot blocks were prepared at Loh&Loh Constructions Sdn Bhd (herein after referred as LLC) Nilai workshop as part of the trials. The first hot block (HB1) was prepared with full insulation (100mm thick MRB-32 Insulation Board) with block size of dimension 1.5 m x 1.5 m x 1.5 m and two sets of thermocouples (thermocouples wire type K) installed, one set (3 thermocouple each) at the center and the other set (3 thermocouple each) at the corner of the block and two strain gauges installed at the centre of the block. A second hot block (HB2) of dimension of 1.3 m x 1.3 m x 1.3 m was prepared with two sets of thermocouple each) at the corner of the block and two strain gauges installed at the center and the other set (3 thermocouple each) block (HB2) of dimension of 1.3 m x 1.3 m x 1.3 m was prepared with two sets of thermocouples installed, one set (3 thermocouple each) at the center and the other set (3 thermocouple each) at the corner of the block. In this case, the base and sides were insulated but the top surface of the block was exposed to the environment. Based on the completed trials conducted by LLC on 11/2/2011 and 12/2/2011, an identical concrete mix design was selected for the hot block casting as given in Section 3.0 Table 3.3- Class A mass concrete C20 concrete mix design

For stage 2 testing, one hot block was prepared at Hulu Terengganu project site with similar block size and configuration with stage 1 HB, comply with full insulation (100mm thick MRB-32 insulation Board) and two sets each of thermocouples and strain gauges installed using identical concrete mix design as indicated in Table 3.3, whereby the trial was conducted by LLC on 21/6/2012.

Test Specimen

For the evaluation of the temperature rise in mass concrete trial block, a 1.5m x 1.5m x 1.5m concrete block was cast. Blended cement (CEM II/ B-V) containing 25% fly ash was used for the Grade 20 mass concrete hot block trial. The cement content and water/cement ratio was 200 kg/m3 and 0.65(Stage 1)/0.70(Stage 2), respectively. The schematic drawing of the block is described in Figure 2.1, Figure 2.2 and Figure 2.3, with the locations of the thermocouples,100mm insulation and timber formwork indicated.

100mm thick MRB-32 insulation board was adopted as the insulation to the concrete mass around the six sides. The top of the concrete was only covered with the polyfoam. Tc is the core temperature at center of the block while T_s and T_n represent the temperature at surface and corner location as indicated in the schematic drawing.

The peak core temperatures obtained from stage 1-HB1, stage 1-HB2 and stage 2-HB1 were also used to determine the repeatability of the experiments.



Figure 2.1: Sketch showing locations of thermocouples in 1.5m x 1.5m x 1.5m hot-block for stage 1-HB1 and stage 2-HB1



Figure 2.2: Sketch indicating locations of thermocouples in 1.3m x 1.3m x 1.3m hot-block for stage 1-HB2



Figure 2.3: Mass concrete hot-lock: Plan & Section

Raw Materials and Concrete Mix Design

The physical properties and chemical compositions of the Portland-fly-ash cement (PFAC) containing 25% of fly-ash used in the study are listed in Table 3.1, Table 3.2 and Table 3.4 respectively. Table 3.3 presents the concrete mix design for grade 20 mass c oncrete applications for all three concrete hot-block tests. The measured initial placing temperature of the mixes was 23° C to 25° C respectively.

PFAC (CEM II/B-V)					
Standard	EN197-1 – CEM II/B - V 42.5N - LH				
Typical Properties					
Blaine fineness (m ² /kg)	420				
Specific gravity	2.9				
Initial Setting time (min.)	157				
2d strength (MPa)	22				
7d strength (MPa)	37				
28d strength (MPa)	50				

Table 3.1: Typical physical properties of PFA Cement

Chemical Properties	Chemical Composition
	(%)
SiO2	26.57
Al2O3	8.84
Fe2O3	5.40
CaO	51.89
MgO	0.63
SO3	2.31
Na2O	0.18
K2O	0.72
Na2O + 0.658 x K2O	0.65
Cl ⁻	0.009

Table 3.2: Typical chemical analysis of PFA Cement (From 2011 cement test certificate)

Table 3.3: Class A Mass Concrete C20 concrete mix design

Description	Value
Cement (kg/m3)	200
Water (kg/m3)	130
Sand (kg/m3)	756
Coarse Aggregate (20mm) (kg/m3)	1287
Realset 233 (1/m3)	1.6
Realflow 610 (l/m3)	0.8
Slump (mm)	20-50
Characteristic strength (MPa)	20
S/A Ratio	0.37
W/C Ratio	0.70

Table 3.4: Cement test result on properties of specific surface area and heat of hydration [14]

Issue Date	Blaine (cm ² /g)	Heat of Hydration @7D, 270
		Max (I/σ)
Jan 2011	4186	258
June 2012	4446	274

		7 day	w - 3	28 day		56 day			
	1-HB1 (2011)	2- HB1 (2012)	Δ	1-HB1 (2011)	2- HB1 (2012)	Δ	1- HB1 (2011)	2- HB1 (2012)	Δ
Compressive Strength (MPa)	25.25	23,43	1.82	33.05	31.77	1.28	38.15	39.77	-1.62
Tensile Strength (MPa)	1.70	1.61	0.08	2.43	2.19	0.24	2.81	2,59	0.21
Modulus of Elasticity (MPa)	19.25	20,33	1.08	25.60	25.03	0.57	28,90	28.17	0,73

Table 3.5: Concrete compressive strength, tensile strength and elastic modulus test results

results will be used as design input parameters for subsequent finite element thermal modelling analysis)



Figure 3.1: Comparison of compressive strength test result between Stage 1-HB1 and Stage 2-HB1



Figure 3.2: Comparison of tensile strength test result between Stage 1-HB1 and Stage 2-HB1



Figure 3.3: Comparison of elastic modulus test result between Stage 1-HB1 and Stage 2-HB1

Referring to Table 3.5, all concrete cubes tested at 7 days exceeded the stipulated 28 days characteristic strength of 20N/mm² confirming that the required strength of 20MPa is achievable within 28 day. Therefore, further optimization on content of cementitious material should be considered for lower heat of hydration.

It is observed that the maximum differential between the compressive strength, tensile strength and elastic modulus are 1.82 N/mm^2 , 0.24 N/mm^2 , and 1.08 N/mm^2 respectively, which are relative small.

Modelling Of Adiabatic Temperature Rise Curve

Modelled Heat Generation Curve using CIRIA 660 Formulas [4]

CIRIA C660 formulas using British cementitious material is applied for modelling of heat generation curve basing on extensive study carried out in University of Dundee, United Kingdom. A two part two component equation for heat generation has been developed on this basis of the form:

Component 1 equation = the exponential curve, starting at time zero;

Component 2 equation = being delayed to start at time t_2

Total heat generation for two components, $Q = Q_1 + Q_2$ $Q = Q_1 + Q_2 = (Qult/2)*(1 - exp(-B . t^C) + (Qult/2)*((t - t2) / (t - t2 + D))$ ------ Equation 1

In order to establish values for the coefficients, analysis has been carried out on semiadiabatic test data from tests at University of Dundee (Dhir et al, 2006) for cement with a start temperature of 20° C.

a) Ultimate Heat Generation, Q41

Relationships between the CEM I and proportion of addition with flyash for the heat generated after 41 hours could be established basing on following expressions: The value for CEM I is 338kj/kg (British OPC). Whereas the locally manufactured OPC (CEM I) by YTL Cement Corporation is approx. 350kj/kg.

Q41 (CEM I) = 338 kj/kg Q41 (flyash) = Q41 (CEM I) - 2.989 * (%flyash)

b) Ultimate Heat Generation Qult

For flyash, Qult = Q41 (flyash) /(0.00002*(% flyash)^2 - 0.0034 (% flyash) + 0.925)

c) The Coefficient BB = 0.011724, regardless of the cement type

d) The Coefficient CFor flyash, C = 1.6-0.001*(% flyash)

e) The coefficient D

For flyash, D = 6.2 + 0.2131 (% flyash)

f) Activation time t₂ for component 2

For fly ash, $t_2 = 3.5 + 0.0236(\% \text{ flyash})$

Table 4.1: Constant & coefficient of heat generation of CEM II/B-V by method of CIRIA C660

Constant	Unit	Value
% of Fly	%	25
Ash		
Q 41	kJ/kg	278.22
Q ult	kJ/kg	321.64
В	-	0.01172
C	-	1.58
D	-	10.462
t2	hrs	3.972

Estimated Adiabatic Temperature Rise, Qad

The thermal model as provided in this research uses the adiabatic temperature rise data from published sources based on an extensive study carried out in University of Dundee [4], United Kingdom as the input. This was shown to be consistent with the local results and is used for subsequent thermal modelling purposes. The hot blocks tested as per the present trials are semi-adiabatic as they are not perfectly insulated. The adiabatic temperature rise may be estimated using expressions as described in above Clause 4.1. This involves the establishment of different values of heat loss coefficient and adding incremental heat losses to the semi adiabatic curve. A comparison between the estimated adiabatic curve represented by Equation 1 is shown in Figure 4.2.



Figure 4.1: Modelled heat generation curve for CEM II/B-V by method of CIRIA C660



Figure 4.2: Comparison of estimated adiabatic curve and experimental temperature rise curve (Hot Block result) for Stage -HB1



Figure 4.3: Comparison of estimated adiabatic curve and experimental temperature rise curve (Hot Block result) for Stage 2-HB

Coefficient of Determination, r²

Coefficient of determination is a measure that allow for determination of how certain one can be in making prediction from a certain model/graph or how well the regression line represent the experimental data.

Referring to figure 4.2, the coefficient of determination R^2 indicate that 86.2% agreement is achieved between experimental temperature and estimated temperature rise for Stage 1- HB1.

With reference to figure 4.3, the coefficient of determination R^2 indicate that 93.3% agreement is achieved between experimental temperature and estimated temperature rise for Stage 2-HB1.

Effects Of Size Of Concrete Block And Boundary Condition

The maximum temperature at center heavily depends on the insulation and the size of the hot-block. The results indicate that the center of a $1.5m \times 1.5m \times 1.5m$ mass concrete hot-block with proper insulation could produce the maximum core temperature T_c very close to that under full adiabatic condition. This implies that the maximum temperature at the center of a concrete block is little affected by the size of the concrete if the dimension is big enough. Adiabatic temperature rise test simulation by method of CIRIA

660 showing that hot-block size of $3m \times 3m \times 3m$ and greater having proper insulation will yielded T_c at full adiabatic temperature.



Figure 5.1: Temperature differentials in 1.5m x 1.5m x 1.5m hot block for Stage 1-HB1

Figure 5.1 presents the maximum temperature difference of $(T_c - T_n)$ and $(T_c - T_s)$ in a 1.5m x 1.5 x 1.5m concrete block. The results reveal that the effective insulation using polyfoam of low conductance material plays a dominant role in controlling the maximum temperature difference across the block, even though the core temperature varies marginally. The temperature at center is little affected by the environment variation due to the big enough size while the temperature difference $(T_c - T_s)$ is affected in some degree. Whereby the recorded maximum temperature differential between $(T_c - T_n)$ and $(T_c - T_s)$ is 4.66°C and 4.53°C respectively.

As for the case of 1.3m x 1.3m x 1.3m hot block, the direct exposure of concrete surface to air is measured whereby the recorded maximum temperature differential between $(T_c - T_n)$ and $(T_c - T_s)$ is 9.22°C and 8.88°C respectively, which is about two-fold than the full insulated hot block as in the case of 1.5m x 1.5m x 1.5m x 1.5m hot block.

Therefore, direct exposure of concrete surface to air or the use of steel formwork is detrimental, because the temperature differential between $(T_c - T_n)$ and $(T_c - T_s)$ could be substantial.

Temperature Rise And Temperature Distribution For Stage 1 & Stage 2 Hot-Block Tests

The temperature rise curves, temperature differentials, temperature distribution and are shown in Figure 6.1, Figure 6.2, Figure 6.3, Figure 6.4 and Figure 6.5. Due to the greater heat loss rate at corner and side of the block, the temperatures at corner and side reach the peak before the maximum core temperature due to heat exchange to the environment. The center temperature begins to decrease when the heat generated in block is not enough to compensate the heat loss to the environment (as for the case of semi-adiabatic condition). After the decrease of the core temperature, the temperature difference $(T_c - T_n)$ and $(T_c - T_s)$ gradually climb to the peak. This is normally regarded as the critical period for the surface concrete. Situations would become even worse if the formwork is removed during this stage. Also, the poor insulation could significantly reduce the time to reach the maximum temperature differences of $(T_c - T_n)$ and $(T_c - T_s)$. This infers that poorly insulated mass concrete could develop thermal cracks shortly after the placement.

The temperature at center is little affected by the environment variation due to the big enough size of the hot-block i.e. $1.5m \times 1.5m \times 1.5m$, while the temperature difference $(T_c - T_n)$ and $(T_c - T_s)$ is affected in some degree. Essentially, during the course of insulation selection, it is necessary to consider the environment heat loss variation to minimize the effect.

It is thus inferred that temperature gradient of actual concrete structures could be improved by additional insulation at edges and corners. The temperature gradient along the regions close to the side is much steeper than that in the central region. This suggests that the locations of the thermocouples in the concrete mockup block should be carefully defined so that the comparable results can be obtained.

Figure 6.1, 6.2 and 6.3 shows how the temperature gradients formed after the concrete was cast into hot-blocks. Temperature differential formed from the very beginning of the temperature rise in the concrete mass. Temperature at the corner of the block had the lowest value while the temperature at center gave the highest. $(T_c - T_n)$ is always greater than $(T_c - T_s)$. This may be explained as that the heat loss in the corner of the block is multi-dimensional. The peak value of $(T_c - T_n)$ and $(T_c - T_s)$ occurred after T_c . This implies that the maximum temperature difference was encountered in the cooling down period of the concrete mass. It is also clearly demonstrated in Figure 6.1, 6.2 and 6.3 that the temperature differences of $(T_c - T_n)$ and $(T_c - T_s)$ were affected by the ambient temperature fluctuation, which is formed by the temperature change from daytime to nighttime.

Table 6.1 shows the maximum T_c and the maximum temperature differences of $(T_c - T_n)$ and $(T_c - T_s)$ for Stage 1-HB1, Stage 1-HB2 and Stage 2-HB1 respectively.

Stage	Stage 1-HB1		Stage 1-HB2		Stage 2-HB1	
	Temperature	Time	Temperature	Time	Temperature	Time
	(°C)	(Hrs)	(°C)	(Hrs)	(°C)	(Hrs)
Peak Tc (°C)	49.69	96	42.81	72	50.94	66
Peak (Tc-Tn) (°C)	4.46	19	9.22	47	3.14	56
Peak (Tc-Ts) (°C)	4.53	17	8.88	47	1.79	76

Table 6.1: Maximum T_c , $T_c - T_n$ and $T_c - T_s$

Legend:

- T_c =Temperature at core, at Point A2 (center core)
- T_S = Temperature at surface, at Point A3 (near top surface)

 T_n = Temperature at corner, at Point B3 (near top corner)



Figure 6.1: Temperature rise curves and temperature differentials in 1.5m x 1.5m x 1.5m hotblock for Stage 1 - HB1



Figure 6.2: Temperature rise curves and differentials in 1.3m x 1.3m x 1.3m hot-block for Stage 1- HB2



Figure 6.3: Temperature rise and temperature differentials in 1.5m x 1.5m x 1.5m hot-block for Stage 2 HB1



Figure 6.4: Comparison of temperature differentials between T_c-T_s for Stage 1HB1, Stage 1

HB2,	and	Stage	2	HB2
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Figure 6.5: Comparison of temperature differentials between T_c - T_n for Stage 1 HB1, Stage 1 HB2, and Stage 2 HB2

EXPERIMENTAL RESULTS [12, 13] & DISCUSSIONS

Concrete Temperature Monitoring (Stage 1 - HB1) 60 Al A2. 61 43 55 62 83 50 20 19/03/11 21/03/11 25/03/11 17/03/11 23/03/11 27/03/11 16:00 Date & Time 16:00 16:00 16:00 16:00 16:00

Concrete Temperature Monitoring Results

Stage 1-HB1

a)





b) Stage 1- HB2

Figure 7.2: Experimental temperature rise data for stage 1-HB2



Figure 7.3: Experimental temperature rise data for stage 2-HB1

Stage	Peak Temper	ature at line A	(°C)	Peak Temperature at line B (°C)			
	Temp (℃)	Location	Time (Hrs)	Temp (°C)	Location	Time (Hrs)	
I- HB1	49.69	A2	96	49.26	B2	96	
1- HB2	44.43	A1	72	42.68	B1	81	
2- HB1	50.94	A2	66	50.22	B2	61	

Table 7.1: Comparison between peak temperature & time of occurrence

Temperature differential

The maximum differential temperature (Temperature recorded at point A1 minus temperature recorded at point A3) for stage 1-HB2 at the open top surface was found to be ~10.13°C, measured on 21st March 2011 at 09:00 am, about 72 hrs after the concrete placement. The top thermocouple was located 100mm below the surface. However an adjustment is required to determine the true differential between the centre and the surface. This adjustment is made by assuming the temperature profile follows a parabolic curve to the cooling surface as shown in Figure 7.4. With a peak temperature of 44.43°C as recorded, the difference between the surface and the point of location of the thermocouple at 100mm depth is about 2.3°C. This must therefore be

added to the measured differential. Hence the true differential is $10.13 + 2.3 = 12.43^{\circ}C \approx 12.5^{\circ}C$. This is significantly less than the 20°C originally specified and the proposed differential of 27°C for granite concrete as in accordance with BS8110-2: 1985, Table 3.2- Estimated limiting temperature changes to avoid cracking.



Figure 7.4: Adjustment for temperature differential at top surface of 1.3m x 1.3m x 1.3m hot-block, Stage 1- HB2

Repeatability

Repeatability is the quantitative expression of the random error associated with a single test operator in a given laboratory obtaining successive results with the same apparatus under constant operating conditions on identical test material [15].

In these experiments, two separate batches of C20 mass concrete of identical concrete mix design were prepared on different day and venue was used for each test. The adiabatic temperature rise of each mix was monitored using similar hot-block system. A practical approach was adopted to compare only critical value such as the peak adiabatic temperature rise. The adiabatic temperature rise and the rate of temperature rise of each mix were also plotted as indicated in Figure 7.5 and Figure 7.6 respectively, for visual comparison.

Repeatability Test Results (Stage 1 HB-1 and Stage 2-HB1)

Hot-Block	Stage 1-HB1	Stage 2-HB1	Difference (°C)
Strain Gauge No.1	48.30	49.34	-
(°C)			
Strain Gauge No.2	48.24	49.65	-
(°C)			
Average (°C)	48.27	49.495	1.225

Table 7.2: Summary of test results for peak core temperature @ A2 recorded by Strain Gauges

Table 7.3: Summary of test results for peak core temperature @ A2 & B2 recorded by Thermocouples

Hot-Block	Stage 1-HB1	Stage 2-HB1	Difference (°C)
Thermocouple @ A2	49.69	50.94	1.25
$(^{\circ}C)$			
Thermocouple @ B2	49.26	50.22	-
$(^{\circ}C)$			
Average (°C)	49.475	50.58	1.105

From a visual inspection of the temperature rise curves of identical concrete mix design, (See Table 7.2 & 7.3), it may be concluded that the repeatability is good, i.e. a particular experiment may be performed for a third time, under the same conditions, and the results will be almost the same. For single concrete mix design used, the peak core temperature rise of the second trial differed from that of the first trial by approximate 1.225°C and 1.25°C, as recorded by strain gauges (built-in thermistor) and thermocouples respectively.

There were differences in the maximum rate of temperature rise as well, and the time to reach this, but these differences are always a small value. Generally, the temperature rise curve showing the rate of temperature rise during heating phase are closed for both trials.



Figure 7.5: Temperature rise of concrete between stage 1-HB1 & stage 2-HB1



Figure 7.6 Rate of change of concrete temperature between stage 1-HB1 & stage 2-HB1

CONCLUSIONS

- (1) From adiabatic temperature rise monitoring test, it could infer from strain gauges that the peak temperature recorded for both phases of the trials i.e. Stage 1-HB1 (48.27°C) and Stage 2-HB2 (49.495°C) are very similar whereby the peak core temperature registered under strain gauges had not exceeded the stipulated 50°C as specified in the various project technical specifications. Peak core temperature recorded by strain gauges was selected as theirs' built-in thermistor is more accurate sensor comparing to thermocouple for measuring temperature.
- (2) The two hot-blocks have exhibited slightly different rates of temperature rise at some period during the experiments, whereby their peak core temperature rise values differed by around 1.225°C only. This difference in peak core temperature could be attributed to lower initial concrete placing temperature for Stage 1: HB1 hot-block as compare to Stage 2: HB1 hot-block. The slight discrepancy in the data of temperature rise rates may be attributed to the rate of heat gain during Phase 2 (Stage 2- HB1) is faster, this could be attributed due to different fineness and age of cement used during Phase-1 and Phase-2 test resulting in different rate of hydration.
- (3) The outcome of the hot-block test suggests that good insulation is needed to minimize the temperature difference in mass concrete. In mass concrete pouring, additional insulation at edges and corners can help to improve temperature gradient in the critical regions. Moreover, hasty removal of the formwork during the concrete cooling down period may greatly increase the temperature gradient, and this could be detrimental to the surface of concrete mass.
- (4) Significant reduction of temperature rise and maximum temperature rise rate of PFAC concrete under adiabatic conditions was successfully demonstrated in the experimental investigation. This indicates that the application of CEM II/B-V cement is effective and beneficial in mass concrete pours in minimizing the mass

overheating and concrete cracking. Thus the use of flyash as partial replacement for Portland cement resulted in lower adiabatic temperature rise.

- (5) Basing on compressive strength results, further optimization on content of cementitious material should be considered for lower heat of hydration for future hot- block trial.
- (6) The modelling of heat generation curve by method of CIRIA 660 can be used successfully to describe the characteristics of adiabatic temperature rise of the concrete in the study. Computer simulation revealed that for a concrete hot-block of dimension 2.5m x 2.5m x 2.5m coupled with good insulation (50mm 100mm thick polyfoam), the maximum core temperature recorded by thermal probe is almost near full-adiabatic state whereby no loss of heat to the environment. Likewise for a concrete hot-block of dimension 4m x 4m x 4m, the temperature recorded has exhibited full-adiabatic behaviour without any insulation as the block size is big enough. However, this is non-practical for any laboratory mock-up test to be considered in such huge block dimension unless it is cast in-situ for thick raft foundation.
- (7) For the two experiments performed, for repeatability, the difference in peak core temperature rise for both trials was only around 1.225°C and 1.25°C, as recorded by strain gauges (built-in thermistor) and thermocouples respectively. This implies that the concrete temperature during the entire duration of the tests vary only by a small amount.

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South Indian Muslim Women Writers: A Tradition of Their Own

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ABSTRACT

This paper traverses reading on Muslim women writers of South India, mapping their origin and evolution, in the three states of South India – Kerala, Karnataka and Tamil Nadu. While previous research and reviews have highlighted these writers within the constraints of the state, we investigate the traditional linkage that binds these writers together, merging their regional, cultural, social and linguistic disparities. These women's narratives transcend the state boundaries which demonstrate their points of convergence, especially those that relate to the female experience of being in a minority community in a patriarchal society. Akin to the development of a "tradition of their own" that women writers in other parts of the world have been undertaking, this paper establishes the evolving pattern of a literary tradition intrinsic to the South Indian Muslim women writers. The article further examines the rich writing tradition of Muslim women writers of South India which have integrated diverse identities in consonance with the changing times and circumstances and the many cultural upheavals in the post-independent era where the discrimination against minority writers was evident even in the literary field. Muslim women writers were challenged from within and outside the community at the initial stages. Later when some of the writers earned a reputation in the mainstream literature, their works were confined to the linguistic and regional barriers within the state, obscuring the recognition to establish a literary tradition of their own. Here we bring to light, the characteristics of the writing tradition of South Indian Muslim women writers so that they can finally be acclaimed as having a tradition of their own.

Keywords: Muslim women writers, South India, tradition of their own, minority community, state and linguistic boundaries.

INTRODUCTION

Postulating a tradition for South Indian Muslim women writers, we attempt to investigate the possible female literary tradition which had been rendered invisible or left unnoticed by the male dominated literary canon of South India. By establishing a tradition for Muslim women writers, we are not claiming to follow the Global image of *Muslimah* which often mirror the Arab lineage. This homogeneous image of Muslim women, fail to integrate the heterogeneous identity of Muslim women around the world. Our effort is to bring forth this heterogeneity in the literary tradition of Muslim women writers of South India which can exalt their position in the mainstream literary tradition.

Shamshad Hussain's¹ work *In Between the Minority and Gender (Nyunapakshathinum Linga padavikkumidayil)* problematizes the positioning of Muslim women in the social and literary realms of Kerala, a South Indian state. Though her effort is to highlight the female presence in the socio-political, cultural and literary history of Kerala, it opens the possibility of having a female literary tradition for Muslim women in other states as well. Following Mohd Muzhafar Idrus, Ruzy Suliza Hashim and Raihanah M.M's effort to revive Malay cultural identities of the past and present (Idrus et.al, 2015), in this paper we revive the available articles on the Muslim female literary tradition of the past and present, across the three States of South India - Kerala, Karnataka and Tamil Naduand investigates the possibility of having a female literary lineage, a tradition of their own.

South Indian Muslim Women Writers: A Brief Overview

¹ Shamshad Hussain is one of the finest scholar and critique who initiated serious research on Muslim women writers of Kerala (particularly the presence of Muslim women writers in Arabi-Malayalam literature- a bilingual literary form existed among Muslims of South India which is supposed to be on the verge of extinction now.

Shivarama Padikkal (1991, 1993) in his scholarlyworks deliberates on the developmental orientations in Kannada fiction. He details the emergence of Muslim male and female writers into the literary scenario. Rahmath Tarikere in his work Karnatakada *Sufigalu (The Sufis of Karnataka)* (Tarikere, 1998) maps the origin and growth of Sufism in Kannada literature. V B Tharakeshwar in his study (2002) discusses how the colonial and national spirits influenced Kannada literature. He figures the emergence of new movements which helped Muslims and other marginalized communities to take part in the literary revolutions. The missing link in all these studies is the record of Muslim women writers.

Mamatha Giriraj in her thesis entitled "Gender, Patriarchy and Resistance: Contemporary Women's Poetry in Kannada and Hindi" (2004) problematises the absence of women's agencies in both North and South literature. She highlights the invisible Muslim women characters and writers poising the possibility of having a lost tradition of women writers. Rahmath Tarikere in *"Karnatakada Sufigalu"* (The *Sufis of Karnataka*) observes the adventof Muslim women writers in Kannada literature with the aid of Bandaya literary movement. Sara Abubakar and Banu Mushtaq who started writing around 1980's, acclaimed wide critical and literary attention. They voiced the everyday life of Muslim women negotiating the gender disparities within and outside the Muslim community.

Muslim community life appeared for the first time in Malayalam literature with all its complexities only in the renaissance period of Malayalam literature, especially with the works of Vaikkom Muhammad Basheer during 1930's and 40's. After Basheer, many writers from Muslim community like U. A. Khadar, N. P. Muhammad, P. A. Muhammad Koya, Punathil Kunjabdhulla and many more, who represent the modern phase of Malayalam literature, brought the community life into the literary field. But the women characters were either victims or objects of visualization. Basheer's characters like *Suhra (BaalyakaalaSakhi)* and *Kunji Pathumma (Ntuppuppakkoranndarnnu)* were the victims of the decadence of clergy community. In Uroob's *Ummachu* (1954), the protagonist 'Ummachu' is the victim of fate and life, though she is depicted as a strong woman. The Muslim women characters represented until recently were dependent to the male counterparts for the sustenance of their life. B.M Suhara and Khadeeja

Mumthaz who envisaged there pen to carve the inner thoughts of Muslim women during the 1990's and 2000' are supposed to be the pioneer writers from Muslim community who were accepted in the mainstream Malayalam literature.

Krishna K Manavalli in her study on the cultural summations of South India discuss the participation of Muslim women in the Self-respect movements instigated in Tamil Nadu (2008). K Srilatha in her much acclaimed book entitled "The Other Half of the Coconut: Women Writing Self-respect History An Anthology of Self-respect Literature" comprehensively discuss the impact of Self-respect movements on women's literature. She presents Alhaj Subako as a strong Muslim female voice who envisaged the problems of women in her society. Surprisingly there is no record of Muslim women writers who transcended Subako. Only the known writer from Muslim community at present is Rajathi Salma, who published her works in early 2000. There are no studies yet to fill the huge gap between the two writers and list the possible literary lineage of Muslim women writers.

CONCLUSION

The reason for the invisibility of Muslim women writers in the latter half of 20th century can be read alongside with the marginalization of Muslims in South Indian literary history, which is beyond the restrains of this article. This paper has presented some of the readings that records the emergence of Muslim women writers from the three states of South India- Kerala, Karnataka and Tamil Nadu. They are relevant in describing writers within the state premise, but they fail to look at the similar concerns and artistic styles shared by these writers. Our intention is to illustrate the possible literary tradition of Muslim women writers of South India which remain unrelished even in the 21st century. Further studies in this area can delve deep into the forgotten literary tradition-A tradition of South Indian Muslim women writers.

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Rethinking Media and Development: The Coverage of Goods And Services Tax By Malaysian Media

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ABSTRACT

Wilbur Schramm in his book, Mass Media and National Development: The Role of Information in the Developing Countries (1964) suggest that, the media and development cannot be separated because it is an agent that helps to accelerate the process of social change. The media has not only contributed to disseminate information fast and widely but also can broadcast the information to the audiences in every corner of the nation on the national development plan. So the mass which includes the viewers, listeners and readers will be aware of their role in the development process. The research entitled Rethinking Media and Development: The Coverage of Goods and Services Tax by Malaysian Media was written with intention to help determining the role of media towards the country's development process in Malaysia. 1st April 2015, Malaysia has changed their development plans in the economic sector with the implementation of Goods and Services Tax (GST) to replace the Sales and Services Tax (SST).

The comprehensive input for the data collections comprises of the interviews with media practitioners who are involved directly (or indirectly) with the GST coverage to analyse their opinions about the role of media in development process such as the challenges in reporting on the issue of GST and to view the status of media freedom in reporting news and GST specifically in Malaysia. Next, to get public views and feedback from publics concerning GST coverage and the report by Malaysian Media, a survey questionnaire was distributed.

In short, this research is one of the main helpful resource on the role of media coverage towards the implementation of the GST. The research will help not only the media but also everyone from professional and non-professional levels to understand the role of media and their role in achieving development like we all want. *Keywords:*

1. AP – ASSOCIATE Press

- 2. GNP Gross National Product
- 3. GST Goods and Services Tax
- 4. SST Sales and Services Tax
- 5. UPI United Press International
- 6. USA Unted States of America

INTRODUCTION

Development is a process that is non-stop and endless. This is because, different time brings different goals and measures to the development process itself. At the same time the steps taken

in the development process, depends on the needs or priority of the time. And development is a necessity desired by every country in the world to be a developed country. In view of that Pieterse (2010) explains the development over time, perspective and the process involved.

Starting from the 1800s perspective of development was known as Classical Political Economy that involves catch-up remedy progress. Following in the 1820s, the so-called Late Comers perspective was implemented that involve industrialization and catching-up. In the 1850s, it is called Colonial Economics that involve resource management and trusteeship.

In the 1900s, perspectives and development process have evolved and grown into a larger sector. That is the idea the 1940s, called the Development Economics perspective, involving economic growth and industrialization. Next, 1950s, Modernization Theory continues to focus on the larger growth, in sectors of political, and social modernization. Dependency Theory was introduced the following year, 1960s, involving a process of accumulation-national and auto centric. In the 1970s, this perspective changed to Alternative Development that involves human flourishing. 1980s continued with the perspective of Human Development, which involves capacitation and enlargement of people's choice.

The development process continues with different perspectives and popular as been introduced by Margaret Thatcher, the former Prime Minister of the United Kingdom, the neoliberalism perspective in the 1980s. It focuses on economic growth involving structural reform, deregulation, liberalization, and privatization. And the 1990s, the development perspective changed to post-authoritarian development that involve engineering and disaster. In the 2000s, this perspective then changed to the Millennium Development Goal, which involves structural reform.

So if we look at the whole process of development, the definition and the development process itself varies over time and no one practiced the same agenda in the development process. At the same time, Pieterse (2010) also states that "the development process is multidimensional, so issues are not simply settled at one level". This means the process and perspectives of

development itself, does not stop there because every issue or problem will eventually recur over time.

So, from time to time, Pieterse (2010) states that there will be a reconstruction of the development theories such as the reconstruction of Modernization Theory, Dependency Theory, New Classical Economy, Alternative Development, Human Development, and the like. To clarify, the Human Development perspective, this process alone will involve a large number of processes such as education process that involves knowledge and skills, health, gender, personal income, and so on.

Pieterse (2010) also argues that development also involves a process of response to problems and arguments at the time involving the perception of development. It is also a reflection image of improvement or desirable change, a further element in the agenda setting theory and a set of policy implementation or progress in a future project. (P.8). In other words, in moving towards development, the process involves responsibility to any action taken mainly by the leader who planned the development of the country.

This is because development is a process that is demanded by the leaders and people of developing countries so that they can become a better country from various angles. Among corner development priority at present is like infrastructure development, capital inputs and technology, knowledge and skills, and health. Not to forget, the process of industrialization, migration, urban problem, regionalization and human capital. It is seen that it involves the development of various sectors and processes. It is not only focused on economic development alone. But, generally only see the economic sector as a contributor to national development.

Therefore, to ensure the development can perform well and generally sensitive to the development process, it is a country's responsibility to requires agents of their development, namely media. Media and development are inseparable as Shramm (1964) suggests six main role of the media towards national development.

Firstly, the media contributes to patriotism. Secondly, it acts as a voice for national planning. Third, teaching the necessary skills. While the fourth role is to assist in the extension of the market, fifth, to help the people to the social changes and last but not least, to prepare people to play their role as a nation among nations. In other words, Shramm wishes to clarify that, the media is a very important agent in the development of a country. It's not only a message sender, but also, it is able to shape the thinking of society and change their views on a matter especially a community perspective to the process of national development.

In ensuring effectiveness in spreading such information, various methods can be used by the media as simple as printing of posters, expanding the distribution of newspapers, flyers regarding execution of development plans, producing a special radio program to discuss development issues so that people understand more and discussion about the case on television by inviting the representatives from professional fields such as health, industrial, economic and others to gain the trust of the audience on the issue.

Therefore, this study will try to determine the role of media in development involving a developing country in Asia, namely Malaysia. It has recently changed their development plans in the economic sector with the implementation of Goods and Services Tax (GST) to replace the Sales and Services Tax (SST) practiced before. Thus, this study will try to analysis media coverage towards the introduction and implementation of the GST.

LITERATURE REVIEW

As explained in the introduction, every sector or elements of development are the significant contributions in the implementation of development plans towards becoming a developed nation. Furthermore, it also explained that the economic sector is a major contributor to the development of a country. So, this research will investigate on how the message of the national development plans, which is the introduction and the implementation of the GST in Malaysia were disseminated through the media and the Internet that are the primary medium of information. Why? - Because it is important for all citizens to know the overall national development plans, so, they can also help in the implementation instead of avoiding it. Thus, the media plays a crucial role at this point in disseminating information regarding the GST.

Why Media plays a significant role in the development of a country?

According to Schramm (1964), the media and development cannot be separated because it is an agent that helps to accelerate the process of social change. The media has not only contributed to disseminate information quickly and widely but also can broadcast the information to the audiences in every corner of the nation on the national development plan. So the viewers, listeners and readers will be aware of their role in the development process. (p. 24-25).

For Spark (2007), the media is also an asset to a country because it is one of the less expensive medium to spread the idea of development to every corner of the country, regardless of urban or rural area, because mass media has a very broad reach, compared to face to face conversation. At the same time, the media is not the medium of formality that requires the sender and recipient at the same time (to engage) such as in a classroom or lecture hall for the sharing of information. (p. 23).

Schramm (1964) also states (that) "The efficient use of mass media for economic and social development implies that they should be as "local" as possible." It means that only the media of a country will be able to send messages very well because only local media understand the culture and native language that are used in certain places in the country. For example, the broadcasting of information through the community radio, which uses local languages and accents, would help the community to have better understanding. If a country is heading towards development, then every individual in the country need to understand each plan designed by the government.

At the same time, Schramm (1964) mentioned "effective communication system can be used to 'manipulate' people if the system in under the control of people who wish to use it that way." In other words, the media also have a role in stemming the audiences to get just the information they want to be broadcasted by those who control the media. As for the audiences who lack of knowledge in certain fields, will accept 100% of the information regardless of the disadvantages

or advantages. Arguably, most information in the media is manipulated for political and social change. (P. 78 - 91).

We should also be informed that the mass media should also be more transparent in providing information to the viewer. It is because the media have the freedom to know the truth, the freedom to inform their audience the truth and the freedom to seek for the truth if they doubt at any of the information they received. So, to get the public trust, it is necessary for the media to not only inform but to also identify the truth. (Schramm, 1964, p. 54).

Islam (2002) stated, it does not matter whether the media is own by either the government or the private sector, it is still important for the media to assist the development of the country by providing information that is correct and accurate. Media ownership is not necessarily stemming from the media to inform the truth. Why? - Because mass media rely on their audiences (through the number readers, listeners, and viewers) to attract advertisers to advertise on their platform. So, once they have more readers, indirectly, the better revenue will they get.

Therefore, the media must ensure that the information presented is the best to earn the trust of the readers, listeners or viewers. To certify the media to be more efficient, the media practitioner notably journalists, need to have more comprehensive skills in every field. Journalists should have in-depth knowledge in various areas including professional fields such as health, economy, sports and so on. With that in mind, they not only receive the information and report to the public but must encode and decode that information so that the public can have a better understanding (p. 1 -14).

Why GST is the focus and a key ingredient in this study?

Liew, (2014) stated that The Goods and Services Tax (GST) is a broad-based consumption tax on nations' expenditure which affecting all parties in various stages of the taxation system that is from manufacturing to sales. (P. 1).

Furthermore, "The Goods and Services Tax (GST) is becoming one of the most prominent topics in Malaysia as it is one of the tools proposed by the Government to reduce continuous budget deficit in Malaysia." (Mansor, 2013, 114), At the same time, Mansor (2013) also mentioned that the introduction of GST is aimed at reducing the nation's growing of deficit budget and at the same time intended to improve revenue collection. Overall, the implementation of GST in Malaysia is designed to avoid tax cascading, multiple taxation, and transfer pricing bias. In addition to that, it is to enhance tax compliance as well as to reduce tax avoidance and tax evasion. Apart from that, GST is also a mechanism of self-policing, to lessen the bureaucratic red tape, to lower the administrative cost, and to further reduce the cost of doing business, by providing a tax credit for enterprise figures and to enhance Malaysia's competitiveness and to improve efficiency. (p. 1-14).

Furthermore, according to Liew (2014), the Sales and Service Tax (SST) regime, the 10% Sales Tax (on manufacturing and imports) and 6% Service Tax (on the F & B and professional services industry) is collected by one party (usually the seller) and passed to the tax authorities. So, GST is targeted to replace the SST that is revenue-neutral.

From the Audit Report (2014), the Malaysia's Prime Minister has announced in the National Budget 2014 that the GST will be introduced and implemented on 1 April 2015, and is fixed at 6%, plus the SST will be abolished. In addition, the GST will not be taxed on piped water, first 200 units of electricity per month for domestic consumers, and public transportation services such as bus, train, LRT (Light Rail Transit), taxi, ferry, boat, as well as highway tolls education and health services.

In addition to that, from The Censof (2014) reports, the implementation of GST in Malaysia is at the lowest value which is 6% compared to 7 other countries that have already implemented the GST since 1984 such as Indonesia with the value of 10%, Thailand 7%, Singapore 7%, Philippines 12%, Cambodia 10%, Vietnam 10% and 10% of Laos.It seems that the GST will eventually help the citizen of the country by reducing the amount of tax. However, there are issues regarding GST in previous research, which shows that the public is still not ready for GST.

From Shamsuddin, Meor, Halim, Zahari and Fazi (2014), many people, including educators, were skeptical of their own purchasing capabilities. From their findings, it showed that many Malaysians do not have high level of confidence on the GST, and the government should explain openly and transparently about the taxation matters so that the taxpayers will have a clear understanding towards the matter.

To create awareness, the study conducted by Mohani (2003) suggested that one of the fundamental ways to increase public awareness is through knowledge. Tan & Chin Fatt (2000) mentioned that knowledge about tax can be imparted through general understanding of the tax regulation. It is because, the citizens who are lack of knowledge relating to tax will have a negative perception towards tax imposed and indirectly towards their acceptance GST will be affected.

With to the implementation of the GST in Malaysia, Lim and Ooi (2013) studied on the implementing of Goods and Services Tax in India where they focus on the impact of GST on Malaysian households. They estimate the total GST raised from households in perfect condition vs. practical circumstance, determine the expected point of inflation based on the Consumer Price Index, and discussed the wider implications of implementing the GST.

For example, using the 7% GST rate as the standard, the standard household is expected to pay about 2.93% of monthly income as GST (RM 104 per month in July 2013 value). Next, the household will pay the higher percentage of their income per month of GST if they are: middle and low-income groups (with those earning around RM 2,500 per month paying 3.07%). These are examples for those who are employed as technicians, clerical and service workers, farmers and fishermen, or in single person household, in young families (less than 24 years old), Bumiputera-led households, and households residing in Peninsular Malaysia.

So, by looking at the research done by Shamsuddin, Meor, Zahari and Fazi (2014), the citizen should be exposed to sufficient information for them to understand the essence of the GST that

was designed by the government. To associate with a study done by Lom and Ooi, lack of knowledge about the GST and the amount of tax to be paid after the implementation of the GST, the GST will impact badly on everyone or in other words, to burden the citizen. So, as the agent of broadcasting, the media should provide a better platform and medium to explain the long-term effects of GST for the society, state and the country.

METHODOLOGY

The value of research depends on good methodology. The correct and comprehensive method can help get a comprehensive answer to the problems inherent in this research. The best research methodology has been proposed for this study.

To study the coverage of Goods and Services Tax (GST) in this research, the best method is the Content Analysis and Frame Analysis. A content analysis "seeks to analyze texts in terms of the presence and frequency of specific terms, narratives or concepts," (Seale, 1998, p.368). Plus, Seale (1998, p.368) explains, "chiefly amongst these is the objection that such analysis is concerned simply with 'crass' content: with what is said rather than how it is said; with the descriptions of texts rather than their interpretations".

So this research will try to analyze the text and not the terminology or the specific text, but more towards recurring themes. Thus, the findings can peel the type of the news, advertising, passage, article or opinion. In addition to that, the analysis will view the tone of the report on whether the content reflects the positive, negative or neutral feedback.

However, there are limitations to this study by using this method of content and frame analysis. firstly, the media reports the introduction and implementation of GST on the radio, newspaper, magazine, posters, pamphlets, and also updates through websites, social media such as Facebook

and Twitter, and blogs. Content analysis is best done on the news content involving text such as newspapers, magazines, and online content. Then, this study should focus on certain platform only, and the result or finding results is not exhaustive to cover the whole medium to cover the introduction and implementation of GST.

Secondly, since the researcher was in The UK while this study focussing towards Malaysia's issue, it was difficult to get the contents of the report as the materials from the National Archives of Malaysia can only be physically accessible in the archive and no content can be accessed online.

So, to get a comprehensive input for the study, the research involved the interview and survey to get feedback from those concerned with the GST in Malaysia. For the interview, structured interview with economist or those who have the economic background to discuss the issues related to the content released by the media about the GST was planned and proposed. The purpose was to get opinions about the limitation of the GST content in media coverage. Next, the online interviews were carried out with media practitioners who are involved directly (or indirectly) with the GST coverage to analyse their opinions about the role of media in development, the challenges in reporting on serious issues such as the GST, opinions, and to view the status of media freedom in reporting the news in Malaysia.

In addition, the survey questionnaire for publics to analyse their views for the GST coverage and the report by Malaysian media. The questionnaire was divided into three main sections, first, to see how the public gets information on the GST from mainstream media and new media, namely the Internet. Secondly, regarding the platform to help them understand the GST better and why. Finally, the questions regarding theiar opinion on how media industry can be improved.

FINDINGS

1. Interviews

For the interview session, a total of 10 individuals from the fields of economics were invited (online) to give their views on the role of media in the development of the country. At the same time, ten media practitioners, including journalists, editors, news editors, production house representative, and the writer were called to participate in this interview. Both of this fields are necessary to get broad feedback from an economic standpoint, in what should the public know about the economy in general and media practitioner who engage in media industry in reporting the news.

1.1 Experts

As been requested several times for interviews regarding this study and showed them the examples of questions to be asked, all of the respondence refuse to be interviewed. It is because they feel that this GST issue is too broad to be discussed, and they suggested for the customs officers or government officials who directly involved in the implementation of the GST should discuss it. Furthermore, they claim the GST issue is also related to the tax structure in which they are inexperienced about this matter to be taken up at a general level. Thus, the findings from the experts are not available.

1.2 Media Practitioners

For the interviews with media practitioner, originally more than ten individuals were approached to be interviewed; unfortunately, only 10 of them were responded to be interviewed for this study. After the sample questions were shared with them, only eight media practitioners agreed to give their feedback. Two of them stated that, they were not eligible to answer the questions because they are only involved in maintaining social media account for the media company, and only editor level can give / provide the feedback. A total of 35 questions were prepared in this structured interview that was divided into four main sections inclusive of personal background, the media and journalist task in Malaysia, awareness and coverage on GST in Malaysia, and opinion about media practice in Malaysia.

Here are the details of the eight interviewees from media industry:

- 1. Wan Muhammad Lukman Fisol, News Editor with 15 years' experience.
- 2. Fairuz Mohd Radzi, Senior Editor with 17 years' experience.
- 3. Gaddafi Musli, Manager, Corporate Communications / New Media Journalist with seven years' experience.
- 4. Hafizah Kamaruddin, Assistant News Editor, 30 years' experience
- 5. Enn Balaena, News Producer with eight years' experience.
- 6. Seri Koris, Journalist, with three years' experience.
- 7. Abdul Mutalib Saifuddin, a writer with six years' experience.
- 8. Wan Kamarudin Wan Ibrahim, Production House, and former journalist, with 20 years' experience.

2. Questionnaire

Online surveys were then created and summarized to the 30 questions that are divided into four parts. The first part is the background of the respondents, secondly, the knowledge of GST, thirdly, how the media can improvise the dissemination of information on the GST, and lastly, the feedback towards the media in Malaysia. The questions of the questionnaire are also divided into multiple choice, dropdown, matrix, and open-ended questions and the total respondents to the questionnaires were 138 pax from 200 invites.

DISCUSSION

In general, the media could not avoid the role in the development of a country, as it is interdependent in achieving success. As intended by Schramm (1964), the media and development cannot be separated, as it is an agent that helps to accelerate the process of social change. (P. 24-25). Similarly, the role of media in this case study involving the media and the development of the economic sector, namely the coverage of Goods and Services Tax (GST) by the Malaysian Media. This fact is supported by the interviewee, Abdul Mutalib with six years' experience as a writer. He mentioned, "The media is like the agents or ambassadors to help people understand what the GST is, or about government policies."

1. Development as Freedom

In the context of media, Schramm (1957), once again emphasizes the three things in the communications element which are the freedom to know, freedom to tell and freedom to find out. In this study, we tried to look at the reach of information from the media to the public. As emphasized by Abdul Mutalib again, "*Free the media, with regulations of course. Let both sides of the political divide voice their thoughts and leave it to the people to decide*". Similarly, the opinion of the publicist consistent that "the mainstream media is being controlled by our government, no freedom of speech." In formulating the statement issued by the two parties is that, in particular, communication media (mainstream media and social media) should have the freedom to obtain and information sharing. People need to be given the freedom to be aware of the development issue from various angles in its deliberations and not confined to one corner of the news only.

2. Good Governance

In the context of media and dissemination of information, the good governance that needs to be addressed here is to ensure proper dissemination of information is to avoid conflict. As emphasized by Hyden (1996), "Governance is the stewardship of the formal and informal rules of the political game. Governance refers to those measures that involve setting the rules for the exercise of power and settling conflicts over such rules". (P. 185). So even media should be given the freedom to report by the government, but have to be monitored, so that the information released is not divergence. For this GST, Hafizah Kamaruddin, Assistant News Editor, explained, "apart from the editor, the government, the ministries and the customs who involved in the implementation of GST will assist to ensure the information released by the media is true and accurate". So, the public can obtain confidence from the media and the government about the information they have delivered publicly.

3. Transnational Society

In the context of communication by Wringley (1987) that was related to the transformation of a community from traditional to a diverse community. (P. 1-30), in the dissemination and sharing of information, media and government in particular can no longer see societies in Malaysia as in 1990s era, where media can just "bribe" the public with information and the public accept the whole ideas given to them. It is because the society is growing not only physically but also their mentality. As emphasized by Abdul Mutalib again "*the 'thinking society' today want(s) an alternative point of view, and they want to understand it better. There, they can flip two sides of the coin*". So this process can and should be encouraged so that the views and evaluation to each matter that is discussed in the media, especially on the GST, can be accepted in a good way.

4. Capacity Building

In the context of capacity building, all parties must play their role in national development. As the quote by Ease (1997), "*capacity building often used simply to mean enabling institutions be more efficient in implementing development projects. Institutions are thus the instrument* by which individual goals can be reached, and may be governmental or non-governmental". (P. 34). So, in the development process generally, even if the media play their role in the dissemination of information, those who reside in their respective fields (professional fields or not) should also contribute to the validity of the information released to the public.

For example, what is practiced in clarifying information, Gaddafi Musli, Manager Corporate Communication / New Media Journalist "*verify the information from those who have credibility and qualification*". Hafizah Kamaruddin, Assistant News Editor, said, "*we call the experts in the field, for legal cases we called lawyers who are familiar to assist, same with the economic or another field*". Based on the statement it can be seen that everyone needs to play their part in shaping the capacity building in the direction of the development.

5. Transparency

Transparency by Hood (2006) is about the access to government information. It is about access to information related to the leadership and development. (P. 1-80). What must be emphasized in this transparency is that people need access to information for certain issues so they can make the best judgment. Abdul Mutalib once again stressed that "*fundamental issues must be addressed such as transparency in addressing the GST issue to the public, or the country's financial health, or how has the public money been spent and more*". The gatekeeper and the information provider i.e. the government should be more transparent and inform the media the whole idea of the issue / matter especially on the GST so public can have a better understanding and evaluation.

6. Media Freedom

Schramm and River (1957), states, with the establishment of technology development and integration of the mass media, the society wants the freedom in order for them to find information that helps them to understand undoubtedly things such as national development plans, the country's economic status and so on. In the era of globalization, people are no longer compelled to look at news / information from one side only, therefore, to coop with development, the media must be given freedom in reporting the news. Abdul Mutalib stressed "free the media, with regulations of course. Let both sides of the political divide voice their thoughts, and leave it to the people to decide. The days when "the government knows best" are long over. " Also, Wan Kamaruddin, former journalist and production house with 20 years' experience said, "Pure freedom of journalism in Malaysia should be glorified. Investigative style of reporting should be practiced more". It can be seen that media practitioners also expressed a desire for the freedom of the media in presenting information so that information can be distributed thoroughly to the public and help in making right decisions.

7. Media Coverage on GST in Malaysia

This section, in turn, will discuss the coverage of GST by Malaysian Media, skim through the public opinion on this matter. Based on the findings, a total of 138 respondents have given their

feedback on the issue of the GST. It can be seen that the respondents get information from social media such as Facebook as much as 37.07%, followed by Television 25.86% and 12.93% newspaper. However, the medium that gives them the understanding of the GST is through the official website of the GST, which led to 29.57%, followed by news on the mainstream media, 26.09% and 25.66% thereafter through Facebook. Based on the information obtained, it can be concluded that the Internet provides more information and gives public understanding of the GST through the website and also on Facebook and followed by the news on mainstream media.

8. What caused the mainstream media as an alternative source for the public to get information and understand GST?

Respondents argued that the Internet gives them a freedom of getting the information and sharing opinions. Plus, it has a two-way communication where users can discuss the issue on social sites and help them to get the necessary answers about the GST. At the same time, the Internet platform would be more straightforward, shorter explanation and easy to comprehend. Plus, the Internet helps for a quick and easy access on the go at their fingertips with live discussion and information 24 hours non-stop.

However, Enn Balaena advised that "*While social media has become the primary source of information, but the public will return to the mainstream media to get the assurance that the information obtained and progress.*" This fact can be supported by feedback from the respondent's stating that the official website must always perform regular updates and provide more understandable information about GST. Indirectly, the dependence on mainstream media is still happening even people get information from alternative sources.

However, even if publics get the information via a website and Facebook on the Internet and news from the mainstream media, 74.14% respondents said they somewhat understand. While only 21:55% understand and the rest of 4.31% do not understand the GST. It can be concluded that, despite respondents' awareness of the existence of the introduction and implementation of GST through the mainstream media and the Internet, there are still lack of understanding of the

matter as a whole.

The above statistic can be supported by a statement of the respondents who stated that the information provided has many unanswered questions. Moreover, the information disseminated is not enough to help them understand the GST. It is because most of the programs do not provide basic information on what is GST. At the same time, the media (mainstream media and Internet) fails to discuss the benefits and challenges of the GST being) implemented in Malaysia. Moreover, one of the respondents said that information they get has "*no clear indication of where the tax collection will be Channelled to*" as it should be adequately explained.

Although the respondents are aware that the media do not provide sufficient information about the GST, they also argue that it be necessary for them to obtain information from the alternative sources. This can be supported by feedback from the correspondence that the public needs to get information from various sources to help them understand GST better, and to observe more from a variety of angles. Plus, alternative sources offer a wider range of information and sharing of views on various issues, especially the issue of the GST.

Alternative sources also help the public to make better judgments about the GST between the information received from the mainstream media and the Internet. As such, they will have a different perspective on the same issues to make better decisions and exercise good judgment. Media practitioners also gave their views on the public response towards the information released by the media agreeing that it is insufficient. Wan Lukman said that as the media Practitioner "*we try to make people understand it in an easy approach*" and is also supported by Enn "*since all views on the issues have been covered by the media*". These statements can be concluded that, as the agent of development, media have been carrying out assignments in the best possible to report information about the GST to the public based on the information they received.

CONCLUSION

Overall, it can be seen that the media and development are inseparable in disseminating information and plays a crucial role in circulating reports towards national development. As told by Schramm (1964) on the importance of information for development:

"Once in an isolated village in the Middle East, I watched, a radio receiver, the first any of the villagers had seen, put into operation in the headman's house. The receiver promptly demonstrated that knowledge is power. It becomes a source of status to its owner; he was the first to know the news and controlled the access of others to it. For him and all others who heard the noisy little receiver becomes a magic carpet to carry them beyond the horizons they had known. (P. 20)"

As seen here, the information will provide power, the power to govern and the power to make decisions. This is because, Schramm (1964) argues that the media regardless of whether the mainstream media or new media of the Internet, help the community of nations to "watch the horizon through news bulletins or on-the-scene broadcasts or in advertisement opportunities" (p.15). Mass media helps us to associate our response to the challenges and opportunities, which appear on the horizon, and to reach consent on social action.

Therefore, there are some things that we expect from the media, particularly in information dissemination and communication. To focus better in terms of economic development that involves information about the GST, some significant improvements suggested by media practitioners and the publics are as follows.

1. Knowledge, Skills, and Simple News

Media professionals, especially journalists, are compelled to acquire extensive skill in performing their duties in news report, they need to have extensive knowledge of such areas as academia, entertainment and professional fields such as law, medical, engineering, architecture and so on. Wan Lukman stressed that a journalist should have knowledge in various areas to "to strengthen their knowledge and get the right information." Also, Enn explains that "the skills needed to enable journalists to understand and competent to write stories that have jargon / terms and styles in particular." Abdul Mutalib also adds, "Because it helps when you have a thorough knowledge of a field, you can cover many angles at ease and help readers to understand an issue better."

It can be concluded that, in talking about the relevant current interests such as the GST, media practitioners need to have extensive knowledge in economics. It is to assist them in reporting news or updates regarding this GST so that the public can digest and understand the information thoroughly. Besides, Abdul Mutalib reiterated to the media in preparing reports for "By using simple language as possible as mind you- because most readers are laymen! Explain briefly but precisely". Wan Kamarudin also add "a journalist really needs to understand and learn not just from the new input fields that are alien to him / her, he / she must quickly get into it wholeheartedly so that the correct value and feel of certain professional field could surface other than knowledge. To me, journalism is not mainly about reporting news but it also about disseminating a correct emotion and feel ".

In other words, the two media practitioners suggested that that every journalist should know how to receive and unscramble information they receive well for the report to the public. This is because, laymen that is meant by Abdul Mutalib is, most people do not have specialized knowledge, and it's their (journalists) responsibility to help readers, listeners, and viewers to understand the definitions or terms used in the professional field. For example, in the economic dictionary, index, appreciation, assets, and so on, although it seems like the typical word to the public, to define in the economic field, it gave different meaning.

2. Gatekeeper & Media freedom

Also, in enabling Malaysia to adopt a media that is capable of providing the best news reporting to the public, and then, what is important is the freedom of the media in their reporting. Based on the findings and discussions, it can be seen that in Malaysia the media is controlled by the editors and the government authorizes and ensure the information is released in accordance with their wishes by giving preferred news angle to the journalists to write. Although journalists are free to write their news angle respectively, it will also turn to the editor that helps to fix the angle of the story. Abdul Mutalib again emphasizes that:

"Journalists should read more, especially the subjects of interest. Plus, question more. Write without fear (if possible), refrain from self-censorship. But above all, editors and gatekeepers should give little interference to writers to write the truth. Don't bow yourself too much to the political masters (since in Malaysia, most media outlets are politically controlled). Once the principles of journalism are upheld, the masses will be well informed. And that's the objective of journalism."

The decision that can be drawn from this study is the role of the media is not only seen in terms of disseminating information and knowledge but also the media agent of development indirectly to educate the audiences with the information provided.

At the same time, it also revolves around their attempts to shape public perception. As Schramm (1964) states "effective communication can be used to 'manipulate' people if the system in under the control of people whom wish to use it that way." Thus, the media needs to be more focussed and skillful in disseminating information, so that the message delivered well without any interference and not be manipulated back to something that is not good.

The study is also expected to help the media to see the weaknesses highlighted by the media practitioner and public, so that an improvement can be made from time to time. Following that, the media can be able to continue to remain as the primary agent of change for the development of a country.

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Contemporary Performance Measurement Systems: Review of Their Types and Consequences

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ABSTRACT

The main purpose of the present study aims to know the literature on contemporary performance measurement systems (SPMS) significances with its categories: people's behavior, organizational capabilities, and organizational performance The structure for the study focuses on qualitative data gathering through recent past literature i.e. articles reports, conference papers, which is based on thorough review of all the empirical studies published in excellent academic journals in the areas of accounting and strategy. The study discusses update knowledge on the impact of CPMS. The major outcomes emphasizing a number of implications for researchers interested in this field, analysis as they might have a significant influence on the long-term consequences of

CPMS, variations, and gaps as well as providing direction for future research. Based on result also, the consequences of CPMS might be best explained by adopting other theories as has been proposed in other complex fields.

Keywords: Contemporary performance measurement systems, key performance indicators, organizational, Performance, diverse performance measures, strategic performance measurement.

INTRODUCTION

Today, contemporary performance measurement system (CPMS) involves the use of financial and non-financial performance measures (PM) connected to the organization's strategy. CPMS has added positive value to the organizations competitiveness helps an organization to translate its strategies in executable results by combining resources. The widely held model of CPMS is balanced scorecard it considers as an ideal system is which supported use of a mixture of financial and non-financial measures (Cheng, Luckett, & Mahama, 2007). Franco-Santos et al. (2012) argue that a CPMS exists if financial and non-financial PM are used to operationalize strategic goal.

The prominence of this matter arose from the assumption that CPMS is an essential tool that enables the organization to accomplish and control its favorite objectives. Furthermore, such tool assists managers to balance the pressures and tensions between progression and growth versus control, short-term performance versus long-term performance, and opportunities versus threats (Simons, 2000).

Ambalangodage, D., Fie, D. Y. G., & Gunawardana, K. D. (2015) and Franco-Santo (2012) they assume that the role of performance measurement system is to evaluate performance and comprise of supporting infrastructure. They Incorporated knowledge on the consequences of CPMS by conducting a review of the existing empirical evidence from the literature on their studies which adopted as a base to the current topic to be elaborated. Specifically, in identifying

and categorize the consequences of CPMS studied in the literature, providing a guiding to formulate a framework that integrates them were classify the consequences of CPM into three categories: people's behavior, organizational capabilities, and performance consequences. (Franco- Santo et. al. 2012). Accounting, operations, and strategy scholars have examined the effects of CPM systems. Researchers have used an array of research methods, such as case study research (e.g., Bititci et al., 2006; Kolehmainen, 2010), experimental research (e.g., Lipe and Salterio, 2000, 2002; Tayler, 2010). Researchers have focused on different levels of analysis, and, survey research (e.g., Burney and Widener, 2007; Cheng et al., 2007; De Waal et al., 2009), quasi-experimental research (e.g., Davis and Albright, 2004). Researchers have also investigated the effects of CPMS taking into consideration aspects such as their particular design, implementation, or use (e.g., Speckbacher et al., 2003). However, there is still a lack of accord on the definite consequences of CPM. This study also aimed to describe the diverse sets and mechanisms by which CPM is acknowledged to influence people's behavior, capabilities of the organizational performance. In the literature.

Defining And Categorizing Of Cpms

It is essential to note that in the literature, the expression "CPMS" is often used interchangeably with other phrases such as "integrated performance measurement" (Bititci, Carrie, and McDevitt, 1997), "comprehensive performance measurement" (Hall, 2008), "strategic performance measurement" (Burney and Widener, 2007; Ittner, Larcker, and Randall, 2003), or "business performance measurement" (McAdam and Bailie, 2002). Definitions by scholars highlight the importance of comprehensiveness and strategic link in performance measurement system but Henri (2006) raise the issue of periodic revision on measures to reflect environmental changes. Therefore to be precise in defining CPMS, three elements should apply; comprehensive, strategic and dynamic. It should consist financial and non-financial measures, clearly, link to strategic

objectives and reflect the surrounding environments (Ruhanita et. al. 2014). Agreeing to the existing literature, CPMS, and related studies have been started by the diversity of researchers from dissimilar perception and perspective. Therefore, the literature lacks an agreed definition. So this issue may generate misperception, restricting the potential for scholars to match diverse studies or compare them in this field.

Moullin (2002) defined PMS as a tool for evaluating how well organizations are managed and described the value they deliver for customers and other stakeholders. Franco-Santos et al. (2007), defines CPM system by focusing on its necessary and sufficient conditions. They argue that a CPMS exists if financial and nonfinancial PM are used to formularize strategic objectives. Franco-Santos definition is based on a three rules. Firstly, it assumes that the role of CPMS is to evaluate performance for either informational or motivational purposes (regardless of the organizational level at which performance is evaluated). Secondly, it assumes that CPMS comprise a supporting infrastructure, which can vary from being a simple method of data collection and analysis using, simple Excel sheet to a sophisticated information system facilitated by enterprise resource planning platforms or business intelligence solutions. Finally, it assumes that CPMS involve specific processes of information provision, measure design, and data capture, regardless of how these processes are conducted.

Agreeing to the definition proposed, such systems as those based on the BSC (Kaplan and Norton 1992, 1996, 2001), the performance prism (Neely et al., 2002), or the levers of control framework (Simons, 1995) are considered CPM systems. PMS implementing various KPIs which linked to the organization's business strategy are also considered CPM systems, however, systems such as traditional budgeting systems or activity-based costing systems will not be considered CPM systems, mainly because they focus on cost drivers that are measured in financial terms only. Thus, they do not meet the requirement of having both financial and non-financial PM (Franco-Santos et al. 2007; 2012). Changes in social, economic and technology are forcing PMS to be contemporary. Despite off producing positive change in organizational culture, understanding customer needs and perform strategic management roles, the roles of PMS has evolved to new roles such as for continuous improvement, organizational learning and change management,

define strategic (Pinheiro de Lima, Gouvea da Costa, Angelis, & Munik, 2013). The attributes and use of CPMS have significant indirect effects between the differentiation strategy, environmental competitiveness and organizational performance relations (Amizawati, 2011).

A definition is helpful for illuminating what a CPMS is and what it is otherwise. Speckbacher et al. (2003) discuss that a single definition does not capture the complex nature of these systems. They propose that for research commitments a comprehensive and broad typology should be used instead. They found the organizations use three different versions of BSC, type I, type II and type III. Consequently, Franco-Santo et. al. (2012) adapted Speckbacher et al.'s typology to their research needs, they found 76 papers that met their review selection criteria. Four CPM system types have been identified. As a result, they use a CPM typology where the first two types of their CPMS are similar to Speckbacher et al.'s types I and II, but the rest differs. They describe their typology to clarify how they classify their findings and present the variables and relationships studied.

Franco-Santo et. al.'s first type of CPM system named type A, which includes financial as well as non-financial PM implicitly or explicitly linked to strategy and , are used to inform managerial decision-making and to evaluate organizational performance. Type of PMS include informing managerial decision-making and to evaluate organizational performance; and financial and non-financial PM connected to strategy, showing explicit cause-and-effect relationships among the measures. Type C this reflect to inform decision-making and evaluate organizational and managerial performance (without linking the performance evaluation results to monetary rewards) as well as include financial as well as nonfinancial PM implicitly or explicitly linked to strategy as researchers concentrate on the consequences of PMS.Type D researchers have investigated the consequences of PMS that contain financial as well as non-financial PM implicitly or explicitly linked to strategy, and; used to inform decision-making, influence monetary rewards, evaluate organizational and managerial performance (Franco-Santo et. al., 2012).

RESEARCH METHODOLOGY

To measure comprehensible study results, a qualitative study was conducted. Although to gather with such investigation, various primary approaches can generally be used (e.g. intensive interviews, group discussions, and questionnaire examination), the present study focused on data gathering through recent past literature. For this reason, several study related material (i.e. journal, conference papers, articles) were evaluated. Saunders et al. (2007) suggested that through utilization of such approach, more accurate and reliable information can be obtained. As the impact of CPMS has come in many aspects, with wide-ranging consequences, the researchers delved first into knowing few of the recent PMS current issues.

Consequences Of Cpms

For the descriptions, the diverse consequences of CPMS researched in the literature in terms of People's behavior, organizational capabilities, and performance. CPMS are called strategic expert systems through which organizations observe and measure their intangible elements of performance, both in the form of qualitative and quantitative assessments (Franco-Santos et al., 2007). Whereas practicing these systems, organizations also observe and monitor internal and external opportunities and threats that results, and intangible resources in strategic processes. PMS can be realized as an enabler of the strategic learning process (by providing feedback, identifying problems, discovering opportunities) (Wouters and Wilderom, 2008). Hence, CPMS should have its own results or consequences.

Franco-Santos et al. (2012) identified and categorized into three consequences the comprehensive performance measurement systems, namely, people's behavior, organizational capabilities, and performance consequences by reviewing the existing empirical evidence the study was conducted by focusing on two research questions, i) what are the consequences of contemporary performance measurement systems? And ii) what theories have been used to explain the consequences of contemporary performance measurement systems? They conducted the literature review by tracing a six step- process and Table 1 shows the process. As mention, earlier the researcher reviewed broadly, 76 empirical articles. Finally, they were able to identify and classify

three consequences of CPMS which would be considered as consequences of CPMS in their study.

Step 1	Step 2	Step 2	Step 4	Step 5	Step 6
A scoping	Searching of	Selecting	Reading the	Classification	Combining
study based	the literature	those studies	papers selected	of the effects	the insights
on an ad hoc	and	which meet	and developed	of	extracted
list of	identifying	the specific	a data set	contemporary	from the
empirical	the relevant	selection	including the	performance	literature
papers that	studies for	criteria.	main variables	measurement	review in
focus on	the review		and	systems	order to
consequences			characteristics		answer the
of CPMS			of each study		research
					questions

Table 1: A six-step process to review the literature for CPMS consequences(Franco-Santos et al., 2012).

Consequences for People's Behavior

According to Franco-Santos et al.'s CPMS four types (A, B, C &D) of the implementation of CPMS affects the behavior of people in a number of ways. This section explain these types of consequences in detail. To drive motivation impact the CPMS should be developed and used in a way that enhances the employees' participation, psychological empowerment, and goal commitment; through increased perceptions of self-efficacy and goal attractiveness, (Franco-Santos et al., 2012). The CPM system should also comprise PM that is strategically associated, controllable, timely, and technically usable and valid. An issue that remains unresolved is the extent to which the link between PM and bonus payments is desirable based on the negative data found by Malina and Selto (2001). *In Strategic focus impact researcher recommend* that the usage of a CPMS improves executives' considerations and discussions about strategy and supports to focus the efforts of administrators and executives on what is important for the organization. They reach agreement on the effect that CPMS have on people's strategic focus, studies finding this consequence based on qualitative data (e.g., Ahn, 2001; Butler et al., 1997; Jazayeri and Scapens, 2008; Sandstrom and Toivanen, 2002). In quantitative studies, the impact
of CPMS on people's strategic focus, it considered as main supporting arguments explaining how the CPMS is able to affect performance as general.

For Cooperation, coordination, and participation impact, observing the consequences of CPMS on relationships, the researcher found a number of studies reflecting the matter. Cruz et al. (2011) focus on globally dispersed sub-units and the use of a CPMS provides better coordination and control among them. Related to the CPM effect on cooperation is the effect of CPM systems on employee participation and involvement. Butler et al. (1997) observe how the consultative process required for the progress and implementation of CPMS enhances participation, this finding is aligned with the work of Kolehmainen (2010), Papalexandris et al. (2004), and Sandstrom and Toivanen (2002), which suggests consensus regarding the positive impact of CPM systems on employee involvement in the organization's PM and management process. While Citizenship behavior *impacts stated by* Burney et al. (2009) they reveal the special effects that CPMS have on organizational citizenship behaviors (OCB), which are above and beyond the necessities and requirements of the job. They find that the adoption of CPMS type D positively affects employees' OCBs through the positive impact the use of this system has on procedural justice (Franco-Santo et. al. 2012). That is why this area of inquiry deserves more attention, as the positive behavioral effects of CPM type D supported by Burney et al. (2009), whilst contrast with the effects found by other researchers such as Malina and Selto (2001).

Even though for role understanding and job satisfaction; the effect of CPMS on role understanding, showed by surveys of Burney and Widener (2007), Hall (2008), and Cheng et al. (2007) are highly relevant. Burney and Widener (2007) find that the adoption of CPM type B systems facilitates the provision of job-relevant information, which in turn decreases people's perception of role conflict and role ambiguity unclear information about job duties, and responsibilities. There is evidence suggesting that CPMS affect the extent to which people understand their role requirements and are satisfied with their jobs.

Regarding decision making, learning, and self-monitoring; the consequences of CPMS on managers' decision-making processes, learning, and self-monitoring has also received great consideration in the literature. Research evidence suggests that CPMS help managers learn about

how to best improve their performance when appropriate feedback mechanisms are in place (Tuomela, 2005). For the leadership and culture; Bititci et al. (2006) observe that the successful implementation and use of CPM systems leads to cultural change and to a more participative and consultative leadership style. Jazayeri and Scapens' (2008) research examines the specific use of a CPMS as part of a cultural change project. In addition to the CPMS usage Satisfaction; *most of studies show that individuals are satisfied with the usage of CPMS at least in the short term, which is when satisfaction is mainly assessed. This is the case in the survey work conducted by Ittner, Larcker, and Randall (2003) with other carried out by Malmi (2001) and Jazayeri and Scapens' (2008). Thus they have assessed the degree to which people are satisfied with the use of CPMS as a way of examining the effectiveness of such type of systems.*

In the case of Perceptions of subjectivity, justice, and trust; some researchers approve that CPMS convey subjectivity issues, but the extent to which this subjectivity is helpful or not is still debatable. Ittner, Larcker, and Meyer's (2003) research was the first to note that the use of CPMS for assessment and wage purposes i.e CPMS type D increase the managers' perceptions of subjectivity and uncertainty. It can bring the direct result of the trouble in assessing many nonfinancial performance dimensions using objective metrics (Franco-Santos et al., 2012). While the Judgement biases; showed a giant part of literature, generally built on experimentations and investigations with management students, has recognized and documented the specific performance appraisal and assessment biases that emerge with the adoption of CPMS. The initiators of this form of research are Lipe and Salterio (2000). They examine how the BSCs of business units that include common and specific measures affected the superior's evaluation of the unit's performance. Evaluators made performance decisions based on the measures common across the business units. Finally the Conflicts and tensions; researchers state CPMS possibly will create conflicts and tensions among individuals and teams. Malina and Selto (2001), an example, describe how the one-way reporting adopted in a BSC case study generates tensions that contribute to a climate of distrust and alienation. Marginson (2002) suggests that top management's use of CPM systems creates tension, especially during the actual evolution of new measures, ideas, and initiatives.

Consequences for Organizational Capabilities

The literature has examined the influence of CPMS on organizational capabilities in terms of, first, Strategy processes, its alignment, development, implementation, and review; CPMs have been found to positively influence the organization's strategy processes. Researchers originate that CPM systems are effective mechanisms for; engaging managers in the strategy formulation and review processes, enabling the strategy to be implemented as it facilitates the translation of strategy into operational terms, encouraging managers to hold organization's strategy as a continuous process rather than a one-off exercise, and, improving strategic alignment, i.e., helping organizations align their actions in pursuit of their strategic objectives (Ahn, 2001; Chenhall, 2005). While The Communication; reflects strong agreement on the impact of CPM systems on its processes. This effect has been examined only through qualitative research studies. For instance, case studies conducted by Ahn (2001), Butler et al. (1997), Godener and Soderquist (2004), McAdam and Bailie (2002), Papalexandris et al. (2004), Tuomela (2005), and Sandstrom and Toivanen (2002) highlight the beneficial effects of CPM systems on communication processes at all levels of the organization.

However, the Strategic capabilities consequences have directly investigated the impact of CPMS on a set of organizational strategic capabilities. Majority of the researchers adopt Simon's levers of control framework (1995) and use a resource-based view approach (Barney, 2001). These researchers argue that CPMS influence the strategic capabilities of organizations (specific abilities, processes, or competencies that help the firm gain competitive advantage) through the routines they stimulate. Whereas in Management practices and corporate control; the literature also explores the consequences of CPMS on management practice. Using case study research, Ahn (2001) suggests that CPMS are effective management devices as they integrate key management processes such as strategy development, communication, translation of strategy into operational terms, strategic feedback, and learning. Wouters and Wilderom (2008) and many others (e.g., Johnston et al., 2002; Malina and Selto, 2001; Papalexandris et al., 2004) point out that CPMS may not always be effective management mechanisms. Meanwhile, for corporate control, three studies on the impact of CPMS on corporate control focused. These are the studies

conducted by Cruz et al. (2011), Dossi and Patelli (2010), and Kraus and Lind (2010). Cruz et al.'s case study found that CPMS enhance the visibility and comparability of the performance of sub-units, providing better coordination and control. Dossi and Patelli's survey showed that CPMS can facilitate corporate control of subsidiaries, as the system strengthens strategic alignment and encourages dialogue between headquarters and subsidiaries, specifically through the use of non-financial performance indicators. The case study work of Kraus and Lind challenges the results of previous research. They find that the use of CPMS at the corporate level has little impact on corporate control of international business units.

Consequences for the Organizational Performance

CPMS have been found to influence performance at all levels of the organization these phenomena described in terms of:

i) Organizational and business unit performance; the researchers that have investigated the impact of CPMS on firm performance have operationalized performance in different ways. Franco-Santo (2012) have classified these into two groups: reported performance and perceived performance. Reported performance includes both financial (e.g., accounting, market) and non-financial performance (e.g., customer satisfaction) mainly based on the companies' annual reports. Perceived performance includes both financial and non-financial performance based on the research participants' perceptions of firm performance (e.g., perception of aspects such as performance outcomes, performance improvement, strategic goals achievement, and customer performance). The results of these two bodies of research are quite diverse.

ii) Team performance; for this part only two studies explore the consequences of CPM on team performance. Scott and Tiessen (1999) report that the use of CPMS improves the performance of teams. They find that performance results are enhanced when a) the team members participate in the setting of performance targets, and b) teamwork is encouraged when team measures are a significant component of the individual's incentive compensation. The work of Davila (2000) focuses on project teams and shows that project performance in product development contexts

improves when CPM systems are used, even though this positive impact is moderated by product uncertainty and product development strategy.

iii) The Managerial performance; research exploring the impact of CPMS on managerial performance. This research emphasizes the importance of cognitive and motivational mechanisms for understanding how CPMS affects individual results. The work in this area shows that CPMS indirectly affect the performance of managers by reducing the manager's role ambiguity (Burney and Widener, 2007) as well as goal conflict (Cheng et al., 2007); by enhancing the psychological empowerment, goal clarity, and learning of managers (Hall, 2008, 2010); and by encouraging organizational citizenship (Burney et al., 2009). iv) Inter-firm performance; the effect of CPMS on inter-firm performance has received little attention in the literature. Only Cousins et al. (2008) and Mahama (2006) have explored this phenomenon. They both look at the supply relationships, finding that CPMS enhance perceived inter-firm financial and non-financial performance indirectly by improving cooperation and socialization among the firms.

DISCUSSION AND CONCLUSIONS

Clearly, it can be deduced that CPMS has opened gateways to contribute to a complete understanding of the actual consequences of strategic systems, While analyzing the major pros and cons involved with the concept of CPMS, this study concludes that with the changing times, the need for comprehensive CPMS and its benefits outweighs the problems associated with it. The study suggests that CPMS significantly affect people's behavior, organizational Capabilities, and organizational performance. More specifically, the data support the claim that CPMS play a key role in strategy, communication, and management processes, generating organizational capabilities that enable the organization to excel (e.g., Eccles, 1991; Ittner and Larcker, 1998; Kaplan and Norton, 1996, 2001; Melnyk et al., 2004). CPMS facilitate the development, implementation, and review of business strategies by focusing people's decisions and actions on strategic goals and by encouraging a continuous dialogue about strategic endeavors. CPM systems affect communication processes by requiring and providing relevant information that

influences how people think, act, and interact. CPM systems influence organizational routines and management practices by changing the way leaders behave. All of these effects have a subsequent impact on performance at all levels. The evidence reviewed also supports the privilege that the extent to which a CPMS are positively influencing people's behavior, organizational capabilities, and, ultimately, performance is directly related to the way the system is designed, developed, and used, and to how well it fits the context in which it operates (e.g., Otley, 1999; Neely, 2005; Franco- Santos and Bourne, 2005; 2007; 2012). Regarding CPM systems design, researchers agree that to be effective these systems must comprise PM and targets that have high strategic alignment, controllability, timeliness, and technical validity (especially when used for compensation purposes). Based on Franco- Santos et. al.'s result also, they stated that the consequences of CPMS might be best explained by adopting other theories as has been proposed in other complex fields. Finally, the data suggest that the effectiveness of CPMS is moderated by internal contingencies such as the employees' experience or the organization's strategic orientation, structure, information systems, culture, and management style, along with external contingencies such as competition or the degree of environmental uncertainty in which the organization operates.

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Online Journalism Role in Public Mindset Change and Political Conflict: The Case of Malaysia

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ABSTRACT

These last few years, since the advent of online journalism, especially independent journalism, Malaysia, as many other developing countries in the world, has been trapped in several antigovernment protests and social movements that tend to topple the government and make political reforms. Online journalism has reshaped the public mindset (beliefs, thoughts, and perception towards the hegemonic government and norms). Some citizens/netizens have become political savvy, outspoken, rebellious, and they want a more democratic government. This paper examines the role of online journalism in reshaping public mindset and its relationship to the political conflict that engulfed the nation this last few years (2015-2016). The objectives of this study is to examine online journalism political coverage, explore its role and capabilities in changing public beliefs and perceptions, and underline the extent to which this change affected the hegemonic ruling party and raised political conflict. This study applied a mixed methods approach with concurrent (convergent) triangulation design and employed three methods for data collection (1) survey, 2) content analysis, and 3) in-depth interviews). The survey results show that urban citizens, who often read online news, especially independent / alternative online news, no longer support, believe, or trust the government today, and most of them want this latter to change. Through examining series of online news content and political coverage, and conducting several in-depth interviews with experts, the researcher found out that online journalism having brought new dimensions/features to local journalism (such as investigative reporting, critical reporting, democratic reporting, and borderless / independent reporting) that force the spread of democracy, freedom of speech, and international values, it has had great impact on the public beliefs and perceptions, as well as on the government and political scenario in Malaysia. The internet cyberspace (online journalism) has created a new generation with different kind of thinking that clashes with the conventional constitutions and norms.

Keywords: Online journalism. Public Mindset change. Government. Political turmoil/conflict.

INTRODUCTION

During this decade, the world has commonly witnessed serious mass protests and political crisis sparked in many developing, non-democratic countries from Africa to the Middle East to Latin America and South East Asia. Past studies found out that online journalism, hand in hand with social media (Facebook, Twitter, YouTube), has been used as an instrumental tool in mobilizing public revolutions particularly in developing, suppressed countries (eg. the Arab Revolution or the so-called `Arab Spring` 2011) (Madeline Storck, 2011; Joel Simon, 2012). The Arab revolution is a global phenomenon in which repressive regimes face a threat from online citizen journalism... They cannot deny the reality that their populations are witnessing online" (Joel Simon, 2012). Online journalism played an important role in accelerating democratization and paving the way towards political reforms (Africa Online Journalism, 2014). The internet media have given the public a voice and power to choose or oust their leaders (David Girling, 2014). The Google executive, Wael Ghonim, who was a central figure in the Egyptian protest movement (the Arab Upraising 2011) that toppled President Hosni Mubarak, sarcastically said, "If you want to liberate a society, just give them the Internet. If you want to have a free society, just give them the internet".

Even though Malaysia is a democratic country, it did not escape from series of protests against the government (eg. Bersih1,2,3,4) that demands more democracy and political reforms. As 2008, the political turmoil persists in Malaysia when Malaysians turned to alternative media news and information (Wong, 2008). The opposition party, social activists, and their pro-democracy journalists and supporters have been using the social media to reach the mass population and arrange social movements and protests (Madeline Storck, 2011). The opposition found an avenue in the new media to air their grievances and reach their supporters (Ali Salman, Faridah Ibrahim, Mohd Yusof Hj.Abdullah, Normah Mustaffa, and Maizatul Haizan Mahbob, 2011). Online journalism serve as both a conduit for political information and a major public arena where citizens express and exchange their political ideas; raise funds; and mobilize others to vote, protest, and work on public issues (Joseph Kahne, Ellen Middaugh, Danielle Allen, 2014).

The internet provides the public not only a variety of different news and information, but also a free space where they can voice up their complaints, express their opinions, exchange ideas, debate on issues that matter them, and dissect, comment, and share (Millison 1999; Allen 2000; Hall 2001; Wolk 2001; Deuze 2003; Gunter 2003). Issues related to democracy, human rights, racism, extremism, and corruption that the mainstream mass media have been silent on, are today openly discussed in online journalism, especially in independent online journalism or the so-called alternative media online news portals (Ghazali, 2011). The Internet has been used to democratize public discourse in Malaysia (Cherian George, 2006). But, people who consume more news online are likely to become civically and politically engaged in public revolutions/demonstrations, and political campaigns (John Wihbey, 2015). The fear was not only that the new media were fast, colorful and borderless, but also that they affect the mind and psychology of readers who opt for alternative media (Daud, 2008).

However, the literatures show no enough studies conducted in Malaysia on online journalism's role in reshaping the public mindset (beliefs, thoughts, and perceptions of government). This is very important, because by defining the effects of online journalism on the public mindset (beliefs, thoughts, and perceptions of government) we can know the real cause of the political turmoil and conflicts. The public would not take to street in a mass rally, defying authorities, to topple a regime unless their mindset are mastered and reshaped towards certain new ideologies or values that they want to pose. The researcher assumes that the political turmoil and conflicts have

been sharpened in Malaysia when online journalism reshaped more citizens` beliefs, thoughts, and perceptions of government and norms.

Therefore, to understand in-depth this phenomenon, this study is set to review online journalism's coverage, explore how online journalism reshapes the public mindset, and examine the relationship between this change to the political conflict that engulfed Malaysia these last few years. To collect relevant data, the researcher employed a concurrent triangulation mixed methods approach, employing a survey, an online content analysis, and in-depth interview. The political conflict this paper looks at is the clashes between the opposition party/public/civil society and the BN government, between the government party UMNO members themselves. The online journalism to examine are the mainstream media online journalism, the independent online journalism or the so called alternative media, and citizen journalism.

Background / Context of the Study

These last few years Malaysia, as many other developing countries has witnessed several antigovernment protests and campaigns (eg. Bersih rallies, Citizens` Declaration) that tend to topple the Prime Minister Najib Razak and change the Barisan Nasional (BN) government or the system over independent online media reports and allegations, which gave a rise to serious political turmoil and conflict and that threatened political stability and national security.

Only few years back, before the advent of online news media, especially independent/alterative media, and social media, all the citizens were in a good term with Barisan Nasional (BN) government that ruled Malaysia since Malaysia independence 1956. They used to trust and support this latter, for decades. The mainstream media/traditional media (TV, radio, newspapers, magazines) at that time were the only source of news and information. And the public used to read, view, listen, and believe. State TV channels, and newspapers were part of the equation in maintaining the nation identity, culture, traditions, harmony, and security.

But, at the same time, there was no complete free press in Malaysia, though Malaysia claims to be democratic for decades. Journalists were disconnected from the public, and never dared to write negatively about the leaders or give any independent views. The mainstream media/traditional media have been "heavily influenced by governments through various mechanisms and forms of control (Benerjee, 2011). The voice of the public or the opposition party were not represented or heard, indeed. Before, the advent of internet media, citizens in many suppressed countries were living in a fixed mindset, not well-informed, controlled and dumped by the mainstream media used to master public thoughts and perceptions. They used to tell the public what to think about the government. All the mainstream media (including TV, radio, newspapers, including their online versions) set aside from talking about issues of public interests or issues that matter the public most, "and fill pages with government speeches and campaigns and generally ignore the opposition (Lent, 1982).

However, technology has changed everything. With the advent of online media, especially independent/alternative media, hand in hand with social media (Facebook, Youtube, Tweeter, etc.) and smart phone devices, the public started to set free from this paradigm, and the mainstream media, especially newspapers almost lost credibility and readership, while digital media filled the void. Digital technology and social media have dramatically reshaped how news is gathered, reported and consumed (Jenna Dutcher, 2015). And also provides readers and journalists a free sphere where they can voice up, express their opinions, exchange ideas, debate on issues that matter, dissect, comment, and share. The Internet has been used to democratize public discourse in Malaysia (Cherian George, 2006). Perhaps among the reasons why new media appear credible are the perceptions that the conventional mainstream media in Malaysia are government controlled (Ali Salman, Faridah Ibrahim, Mohd Yusof Hj.Abdullah, Normah Mustaffa, and Maizatul Haizan Mahbob, 2011). The voices of the public and the opposition party started to be heard only when online journalism came. The opposition found an avenue in the new media to air their grievances and reach their supporters (Ali Salman, Faridah Ibrahim, Mohd Yusof Hj.Abdullah, Normah Mustaffa, and Maizatul Haizan Mahbob, 2011). Moreover, "the

internet media have given the public a voice and power to choose their leaders, especially with the emergence of social media (David Girling, 2014).

However, reporting and discussing some political issues without border, or spreading some new political ideologies through the internet media would negatively affect citizens` beliefs and perceptions of the current government and norms and raise political conflict.

PROBLEM STATEMENT

Online journalism's changing the public mindset towards the government and norms has raised a severe political conflict in Malaysia these last few years. Its political coverage and exposure of government's corruption and wrongdoings, for example, have created much disbeliefs and negative perceptions among thousands of citizens. Reading and engaging in online political news and issues, and being influenced by its different views and ideologies, many Malaysians have become more political savvy and outspoken, yet skeptical, sarcastic, and rebellious against the government and norms, these last few years. Their perceptions and beliefs have completely changed toward the government - they no longer trust or believe this latter, since they turned to online media, especially independent/alternative media. Some of them have become anti-government and pro-opposition - they criticize the government on social media and news portals' comment feeds, and even engage themselves in street rallies and political campaigns to topple the Prime Minister Najib and the BN government for political reforms.

For example, the online media revelations about the RM2.6 billion and 1Malaysia Development Berhad (1MDB) allegations involving the Prime Minister Najib Razak in corruption, have not only changed many Malaysians' perceptions towards the Prime Minister Najib and BN government, but they raised questions about the government credibility, and even brought thousands of protesters to the street in a mass rally (Bersih4 or yellow t-shirt rally), on 29-30 August 2015, demanding the Prime Minister Najib Razak removal and political, systemic reforms. The public revolution (Bersih4) is still going on since August 2015 till today 2016, not on the street but on the internet media and social media instead - a hidden `digital public

revolution` where rebellious citizens - `keyboard warriors` are using the internet to voice up, criticize, and protest against the regime. "The future looked dark for Malaysian Prime Minister Najib Razak when it was reported that investigators probing alleged mismanagement at state fund 1MDB had traced a payment of nearly \$700 million to a bank account under his name" (Reuters, 11th August, 2015). The younger brother of the embattled Malaysian Prime Minister Najib Razak, Nazir Abdul Razak has described the current political situation as the "darkest political times" (The Straits Times, 6th July 2015).

Malaysia has never witnessed a political conflict (between the public/civil society and the government) like this before. Never in Malaysia history was a rally in which citizens called a Prime Minister to step down, or accusing him of corruption, or criticizing him openly on social media, and with the support of a former Prime Minister like Dr. Mahathir. Deputy Prime Minister Ahmad Zahid Hamidi said there was no such demonstrations have ever been held before in the country since 1998 which specifically demand for the Prime Minister to resign (Free Malaysia Today, 29th October, 2015). The Prime Minister Najib said, the country is facing challenging times which is different from the issues of 90s and 80s, due to the rise of social media "that `negatively influencing people`s mind" (The Straits Times, 9th August 2015).

Online media, especially independent online media have also affected the elections results while managed to influence the monds of many citizens. In 2008 (and 2013 as well) general elections, the BN government, for the first time in history, have lost many seats for the opposition. Malaysia's premier Abdullah Ahmad Badawi said, his 'biggest mistake' in disastrous elections was to ignore `cyber-campaigning` on the Internet...'We certainly lost the Internet war, the cyber-war" (AsiaOne, 2008). The Prime Minister Najib said, the results of the General Election 2013 were influenced by the `Chinese Tsunami`, referring to the Chinese Malaysian minority who all of them no longer want to support the government.

Besides the ideological political conflict in Malaysia, the researcher, as many other commentators, observed that there is a severe ethno-political conflict going on in the Malaysia multi-racial country while the Chinese minorities that make 25% of the Malaysia population,

have changed their views on BN government and gave their full support to the opposition party mainly DAP.Global analysts Stratfor warned of ethnic divisions in the years ahead as population changes affect the racial balance. "The greater danger lay in population changes and the prospect of ethnic strife and resentment fuelled by Malaysia's bumiputera policies," Stratfor said, pointing to the Barisan Nasional's loss of support from Chinese and Indian voters in 2008 and 2013. (FreeMalaysiaToday, 24th October 2015).

Moreover, under the online media attack, public criticism, demonstrations, and public trust deficit, the Umno party members have divided as well. Many Umno veterans and leaders have turned against the Prime Minister Najib over online media reports and allegations. Many UMNO critics have been suspended and sacked from the party and ministry, some of them have joined the opposition party such as the ex-Deputy Prime Minister Muhyiddin Yassin, Mukhriz Mahathir, and Dr. Mahathir and many others, and they became severe critics against the Prime Minister Najib and UMNO party. "Prominent members from Malaysia's ruling and opposition parties have joined forces to call for Prime Minister Najib Razak to step down. Najib has been plagued by corruption allegations, although he denies them and has been officially cleared up by the Attorney General. About 58 politicians and activists urged Najib to quit, saying the country would get "worse and worse" under him. However, Najib's spokesman accused the group of "political opportunism" (BBC News, 4 March 2016).

This shows that online journalism has had a big influence on the public minds, beliefs and perceptions, as well as on the government and political scenario in Malaysia. However, to understand in-depth this phenomenon, this study is set to review online journalism's coverage, its users' views of government, explore how it reshapes the public mindset, and examine the extent to which this change affected the government and raised political conflict in Malaysia these last few years.

RESEARCH QUESTIONS

- 1. Why today more Malaysian citizens are shifting to online news media, especially independent / alternative media?
- 2. How does online journalism change the public mindset towards the government?
- 3. To what extent online journalism's public mindset change affected the (BN) government and raised/ sharpened political conflict in Malaysia these last few years?

RESEARCH OBJECTIVES

- 1. To review Malaysia online journalism's practices (political coverage).
- 2. To explore the role and capabilities of online journalism in changing the public`s mindset (beliefs. thoughts, and perceptions) towards the government.
- 3. To examine the extent to which online journalism`s public mindset change affected the (BN) government and sharpened political conflict in Malaysia (these last few years).

Research Assumption / Hypothesis

- 1. The political turmoil and conflict in Malaysia sharpened when more Malaysian citizens changed towards the government.
- 2. Those who often read online news and information are likely to change their mindset (beliefs, thoughts, and perception of government.

The Importance of the Study

- This research is very important because it sheds light on the local media, and its contribution to the development of the nation.
- More importantly, literatures show that not enough studies have been conducted in Malaysia on the role of online journalism in changing public mindset towards the government and norms.
- This research will widen our knowledge and understanding of online journalism.

From this research we will foresee the future of local media/journalism and know whether online journalism is leading Malaysia to better or worse state.

LITERATURE REVIEW

These last few years, the political turmoil and conflicts sharpened in Malaysia when more citizens have changed their mindset towards the government via online journalism / internet media. In order to discuss how online journalism changes the public mindset and raised political conflict in Malaysia and elsewhere, it's fundamental to look at the existing researches pertaining this issue. This chapter provides an in-depth understanding of the most important variables used in this study and looks at the relationship between them - online journalism, public mindset change, and political conflict in Malaysia.

Online Journalism

Online journalism known as internet/online/digital media is a new trend of journalism in Malaysia as in many other countries. It arrived to Malaysia for quite a long time since 1996, but it is still considered to be a relatively new phenomenon, as it got much popularity only recently, after the emergence of social media (Facebook, Tweeter, and Youtube), smart phones mobiles in Malaysia, and advanced internet technology. It started in USA and other developing countries since 1982, and it got popularity in these countries only after 1991 with the release of the world wide web (www) (Carlson, 2001; Medialinks, 2001; Deuze, 2003; Marcos Palacios, Javier DíazNoci, 2012).

In defining online journalism, Shirley Biagi (2007) said, "digital media are all similarly constructed with digital, binary code made up of ones and zeros... Instead of paper being the medium for books, radio waves being the medium for sound broadcasting, and cables being the medium for cable television, a person can now read a book, listen to the radio, and access many cable television shows on the Internet. Digital media read, write, and store data (text, images,

sound, and video) using numerical code, which revolutionized media more quickly than ever before (Shirley Biagi, 2007).

What distinguishes Online journalism from the traditional media (TV, Newspapers, Radio) is its features and parameters such as interactivity, multimediality, hypertexuality, and immediacy. Online journalism is not simply online news, but covers a much diverse area of online newspapers, informative websites, weblogs, bulletin boards, and chat rooms, where news sources, webmaster, and participants discuss, share and debate ideas, opinions, and thoughts that concerned public interest (Millison, 1999; Allen 2000; Hall 2001; Wolk 2001; Deuze 2003; Gunter 2003). Banerjee (2008) refers to online media as the new media which have radically different characteristics. The new media such as the Internet can be used for both points to mass communications as well as point to point and mass to point message distribution. They are also extremely de-centralized, require very low investment, provide greater interactivity and public participation and are much more difficult to control (Banerjee, 2008).

The online versions of the mainstream presses are principally 'mirror' of their print versions, which also tell us that they are abided to the Printing Presses and Publication Act 1984 (PPPA 1984) and precisely the licensee system (Rahmat Ghazali, 2011). Examples of Malaysia mainstream media online news portals are: Utusan Online, StarOnline, MalayMailOnline, BeritaHarianOnline, NewStraitsTimes Online, and many others. In Malaysia, there are about 80 socio-political blogs, most of are independent (Kokkeong Wong, 2008). " People are now free, and have the opportunity to create their own news as well as to get the other side of the story by getting news from the Internet which is seen as free from control" (Rosenstiel, 2005). "In the long run, these tendencies may be the most revolutionary aspects of the new media environment" (Bennett, 2003). Ordinary people became the reporters of news as well as participating in media productions, creating what became known as 'citizen journalism' (Gillmor, 2004).

News websites are still not a major threat to the newspapers and magazines but who knows within a decade when almost all of our educated people will have access to Internet, the same thing can happen (S.M.Mehdi Hassan, Razib Ahmed, 2012). According to Cheney Thomas

(2013), online journalism has already affected newspapers with many local papers unable to afford to continue printing, and the fear is now that larger scale publications will diminish or become exclusively available online. With this move it is very likely that there will be an even greater shift away from the traditional role of journalism towards that of a social media writer...As citizen journalists gain more power and influence in online media and as an outlet for news, one can only wonder what will happen to the journalist and their publications in the future.

Many scholars from different countries argued on how online journalism attract millions of viewers today than the mainstream media or traditional media. Deuze (2001) related the benchmarks for online journalism success to its parameters mainly interactivity, multimediality, and hypertexuality that provide online news readers the opportunity to watch, read, listen to. "Digital technology and social media have dramatically reshaped how news is gathered, reported and consumed". A survey by Jennifer Alejandro (2010) also reveals that "journalists are beginning to leverage on social media to receive, gather and distribute news.". As the Internet and new technological devices advanced, methods and the way of reporting also keep changing (Sohee Park, 2013). According to Malaysiakini chief executive officer Premesh Chandran (2015), the consumption of online news continues to grow in Malaysia and elsewhere, with the huge growth in mobile, it's becoming clear that online portals now dominate the news agenda. Surveys show that 75 percent of Asian people access to Facebook on their mobile devices (Statista, 2015).

However, many studies show that many Malaysian citizens resort to online media not only because of its interactivity or immediacy or multimediality, but because of its quality content, independency, and newsworthiness. The new media gained popularity and acceptance because of the need to have freer information flow as the mainstream media is perceived to be controlled by the government" (Ali Salman ,Faridah Ibrahim, Mohd Yusof Hj.Abdullah, Normah Mustaffa & Maizatul Haizan Mahbob, 2011). Cherian Georg (2006) similarly found out that "News sites are relatively free of government censorship. Online newspapers and websites operate freely without being bonded by the Printing Presses and Publication Act. The mainstream media were blinded with the PPPA, Official Secret Act (OSA), Internal Security Act (ISA), Sedition Act, etc (Daud, 2008).

Moreover, the Internet has been used to democratize public discourse in Malaysia (Cherian George, 2006). Important issues linked to democracy, human and civil rights, and issues of ethnicity and religion, generally suppressed from the mainstream mass media have filled most of the space in online journalism particularly during and after the 1998 "(Rahmat Ghazali, 2011).

Online journalism plays an essential role in scrutinizing the local press so that the information in reports are not false and subject to bias (Dashti, 2008). This means that the mainstream media or traditional media can no longer lie to the public or hide the truths or avoid talking about certain issues of public interest in the present of online media.

The news mainstream media remained more entertaining than informing (Fog, 2004). Political news are more about personalities than about their ideologies. In the absence of serious debate, voters are left with paid political propaganda containing only meaningless slogans making them disinterested and cynical about politics (Bagdikian 1983; Fallows 1996; Capella and Jamieson 1997; Bennett and Entman 2001; Barnett 2002). Critics also complain that the media fail to report wrongdoings in the industry.

However, the internet media in Malaysia is not that totally independent or free from government control as one may think. The government are monitoring the internet media and social media, and they are blocking websites that they do not like. Example Sarawak Report, MalaysiaInsider and may other sites were blocked by the government overtime. Blocking news websites is "a form of censorship" according to Derisavi (as cited in Dashti, 2008). Moreover, as Gillmor (2004) warned "Anyone with a computer or a cell phone can post in online forums. Anyone with a moderate amount of skill with Photoshop or other image manipulation software can distort reality. Special effects make even videos untrustworthy - we have a problem here!"

Changing Public `s Mindset (towards the government)

Online journalism/internet media have changed everything in our life. And its biggest impact is left on the public mindset. Academic research has consistently found that people who consume

more news media have a greater probability of being civically and politically engaged across a variety of measures (John Wihbey, 2015). "When people in the developing world get online, the Internet typically becomes part of their daily lives" (Stephanie Pappas, 2014, LiveScience). The internet has become the main platform for free discussion and for exposing political corruption," (Freedom House, BBC, 2013).

Issues such as government's corruption, racism, authoritarianism, democracy, and human rights are today openly discussed on online news sites and go viral on social media in Malaysia. It is notable that freedom of expression as reflected in dissenting pieces, social and political criticism, discourse on issues of judiciary accountability, police brutality, and public corruption never before discussed in such diversity in the traditional mass media, have become common in online journalism, especially independent online newspapers, weblogs, and NGOs websites (Amnesty International 1999; Human Rights Watch 1999). Important issues linked to democracy, human and civil rights, and issues of ethnicity and religion, generally suppressed from the mainstream mass media have filled most of the space in online journalism particularly during and after the 1998 "(Rahmat Ghazali, 2011). The Internet has become the main platform for free discussion and for exposing political corruption" (Freedom House, 2013). The emergence of digital media has enabled minority groups to have a voice in the public arena, but it has not shifted the traditional media's practice of covering sensitive issues in a restricted, biased, or sensational manner.

The emergence of Malaysian online journalism, particularly online newspaper, in 1995, through the inauguration of the Star Online and the New Straits Times Online, to a certain extent did not function effectively as a tool of democracy and national integration (Siong, 2004). Open debates on social and political issues in online journalism were rampant during these years but such was never experienced through the conventional mass media (Rahmat Ghazali, 2007). In 2008 and 2013 general elections, the BN government which has been ruling the country for decades since Malaysia's independence in 1957, has lost many seats for the opposition party for the first time in history. After the 2008 general election result, Malaysia's premier Abdullah Ahmad Badawi said his 'biggest mistake' in the disastrous elections was to ignore `cyber-campaigning` on the Internet...'We certainly lost the Internet war, the cyber-war" (AsiaOne, 2008).

Raising Political conflict

Political conflicts are often ignited by individuals, groups or organizations like the elite or activists who happen to have some dissatisfaction over a particular issue (Golec & Federico, 2004). According to (Emily Pia and Thomas Diez, University of Birmingham, 2007), conflict is a struggle or contest between people with opposing needs, ideas, beliefs, values, or goals. A more appropriate definition of conflict is, therefore, the emphasis on the incompatibility of subject positions (Efinger et al. 1988; Galtung, 1975) cited at Thomas Diez, 2004. The reason behind the conflict is usually political. It is a crack between the public, political parties over different ideologies and interests. Conflict denotes the incompatibility of subject positions (Diez et al, 2006, 565).

Evidence suggests that new media are providing new opportunities for political voice and discussion, thus increasing the role of participatory politics in public life (Joseph Kahne, Ellen Middaugh, Danielle Allen, 2014). Online news media has been used not only to report on issues or delivering fast, immediate breaking news, but also delivering political information that could mobilize public participation, campaigns, and demonstrations. Social network sites, web sites and text increasingly serve as both a conduit for political information and a major public arena where citizens express and exchange their political ideas; raise funds; and mobilize others to vote, protest, and work on public issues (Joseph Kahne, Ellen Middaugh, Danielle Allen, 2014). John Wihbey (2015) found out that "people who consume more news online have a greater probability of being civically and politically engaged across a variety of measures. Kokkeong Wong (2008) pointed out that "as 2008, the political turmoil in Malaysia persists when more Malaysians turned to alternative media. Malaysia has experienced a number of incidences that challenged its national security and social harmony ... online journalism has also portrayed itself as a paradox to Malaysian social and political milieus (Rahmat Ghazali, 2011). In Malaysia political context, Mustafa K. Anuar (2005) argued that "the perceived power of the media to influence the public conscience provided Malaysian political leaders with grounds to regulate the media - the common one being if the media fell into 'the wrong hands' they could tear a nation apart, especially one that is multi-ethnic and multi-cultural.

Journalism seen in 1998 and the years that followed has turned out to be not only a channel for political protest, but also a key influence for democratic change and reform (Abbott, 2004). Many other academic studies also reveal that online journalism, mainly citizen journalism, hand in hand with social media, have played an instrumental role in mobilizing the Arab revolution (The Arab Spring 2011) against authoritarian regimes in the Middle East and North Africa to accelerate democratization and political reforms (Madeline Storck, 2011; Joel Simon, 2012, Africa Online Journalism, 2014). The Internet media used as a weapon to free oppressed citizens from authoritarian regimes. They have given much voice and power to citizens in non-democratic developing countries. "Social media has given the public a power and voice to express their views and choose their leaders (DavidGirling, 2014). If you want to liberate a society, just give them the Internet (WaelGhonim, 2011). Social media has to empower citizens of emerging countries by giving them a voice – a platform on which to speak about important social issues" (David Girling, 2014). Ying Chan (2014) has appointed that the independent media had great effects on marginalized and minority groups. According to Joel Simon (2012), the Arab revolution is a global phenomenon in which repressive regimes face a threat from online citizen journalism. They cannot deny the reality that their populations are witnessing online" (Joel Simon, 2012).

The opposition party, social activists, and their pro-democracy journalists and supporters have been using the social media to reach the mass population and arrange social movements and protests'' (Madeline Storck, 2011). Online journalism, especially independent/ alternative media's diverting the public's attention to the opposition party posed a severe challenge for Barisan National (BN) government and its political party (UMNO)which have been in power since Malaysia independent (1956). Since the advent of these internet independent online media in Malaysia, this decade, the government found it difficult to reach voters or maintain public support and trust. The mainstream media was the main if not the only medium for political parties in Malaysia to reach voters (Ali Salman &Mohd Safar hasim, 2011).

Survey by Pew Research Center, USA shows that In the wake of revelations about government activities, including the NSA surveillance program and the IRS targeting of political groups, nearly seven-in-ten (68%) say press criticism of political leaders keeps them from doing things that should not be done, while just 21% say press criticism keeps leaders from doing their job. Support for the media's watchdog role has risen 10 points since 2011 even as other press ratings have shown little sign of improvement. About equal majorities of Republicans (69%), independents (69%) and Democrats (67%) view news organizations as a check on political leaders and there has been a significant rise in this view across nearly all demographic and political groups. Young people especially have become more likely to say news organizations keep political leaders from doing things that should not be done, a shift in opinion that has taken place concurrently with rising concerns about civil liberties.

METHODOLOGY

Online journalism's changing public mindset towards the government raised political conflicts in Malaysia these last few years. The purpose and aim of this study is to explore the role and capabilities of online journalism in changing the public mindset and raising political conflict these last few years. This study applies mixed method approach, using 3 data sources (survey, content analysis, and in-depth interviews). The Type of mixed methods design is Concurrent Triangulation Design (Convergent Design model) see diagram bellow. Quantitative data (survey) and Qualitative Data (structured interviews and content analysis) were collected concurrently/at the same time, analyzed separately, and the results of both data sets were converged/emerged together in the interpretation final phase. Rationale for gathering both quantitative and qualitative data is: 1) save time, 2) tackle the issue from a holistic perspective, different angles, to better understand the phenomenon, 3) To validate the findings. As this is a mixed methods research, two types of sampling methods were applied: (probability stratified random sampling) for survey, and (non-probability purposive sampling) for the in-depth interviews, and two types of data/analysis: Statistical (quantitative) and thematic analysis (interview and documents analysis).



Data Analysis and Procedures

Data analysis in mixed methods research relates to the type of research strategy chosen for the procedures (Jonh W. Creswell, 2009). The data analysis includes both the qualitative (description and thematic text or image analysis) and the quantitative (descriptive and inferential numeric analysis). This means that the researcher will analyze both qualitative and quantitative data. Thematic analysis deals with data that involves the creation and application of `code` to data. The data being analyzed might take any number of forms - an interview transcript, field notes, policy documents, photographs, video...and so on. Coding refers to the creation of categories or themes in relation to the data; grouping together of different instances of datum under an umbrella term that can enable them to be regarded as `of same type (Gibson, 2006).

The researcher used Nvivo 8 to code and analysis the data collected. After collecting the data the researcher transcribed them, then generate the themes, before moving to discuss the findings. In the qualitative data analysis, the researcher created codes and themes qualitatively. Checking the accuracy of the findings may include triangulating data sources, member checking, detailed description, or other approaches (Creswell, 2009). In concurrent study, the qualitative and quantitative data collection may be presented in separate sections, but the analysis and interpretation combines the two forms of data to seek convergence or similarities among the results (Creswell, 2009). Wolcott (1994) states the term analysis is a generic term that embraces the three basis categories when analyzing data: description, analysis and interpretation. The study analyzed data through three coding processes 1) initial/open coding, 2) pattern coding, 3) and finally, a Triangulation of the patterns and themes. The reason of developing categories (themes)

is to provide the means or value of describing the phenomenon to increase the understanding and generating the knowledge regarding particular area of study (Cavanagh, 1997).

FINDINGS AND DISCUSSION

This chapter discusses the results obtained from content analysis, in-depth interviews, and the survey respectively. The findings were analyzed based on the 3 research questions: 1) Why more Malaysian citizens are shifting to online news media, especially independent online news media? How online journalism change public mindset towards the government and norms? To what extent online journalism`s public mindset change raised political conflicts (in Malaysia these last few years)?

The informants: In-depth interviews

A semi-structured in-depth interview was conducted with 5 news editors (from prominent online news portals, mainly MalaysiaKini, FreeMalaysiaToday, Star Online, Utusan Online), 1 politician and former minister, 1 political analyst, 2 academicians, and a journalist from the Chinese press and president of Malaysia National Union of Journalist (NUJ), and one former chief editor from the mainstream media. The interviews were conducted between August 2015 and May 2016. All the informants agreed that online journalism has had great effects on the public perceptions and on the government. The following are summary of the results obtained from the interviews according to the informants:

- Online news media, especially independent media are very daring and analytical. They are very critical of government. They freely expose government corruption and wrongdoings. They make interesting reading, at the same time they put pressure on the authorities to improve.
- The most important thing for any politician is the public perceptions trust and belief. Politicians, ministers and leaders are today under scrutiny and surveillance by online journalists/watchdogs, any wrongdoing or mistake they would go viral on social media, web-blogs, and news sites worldwide not only locally, but internationally, and they may

lose public perception and trust. The government has to struggle to control and maintain public perceptions, beliefs and trust.

- Independent online media such as MalaysiaKini or MalaysiaInsider tend to form a
 negative opinion among the public against the government. They write only about the
 negative side of the government. They focus on sensational issues to attract more readers.
 The mainstream media avoid such issues so not to create unnecessary thing/ chaos.
- Barisan Nasional Bn government is not badly affected by online journalism because not all Malaysian people read online media news, except the milianials, the urbanites, and the intellectuals who can speak English and access to variety of news online.
- Online media cannot topple the government because Malaysia consists of many bubbles/races and tribes (Malay bubble, Chinese bubble, Indian bubble).
- Online media can make noise only, but the decision is always in the hand of the elites.
- TV is still very influential and popular medium of communication in Malaysia, especially in rural areas. People are still watching state Tv channels and they are still influenced by its programs and propagandas.
- Online media cannot topple the government or change the system without the help of civil society and INGOs.
- Commenting and reading other users comments are interesting.
- People move from the paradigm of mainstream media because this latter support only the government. The independent media and opposition party label them as `government-mouth-piece`, because they are controlled by the government, some of them belong to the government.
- Unlike the independent online news media, the mainstream media including their online versions avoid investigative or critical reporting.
- The mainstream media such as Utusan Newspapers is used by the ruling party politicians for their political struggle only. Such newspapers does not represent the voices of the public.
- Malaysia is a semi-democratic country, we do not have a real independent media or a total freedom of the press. This is why more Malaysians are migrating to the internet media...

to read the other side of the stories, to seek for the truths, and to voice up, comment, and share.

- Online journalism is used as a promoter/ catalyst for conflict
- And it targets and affects young people, because young people like new ideas and views.
- Malaysia is a democratic, but people want a more democratic government.
- In this age of online media, hand in hand with social media (Facebook, Twitter, Youtube) and smart phone devices, advanced internet technology and many modes of communication, politicians/ leaders have found it difficult to do their job. Politics became a tough job. Everybody became a journalist. The spread of information became very fast and the world became a small village. Whatever a politician says or does here, it goes viral on social media and news blogs locally and internationally.

Online content analysis

Online content analysis was a tool used in this study to explore how online journalism change public perceptions and raised political conflict. It helped to investigate online journalism political coverage, issues published, style of reporting, and users comments. 1Malaysia Development Berhad (1MDB) scandal, RM 2.6 billion allegations, Bersih4 rally, citizens declaration, public criticism, political tensions issues were the biggest setting in this content analysis.

The Prime Minister Najib was repeatedly quoted (in many articles) as saying that Malaysia has undergone a dark time because of social media, cyberspace, keyboard warriors which are influencing the minds of the public. The deputy Prime Minister Zahid was also quoted many times warning the public not to trust unverified, unethical news and information disseminated on social media.

The study shows that the issue of 1MDB and RM 2,6billion involving the Prime Minister Najib in corruption was sparked by online news media (by wall street journal, Sarawak Report, MalaysiaKini, MalaysiaInsider). Only independent media were free to report on this issue. They report and discuss the event/issues freely online, and using harsh language in their critical reporting on the Prime Minister and other ministers, and accusing them of corruption and abuse of power. These allegations/reports/revelations have created negative perceptions among the public against the government, and raised severe political tensions.

Moreover, unlike the mainstream media, the independent news sites publish news about both government and opposition party, equally, without bias.

From the comments that the users leave (in reaction to the articles online), it is noticeable that most of the commentators are against the regime/the ministers. They condemn, criticize and comment freely on the Prime Minister and the ministers. However, most of the commentators are using non Malay, or non-Muslim nicknames. Some smart, influential comments /views or statements are highlighted by the news portal in the `opinion page` or `your say` page.

A politician job is no longer an easy job. It has become a very tough job, especially in this age of online media, and social media. We do not have free press in Malaysia, like in other developed countries, but we do have free media online here which can put high pressure on the politician. Politician always like to be noticed or recognized, but if simple mistake occurs he/she would go viral.

Respondents: Survey/ Questionnaire

A survey/questionnaire was conducted with urban Malaysian netizens from Kuala Lumpur and Selangor and it got 384 responses. These are some findings from the survey:

- 91% of Malaysian news readers like to get their news today only from the internet.
- Out of 335 respondents (who responded to this question) 162 (48%) like StarOnline, and 130 (39%) like MalaysiaKini. Utusan Online came at third place 106 out of 335 like it, followed by MalaysiaInsider (86 out of 335). So StarOnline (English portal) is number 1 online news portal in Malaysia. However, the survey shows that in terms of political category, MalaysiaKini is number 1, followed by UtusanOnline. Many young people aged

between 20 to 30 like starOnline because they want to see entertainment and sport events as well. MalaysiaKini is 100% a political news portal - it does not offer entertainment, business, or sport categories in their menu. And it publish stories in 3 languages English, Bahasa, and Chinese. Utusan Online is 100% Malay news portal - in Bahasa language only. It targets mostly those non-English speakers (Malay Bahasa speakers only). (See diagram below).

- 61% of the respondents said they want government to change. Most of them are those who follow Malaysiakini news.
- 55% said that the education system is good.
- 50% have no confidence that Malaysia will become a developed country by 2020 under Najib government.
- 80% said they know about national issues, and political issues from the internet media only.
- 66% said the internet media have changed their views/thinking about BN government.
- 59% think there is a racial issue in Malaysia
- 64% said UMNO and BN are the one who divided Malaysians
- 53% said Malaysians are today free to criticize the government
- 76% said the government should not ban alternative media
- 74% said they like to read about national issues online

Most of those who read Malaysiakini and StarOnline (also) no longer support/ trust the government. Most of those who read Utusan Online are either neutral or in support of the government.





CONCLUSION
The study shows that more than 50% of Malaysian urban citizens are today influenced by online media, especially independent online news media political coverage, which is very critical of government, and that pushes for democracy, human rights, freedom of speech, and spreads new different ideologies. The researcher has also found out that online journalism/internet media has brought new dimensions/features to the local journalism's political coverage such as borderless reporting, critical reporting, investigative reporting, and independent (opinion) reporting, which all focus on the expansion of freedom of speech, democracy, and political reforms. These new dimensions/new forms of reporting have been absent in the mainstream media for decades. They have had great impact not only on the public's mindset, but the local editorial landscape, the government, and the political scenario in Malaysia. In fact, the cyberspace (online journalism) is creating a new Malaysian generation with a different kind of thinking that clashes with the conventional constitutions and norms. Online media is used not only to disseminate news, they are not only mere news sites, but an arena for political struggles, political transformation and change. The opposition party, the democratic activists, and their supporters are using it as the only weapon to reach large audiences, influence, convince, and change their perceptions towards certain issues and subjects, and hence mobilize them in political movements/protests both on the street and online to oust the regime and make political reforms.

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Social Cultural And Spatial Morphology In Public Housing Transformation In Tripoli, Libya

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ABSTRACT

The trend of transformation in building environment is vital in maintaining housing development as it reflects the wishes of a family and intensifies how the households perform. Furthermore, the great transformation seen in the housing buildings expressed their level of satisfaction with their houses but the stakeholders see transformation as a form of violation instead of focusing on the advantages. The public housing schemes are undertaken by the Libyan government and private developers. The dependency of the low income groups on these houses for shelters need the current concept on designing to be rethought. Actually, such transformations proposed cultural aspects to be excluded in the designs and the lack of research on this matter has encouraged this study to be undertaken. The aim of this study is developing a cultural responsive design framework for public housing projects based on the users initiated transformation experience. The first objective is identifying the core cultural spatial attributes which can be found at the countryside and examine its effect on housing spatial transformation designs. The last objective is synthesising these outcomes to cultural responsive designs. In order to achieve the first objective, the data is collected via ethnographic technique whereby the major ethnic groups' spatial layouts are investigated. The second and third objectives are achieved through survey questionnaire and observations. The proposal for housing design that takes into consideration the cultural aspects are obtained via qualitative analysis. This kind of framework will be able to help the regulatory agencies and developers to suggest several design which contain cultural features in future so that they can guide and control transformations. Hence, contributing to housing design that respects the users' requirements and at the same time provide a healthy urban development.

Keywords: Spatial-cultural, public housing, transformation, user satisfaction.

INTRODUCTION

The definition for transformation in this article is as the procedure where the house resident makes or introduces physical changes to the residence with the intention of meeting arising needs

the course of living in the residence. Transformation incidents could be a result from reasons both internally and externally. The inside explanations could be changes created Culturally or economically, although the exterior explanations could be generated from changes in the house's physical state. The nature and the transformation levels differ from situation to situation. Nevertheless, the study revealed the inside reasons are the main providers in the direction of transformation choices (Khan, 2014a). Numerous researchers have put in huge efforts in investigating the housing transformation's reasons, significances and suggested procedures. Public housing transformation studies is worthy of attention as it includes a significant volume of public sector's resources particularly in developing countries with restricted resources as it may create issues from the policy makers's view point if it results in any unwelcomed development.

According to the (Seek, 1983) stated that housing stress can be relieved after housing transformation, and a transformed house reflects a satisfied household.(Khan, 2014b) mentioned that although housing stress could reach critical points multiple times throughout the household large- scale transformation's life with the likelihood to happen only a few times. Consequently, the study of a mature house undergoing multiple transformations by a specific household, there is a higher likelihood uncovering the characteristics contributing to how houses transform, therefore satisfied users. Furthermore, dwellers' essentials become clear when completing their domestic errands in the home (Habraken & Supports, 1972). The claim is that socio-cultural characteristics, particularly context-precise ones, get less attention throughout public housing design's inquiries. Prior elements that contributed to Libya's housing research focussed on housing satisfaction (Amer, 2007) and (Omar, 2003) have recognized housing policy needed to include socio-cultural in public housing design. This study has the aim of filling that research gap with the search for socio-cultural attributes behind user satisfaction via investigating public housing units transformation. It is an effort of strategizing guidelines for upcoming public housing designs.

RESEARCH PROBLEM

This study justifies that preceding studies on Libya's transformation were focused on housing (Amer, 2007), the built environment morphology (Shawesh, 2000), social change (Elbendak, 2008), and migration (Saad, 2010) unveiling public housing residents' continuous discontent as a result of Libya's housing stress and failure via leeway in Africa (Tipple, 2004). It was evident that there was an existent of communication gap between developers and public housing residents. The result had led to a surge of unobstructed housing transformation in the users' pursuit of satisfying their preferences and altering spatial needs, along with determining housing stress related issues. Libya's housing dissatisfaction studies and failures have generally recognised the discontent to unsuccessful policies and applications that lack original socio-cultural deliberations and changes. Therefore, (Danquah, Jeanette Attippoe, & Ankrah, 2014). suggestion was detailed research in scopes and features focusing on housing design, spatial configuration and use of space by groups and neighbourhoods based on their requirements and predispositions.

Incidentally and based on the public housing context, there were three consequential effects recognised. The former government formed measured disregard of urban design policies meeting the local communities socio-cultural and behavioural needs (Akbar, 1988). For the reason that the final products are not compatible with the users' culture and fusion social activities, thus it is made less social and conceptual meaning to them. Secondly, though certain groups chose occupying these public housing buildings, they would abandon them later. (Winstanley, Thorns, & Perkins, 2002). mentioned that users' choosing to abandon home when it cannot be adjusted to their needs and social lifestyle, in that way snowballing stress henceforth the choice to move. Thirdly, there those who are not able to move and have the choice in imposing change devoid of specialized guidance, building standards to consideration, plot size and current structure shape and geometry. Therefore, living conditions that are hectic and unsanitary threaten the community's health status which has evolved and recognised as a serious issue by this study. Insalubrious living conditions as a result of poor public housing quality worsens the occupants' health status, increase their stress and expose them to health risks (Ruel, Oakley, Wilson, & Maddox, 2010) Even though researchers have studies on the first and second concerns, there are minimum information addressing the latter.

In the meantime, civilization and ideology clashing with Libya's Tripoli City public housing is seen as a significance of relationship failure between these architectural formations and native social demands existing in non-guided housing transformation. These non-guided transformations boarded by residents with the intention of meeting lifetime culture being included in a home arrangement. For the reason, initial designs are without users' & wants culture in layout combination.

Consequently, the study as it focuses on incapacitating culture elimination mentioned standardized cultural ideals synthesis with spatial conformations as processes checking unrestrained Tripoli city's public housing transformation in Libya's context which has been enveloped in design framework proposal in sync with the research's aim. This is due to the progress in the research findings into designers' principles which is regulary overlooked by researchers (Martin & Guerin, 2006). Positive proposition establishment facilitate the public housing design improvement that reflects culture attributes towards public health safety. On the other hand, the stakeholders' incessant refusal in identifying the historical, socio-cultural content, local and practiced residents' social activities regarding built environment advocating a rejection of the accountability as socio-spatial healers in the built environment. As architecture is a procedure prior to a product and if it is acknowledged as a procedure that solves problem, the necessity to include diverse architectural appeal in Libya public housing design becomes significant. The prerequisite targets to identify the cultural factors linked to public housing alterations and integrating it into the design process which is measured and reconnoitred by this research as practitioners' way out. Afterwards, the necessity in exploring public housing residents' culture, and establishing the association with their experiences in housing transformation is explained in the subsequent section with the intention of defining the research gap.

RESEARCH QUESTIONS

The generation of three research questions from the research gaps covering the research context of design indices development from transformation studies and allowing culture content in public housing design. Consequently, the subsequent questions were examined;

- I. What vernacular dwellings core culture associated with spatial attributes from the main ethnic groups are suitable for public housing design?
- II. How effective does common culture attributes influence transformed houses' spatial patterns along with the transformation procedure?
- III. How does cultural grounds and consistency attributes synthesize in inspiring public housing design patterns?

RESEARCH AIM

This study intends in developing a culture framework to understand the urban housing evolution to users, and are based on the transformation experience they initiate towards the possible design solutions' proposition.

RESEARCH OBJECTIVES

To achieve the aim, the objectives outlined below are taken into consideration. They are:

- I. To identify spatial culture attributes in the focal ethnic groups' dwelling configurations from the root.
- II. To investigate social culture determinants' influence on public housing users' spatial transformation in Tripoli City's urban setting.
- III. To generate spatial patterns evolving from public housing transformation procedure in Tripoli City.
- IV. To synthesize cultural determinants and spatial patterns with the intention of establishing design index based on culturally influenced findings that will guide in public housing design' increase in culture response.

RESEARCH SCOPE AND LIMITATION

This housing transformation research emphases on a distinctive social building form focussed on government instigated public housing common in western Libya, Tripoli. Essentially. a transactional phenomenological study sets out in investigating person-environment associations via space and activity space relationships.

RESEARCH SIGNIFICANCE

This study recognised from the background studies an extraordinary trend where there was a decline in traditional culture perception and spatial configuration because of urban environments' quick acculturation. This study's target is to develop the rural areas and creat sub-urban environment to depress directly rural to urban centres migration similarly accelerating their rural transformation. Poor planning and managing

in public housing for low and medium income group are attributable to socio-cultural issues across emerging nations especially Africa (Ejigu, 2012), (Lawrence, 1987) and (Sulaiman & Yahaya, 1987). The attribution is the absence of indigenous socio-cultural meaning and content in the configurations by this means producing measly physical structures (houses) instead of social spaces (homes). The change in culture and public housing perception is caused by acculturation, growing urban population and diverse residents' culture and via urban dwellers extension, in addition to the necessity to evaluate management policies as a result of urbanisation is serious. Consequently, there is necessity for this pattern in public housing development for Tripoli of Libya urban population . Based on the accessible information from design decisions' experiential research, a criteria will allow the industry's architects, developers and other stakeholders to perceive, make and handle public housing design expecting varying cultural values and projection plans with future needs.

SELECTION OF THE CASE STUDY

Apart from being a good example that represents urban settlement, a history-rich city like Tripoli is abundant with cultural heritage. The metropolitan's key historical element is the old city itself that is rich with various buildings and elements of urbanization. This reveals Libya's past and present, social and physical outlook that gives the nation its unique identity. The city's history of colonization is a main influence in the city's urban planning and architecture. This was prior to it being developed fast in the second half of the 20th century. Tripoli is Libya largest city and is the centre of Libyan's art and culture that connects it to other countries. Tripoli is Libya's architectural development representative and urban identity. The city's growth reveals more experiences and ideals based on architecture and city development compared to other cities in Libya. With its location in Mediterranean Sea's south coast, it faces Southern Europe and Tripoli's architecture is a representative of Libyan's architecture hence showing the architectural façade in the direction of the Mediterranean Sea. With reference to the reasons stated, Tripoli was chosed as the study's most suitable case study.



Figure 1: Tripoli, a city in Libya

LITERATURE REVIEW

Longman dictionary of contemporary English defined transformation as a comprehensive or incomplete alteration, typically into something with an enhanced or defaced appearance or practicality. Transform is identical to words like alter, adjust, modify and improve along with change. In the housing setting, (Tipple, 1991) definition of a dwelling's transformation as the modification or addition that involve construction activity utilizing materials available locally and technology. (Kim, Yang, Yeo, & Kim, 2005) description transformation is as completed buildings being remodelled and resulted to a transformation in the building's enveloping

components appearance or features. (Popkin et al., 2012) description on housing transformations comprise of activities that range from interior furniture reorganisation and painting a room to structural alterations like adding more rooms or even knocking down of some housing units. With these definitions into context, housing transformations can be considered as altering of the original form and a dwelling unit's spatial configurations by the inhabitants with the intention of meeting existing needs and anticipations.

From the literature, we discover that a number of theories have been highlighted explaining housing transformations. One of these theories is the housing adjustment theory. Housing conditions are usually reviewed based on cultural norms and particular family taste (Morris & Winter, 1975), stated that this is caused by settlements which are naturally designed and built to meet the requirements of social norms and people's lifestyle. In this context, norms are rules and regulations which regulates peple's way of life and behaviour in the family or society. Hence, when the present conditions of a household does not confirm with the established norms and lifestyle due to changes over time, family life cycle for instance increase in the number of household members because of new arrival of babies, elderly relatives etc and income (Tipple, 2000), "housing deficit" will happen. (Mohit, Ibrahim, & Rashid, 2010) have stated that such condition will cause housing dissatisfaction. (Seek, 1983) claimed that people constantly desire in overcoming housing stress by adjusting and re-adjusting tolerance levels, however, (Carmon & Gavrieli, 1987) commented that when this touches a critical stage and with the intention of coping with the stress, people will either need to better their housing conditions via residence transformation or move to a better housing if they can afford it and allowed to do so. On a similar note, (Quercia & Rohe, 1993) explanation was that households constantly look for an acceptable residential environment, and if their housing and/or neighborhood features no longer please them as a consequence of alterations in housing or neighborhood conditions, or as a result of demographical or socioeconomical changes in the household, then the household will experience stress. The argument was that housing transformations are basically targeted at justifying the housing stress influencing family members. This seemed to be consistent with (Mohit, Ibrahim, & Rashid, 2010) proposition that housing conditions betterment via housing transformations allows households to have a chance to bring their housing environment to conform with their needs, prospects and ambitions. Consequently, the housing adjustment theory which provides housing transformations' perception has a strong association with housing satisfaction.

The current studies (Tipple, 2000), (Manalang et al., 2002) suggested that in the developing countries, the accomplishment of housing transformation is principally via unplanned private ingenuities. As (Salim, 1998) justly witnessed, it is normal for owner occupiers, via their own ingenuities and determinations in altering or extending their houses in an attempt to better their housing conditions and simultaneously meet their households' growing needs. (Tipple, 2000) made a note that developing countries' housing transformations are usually illegal and comprise of dwelling units' external and internal parts or both being modified and extended. He emphasised that most of the countries' transformations are carried out by small scale contractors and single artisans utilizing locally available materials and labour, and are general to the extent that the original dwelling units is unrecognizable (Manalang et al., 2002) views transformed housing as self-built improvements, apart from assisting to understand the residents' alteration behaviours, and is also an indicator on how the residents have amplified their current residences' insufficiencies. This indicates that housing transformations are frequently seen as housing owners' effort and look to better housing conditions by offering more spaces to put up with household needs.

According to the (Rapoport, 1989) opinion was that the transformation of the houses by the people as way to communicate certain features of themselves to others, while (Tipple, 2000) claimed that public housing transformation was common for the reason that possible residents are seldom involved in housing estates planning and designing, and as such the dwelling units are not in sync with their socio-economic, beliefs and demographic traits nor reflecting their opportunities and objectives. In cases like this, the residents discover that their housing units are unsuitable to their household needs and life style, and thus exploring possibilities of actually correcting the units to fir their needs and lifestyle. Supporting Rapoport's submission, (Tames, 2004) also made a note that transformations are announced in public housing because public housing estates are often uniformed and monotonous and offers limited opportunities for self-expression by the residents. Alternatively, (Salim, 1998) stand was that there was a necessity to

have an additional space for the household and to generate income as a main incentive to transform. This was verified by (Tipple, 2000) who made a note that the transformation of of numerous households was due to the need to work in their homes and release added spaces generated throughout transformation events. Hence, his conclusion was that othe key reason that motivated transformation is to enhance the current housing stock's worth. (Hasan, 2006) observed public housing transformations from a different standpoint by conflicting dwelling units transformation by public housing schemes residents as a retort to the government's failure to provide people's housing needs for constructed housing. This proposes that the rise in housing renovations are caused by the apparent gap between what residents require and what they are catered with by public housing providers. The conclusion is what motivates housing transformations are many inter-related factors for example the household socioeconomic context, their housing requirements, anticipations and their current housing situations.

In terms of housing transformation benefits, (Salama, 1995) discovered that residents instigated transformation activities in Egypt's public housing not only amplified the series of beneficial spaces inside the dwelling units, but also generated dynamic multi-functional estates with better responses to the households' changing needs. Moreover, the belief is that transformation events intensify low-income households and their tenants' housing supply and also subsidise to refining quality of houses in a neighbourhood (Salim, 1998). Thirdly, transformed houses are able to bring families together, decrease traveling inside the city, improve employment opportunities inside housing area and revitalise housing estates' socially and economically in their useful lives (Tipple, 2000). Furthermore, (Manalang et al., 2002) specified that transformation events is able to improve residents' sense of pride, self-confidence and affection to their home units. The occupants comfortable and safe when they slowly enhance and make best use of the space inside and around their residences. It is possibly on this foundation that (Turner, Popkin, & Rawlings, 2009) conclusion was that housing transformations benefits in bettering the housing value, housing stock increased inside a locality and interesting more residents into the neighbourhood.

Despite these housing transformations benefits, numerous authors have disapproved userinstigated transformations to have negative effects on the housing environment quality. For instance, (Shiferaw, 1998) recognised certain opposing significances of uncontrolled transformation to include over straining of the current infrastructure, urban services and usage of land, producing obstacle to vehicular/pedestrian circulation and services' channels. (Tipple, 2000) mentioned that deteriorated community facilities may chiefly be a result of the fact the fact that transformed houses intensifies population density more than current infrastructure can support. In addition, (Altman, 1975). counted most of transformations negative consequences that includes decrease in the stages of comfort, privacy, natural lighting and ventilation and other physical environmental functions in the altered buildings. These damaging significances appear to be distinct where the a dwelling unit's internal layout are altered to the extent that windows are situated very close to fences and neighbouring dwellings. Definitely, it is obvious that transformed houses impact positively and negatively to residents and the environment. Henceforth, the subject's studies are critical in updating housing policy and development along with urban planning and design.

RESEARCH METHODOLOGY

In consideration of the problem statement this research has outlined and the objectives set out to be attained two basic patterns of study appeared, cultural and physical studies. Social attributes and spatial definition are compulsory to achieve the study's goal thus, the study plays a role as a qualitative research dimension. Consequently, both factors were taken into consideration in the study's sampling dwellings and data collection.

In the first instance, the selection this research's settings and samples was based on the study's interest in attaining the necessary data. Accordingly, purposeful sampling approach with utilizing information based principles in selecting of both rural ethnic settlements at the source and the public housing in the urban environment.

Secondly, when performing spatial configurations and social behaviours evaluative reviews, ethnographic studies are extensively utilized despite numerous criticisms the method has received. To support this, the assertion of ethnographic strategies in housing research is

extensively focussed on transferred silent minorities' experiences, which is seldom deliberated in the broader social principles and housing policy arguments (Ronald, 2011). Perceptibly, the attribution is based on the to housing problems severity and quantum related to the "minorities." Ethnography is applicable to be used to observe participant and instruments for example, interview guides, spatial mapping and photography among other strategies to access required information. The usage of qualitative method to interpret data in analysing results from the field survey in the urban public housing multi-case studies. The field survey's qualitative data was initially measured using quantitative approach via the questionnaire as the tool for survey at the public housing in the urban settlements. Therefore, questionnaire with structured close ended with Likert scaling was utilized to attain necessary data. The survey's aim is to disclose cultural expression levels, public housing users' transformation and spatial choices. This is in line with the study's problem statement and the objectives. Equally, the usage of transformation pattern analysis with the help of gamma diagrams was accepted to compare public housing initial and transformed layouts in the urban settings with its data drawn via participant observation.

Data analysis uses descriptive amd content analysis, psychometric and cases studied was carried out. The usage of advance statistical analysis package IBM SPSS Statistics 20 in data organisation for succeeding psychometric analysis after public housing settings field survey and the returned questionnaire forms. This was consequently reinforced by the usage of Structural Equation Model (SEM-AMOS) in the factors' structural analysis for further confirmatory factor analysis. The identification of analytic method with conservative social science research, to connect and verify factors of physical environment to quantifiable behavioural incidences by theoretical methods (Vischer & Zeisel, 2008). This suggests that the application of both data collection and analysis' qualitative and quantitative strategies in the course of this study hence used a combination of multi strategies.

OUTLINE OF THE THESIS





Expected Results

- The findings disclose important factors that influenced housing transformation.
- The findings offer a stage of synergy between the suitable local architecture social meanings in a technically focussed housing production promoting indigenous urban architectural character.
- The findings play the role as government housing policy operative information instrument that ensure urban environmental continuity and housing supply quality to step up with fast urban development.

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Development Of The Design Criteria For The Libyan Residential Urban Planning. Case Study, Surman City, Libya

Farhat M Emhemed & Manal Mohsen Abood

ABSTRACT

The aim of this research is the Development of the design criteria for the Libyan residential urban planning for the city of Surman, Libya. Through a review of measurable indicators, i.e. those applicable criteria in urban planning legislation for the current scheme of the city. Design criteria are considered guide of urban planning and help future projections in various fields such as urban population growth, economic changes, social, environmental ... etc. As well as help planners, researchers and agencies in the preparation of programs and development schemes for residential communities, through the development of housing facilities, infrastructure, and basic services to meet the needs of citizens. Also, it helps to assess needs of land use and acceptable criteria of a long time. And more specifically, it addresses the methodology for calculating the target indicators and measures the achievement of sustainability in a city planner, using (GIS) technology, for their ability to analyze the components of residential areas and plots, also, give information, data speeds, and high accuracy. This assessment is based mainly on a comparison between the target indicators and global ideal proportions that have implemented the concept of sustainability, through experiences of developed countries, in solving the housing planning problems and prepare programs for sustainable urban planning. The research concludes the appropriate measurable indicators can be relied upon to develop design criteria for residential that will help to achieve a sustainable urban planning during the preparation of urban schemes, or develop existing schemes.

Keywords: Design criteria development. Sustainable urban planning. Measurable indicators. Residential urban planning. GIS.

INTRODUCTION

The planning of cities is one of the global systems that serve different specialties and is, in fact, a mix of multiple scientific systems. Planning identifies the appropriate networks which determine the streets and roads that are beneficial to the population. It also leads to the selection of suitable locations for the use of the land which provides for the city's residents comfortably and at the same time beautifies the city. It is, therefore, important to recognize the comprehensiveness planning process which is partial (Ali, 2009). not The planning stage started first in Libya during the advent of Economic Development when it was preparing plans for the development of important cities and villages in the period (1968 -1988). It focused on urban growth without addressing the regional studies. There were two schemes established then, the first which was integrated detailed plans for major cities named overall schemes. While the second type of schemes for cities and villages named general schemes used to separate residential areas for service activities. During the second year of the economic development (1969), it has prepared the first stage of it schemes because of the improved economic situation of the country and the significant increase in the population growth and the development of communities (Sheibani & Havard, 2005).

By the end of the seventies, it has initiated planning in the second stage (1980 - 2000). The stage included the preparation of a national planned, a long-term plan stage that included the preparation of four(4) regional schemes, eighteen(18) regional scheme subcategories, and the preparation and development of 240 schemes for other cities. This stage was based on a comprehensive and detailed foundations of the planning system adopted by all the regions. At the end of the second stage of planning, Urban Planning Department began the preparation of the third planning stage, which was named third generation schemes and the set time period for this stage was (2000-2025).

Urban planning criteria are one the most important means of the preparation and implementation of urban plans and considered to be the guidance or directory to help in the preparation of programs and development schemes and the development of communities through housing development and facilities and infrastructure. It also helps in the NEEDs assessment of land for the purpose of providing services with acceptable criteria in the long term and to maintain the land (studies, 2000). The applicability of any inflexible criteria is usually inaccurate and difficult to work out, especially in the social conditions, economic, geographic and climatic divergent. As such, criteria's must be flexible so that Planning Criteria keep pace with social and economic development and should be applicable to different local conditions. Criteria's should be considered as a guide in the preparation of a comprehensive and public schemes and their application requires a sufficient degree of flexibility in the preparation of the list of development areas (abdennabi, 2012).

It is important to note that the failure to achieve the principles of sustainability in the built environment in Surman city scheme lead to the wasting of natural resources and making it difficult to create an eco-friendly environment. The result of the research was presented to a converted access to set measurable indicators for Surman city special scheme for sustainable Urban Planning and to measure their suitability with the aid of an Arc (GIS) technology to serve as a criterion. It measures the appropriateness of any future project sustainability concept to be implemented within a planned city. It also recognizes the reality of the city of Surman scheme and the problems associated with planning in the city, and then apply the scheme and compared. The research built on finding out how to apply sustainability criteria using geographic information systems (Alahamm, 2011).

The purpose of this research is to plan residential development criteria for the city of Surman in Libya and to improve the scheme of the city in a residential domain of the traditional scheme of an urban sustainable scheme.

This research adopted the methodology of scientific research and gathering information and guides that have to do with the city of Surman planned and sustainable urban planning. It also adopted description and analysis using geographic information systems (GIS). This research

pointed out indicators that can be relied upon to develop the design of the residential plan, and assist on sustainability in the preparation of development plans of existing criteria. The existing plans were done with the aid of Geographic Information Systems (GIS) technology, which has the ability to analyze areas and schemes cities and give accurate results at high speed.

It is as a result of this that the researcher evaluated Surman city plan and ways to achieve sustainable urban planning strategies. The evaluation studies in this area are limited, especially when compared to other field of studies and this also causes a lack of adequate funding for studies of this nature. Every Study usually includes future studies and those not stop at the needs of the design and implementation requirements only.

The study on "Development of the Design Criteria for the Libyan Residential Urban Planning Surman City, Libya" as much as it represents the importance of the city is very important. It is a model of the reality of many Libyan cities in many respects, it is as a result of this that it has gained attention from researchers.

METHOD

The Classification Of Urban Measurement Indicators

The classification of urban measurable indicators as surveyed below can possibly be divided into two main categories: (a) Ideal indicators used for the development of urban schemes existing and the preparation of new schemes, and (b) planning indicators where the contribution of those in the second city of Surman scheme (case study).

The urban indicators and cases of all previous study based on a balance between the development of urban areas and environmental conservation and protection, which calls for the creation of a variety of vital plant coverage environment and green spaces. It also encourages case studies on the rationalization of energy and water consumption and supports the use of bicycles by the public. This is to create an environmentally friendly society and recycling of

energy within the environment. It is also expected to reduce waste resulting from human activities in transportation.

Table 1 below shows the ratios and use of the indicators in case studies conducted in each of the Lloyd Crossing Province, the city of Dongtan in China and Masdar City in the United Arab Emirates:

Table 1: The ratios and use of indicators for three case studies conducted at the Lloyd Crossing Province, the city of Dongtan in China and Masdar City UAE. Source: (Hayter, 2005). (Girardet, 2006). (Snyder &

Hudson, 2009).

Comparison	Lloyd Crossing Province	Dongtan City	Masdar City		
The goal of the study	Implementation of an urban sustainable scheme, reduces environmental negative impact, to continue development through 45 next year, the implementation of the project a catalyst in the province, creating an environmental study area is a sustainable economic model.	The development of villages in the Dongtan area, and the establishment of the city of Dongtan to be a sustainable city.	Implementation of city- zero carbon footprint, zero- waste, maintaining biodiversity, the use of means of transport is environmentally friendly.		
The strategies followed to achieve sustainability	Mixed use of land with the provision of alternatives, restore biodiversity and tree cover, live within what falls of rain on the region and recycling and the use of water, to live within the solar energy sources, to achieve a balance Granular Activated Carbon and the use of local building materials.	Street design encourages walking and buildings of no more than five floors and three service centers, easy access to it, the use of mixed land activities, recycling and use of waste by 83%, water consumption by 43%, the rationalization of energy consumption by 64%, reduce carbon emissions carbon dioxide.	Narrow streets designed for no more than three meters and buildings of no more than five floors to achieve shadow, the idea of the city is designed in accordance with the traditional Arab style, use of public transport, sustainable, reduce energy consumption by 75%, recycling and use of waste by 100%, reducing water consumption by 70%.		
Land use percentages	of land use Mixed 70% Residential, a service, infrastructure. 30% tree cover and vegetarian to	for housing and open 45% spaces 0.24% for shopping and light industry and research, 16% for	The allocation of 30% of housing and accommodation, the allocation of 24% research		

achieve bio-diversity.	entertainment, tourism, culture and hotels. 15% infrastructure and education.	area, the allocation of 13% for commercial projects and industrial, the allocation of 6% of the Masdar Institute (MIST), the allocation of 19% for services and transportation, the allocation of 8% of civilian activities, cultural and recreational.
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From the previous three case studies which were reviewed, one can draw a conclusion on series of measurement indicators ideal for which they can measure the application of any city of the concepts of urban planning sustainable. It can also then be modified to suit the reality of Surman city plan which will contribute to the development of design criteria for planning and commensurate with the existing scheme of the city. It can, therefore, be summarized that the most important indicators are as follows:

1- Diversity of housing units measuring index (Mixed Housing Factor)

This criterion is linked to the type of housing units and their suitability for different family needs and the number of family members, and the presence of the diversity of activities and different needs.

2- Measuring the achievement of land use and environmental diversity index

It is important in a sustainable urban environment and urban planning foundations green infrastructures and to create a biodiversity and maintaining it. The achieved green infrastructure is a measure of biodiversity through the streets processing of structure, vegetation cover. Suitable trees as well as the creation of public spaces for leisure, green roof gardens, and terraces. Biodiversity can be achieved by connecting the built environment and natural environment, also, groundwater recharge can be done through the allocation of surfaces to collect water to be re-injected into the soil to feed the aquifer and provide water to compensate the consumers.

3- Special mobility vehicles and pedestrians measure index (Movement Factor)

The average kilometers traveled using vehicle for each residential house intended during the period of time is measured and the number of days. How it affect the density constructivist and streets combination is divided on the amount of movement of vehicles. The diversity of land use also affect the amount of movement, the higher the density and the use of mixed land, the less duration of the trip and mileage and increased opportunity for walking.

The measure is intended to walk off daily places and activities that can be accessed on foot in the amount of time for 5 minutes. The intended activities of daily schools, recreation areas, green spaces, local shopping and workplaces where structural density and mixed land use of a walking are measured. The characteristics of the streets affect the equipment, the higher the density and diversity of land-use encourage a more rambling. This is sought by the Sustainable Cities and supported.

4- Measuring the achievement of mixed land use index (Mixed Land use Factor)

The achieved use of mixed land consolidation buildings brings them closer to each other to be rounded functions which will encourage walking and shorten the distances for ease of movement between them. It achieves a structural density higher, and therefore become the urban environment closer to sustainability measured by the achievement of sustainability in a certain urban area by enlisting the criterion or a major mixed-use land.

RESULTS AND DISCUSSION

Surman City Planner And Measurement Indicators

In calculating the measurable indicators, dealing with city planners for what has been completed and implemented in the future are to be considered and to evaluate the use of geographic information systems Arc(GIS).

1- Measuring diversity index of residential units

To measure the diversity of the housing unit index, one must know the number of housing units existing for residential in the city, and then compared with other similar projects which have either of these projects locally or internationally.

Therefore, the establishment of these types of housing units within the city should be planned to fit the needs of a certain segment of the population which are the low-income category. When comparing patterns and other types of housing units in other projects, it should be taken into account the proportionality and diversity of the population category mentioned above.

Table 2 shows the type of housing units that is expected to be available in similar projects for the city of Surman, compared with what remains of the housing units within the city planned (HUSCO, 2012).

Tape of housing units		Available	Not available	Number	
				available	Achieved
	80 m2		/	No found	No
	100-120 m2		/	No found	No
Tape of area	120-150 m2	/		2690	Yes
m2					
	An apartment in a residential building	/		2490	Yes
	Apartment in the tower	/		200	Yes
	Separate villa - a		/	No found	No
Apartment	separate house				
tape	Any other kinds of		/	No found	No
	apartments. Studios				

Table 2: Types of housing units within the city of Surman scheme and the proportion achieve measurement index. Source: (HUSCO, 2012)

2- Measuring the achievement of land use and environmental diversity index

This indicator can be measured by examining the private spaces for each activity within the residential areas, and also through the study of land use in areas within the city planned. It then analyzes and draws conclusions in the percentage of each activity, after which the rates of land use is compared to global case studies that have been mentioned to determine the proportion of congruence and compatibility between them.

Table 3: shows the area ratios and all land uses and functions in residential areas of the scheme city. Source: (HUSCO, city. Source: (HUSCO,2012).

Land used type	Area (m2)	Percentage (%)
Residential Buildings	128149.8462	8.6865
Residential towers	3020.0171	0.2047

The urban center	25560.1120	1.7326
Main streets	337458.7708	22.8743
Street services	159502.9610	10.8118
Corridors	199911.2506	13.5508
Car parks	158646.9086	10.7537
Public gardens	54868.7308	3.7192
Green areas	197841.0908	13.4105
Paved areas	145992.0761	9.8959
Commercial center	9151.2826	0.6203
Administrative buildings	3888.0770	0.2635
Playgrounds	2422.0000	0.1642
Schools	38648.5866	2.6195
Health services	7378.0733	0.5001
Banks		
Cultural services	1041.1516	0.0705
Civil defense	560.8700	0.0380
Police station	1230.2687	0.0833
The total	1475272.0738	100.0000

The table below shows the percentage use of land in the city of Surman scheme and comparable percentages of use of land per Masdar City, United Arab Emirates and the city of Dongtan, China.

Table 4: Shows the comparison of each of the UAE Masdar City, the city of Dongtan in China with Surman city planner proportion of use of land and residential areas. Source: (Frenchman & Zegras, 2012), (Raza, Janajreh, & Ghenai, 2014), (HUSCO,2012)

Land use	The percentage			Average percentage of Masdar City and Dongtan	Percentage achieves	
	Masdar City, UAE	Dongtan, China	Surman city planned	unu 2 ongun	Tupps of the first state of the	
Housing & Residency, open spaces, and services	38.00%	45.00%	39.93%	41.50%	96.21%	
Corridors Education	32.00%	31.00%	57.99%	31.50%	184.09%	
and Scientific Research	30.00%	24.00%	2.69%	27.00%	9.96%	
		The total percent	tage to achiev	e land use index	96.75%	

3- Measurement of movement by private vehicles and pedestrians index

The possibility of measuring the mobility index should be focused on known residential areas which have a link with activities and services such as daily movement (i.e. Schools, public parks, health clinics, mosques, commercial buildings, administrative buildings, banks, Cultural centers and Playgrounds). These services are to be located near residential areas, where the city population movement relies on private vehicles or walking.

Services	Total number of Separate Residential Buildings (2490 unit)	Total number of Buildings Residential towers (200 unit)	Number of Separate Residential Buildings covered by the area of the service	Number of Buildings, Residential towers covered by the area of the service	Percentage of Separate Residential Buildings	Percentage of Buildings, Residential towers	Total housing units covered from 2690 units
Schools			141	3	44.67	100	1300
Public parks			199	3	63.17	100	1792
Health clinics			0	3	0	100	200
Mosques			0	0	0	0	0
Commercial	315	3	77	3	24.44	100	816
buildings							
Administrative			25	0	7.93	0	150
buildings							
Banks			0	0	0	0	0
Cultural			32	3	10.15	100	456
centers							
Playgrounds			48	0	15.23	0	384
	The average number of the housing units covered by the service basis 566						566 units
Percentage for each type of building 18.39% 55.55%							
Percentage of each building and residential covered services basic 36.97%							36.97%

Table 5: shows the percentage covered basic services for residential buildings in residential areas and measure the extent to which the movement index. Source: (HUSCO, 2012)

To achieve sustainability, the distance should not exceed 250m. The location of services near residential areas, circles within a radius of 250 m, from which to determine the distance that has been covered and consistent with sustainable urban planning. After that is determined, the number of residential buildings and places of covered services and daily activities that are meant to calculate the percentage check on its own index. The percentage of the entire residential buildings is then determined to the extent of movement and then measures the percentage index of the distribution. Table 5 shows the percentage of covered services and everyday activities of residential buildings, to know the total proportion of residential buildings planned for the city.

4- Measuring the achievement of mixed land use index (Mixed Land use Factor)

Measured by this indicator by knowing and identifying the green space percentage of the entire space used in the scheme, and to see areas that give the possibility of bio-diversity emergence and continuity. It also focused on knowing places percentage for linking rainwater into the soil and also taking into account the planned waste by the presence of methods or mechanisms for the recycling of waste. The network for collection of rainwater was also considered, and the network separated from the sewage network if it exists.

Table 6 shows the percentage of verification measuring biodiversity and green infrastructure of residential areas in the scheme.

Types of biodiversity and green infrastructure	Available	not available	Percentage ideal if available	Percentage verification (%)	
Green spaces	Available as a percentage 13.41% of the land area used		Percentage accounted for 30% of the land used	44.70	
Trees	Yes by about 45% percentage spread in some locations		Fair distribution over the entire areas used	45.00	
Rainwater drainage network (separate)		/		0	
Processing and recycling of waste		/		0	
Rainwater leak of surfaces	Available as a percentage 34.00%		Full executrix areas	34.00	
Percentage full achieved biodiversity and green infrastructure index 24.74%					

Table 6: Shows the extent to which the biodiversity index measuring green infrastructure and residential areas in the city of Surman scheme. Source: (HUSCO,2012)

It was recorded that the extent to which the quality of the design housing criteria within the city scheme and their suitability to achieve the principles of sustainability are met, depends on the use of measurable indicators. It was calculated and analyzed by using geographic information systems Arc (GIS), where concluded percentages of factor exist in the study area and compare to ratesm of global idealism analysis.

It is observed that spacing in residential neighborhoods within the city near the scheme do not take into account the basic service functions. This including the lack of full coverage of basic services in residential areas for basic services and the movement, index achieved 36.97%. The percentage can be justified by trying to reconcile the requirements of the population in the surrounding areas and the planned scheme. More also, it lacks a city planner and residential areas
of biodiversity and green infrastructure. According to green infrastructure and biodiversity index, a measure of the proportion of 24.74% is achieved. City scheme also lacks the diversity of the housing units where there are only two models of separate residential buildings and residential compounds, as well as the convergence of housing units. This is achieved by the diversity of the housing units by 43% index. Whereas with regard to land use, it was different percentages between functions since there are high percentages and other law, this is what has been achieved as a measure of the land use index.

CONCLUSION

Surman city is a big city in land mass and has a population of about 70,000 people inside and outside the planned city, of which only 40,000 people are living Within the Planned Area. The planned area of the city is about 12797118 m2, Surman city has witnessed a major urban expansion and an increase in population growth in the last thirty years. This has led to the housing projects inside and outside the scheme. But the lack of housing projects carried out Within the Planed Area to the design criteria to keep up with the basics sustainable urban plan is sophisticated and flexible.

This problem is faced by almost all city schemes in Libya, the spread of housing projects in which the design criteria is not taking into account the positioning according to expansions of urban areas or the updated sites residential areas. This, in turn, causes an imbalance between residential areas and the services and functions of (educational services, health services, business services, cultural services, green areas, etc.). The long duration of the study and the preparation of plans without the implementation of these plans in the early stages immediately upon completion of the design and preparation causes difficulties and confusion during the implementation and application of these schemes.

The proposed design for the development of design criteria for the residential scheme in Surman city is to develop the communities by the development of Housing and social facilities and environmental fundamental to the needs of the population. It takes into account the NEEDs assessment of land for the purpose of provision of services acceptable and balanced criteria for

the long-term to maintain the land. In other words, the development of a city plan and its design outlet to the urban planner traditionally postures the principles of the sustainability scheme.

The study showed four indicators as a measure of the diversity of the housing unit index. The achieved measurement of the land use index measures the achievement of green infrastructure, biodiversity and movement of private vehicles and pedestrians measurement indicator. These can be relied upon to develop design criteria for Surman city scheme and also help to identify the extent to which sustainability into any project within the city planning scheme can be achieved.

Despite the limitations, this research has recently made several contributions to current knowledge in Libya. The aim of this research is to develop a design for a residential scheme, and upgrading of the city and developed into an urban planned traditional processions scheme to the concept of sustainability. It has become one of the most important basics of urban planning criteria. This research aims to raise and contribute to the knowledge of the city through the help of researchers and developers in their studies. It also aims to contribute to help organizations and government institutions through the use of indicators and results for this search.

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Development Of A New Extension Of Time Application And Assessment Mechanism

Lee Kong Hooi

ABSTRACT

In Malaysia, most construction projects run under the Pertubuhan Akitek Malaysia (PAM) contract 2006 agreement containing the application for extension of time PAM 2006, Clause 23.1 is in reality "The Pearl" of the construction industry. It is the commercial "life blood of the contractor". The common disputes that the Employers and Contractors encounter in the course of work are numerous such as: the delay caused by Employer's Act of Prevention, the Contractor failure to comply with the contractual provision for serving notice of delay, the concept of time being set at large due to acts of prevention where there is no contractual provision governing the situation or the Architect fails to properly grant an extension of time or improperly refused to grant an extension of time (E.O.T.) in a situation warrant an extension of time. In this study, survey questionnaire has been carried out in order to determine the nature of E.O.T. application

and assessment method employed in Malaysian construction industry. Analysis of the feedback resulted from the survey questionnaire indicates that the current means of E.O.T. application suffer from various shortcomings. It also reveals the requirement for a new E.O.T. application and assessment mechanism to be developed in order to maximize the efficiency of the said procedures, also to minimize dispute arising from them. Through the review of submissions for the application, it is crystal clear that a consensus mechanism is still non-existent with which different Contractors deploy various approaches to present information required for E.O.T. assessment(Trauner, 1990). The objective of this study is to develop a new E.O.T. application and assessment mechanism which is "Dynamic Segmentation Path Matrix Chart" (DSPMC) intending to tackle the disputes revolving the issue of E.O.T. The method of operation of the proposed DSPMC segregates the amount of delay caused by the Employer from that by the Contractor unlike the traditional methods (As-planned vs. As-built, Time Impact Analysis etc.) currently applied in the construction industry. The proposed DSPMC is developed with the primary aim of minimizing the room for dispute to arise with the granting of fair and impartial amount of Extension of Time.

Keywords: Extension of time, dispute, impartial

INTRODUCTION

In any construction contract, the Contractor has a fixed stipulated time frame to complete a project (Danuri, Othman, & Lim, 2006). Failure to complete the project within the stipulated time amounts to a breach of fundamental term of the building contract. Most construction contracts specifically list the excusable delay allowable for recovery of both time and overhead caused by the employer such as delay in giving possession of site, delay in giving instructions, drawings, variation, etc. for extension of time. Extension of time is a very important provision in any construction contract which determines the extent of Contractor's liability to pay for liquidated damages if the project fails to complete within the stipulated time(Endut, Akintoye, & Kelly, 2009). In Malaysia, Pertubuhan Arkitek Malaysia (P.A.M.) Standard forms of contract and Public Works Department (P.W.D.) Standard forms of contract are the most popular local standard

forms of contract used in the Malaysian construction industry(Zakaria & Ismail, n.d.). Several typical procedural problems used to identify in relation to E.O.T. applications are as follow:

- a) Whether the Contractor's notification is a condition to entitlement to extension of time;
- b) The consequences of the Contractor's failure to notify delays;
- c) The repercussion of the Contract Administrator's failure to grant extension of contractual time due to Owner's default;
- d) Disagreement as to the reason and impact of delays;
- e) Dispute on updated master programme as the yardstick of assessing extension of time;
- f) Inadequate and inappropriate information furnished by Contractor as evidence.

The construction industry is always beset by ignorance of Contractor under the notice provisions. Improper documentation is detrimental to securing contract administrator's approval for an entitlement of time extension and it increases the likelihood of a dispute. Controversy stems from Contractor's failure to comply with contractual procedural requirements gives rise to disputes, pertaining S.O. evaluation of E.O.T. by the employer's acts of prevention, such as, late possession of site or variation instructions by employer has resulted in delays(Kartam, 1999). The Contractor is generally obligated to provide certain relevant details in his notice of claim such as identifying relevant causes giving rise to project overrun, duration, the date and time of delay, and the degree progress work being hampered. The detailed evidences may often be presented in the form of 'Bar Chart', "Gantt Chart", "Critical Path Analysis" or a programme generated by software such as "Microsoft Project" and "Primavera"(Arditi & Pattanakitchamroon, 2006). The E.O.T. claim submitted by the Contractor will be reviewed and assessed by the Contract Administrator and Architects by Delay Analysis Techniques such as As- Planned vs. As- Built, Impacted As- Planned, Collapse As-Built Schedule and etc.

METHODOLOGY

A survey questionnaire has been conducted in order to determine the nature of E.O.T. application and assessment in Malaysian construction industry. The questionnaires were distributed to firms and company in Negeri Sembilan, Melaka and Selangor. Respondents were randomly selected from the list obtained from P.A.M. 2006. A total of 150 sets only questionnaires were distributed to potential respondents like Architecture firms, consultant firms, developers, Contractors and also some government bodies via mail, email, or by hand delivery.

Representing	Number of Respondents
Government Bodies	8
Developers	12
Civil and Structural Consultants	30
Contractors	8
Quantity Surveyors	5
Anonymity entry	3
No response	84
Survey Population	150

Table 1.1:	Survey	Popul	lation
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RESULTS AND DISCUSSION



Figure 1.1: Frequency of Contractors Submitting Inflated E.O.T. Claims

Through the survey questionnaire it seems apparent that Contractor's submitting inflated E.O.T. claims is quite common with more than 78.7% of respondents agreed that frequently and very frequently Contractors submit inflated E.O.T. claims. This in turn demonstrates the element of trust deficit among the Contractors and Contract Administrators as the Contractors have no faith in the Contract Administrators that they will grant fair and impartial E.O.T. claim. Therefore, they submit inflated claims with the purpose to maximize the E.O.T. to be granted.



Figure 1.2: Requirement of A New E.O.T. Assessment Mechanism

Figure 1.2 shows that 61% of the respondents frequently and very frequently feel the necessity in having a new E.O.T. assessment mechanism. This clearly demonstrates that the consultants or personnel involved in the construction industry feels the incompetency of the Delay Analysis Techniques currently employed in the construction industry. Therefore it justifies the requirement of the development of a new E.O.T. application and assessment mechanism.

Proposed Dynamic Segmentation Path Matrix Chart (Dspmc) – A New E.O.T. Application And Assessment Mechanism

Dynamic Segmentation Path Matrix Chart (DSPMC) is a new proposed mechanism as a planning and scheduling tool that many construction-project owners should impose on the Contractors to submit a DSPMC plan of the project along with their bid. In the Dynamic Segmentation Path Matrix Chart (DSPMC), the parameter in question is duration and given activity durations as determined in the activity-planning task, the project duration can be determined as well. When using DSPMC, it is assumed that each project activity's duration is known with certainty. For example, given that an activity takes duration of 7 days, there is no probability of the activity taking 9 or 11 days. This is the assumption of the DSPMC calculation procedure.

A	Type of Activity	Е
В	С	D

Figure 1.3: Dynamic Segmentation Path Matrix Chart

Legend:

A=Earliest date of commencement

B=Latest date of commencement/ Date of recommencement of work/ Date of suspension of work

C=Duration of work

- D=Latest completion date/ Finishing date after EOT/ Actual finishing date
- E=Earliest completion date

Column A states the earliest planned date of commencement of a specific project while B shows the float date. Together the columns in red show the Contractor's ex-ante plan of the project activities. Column E states the completion date for the earliest planned date of commencement while D shows the completion date for the float date. The red columns are used to determine the number of days expended by Contractors for the activity by identifying the earliest date of commencement and date of suspension of work. The amount of E.O.T. to be granted to the Contractor is determined by identifying the gap between earliest date of commencement and the date of recommencement of work. This chart allows Architects /engineers /consultants to detect any exaggerated claims of E.O.T. and identify the actual reasons of delay caused by the Contractors by comparing the gap between the dates stated in both red columns. Huge gap indicates the inefficiency of the Contractors or delays caused by the consultants to produce amended drawings. By identifying the gap between the date of commencement and the completion date of a specific work i.e. gaps between column A and E or column B and D, employers/owners can know about the financial status of the Contractor's firm and the duration of time needed to complete a project. DSPMC indicates the experience, numbers of workers and the cutting edge of equipment used by the Contractors in a project through column C. If the

duration stated in column C is short, it indicates that the Contractors have enough resources to be efficient with the work. Estimating the actual date of completion for each work will be simple for the clients as it is stated clearly in column C by the Contractors (Trauner, 1990). Contractors no longer need to notify the Contract Administrator or Employer of any delay as duration of delay is determined on monthly basis and which party is responsible for it. The act of prudency by Contract Administrator has become a history as he can determine the Contractor entitlement of E.O.T. instantly without any phobia of legal implication institutes against him. The issue of not granting time due to employer's default does not arise as transparency accountability and reliability prevail throughout the whole project. Whoever causes the delay can be determine on the spot during the monthly site meeting. The utilization of DSPMC in E.O.T. assessment is explained further with the help of figure 1.4, 1.5 and 1.6. DSPMC is used in order to compare and contrast the usage of normal As-Planned vs As-built in assessing E.O.T. In Figure 1.4 although delay can be shown clearly but the source of delay cannot be identified therefore creates space for dispute to arise during the granting of E.O.T. unlike that in DSPMC (refer figure 1.5) the source of delay can be identified as well as the amount of delay. To further advantage, concurrent delays can also be identified and assessed easily with the help of this mechanism (refer figure 1.5 and 1.6). "First past the post" approach allows the cause of delays that occur first in a concurrent delay to be used for adjustment of the contract period. Other causes of delay will be ignored unless they affect the completion date and continue on after the first cause has ceased to have any delaying effects (Kartam, 1999).



Figure 1.4: Example of DSPMC E.O.T Assessment



Project Title: Proposed construction of a 3- storey building together with a basement carpark, on Lot 8710 Seremban, Negeri Sembilan for Chinese Assembly Hall.

Figure 1.5: Example of master Programme Chart

May- 13	June-13	Aug-13	Sept-13	Nov- 13	Dec- 13	Jan-14		Feb- 14	Mac-14	Apr-14
20/5	30/6	6/8	16/9	17/11	11/12	12/1>	15/1	25/2 -	→7/3	
			22/9>			12/1->			17/3 ->	3/4
			29/9			20/1				
						17/1>			18/3	22/4
						17/1 -	\rightarrow	1/2		
EOT:	(41)	(4	41) (7)		(2	4)	(15)		(5)	(10)
(36)										
Total E	OT :	179								
Contrac	t comple	tion date	: 19/7/	14						
New co	mpletion	date	: 19/7/	14 + 17	9 days H	EOT = 1	4/1/1	5		
Practica	l comple	tion date	: 25/12	2/14						
D 1										

Figure 1.6: Extension of Time: Breakdown Analysis

Remark: The practical completion date does not exceed the new extended completion date. Therefore, the Contractor is not liable in paying LAD to the Employer.

Advantages Of New Dynamic Segmentation Path Matrix Chart (Dspmc)

The Dynamic Segmentation Path Matrix Analysis Chart also gauges the efficiency and capability of the Contractor. It greatly simplifies the scheduling, monitoring and controlling process for the client or owner. DSPMC acts as an important prevention and detection mechanism to gauge Contractor under performance by a glance as the mechanism stresses on transparency in the process of documenting and assessing E.O.T.. It assesses and analyses the risk and behavior of the Contractor's performance. The client or owner can identify the actual causes and party behind any delay or claim and address the matters accordingly without the need to hold site meeting with

the site representative to obtain information regarding specific delay or claim. Other than that, DSPMC framework also deals with:

- a) The objective of Contractor E.O.T. application in systematic and rational manner.
- b) The qualitative characteristics that determine the usefulness of information contained in the submission.
- c) The definition, recognition and determination of the elements from which the E.O.T. application are constructed.
- d) To eliminate concepts of over-lapping, and concurrent delay by Contractors.

CONCLUSION

The Dynamic Segmentation Path Matrix Chart addresses every phase of identifying, tackling and solving the problems of application and submission of E.O.T. all Contractors will face. It provides the tools and rational techniques to present his application of E.O.T.. With this technique, the Contract Administrator or Consultants can even map out a plan for getting the project in time, specify what resources are required, foresee impediments along the way, and select key measures for charting progress. The Contract administrators' phobia of not fair and bias and allegation of taking sides with the employers whenever the time awarded to Contractors far below their expectations is no longer a thorn in their hearts.

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Experiments And Measurements For Models Of Educational Buildings For Improvement Of Thermal Performance Of The External Shell In Libya

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ABSTRACT

External shell of buildings is one of the main factors which affect energy consumption inside the building as this shell is the joining part between external and internal environment. And since desert environment (climate subject of this study) is characterized with harsh climactic conditions which man can't live with in terms of getting heat comfort. For example, this matter requires environmental treatment for the external shell in order to ensure the needed protection and achieve the maximum thermal comfort for the user and reduce energy consumption as much

as possible. The study mainly assesses the current condition and the effect of design alternatives of the external shell (walls,roof,openings) on the thermal performance of educational buildings in Libya. Also, a work sample shall be selected through the study as (case study) by using a simulation program for thermal analysis as a study tool for these design alternatives for external layer. The study in principle aims to evaluate a number of design standards for the external shell of the building to supply the energy required for cooling and to reach the suitable thermal comfort for users through many alternatives which take into consideration the climate conditions of the area subject of the study.

Keywords: External shell - heat transfer- thermal comfort- thermal performance

INTRODUCTION

The outer climate has direct effect on human conditions and his feeling of comfort or discomfort. Man adjusts to the external environment does not happen fast enough and with enough flexibility when exposed to improper climactic changes such as high temperatures or extreme coldness where the human body tries to adjust with such Climate conditions by perspiring to reduce the extreme temperatures or by shivering of the body to produce heat when getting exposed to extreme cold. However, no matter how hard the body tries to adjust, still it can not feel total comfort because of getting exposed to such unappropriated weather conditions.

Climate inside building spaces is a part of the external climate but has undergone some changes from the outer climate because of a mean through which the outer climate went into the space. This mean is the external space of the space in which human is or using .

PROBLEM OF THE STUDY

Bad design for external shell and selection of elements of the external shell including unsuitable material for the surrounding environment (dry and hot climate), all contribute efficiently in heat

transfer to internal spaces which increase inside temperatures and achieve thermal discomfort for user of the building.

OBJECTIVE OF THE RESEARCH

This research is intended to reach an external shell design for educational buildings which achieve the required thermal comfort for space users whiteout having to use mechanical equipment except in very few conditions. For the external layer to be one of the climate solutions which achieve the success of the building and fits the dry and hot climate subject of the study and contributes in guiding to energy use.

External Shell

The external layer of the building is considered the linking chain between the inside and outside and .The external shell is defined as the mean between the two environments; the external environment including climate changes and the internal environment including thermal comfort required inside the built environment.(Leno. april 2011).

The building shell is made of a number of constructional material, elements and complexes which together surround the total spatial area for human beings inside of it (Bradsahe (1985). pp 77).

The building shell is made of multiple building material with different physiological and thermal qualities and depend on each other in its complexion. The performance of this part of this building shell for heat transfer can be defined through it and to mitigate the effect of the external environment on the internal environment.

Thermal response for any building shell depends on ability of its elements (roofs,walls,openings) to gain or loss heat in all seasons of the year (Comon(2009). pp 60).

Functions Of External Building Shell

There are many functions for the external building shell which differ according to function of the building including (Givoni (1998).pp 77.82):

- 1. Providing a thermally and psychologically comforting environment inside building spaces.
- 2. A bearing element with other construction elements in the building
- 3. Control of protection from external climate changes.
- 4. Protecting internal spaces from noise.
- 5. Preserving air quality inside building spaces by re-ventilation of indoor air whenever possible and providing fresh air to preserve air quality.
- 6. Fire extinguishing
- 7. It is the element responsible for visual communication from inside to outside of the building.
- 8. Providing natural lighting.

Elements Of External Building Shell

In order for the architect to achieve a valid climactic environment inside building spaces which he designs, his focus shall be more on analyzing climate qualities in addition to studying different architectural elements of the building like the roofs and walls and external openings and the mutual effect between climate factors and external shell elements as they are considered the main port for heat transfer inside the building and in turn the state of the climate by space. The building external shell is made of three elements which include: Roofs-external walls-external openings

Each of the above elements has its role in heat transfer from and outside the building to inside. Also, they should be designed in a way to reduce heat transfer from and to the space and then help create good and comforting environment for humans and the effect of the climate on the different external elements the roofs, walls and openings.

O N	Constructionelementsoftheexternalshellofthebuilding	maximum heat transfer value U (W/m2.°K)
1	Exterior wall	0.5
2	Exposed horizontal roof	0.39
3	Exposed and inclined roof	0.39
4	Ground connected solid floors	0.46
5	Exposed floors	0.46
6	External windows	2.46
7	Exposed external doors	6



Table 1: maximum heat transfer value U for the exposed elements of external layer(Saada(2014).pp53)

Figure 1: heat transfer through external building shell. (Elisawi(2003).pp76)

Roofs

Roofs are the main source of heat transfer between the inside and outside of the building as they, the roofs, are more exposed to the solar ray directly all day unlike walls which are exposed to the solar ray many hours during the day but not all day like roofs based on the vertical position of the walls.

The best material used in building roofs are the ones with quality of acquiring the heat and losing it slowly for its ability to keep the heat during daytime so it becomes the source of heat at night time where temperatures are low. Some examples for material which gets heat slowly is concrete or wide block buildings unlike metal material which get heat fast and loses it fast. Selection of right material to cover buildings does not mean disposing completely of the coming heat through the roof, and the engineer must select supportive material to limit the heat coming through to the space when constructing roofs.

External Walls

External walls in hot and desert dry regions are exposed to thermal rays and thermal force inside space . In addition, the intensity of the sun ray coming down on those walls differ depending of the direction as north walls receive sun ray with different intensity during daytime or the month or the year from that received by the west or south façade(Salgini. 1997).

In addition, the material used in constructing wall impact the quantity of heat force between the inside and outside of the space as there are many types of bricks and blocks used and such material are high in thickness and high thermal capacity. Walls are not exposed to solar ray like roofs because the façade of the building is not exposed to sun all day long like roofs. Also, there is a difference in angle of inclination of the sun on the roofs from the walls which leads to decreasing intensity of the solar ray on walls. However, walls are exposed to another thermal source which is the ray reflected from surface of the earth especially in regions with thermal reflection surfaces as well as another thermal source which is the hot air near surface of the earth whose field of effect include the external wall of the building (Elisawi. pp75).

External Openings:

Openings perform two main functions, lighting and entry of air. The size, form and position of the window depends of local climate conditions. However, openings represent weak points in the external shell of the building as the building gets the highest rays through the openings. Therefore, dealing with openings in dry and hot regions has a big role in lessening thermal loads inside building spaces (Ali Ahmed(2011).pp41).

External openings are main source of thermal force into the space due to low thickness as most of it are made of glass sheets which require designing them in a comprehensive form as ratio of

openings in the façade differ depending on the direction of this façade as it is commonly known that thermal load on building facades differ according to movement of the solar ray in the summer and winter which require that the size of openings are reduced in certain facades and increased in others where there less exposing to the son. North facades are the best ones because of the natural lighted they enjoy and are not exposed directly to the sun most of the year unlike the south façade (Elisawi(2003).pp78).

On the other hand, internal ventilation are related to the ratio of openings (input and output) as in desert regions the hot air outside of the building during daytime the source of high temperatures inside. Also, the cool air at night will be the cause of low temperatures, but this internal temperature fluctuation is not done without the increase of movement of external air into the building (Khori(1977).pp123).

Figure 2 shows that window are the most elements acquiring solar ray where thermal force exceeds 30 times the force caused by black surfaces.



Figure 2: solar ray coming down on different elements of the building(Olgyay(1963).pp33)

a) *Glass*: glass has auto selection for angles of incidence. When the solar ray falls vertically of its surface (angle of incidence is zero), then permeability of transparent normal glass is about 85% whereas when the angle of incidence is 45°, the permeability is about 60%. However, if the sun falls down by 80° degree angle (almost parallel with glass surface),

then permeability does not exceed 5%, and in certain angle, it is called the critical angle where permeability reaches zero as table (2) shows the percentage of passing through normal transparent glass by sunlight fall angle on outside surface of a window

Angel of incidence	Percentageofsunlightpassingthrough	Angel of incidence	Percentage of sunlight passing through
`zero	%86	80°	%5
45°	%60	Critical angle	zero %

Table 2 shows the percentage of passing through normal transparent glass by solar ray fall angle on outside surface of a window (Elzaafrani(2000).pp211)

The above percentages vary with type of glass as dark colored glass surfaces are less permeable for solar ray in comparison with normal transparent glass. Also, above percentages differ with each type of glass as the thickness increases the permeability for sunlight decreases. Hence, the same concept applies if more than one glass sheet is used be same type or more than one type.

b) Air speed inside space: air speed has an impact on space users also in term of feeling of comfort or discomfort inside the space whenever air speed increases or decreases, the extent of feeling or discomfort by human changes. Table (3) shows the correlation between air speed and characterization of this air and extent of feeling by user of this air in terms of comfort or discomfort.

The effect of width of openings on air speed increases when putting two openings facing each other one for air entry and the other for air exit. The average speed increases if the increase of the surface of the two openings happens simultaneously. Table (4) shows effect of directing openings on average internal air speed and its relation to the width of the opening in proportion to the width of the wall.

Air Speed m/s	Air Characterizat ion	Sense of it
zero- 0.5	static	Not noticeable
- 0.5 1.5	Light air	Feeling air on face
3.3 -1.6	Light breeze	Causes movement of hair and clothes
5.4 -3.4	Thin breeze	Causes irregular hair movement
7.9 -5.5	Moderate breeze	Wind force affects the body
10.7-8.0	Refreshing breeze	Hard to walk steadily
-10.8 13.8	Strong breeze	Cause blocks and disturbance during walking
-13.9 17.1	Strong winds	Causes heavy windstorms
-17.2 20.7	storm	More blocking winds
-20.8 24.4	Strong storm	Causes sharp movement blocking
-24.4 28.5	Very strong storm	Movement practically impossible

Table 3: Correlation between air speed and extent
of sensing it (Elisawi(2003).pp120).

Table 4: Effect of directing openings on average internal air speed (Elwakil et ai(1989). pp147).

	enings next 1 other	The two op to eact	ings facing ther	The two open each o	Exit	Entranc
	Leaning winds	Vertical winds	Leaning winds	Vertical winds	width	e width
	%37	%45	%42	%35	3/1	3/1
Quali ties	%40	%39	%40	%39	3/2	3/1
Of	%36	%51	%43	%34	3/1	3/2
Const	-	-	%51	%37	3/2	3/2
ructio	%45	%51	%44	%44	3/3	3/1
n Mater	%37	%50	%41	%32	3/1	3/3
ial In	-	-	%59	%35	3/3	3/2
Dry	-	-	%62	%36	3/2	3/3
Hot Regio	-	-	%65	%47	3/3	3/3

ns

Traditional buildings in desert regions are built of material with thermal capacity and heavy material with high thickness and wide blocks are used in building walls like bricks and blocks and tile.

Bricks are one of the best natural material as they can insulate heat in the building and that is why they are used extensively in such cultures as Iraq and Egypt and was used by the Romans and middle-eastern people. The first Islamic constructions built by bricks was the prophet Mohamed's mosque in the Madina ELmonawara. also, houses in Mecca and Madina ELmonawara were built by bricks and covered by domes. As for the red brick, it was used in Egypt, Iraq, Iran and western Arab countries (Elabed(2013).pp72).

When building with high thickness bricks, it helps provide good thermal insulation for internal spaces of the building. Brick was used in Islamic architecture as it provided thermal insulation for spaces. Limestone was also used to help keep air in the internal Spaces at daytime when temperatures are high outside. As for the upper floors, and due to thinness of their walls and warm air inside it in the evening, windows, openings and balconies were built to provide these floors with cool air at night (Eben Salah(1990).pp 157).

Wood was used in construction of leveled roofs and domes because wood was a good head insulator especially for roofs in hot regions. it was also used as a supportive material in building external walls for buildings so that if there is any cracking in the walls, it would not affect the other walls and roof. The following table shows qualities of different building material.

Material	Thermal capacity	Thermal conductivity	Time lag	Material	Thermal capacity	Thermal conductivity	Time lag
bricks	24.00	00.42	10.40	Wooden sheets	010.90	00.67	16.80
Façade bricks	26.00	00.75	06.10	Palestrina wood	00.30	00.23	04.90
concrete	29.40	01.00	07.50	rubber	68.60	00.08	40.00
Gypsum	20.30	00.25	12.40	sand	18.00	00.19	13.40
iron	54.00	27.60	01.90	Hard wood	18.70	00.91	19.80
limestone	22.70	00.54	08.90	Wood Oak	26.80	00.10	22.60
marble	34.00	01.50	06.60	Soft wood	10.60	00.067	17.40
Plastic paint	22.40	00.43	10.00	Pine Wood	18.10	00.063	23.40

 Table 5: Qualities of different building material(Fajjal(2002).pp 99)

Climate Qualities Of Region Subject Of The Study

Sabha is located in the south of Libya about 750 Km from the capital Tripoli which is on the western coastal line, and is surrounded with small hills from the northeastern and southern sides. It is also surrounded with moving dunes from the north and northeast and is considered the capital of the south.

Sabha is located between latitude 27° ,7 and 27° ,00 north and longitude 14° ,29 and 14° ,23 east and is 420 m above sea level. Sabha is characterized with a desert climate which is hot and dry. temperatures in the summer rise and may reach 46.5° C particularly in July for maximum temperatures in Libya, as for minimum temperatures, they get down to 14° C in the same period. in the winter, temperatures go down to about 11.6° C to 14.5° C and minimum temperature reach 4.4° C especially in February.

as for humidity, it is low particularly in the summer and increases in the winter where it may go up to 60% in some months. However, it is mostly low because of the hot and dry desert climate whereas annual average of relative humidity is only 36%.

Sabha is known for low rate of falling rain as its rates are lowest in comparison with other Libyan cities. Rain rarely falls and that is so for long periods of time. As for sunrise hours in Sabha, they are about 9 hour/day.

Constant winds in Sabha are in the summer season to the northeast and east direction between 6-7 knots. And in the winter, Western winds are most common with 4-10 know rate. in addition, hot and sandy southern winds blow during spring.

MONTHLY MEANS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC	1
Global Horiz Radiation (Avg Hourly)	429	487	547	581	581	591	602	609	556	500	454	405	Wh/sq.m
Direct Normal Radiation (Avg Hourly)	722	684	688	654	587	612	648	709	664	639	741	721	Wh/sq.m
Diffuse Radiation (Avg Hourly)	71	91	104	130	147	132	119	98	118	105	65	66	Wh/sq.m
Global Horiz Radiation (Max Hourly)	769	879	968	1027	1049	1078	1095	1047	973	903	801	709	Wh/sq.m
Direct Normal Radiation (Max Hourly)	1021	1024	988	985	936	976	986	948	975	973	1004	992	Wh/sq.m
Diffuse Radiation (Max Hourly)	286	301	276	343	393	517	458	184	398	306	114	206	Wh/sq.m
Global Horiz Radiation (Avg Daily Total)	4514	5382	6501	7367	7772	8084	8135	7880	6767	5668	4845	4181	Wh/sq.m
Direct Normal Radiation (Avg Daily Total)	7585	7545	8159	8268	7842	8379	8757	9166	8081	7236	7899	7446	Wh/sq.m
Diffuse Radiation (Avg Daily Total)	746	1016	1247	1661	1973	1810	1611	1270	1434	1198	700	686	Wh/sq.m
Global Horiz Illumination (Avg Hourly)	45748	51794	58209	61905	62507	63518	64518	64963	59979	53833	48584	43312	lux
Direct Normal Illumination (Avg Hourly)	69236	65897	66398	62987	57199	60421	64067	69831	64517	61983	72567	69080	lux
Dry Bulb Temperature (Avg Monthly)	11	14	20	24	29	32	34	33	31	25	18	13	degrees C
Dew Point Temperature (Avg Monthly)	0	0	1	2	5	7	7	8	8	8	3	1	degrees C
Relative Humidity (Avg Monthly)	47	40	30	26	23	22	20	22	27	34	39	45	percent
Wind Direction (Monthly Mode)	310	300	300	300	100	290	80	310	290	90	70	70	degrees
Wind Speed (Avg Monthly)	3	3	4	4	5	4	4	4	4	3	3	3	m/s
Ground Temperature (Avg Monthly of 1 Depths)	21	19	18	19	21	24	27	29	30	29	27	24	degrees C

Table 6: Summary of weather data(General meteorology authority(2015)

Environmental Analysis For Model Of The Study By Using (Ecotect) Program

A model of educational buildings has been selected for study which was executed in the city of Sabha including an educational building with an area of 2322 m^2 comprised of four floors . A classroom from the northeast side was defined (classroom 3) and another one from the southwest side (classroom 8).



Figure 3: First floor the school building plans

Figure 4: An oversight of the school building

- 1. Climate data for data for Sabha where the educational building is located were entered including the climate file made through Meteonorm software program.
- 2. Components and Specifications of external shell were entered (walls,roofs,openings).

a- Wells:

E Speakers	M Tanad	E Speakers	ConcBlockPlaster	U-Value (W/m2K)	2,689
Seesan Seesan Vais Vai	In the second se	H Voids H	110mm concrete block with 10mm plaster ether side Building Elsment: Values given per Unit Area (ref) Cost per Unit	Admittance (W/m2 K) Solar Absorption (0-1) Vieble Transmillance (0-1) Themail Decrement (0-1) Themail Lag (tra) [SBEM] (DM 1: [SBEM] (DM 2 Thickness (m)	4.530 0.506 0.67 5 0 0 0 0.220
	Calcular Trend Properties Workt Density Spring Conduct Tops + I Parter Building Model Dig ULD 1.550 1186.00 0.41 45 + 2 Beck, Holem, Hearywork 0.00 1.250 1180.00 0.41 45 + 3 Parter Building Model Dig 0.01 1.500 1180.00 0.41 65 -		Gieerhouse Ses Ermision (kg): 0 Initial Embodied Energy (Wh): 0 Annual Markenance Energy (Wh): 0 Annual Markenance Costs: 0 Expected Urio (set) External Relevence 1: 0 External Relevence 2: 0 External Relevence 0	Veedra Usga Colour (Reliact) UPE 345 Emissivity: 0.5 Speciality: 0 Roughness 0 Set as Default Un	Externa 0.9 0 0 0 0

Figure 5: Wall inputs (vacant concrete wall)

Figure (6) wall thermal permeability coefficient

b- **Openings:** percentage of window openings to the façade is 55%.



Figure 7: Opening inputs (regular glass type)

Figure 8: Windows thermal permeability coefficient

c- Roofs:





Figure 9: Roof inputs (concrete tile)

Figure 10: Roofs thermal permeability coefficient

Environmental analysis of status of the building

a- **Current directing study**: through the simulation program Ecotect, we find that the current directing is bad and requires adjustment. Based upon the simulation program, the best directing is at 185 degree from the north.



Figure 11: Study of the directing before and after adjustment (using Ecotect software)

b- **Temperatures of the hottest day**: of June 22 taking into consideration that thermal comfort rate is between 18°-24° C centigrade and that working hours in the building are from 7:00 a.m to 3:00 p.m.

 Table 7: Southwest façade (classroom -8)

HOUR INSIDE OUTSIDE **TEMP.DIF** (C) (C) (C) 00 42.5 31.3 11.2 01 42.4 12.0 30.4 02 42.4 29.9 12.5 03 42.3 29.3 13.0 04 42.3 29.0 13.3 05 42.3 29.2 13.1 06 42.4 30.8 11.6 07 42.6 32.6 10.0 44.3 08 34.5 9.8 44.4 09 36.3 8.1 10 44.5 37.9 6.6

Table 8: Northeast façade (classroom-3)

HOUR	INSIDE	OUTSIDE	TEMP. DIF
	(C)	(C)	(C)
00	42.9	31.3	11.6
01	42.8	30.4	12.4
02	42.7	29.9	12.8
03	42.6	29.3	13.3
04	42.5	29.0	13.5
05	42.5	29.2	13.3
06	42.0	30.8	13.2
07	42.3	32.6	9.7
08	44.5	34.5	10
09	44.6	36.3	8.3
10	45.0	37.9	7.1
11	45.5	39.2	6.3
12	45.6	40.1	5.5
13	45.7	40.8	4.9
14	45.7	41.0	4.7
15	45.6	40.9	4.7
16	44.8	40.2	4.6
17	44.7	39.1	5.6
18	44.2	37.6	6.6
19	43.9	36.5	7.4
20	43.7	35.3	8.4
21	43.4	34.1	9.3
22	43.2	32.9	10.3
23	43.0	31.7	11.3

11	44.6	39.2	5.4
12	44.6	40.1	4.5
13	44.7	40.8	3.9
14	44.7	41.0	3.7
15	44.7	40.9	3.8
16	43.1	40.2	2.9
17	43.0	39.1	3.9
18	42.9	37.6	5.3
19	42.8	36.5	6.3
20	42.7	35.3	7.4
21	42.7	34.1	8.6
22	42.6	32.9	9.7
23	42.5	31.7	10.8

c- Analysis results:

We notice in table (7) for (classroom 8), the analysis results reached highest temperature of 45.6° C at 2:00 p.m whereas it is 41° C outside. And from table (8) for (classroom 3), the analysis results reached the maximum temperature of 44.7° C at 3:00 p.m where outside temperature was 40.9° C due to direct exposure to sunlight. Hence, we conclude that a directing adjustment is required according to right directing and also modify elements and specifications of the external shell to provide highest amount of protection from sunlight and reduce its absorption.

Applying modifications and re-analyzing the environment of the building after the change:

- 1. A directing change was applied according to best directing set by Ecotect, as the best directing was found to be at 185 degree from the north.
- 2. Changing elements and specifications of the external shell: many experiments and measurements were made to reach best results. The best elements for external shell came out as follows:
- *a* Walls: made of sandstone and thermal bricks with air space.

Walls *	adama_wal_6	U-Value NV/m2	2K} -	E Walk	[Al (ppes]	1		141.5			
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B RennedEath 330nm +	LCAidReterrce 0	Set as Delas	at and the second	Tarbar Dabi sama							

Figure 12: Wall thermal permeability Figure 13: Wall elements inputs coefficient

b- Openings: area ratios of windows openings were adjusted to façade area ratios from 55% to 40%. refractors were adjusted and (Tinted Glazing) glass was used



Figure 14: Form of façade refractors

VERTICAL SHADING
HIGH: 9.9 M FOR THREE
FLOORS
HORIZONTAL SHADING
DEPTH : 50 CM
SPACING: 90 CM
WIDTH : 2.2 M

Figure 15: Refractors dimensions and measurements

c- The roof:

E Flaces *	India construite	U-Yake (%/m2K)	E Floors	* (Al Types)	• •		OUTSIDE.	
E Lines E Panols E Panols E Rabitions	[No Description]	 Admitance (W/h/2/K) Solar Absorption (0-1): Visible Transmittance (0-1): Thomai Decrement (0-1): 	4310 E Lines 06 E Lines 0 Partitions 006 Partitions	Synthetic Tels Tefon Tefon Reinforced Tils Badding	*	δ		$i \leq i$
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Said concrete	Extensi Releance 0 LCAid Releance 0	Set as Default Un	de Dhan / m	 4 Cellulosic Insulation, L 5 Concrete 1-4 Dry 	0.250	43.0 2300.0	1380.000 0.042 656.900 0.752	36

Figure 16: Roof thermal permeability

Figure 17: Roof layer elements inputs

coefficient

d- **Temperatures of the hottest day:** fo 22 of June taking into consideration thermal comfort rate between 18° C and 26° C, and that working hours in the building is from 7:00 a.m to 3:00 p.m.

Table 9: (Classroom 8)

HOUR	INSIDE	OUTSIDE	TEMP.DIF
	(C)	(C)	(C)
00	32.9	36.3	-3.4
01	32.4	34.8	-2.4
02	31.8	34.1	-2.3
03	31.2	33.3	-2.1
04	30.8	32.7	-1.9
05	30.5	32.8	-2.3
06	30.9	34.3	-3.4
07	31.3	36.1	-4.8
08	35.2	38.0	-2.8
09	36.6	39.8	-3.2
10	38.0	41.3	-3.3
11	39.3	42.6	-3.3
12	39.8	43.6	-3.8
13	40.2	44.2	-4
14	41.7	44.4	-2.7
15	41.6	44.3	-2.7
16	40.8	43.7	-2.9
17	39.6	42.5	-2.9
18	38.5	41.1	-2.6
19	37.9	39.6	-1.7
20	36.7	38.2	-1.5
21	35.4	36.8	-1.4
22	34.2	35.4	-1.2
23	33.0	33.9	-0.9

Table 10: ((Classroom	3)
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HOUR	INSIDE	OUTSIDE	TEMP.DIF
	(C)	(C)	(C)
00	29.6	36.3	-6.7
01	28.6	34.8	-6.2
02	28.1	34.1	-6
03	27.7	33.3	-5.6
04	27.6	32.7	-5.1
05	28.2	32.8	-4.6
06	29.2	34.3	-5.1
07	30.6	36.1	-5.5
08	32.1	38.0	-5.9
09	33.7	39.8	-6.1
10	35.0	41.3	-6.3
11	36.2	42.6	-6.4
12	37.1	43.6	-6.5
13	37.8	44.2	-6.4
14	38.1	44.4	-6.3
15	38.1	44.3	-6.2
16	37.6	43.7	-6.1
17	36.8	42.5	-5.7
18	35.7	41.1	-5.4
19	34.6	39.6	-5
20	33.6	38.2	-4.6
21	32.4	36.8	-4.4
22	31.3	35.4	-4.1
23	30.2	33.9	-3.7

esults: We notice from Table 9 for (Classroom 8) that the analysis results showed that highest temperatures was 41.8° C at 12° C noon where it was 40.1°C outside, and from Table 10 for (classroom 3), the analysis results showed that highest temperature reached 38.1 at 2:00 p.m where outside temperatures are 44.4° C. and when comparing temperatures before and after the change for hottest day, and from the comparison, we find that average temperatures for the hottest day was from 12° C to 9° C centigrade in the morning period and from 4° C to 6° C in the evening. In all case, the matter requires using mechanical systems during certain periods to get to the thermal comfort.

Table 11: Comparison of inside temperatures before and after change (classroom 8)

HOUR	INSIDE	INSIDE	TEMP.D IF
	class room-8 Before	class room-8 After	
	(C)	(C)	(C)
07	42.3	31.3	11
08	44.5	35.2	9.3
09	44.6	36.6	8
10	45.0	38.0	7
11	45.5	39.3	6.2
12	45.6	39.8	5.8
13	45.7	40.2	5.5
14	45.7	41.7	4
15	45.6	41.6	4

Table 12: Comparison of inside temperatures before and after change (classroom 3)

HOUR	INSIDE	INSIDE	TEMP .DIF
	class room-3	class room-3	
	Before	After	
	(C)	(C)	(C)
07	42.6	30.6	12
08	44.3	32.1	12.2
09	44.4	33.7	10.7
10	44.5	35.0	9.5
11	44.6	36.2	8.4
12	44.6	37.1	7.5
13	44.7	37.8	6.9
14	44.7	38.1	6.6
15	44.7	38.1	6.6

CONCLUSIONS AND RECOMMENDATION

CONCLUSIONS

1. Surrounding climate factors and conditions in the building have big effect on internal climate state of building spaces which has direct effect on thermal comfort for users of internal spaces.

2. Design and selection of right elements of external shell has a big effect in reducing exposing to direct solar ray and contributes in reducing thermal loads exposed to internal spaces ,and also reducing internal temperatures by up to 12 centigrade in the hottest day.

3. Bad direction of the building has a negative effect on the building and exposes the external shell to a high quantity of solar ray which increases acquired heat through external shell and also affects natural ventilation and air movement around the building

4. Using construction material in walls and roofs that are not fit with the surrounding conditions and with bad insulation and also not selecting good finishing material which help sun ray reflection causes mare heat acquisition and that leads to increasing internal temperatures and in turn leads to thermal discomfort.

5. External openings in educational buildings have large effect on heat transfer for internal spaces because of the high ration of large size of the openings which lead to heat leakage .Also using improper refractors and glass with bad photo and thermal qualities contribute directly to sunshine reaching the building space and that leads to increasing internal temperatures and thermal discomfort.

RECOMMENDATIONS

1. The external building layer is the connecting joint between internal climate of the inside space and the surrounding climate factors and conditions of the building and have direct affect on thermal behavior in the building. Therefore, the design and external form of the external shell must be conformant with the surrounding environment.

2. Directing the building properly to reduce quality of solar ray expose to the external shell and utilizing natural nightly air.

3. Walls must have high degree of delaying thermal energy into internal spaces and made of local material suitable with surrounding conditions like using sandstone bricks and using double walls with moving air space and selecting right color of the external surface to reduce heat transfer into the space.

4. Using insulated roofs with suitable insulations or roofs with two separate blocks with moving air separation and also using curved and shell roofs which help effectively in reducing heat transfer through space.

5. Right selection of positions for openings and reducing their sizes in a way not affecting their functions and selecting type of thermally processed glass with special photo and thermal qualities to help greatly in reducing heat transfer.

6. Providing high ratio of shadowing . this can be done through vertical and horizontal sun refractors. Also, control circles may be put for shadowing on one time and lighting on another.

7. Utilizing right natural ventilation methods considering that they are the main elements achieving high quality internal environment as they affect feeling of required thermal comfort by man in the building, such matter requires good study.

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Comprehensive Dietary Salt Intake Evaluation Among Currently Treated Hypertensive Patients

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ABSTRACT

Dietary salt intake is a major preventable risk factor for hypertension. Various scientific researches including animal, genetic, epidemiological and interventional studies are suggesting that salt reduction could improve blood pressure level and subsequent lowering of cardiovascular event, hence NCDs premature death. Reducing consumption of dietary salt is the most cost-effective non-pharmacological hypertension remedial measure, besides its potential in enhancing

the efficacy of antihypertensive medication. Despite promising evidences on the benefit of salt reduction on hypertension, the results remain equivocal. Moreover, few studies have been done to show specifically regulation of blood pressure in hypertensive patients through a comprehensive dietary salt intake evaluation. This research seeks to explore hypertension treatment by employing an in-depth salt intake evaluation via quantification of salt consumption and further identifying the main sources of salt in the diet of hypertensive patients. Patients' habitual food consumption and behavioural pattern will also be investigated to determine the level of blood pressure control. Ultimately, the research aims to demonstrate positive impact of dietary salt reduction on blood pressure regulation. To achieve its objectives, four approaches are utilized: (1) case report, (2) spot urine analysis, (3) food frequency questionnaire and (4) knowledge, attitude and perception questionnaire. Quantitative data is obtained from patients' demographic information, physical measurement, blood pressure, list of medications and urine sodium content whereas qualitative data is observed from questionnaires. Result will be tabulated into categorical table to determine the degree of association via chi square and correlation coefficient. It is hopeful that the research findings would strengthen current consensus on the benefit of reducing consumption of dietary salt nonetheless presenting an overall understanding on current national level of salt consumption, salt knowledge, eating behavior and belief in order to bring about a more effective multifaceted national level approaches on salt reduction strategy. Keywords: dietary salt, hypertension, FFQ, KAPQ, urine sodium

INTRODUCTION

RESEARCH BACKGROUND

High blood pressure or hypertension is a major medical condition concerning public health, economical and disease burden worldwide. In general, high blood pressure is defined as a systolic blood pressure \geq 140mmHg and a diastolic blood pressure \geq 90mmHg (Chobanian et al., 2003). A person is diagnosed with hypertension when the blood pressure measurement is consistently above these readings and/or currently taking antihypertensive medication(s) (Pickering et al., 2005). The World Health Organization (WHO) reported in World Health Statistics 2015 that

global prevalence of hypertension is at around 22% (WHO, 2015) with distinct variation between socio-demographical background inclusive of race, age, geographical patterns, gender and economical status (Kearney, Whelton, Reynolds, Whelton, & He, 2004).

Back home, the prevalence of hypertension in Malaysia has seen an increasing trend based on the decadal National Health and Morbidity Survey (NHMS) (Mustapha FI, 2015). In most recent report from NHMS 2011, the prevalence of hypertension is at 32.7%, which is equivalent to approximate 5.8M hypertensive patients currently in Malaysia. From this figure, 12.8% are already known to have hypertension whilst 19.8% are newly diagnosed hypertensive patients. Alarmingly, only 39% of hypertensive patients are aware of their hypertension status, the remaining 61% remain undiagnosed.

Hypertension remains as the leading cause of premature mortality and health morbidity worldwide including Malaysia. The Global Burden of Disease (GBD) 2010 reported hypertension to be the key risk factor attributable to burden of disease, expressed as percentage of disability adjusted life years or %DALYs (Lim et al., 2012). Of that, hypertension-related complication including cardiovascular diseases such as ischemic heart disease and stroke are among the top three causes of premature death (Murray & Lopez, 2013); with report that hypertension is responsible for at least 45% of death due to heart disease and 51% of death due to stroke (Naing et al., 2016).

PROBLEM STATEMENT

A total of 56M death was recorded in year 2012 worldwide. Of that 38M death was due to non communicable diseases (NCDs). Cardiovascular diseases top the mortality rate in NCDs with 17.5M death.

Uncontrolled hypertension may lead to serious consequence such as cardiovascular diseases or even death (F. J. He & MacGregor, 2009). In Malaysia, cardiovascular diseases cause about 36%

of total death as reported in NCDs Country Profile 2014 by WHO (WHO, 2014). A recent report produced by the NHMS stated 5.8M Malaysians are currently diagnosed with hypertension. Study on the hypertensive health status from year 1996 to 2011 showed an increasing tread with most profound group being the older generation (Naing et al., 2016). As the nation ages, the number is expected to rise. Though hypertension is classified as chronic medical condition and its prevalence increases with age, it is not inevitable and uncontrollable.

Diet high in sodium was ranked 11th leading risk factor in the global DALYs death (Murray & Lopez, 2013). Many scientific studies including animal (Elliott et al., 2007), genetic (Phillips, 1999), epidemiology (He, Li, & Macgregor, 2013) and interventional studies (Bernabe-Ortiz et al., 2014; Land, Jeffery, et al., 2014) have provided evidence on positive relationship between salt reduction, blood pressure improvement and lowering of cardiovascular consequences, hence NCDs premature death (Cook et al., 2007). Among multiple hypertension remedial method both through pharmacological intervention and healthy lifestyle changes (Moser, 2005), reduce consumption of dietary salt is identified as one of the most cost-effective measure (He, Campbell, & MacGregor, 2012; Mason et al., 2014). Besides that, reducing dietary salt intake has also proven to improve efficacy of antihypertensive medication(Kawamura M et al., 2012).

Dietary salt intake is a modifiable risk factor. Despite the positive relation of salt intake and blood pressure, fewer studies have shown specifically regulatory of blood pressure in hypertensive patients through a comprehensive dietary salt intake evaluation and personal intervention. As such, hypertensive patients though repeatedly advised to practise low salt diet, are often monitored without the vital knowledge of their salt consumption level. Moreover, sodium measurement is rarely performed during follow up treatment for hypertensive patients and is very uncommon in clinical settings in Malaysia.

This research enables a baseline study on current level and pattern of salt consumption among Malaysia hypertensive patients, its effect on their antihypertensive drug therapy and their perception towards personal management on the disease. It is hope that the research can serve as a key component before intervention on salt reduction is implemented. Ultimately, the research hopes to present salt intake evaluation and personal reduction intervention as a potential treatment model for clinical management of hypertension in addition to existing anti hypertensive drug therapy.

RESEARCH QUESTIONS

- In hypertensive patients currently receiving treatment, would high dietary salt intake result in higher blood pressure reading?
- Do patients with high dietary salt intake require higher dosage or number of antihypertensive drugs to achieve the target blood pressure?

RESEARCH HYPOTHESIS

- Hypertensive patients with high dietary salt intake would have a higher blood pressure reading.
- Patients with high dietary salt intake would require higher dosage and number of antihypertensive drugs to control their blood pressure.

RESEARCH OBJECTIVES

- To investigate the relation between salt intake and blood pressure level.
- To propose a pragmatic strategy on hypertensive therapy through comprehensive salt intake evaluation program.
- To document hypertensive patients' medication, medical and profile background against salt consumption and blood pressure level.

- To quantify current level of salt consumption and its effect on blood pressure level among hypertensive patients.
- To determine the habitual food consumption pattern among treated hypertensive patients and its association to blood pressure control.
- To determine the knowledge, attitude and perception on dietary salt consumption and hypertension among treated hypertensive patients.

LITERATURE REVIEW

Death of US President Franklin Delano Roosevelt in 1945 due to uncontrolled hypertension served as a wakeup call to the world on the importance of hypertension management. Since then, the world has seen much progress on study and research pertaining to pharmacological treatment of hypertension (Moser, 2006).

However, prior to the introduction of anti-hypertensive drugs therapy, various measures of lifestyle changes have been suggested for improvement in blood pressure control. One such initiative identified to be the most cost-effective is by limiting consumption of dietary salt. As a matter of fact, the importance of low salt diet was discovered in 1904 by Ambard and Beaujard. Their idea came from an ancient Chinese medical text as early as 2600 B.C. that states, "If too much salt is used in food, the pulses harden." (Freis, 1995)

Much consensus has been agreed on the health benefit of reducing dietary salt, particularly on the improvement of blood pressure level (Alderman, 2002). Large multinational studies such as INTERSALT (Intersalt, 1988) and TOHP (Cook et al., 2007), Cochrane systematic review and meta-analysis (Aburto et al., 2013; He et al., 2013; Taylor, Ashton, Moxham, Hooper, & Ebrahim, 2011) have successfully demonstrated that salt reduction could improve blood pressure level, which in turn decrease the risk of CVDs. In addition to that, reducing dietary salt intake remains the most cost-effective population-wide intervention for lowering and preventing

hypertension. Evidence from one study conducted by Murray concluded that non-personal health interventions via salt reduction could avert over 21M DALYs per year worldwide (Murray et al., 2003). Similarly, Asaria reported that 8.5M death could be averted by salt reduction strategy when the cost of implementation would be less that US\$1.00 per person per year (Asaria, Chisholm, Mathers, Ezzati, & Beaqlehole, 2007).

Various investigations have demonstrated that a low salt diet further improves the efficacy of anti-hypertension regimens (Buter, Hemmelder, Navis, de Jong, & de Zeeuw, 1998; Weir et al., 1998). Wang et al. did a comparison on effects of three types of anti-hypertensive drug regimens between different salt intake levels. Blood pressure of patients with low salt diet was significantly reduced as compared to patients who do not receive low salt diet. Thus, suffice to say that a low salt diet exerts synergistic blood pressure reducing effects (Wang et al., 2015). Besides that, excessive salt intake is also commonly associated with other illnesses such as osteoporosis, asthma and stomach cancer (Tsugane, Sasazuki, Kobayashi, & Sasaki, 2004).

In a recent unpublished study it was found that Malaysians consume about 8.7g of salt every day (Murugappan, 2014), far from the WHO recommended 5g (approximate 1 teaspoon) per day for adult. In line with that and with the increasing number of Malaysian diagnosed with hypertension, the Ministry of Health Malaysia has proposed few policies which include Malaysian Dietary Guidelines and National Strategy Plan for NCDs. On the other hand, several countries, for example Finland and the UK have already successfully carried out national level salt reduction program (He & MacGregor, 2009). These national level approaches are consistent with the WHO Global Action Plan for the prevention and control of hypertension and NCDs.

METHODOLOGY

Study Design

This research involves a cross-sectional, descriptive study. Intervention is not applicable. It will be conducted tentatively in Hospital Canselor Tuanlu Muhris (HCTM) Universiti Kebangssaan

Malaysia Medical Centre in Cheras, Kuala Lumpur and few allocated policlinics in Melaka. The research is expected to consume an approximate duration of 12 months, tentatively from July 2016 till July 2017.

Sample Population

A total of 480 known hypertensive patients currently receiving out-patient treatment and under follow-up will be recruited based on inclusion criteria below.

- i. Diagnosed with essential hypertension
- ii. Currently taking at least one antihypertensive drug medication
- iii. Age 18 years and above

Patients who fulfil inclusion criteria with below condition however will be excluded.

- i. Illiterate
- ii. Pregnant
- iii. Subject working on odd hours or shift work that may affect body sodium excretion
- iv. Subject with renal diseases that may body sodium excretion (end-stage renal failure, acute kidney disease)
- v. Subject with multiple co-morbidities (more than 5 coexisting diseases)
- vi. Failed to complete the questionnaires
- vii. Incomplete urine collection

Sample will be randomly selected by using convenient sampling method. Sample size is calculated using Li Wan Po's formula for descriptive survey.

 $n = p \times q \times \left(\frac{z}{s}\right) 2$ p = percentage of positive, 0.5

q = percentage of negative, 0.5

$$n' = \frac{n}{1 + \frac{n}{N}}$$
 z = value in normal distribution, 1.96
e = margin of error, 0.05
N = population size, 5.8M

Minimum sample size to achieve a study power of 80% from the calculated formula is 384. Taking into consideration the probability of low response rate and other errors, sample size deemed agreeable in this research is 480 subjects.

Ethical Consideration

This research has received approval from the ethical committee board of HCTM and the National Institute of Health (NIH) via Medical Research Ethical Committee (MREC).

A consent form together with an information sheet about the research, will be distributed to the volunteering patients should they agree to participate in the research. Accepted subjects can still withdraw from the study should they already decided to participate. Their data will not be used and will be discarded. Withdrawn subjects will not in any way be penalized or lost their rights as a patient.

The data from this study will be reported in a collective manner with no reference to any individual. Hence subjects' identity will be kept confidential. Access to the data is only by the research team and Faculty of Pharmacy, UKM. However, the anonymous data will be made into a report which may be published. Subjects' medical records and study data shall be archived in electronic data in the forms of DVD and kept for a year after completion of project.

Clinical Assessment

A case report form (CRF) will be assigned to each research subject to record their demographic and profile background.

Blood pressure level and anthropometric data such as weight and height, waist and hip circumference of all subjects will be measured. From the physical measurement, body mass index (BMI) and waist-to-hip ratio (WHR) are calculated. All measurements are recorded to the nearest 0.1 decimal place. The data will be captured manually and maintained as a single database using Microsoft Excel.

I. Blood Pressure Measurement

An automated blood pressure machine will be used for the purpose of this research. This automated blood pressure machine must have achieved a minimum B grade for both systolic and diastolic measurements for the revised British Hypertension Society Protocol (1993) and passed the accepted criteria of the European Society of Hypertension (ESH) International Protocol 2010 (IP1) or ESH International Protocol 2012 (IP2).

A standardized procedure for the measurement of blood pressure as recommended by the British Hypertension Society and European Society of Hypertension will be strictly complied (Pickering et al., 2005). The procedure is as follow.

- Blood pressure is measured three times, in an interval of at least 2 minutes each. If there is
 >5 mmHg difference between readings, additional measurements should be obtained.
 Only the mean of last two readings is recorded.
- Subjects must receive sufficient rest and zero disturbances prior to and during measurement.
- Subjects do not consume tobacco, alcohol or caffeine and perform physical activity 30 minutes before measurement.
- Subjects are in sitting position, with the back supported and legs resting uncrossed on the ground.

• Cuff at a suitable size is properly fitted at the same level of the heart, forearm free of sleeve.

II. Physical Measurement

Anthropometric data such as height, weight, waist and hip circumferences of all subjects will be acquired. Height and weight are measured using a standardized stadiometer and digital weight scales respectively, whilst waist and hip circumferences are measured using a standardized measuring tape.

To take measurement, subjects will be asked to remove shoe, stand still with face looking forward and breathe normal. Hip circumference is measured at the widest part, across the buttocks, whilst the waist at the smallest circumference, just above the belly button or at the midpoint between the last palpable rib and the top of iliac crest (WHO, 2010).

BMI is computed as weight in kg divided by square of height in meter (kg/m²). WHR is calculated by dividing the abdominal circumference to hip circumference in centimetre (Tessema et al., 2012).

III. Check On Co-Morbidity And List Of Medication

Updated record of subjects' medical examination and medication list will be obtained from the health centre centralized computer system. Subjects are checked on other health co-morbidities. The list of medications and dosage for each medicines as well as other health issue is noted.

Salt Intake Assessment

This research utilises three strategies to assess subjects' dietary salt intake pattern: (1) spot urinary analysis for quantification of sodium content, (2) qualitative determination based on food frequency questionnaire to identify sources of salt in the diet, and (3) knowledge, attitude and perception questionnaire to generalise salt eating habit and blood pressure control among hypertensive patients as well as patients' readiness on a salt evaluation treatment program.

I. Collection Of Second Morning Void Spot Urine Sample For Determination Of Sodium Electrolyte Content

A series of spot urine samples will be collected. Each subject will be provided with a plastic vial. Subjects will be instructed to collect their mid-stream spot urine for the second morning void, approximate 0800 - 1100 in the morning (Kawamura et al., 2012). The collected urine samples will then be sent to a centralised health laboratory for sodium electrolyte determination.

The spot urine sample will be compared against gold standard 24-hour urinary sodium excretion using Cohen Kappa test of agreement. For this purpose, a subsample of 240 subjects from the sample population will be recruited randomly. Subjects will be directed to accumulate a 24 hour urine samples throughout a day period starting from the second void on rising in the morning until the first void after rising in the next morning (Cogswell et al., 2013). Time of each collection is recorded and subjects are required to return the collected samples the following day. The urine samples collection will be kept in an insulated bag with icepack before they are sent to the centralised health laboratory for 24-hour sodium electrolyte determination.

II. Habitual Dietary Salt Assessment Via Food Frequency Questionnaire

A food frequency questionnaire (FFQ) will be utilised to garner information on subjects' eating habit especially on salt consumption pattern (Yap SY, 2002). Nutritionist Pro 4.0, a dietary analysis software is used to assist with sodium quantification and identification on sources of dietary salt from the questionnaire. A dietician will be identified to guide with the categorical food analysis and nutrient databases. This is a self-administered assessment that reflects the subjects' food consumption over a period of one month.

This semi-quantified dietary assessment enables identification of potent sources of sodium and their respective amount, further could provide important information for health intervention in salt reduction initiative (McLean, 2014).

III. Knowledge, Attitude And Perception Questionnaire

This set of questionnaire comprises five main aspects pertaining to dietary sodium intake awareness, knowledge, attitude and perception (KAP). It is developed based on past salt surveys (Claro, Linders, Ricardo, Legetic, & Campbell, 2012; Land, Webster, et al., 2014; Newson et al., 2013; Sarmugam, Worsley, & Flood, 2014) and amended accordingly for local cultural background and hypertension health status suitability. KAP questionnaire is self-administered. It intends to provide general idea on hypertensive patients' salt knowledge and strategy for behaviour change as well as survey on readiness on salt evaluation program and reduction intervention.

Prior to distribution of the questionnaire, a pre-test will be conducted to face validate the questionnaire suitability. Content validation and reliability test will also be performed. 20 subjects are recruited for the pre-testing, subsequently will be excluded from participating in the research study. Comments and feedback from pre-test subjects will be taken into consideration for rephrasing and rearrangement to better facilitate the questionnaire.

Statistical Analysis

Data collected from this research including subjects' socio-demographic background, clinical examination, blood pressure measurement and lab urine sodium content, as well as result from FFQ and KAPQ will be collated and analyzed using IBM[®] Statistical Package for the Social Sciences (SPSS) version 22.

I. Descriptive Statistical Evaluation

To provide basic information about the set data collected, all descriptive variables will be summarised into a categorical frequency table with percentage calculation. Analysis on central tendency (mean, mode, median) and measurement of dispersion (standard deviation and variance) are computed from each variable.

II. Inferential Statistical Evaluation Via Chi-Square Analysis, Correlation Coefficient And Coefficient Of Determination

To investigate the association on level of salt consumption among treated hypertension patients, results from the patients' demographic and clinical background, FFQ and KAPQ will be grouped and tabulated against the measured urinary sodium content in addition to blood pressure reading.

Assuming a normal chi-squared distribution, chi-square test will be used to determine the relationship between hypertension patients' demographic and clinical background to the amount of salt consumption.

Pearson's correlation coefficient will be used to measure the relationship between urinary sodium content, blood pressure reading and list of medication of treated hypertensive patients. On the other hand, trend data result from FFQ and KAPQ will be categorized into ordinal data and analyzed using Likert-type scale. Their relationship to urinary sodium content and blood pressure reading will be measured using Spearman's correlation coefficient.

The strength of each relationship is quantified via Coefficient of Determination.

Potential Findings, Significance And Conclusion

From this research, it is expected that high dietary salt intake would result in higher blood pressure reading in hypertensive patients. Also, hypertensive patients who consume high salt content would require higher dosage or number of antihypertensive drugs to keep their blood pressure under control. In addition to that, it is hopeful that research findings from the four clinical approaches, which are the CRF, Urine Sodium Content, FFQ and KAPQ would enable an intelligible understanding on current level of salt consumption among Malaysia hypertensive patients and its effect on blood pressure management on grassroots level.

None the least, research findings from surveillance and questionnaires done in this study may provide valuable insight on possible means of reducing dietary salt intake, identification of hindrance factors of engaging to this healthy eating habit and perhaps some practical ways to increase adherence to this simple yet beneficial lifestyle. Most importantly, the research is able to foresee Malaysia hypertension patients' readiness on personal salt intake evaluation and reduction intervention, which could potentially mean a novel approach in clinical management of hypertension in Malaysia.

It is therefore anticipated that multi-sectored action from various stakeholders including the government, NGOs, professional bodies and food manufacturers could work together and put forth the best strategy to educate Malaysian public thus raising the awareness level on high dietary salt intake, its adverse effect on health and consequences with ultimate aim to reduce the total prevalence of hypertension, hence cardiovascular diseases burden and economic losses due to NCDs. Furthermore, it is highly hopeful that the study would directly bring about positive behaviour change in the participating patients and encourage them to reduce their daily consumption of dietary salt to the recommended amount of <5g/day in controlling blood pressure level.

The Ministry of Health (MOH) Malaysia's National Strategic Plan for Non Communicable Disease (NSPNCD) in 2010 has outline six specific objectives with seven well-elaborated strategies. This research clearly achieves its objectives especially in the application of research for the prevention and control of NCDs. Hindsight, in line with the MOH's NSPNCD 2010-2014, potential findings from this research undoubtedly may provide vital resources on salt reduction initiative program, both at the individual intervention and national population level. Fast-forward, bridging the gap of achieving the nine voluntary global NCD targets under the declared Global NCD Action Plan 2013-2020 by WHO.

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Evaluation Of Visual Historical Building Facades In Omar Al Mukhtar Street Of Tripoli City

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ABSTRACT

This present research examines public assessment on historical building façades in the Omar AL Mukhtar Street. The historical area is a vital component of city's image. Among the visual characteristics of a historical region, the building façade is an essential component in expressing the architectural highlights. Building façade is generally the issue of assessment to depict the visual qualities of an environment. Hence, giving due consideration and being sensitive to the assessment of building facades in a historical region has a direct impact on the historical image of the said place. The study area is a historical site in Omar AL Mukhtar Street, situated in Tripoli city, Libya. This study focus on the absence of coordination among the shapes, hues, adornments, and architectural styles of the historical building exteriors which affect the historical image of the study region. The first objective is to examine the architectural features and characteristics that effect the evaluation of the public with regards to the historical images on the exterior of the buildings in Omar AL Mukhtar Street, The second objective is to decide on the visual components which impact the historical images of the building exteriors in the Omar AL Mukhtar Street based on the general assessment made by the public. The third objective is to investigate the urban features which influence the

building exteriors historical images in the Omar AL Mukhtar Street based on people's general assessment. A quantitative method will be utilized to accomplish the objectives of this research. A survey based questionnaire will be used for data collection. The respondents are visitors who are acquainted with the region and are prepared to answer the inquiries. Data analysis will be completed utilizing both the inferential analysis and content analysis.

Keywords: Visual elements; Historical building façades; Architectural style; Architectural elements.

INTRODUCTION

At the present time, the city's image, particularly a strong prominence on building's facades has received extensive consideration when a city is renovated and developed. It appears that the city imageries are categorized based on public's assessment as poor images or rich images and reliant on graphic architectural and city features in constructing facades. Libyan cities' buildings' facades, particularly in historic areas, possess personal distinct trait in design variability, form, material and feature that would be appropriate to be included in Omar Al Mukhtar Street, Tripoli city's historic area. Based on public assessment, the study attempted to elucidate the architectural and urban elements which impact the city's appearance. Preceding studies in facades' construction landscapes and city imagery were utilized in distinguishing the way and the measurement of public assessment used questionnaire and investigated quantitatively. The result revealed that design, architectural style, colour and shape are assessed as significant elements in city image's characteristic and it should be given heavy consideration in future growth and historic area renovation.

STATEMENT OF PROBLEM

This study describes visual pollution issues in historic city facades. "Visual pollution" is a recognized expression normally utilized in North, Central and South American countries. It is customarily given to a streetscape with unappealing visual elements. This appearance is related

to the dilapidation of historic city centres' visual quality instigated by commercial signs shown on building facades and public spaces. It is frequently mentioned the damages on historic city centres caused by unrestrained exhibition of commercial signs on the streetscape. This occurrence is apparent in modern urban settings in numerous countries, and it is not new as the literature validates(Passini 1992); (Nasar 1989); (Ashihara 1983); (Herzog, Kaplan et al. 1976);(Rapoport and Hawkes 1970). Numerous researchers have examined this issue and delved into the negative costs that it can have on how user perceives and evaluates commercial street facades (Portella, Laezza et al. 2003); (Klein and Kozlowski 2000); (Nasar and Hong 1999). In spite of the detail that the issue is well defined and familiar to many, there is an absence of literature that contain suggestion related the commercial street facades physical aspects with how users' perceive and evaluate from diverse urban contexts; and that could permit vibrant assumptions drawn about this relationship's universality in addition to finding out the building facades and urban elements' visual elements contributing to the improvement of the historical building facades images in the study area. The urban and architectural development in Libya in this period has been associated with the development of the economy and social life. The main objective of the development plans adopted by different institutions, both public and private was the construction in all areas of residential and community facilities. They concentrated on solving the problem of quantity at the expense of quality requirements. Hundreds of thousands of housing units, thousands of school and healthcare buildings and other service has been built in all towns and villages (Azlitni 2009). (Lynch 1960) explained that the city image's contents may possibly be categorized into five elements for example paths, edges, districts, nodes, and landmarks. From a dissimilar opinion, (Luque-Martínez, Del Barrio-García et al. 2007)clarified that city imagery is an arrangement both cognitive and affective components.

RESEARCH QUESTIONS

I. What are the architectural elements and characteristics that influence the public's evaluation of the historical images of the building facades in Omar AL_ Mukhtar Street?

- II. What are the visual elements affecting the historical images of the Omar AL_ Mukhtar Street building facades based on the public's evaluation?
- III. What are the urban elements which impacted the building facades in the Omar AL _ Mukhtar Street historical images of based on the public's evaluation?

RESEARCH OBJECTIVES

- I. To examine the architectural elements and characteristics which influence the public's evaluation of the historical images of the building facades in the Omar AL_ Mukhtar Street.
- II. To determine the visual elements which influence the historical images of the building facades in the Omar AL_Mukhtar Street on the public's evaluation.
- III. To explore the urban elements which affect the building facades' historical images in the Omar AL_ Mukhtar Street on the public's evaluation.

LIMITATIONS OF THE RESEARCH

The research only focused on the public's evaluations of the historical building façades, based on their external features. The study area is Omer AL_ Mukhtar Street, Tripoli city, Libya. The location is in the city centre, where the first Tripoli city nuclei were formed.

SIGNIFICANCE OF THE RESEARCH

The study's assumptions could contribute importantly to the enhancement of the building facades' historical images in the study area, which have impact on Tripoli city's image. The study's importance is the outcomes resulting from the public's assessments of the historical images are investigational for upcoming development or preservation of building facades, in addition to assisting professionals for instance planners, architects, urban designers and policy makers to make conclusions on the future growth, particularly at these historical sites.

Selection Of The Study Area

AL- Tripoli is a historical city in Libya and has many historical buildings. It is famous for its locality, and rich with cultural heritage. The historical core of Al Tripoli is that it is an old city that holds most of the buildings and historical forms which give the researcher information on the social and physical fabric of previous and present lives in Libya.



Figure 1: Location of Tripoli city in Libya

Building Façade And City Image

Architectural facades are specified with reference to a two-dimensional plane (Stamps 2013). (Hossein Askari, Dola et al. 2014)defined façade as the face of a building which delineates the use and value of its structure. The façade of a building presents the relationship between inner and outer space (Askari and Dola 2009), urban space, and subsequently city image. When building facades are settled in context, they portray the face of the city (city image). This pinpoints the significance of facade and its influence on city image. (Hossein Askari, Dola et al. 2014) pointed out that the scale of the space around a building is determined by its façade. In more detail, urban space is characterized by building façade, neighbouring building facades, streetscape, and environment (Hossein Askari, Dola et al. 2014). (Moughtin, Taner et al. 1995)

opened a different view which introduces façade as an important element in the urban environment, presenting various experiences to the viewers. Building façade is the feature of urban environment and city image, whereby it is very critical to use an accurate ornamentation to create a rich context (Moughtin, Taner et al. 1995).

Evaluation Of Building Façade

The previous studies have explained that the quality of the built-environment is evaluated according to its physical features (Brown and Gifford 2001), however, the mental presentation public toward buildings is mostly achieved by façade evaluating (Imamoglu 2000). In other words, buildings' appearances do play main role in evaluation of built-environment. Nevertheless, some other researchers have described that the emotional positions of the observers in order to evaluate architectural quality of built-environment are also important apart of from physical features solely (Mehrabian and Russell 1974). Regarding to the exterior features, some factors and elements such as cleanliness and ornamentation (Akalin, Yildirim et al. 2009), curved lines and decorated figures (Frewald 1989), and details and context (Akalin, Yildirim et al. 2009) may influence quality evaluation. Moreover, several studies also indicated other effective elements regarding to the evaluation of façade building.

Architectural style (Hui 2007), age of the building, size of shape, value of the building (Hui 2007) forms, lights (Swirnoff 1982), colour and used materials (Hui 2007) can affect building façade evaluation. According to the previous investigations (Karaman 2009), some criteria such as colour and material for beauty of façade of a historical building was determined. It is also necessary to mention that a historical building dominates beauty and artistic quality if it exposures and expression of idea (Coeterier 2002). However, the other researches (Brown and Gifford 2001) were highlighted clarity, complexity, friendliness, originality, ruggedness, and meaningfulness as cognitive factors that can predict quality of building facades.

RESEARCH METHODOLOGY

This study will employ the questionnaire as the most dominant instrument in eliciting people's evaluations. The questionnaire used in this research is a structured instrument precisely aimed at helping researcher to gather the required data. The sample survey involves 270 residents from the residential areas within the Omar AL Mukhtar Street boundaries. Participants will explain their evaluations by rating their preferences for the scenes, and giving their reasons for the selection by responding to close-ended questions. A pre-test will be conducted in establishing the questionnaire's structure, data collection duration, questions format along with their consequences. Figure 3 concisely exemplifies the research's framework. It identifies the process from the literature review that contributes to the research.

OUTLINE OF THE THESIS



Figure 2: Outline of the thesis

Expected Results

The findings will be the importance of visual elements of the facades, some urban elements which are considered as the exterior elements could also affect the historical image of a place.

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Conceptual Development Of Critical Success Factors On The Building Information Modeling (Bim) Adoption In The Construction Industry In Libya(A Structural Equation Modeling Approach)

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ABSTRACT

Building Information Modeling (BIM) configured a significant movement on the transformation and development of construction industry in Libya. During the post-recovery era in Libya, constructions stakeholder has identified the usage of BIM adoption in their business arrangement. This paper has an objective to validate the critical success factors on the BIM adoption in the construction industry in Libya. Technology Acceptance Model (TAM) by Davis has employed as underpinning theory of the critical success factors. The present study hypothesized Senior Management Support, Training, Trust, Experience, Technical Support, User Involvement, Perceived Usefulness and Perceived Ease of Use as mentioned factors. Using confirmatory factor analysis (CFA) of structural equation modeling (SEM), this study succeeds to validate the critical success factors on the BIM adoption. Further, this research also confirms the non-multicollinearity issue among predictors on the BIM adoption. A mutual relationship among factors has tested and validated. Current study contributes a significant impact on the improvement body of knowledge of construction management and also creates a fundamental guideline to the practitioners on their business development.

Keyword: Critical Success Factors, Building Information Modeling, Structural Equation Modeling, Construction Industry.

INTRODUCTION

Building performance associated with process of technology adoption is now becoming increasingly required and it has to be delivered and implemented in a sustainable manner (Gegana and Widjarnarso, 2015). Information Communication and Technology (ICT) has revolutionised the building design and the adoption of advanced modeling technologies in building design (Cao, et al., 2016). One of the latest technologies is building information modeling (BIM). The present study identifies through a comprehensive literature review of the critical success factors affecting BIM adoption (Zou, Kiviniemi and Jones, 2016; Nguyen, Shehab and Gao, 2010). This study aims to establish an empirical model that examines these factors that affecting the level of adoption and concerning the details involved in BIM for design (SEM). This model is expected to give guidelines for engineers, designers, developers and practitioners in the construction industry as well policy maker and stakeholder in the mentioned field (Newton and Chileshe, 2012).

Furthermore, with a rapid development of technological revolution, economic globalization and the fundamental change of social production method, human capital and social capital has become the key factors for a business organisation to the achievement of competitive advantage (Fang, et al., 2016). Management information system (MIS) is charged with improving the performance of organisations and people through the employ of information technology. MIS is a multifaceted discipline, which combines technologies, personnel, processes, and organisational mechanisms. Clearly, the success of MIS is measured in terms of individual and organisational performance (Cerovsek, 2011). Construction industry effected form the dynamic movement

of mentioned variables above. The present study has identified critical success factors on the process of the movement as hypothesized.

On the movement of information communication and technology configuration, every evolution in technology has been achieved with advances in computer science (Ciribini, Ventura and Paneroni, 2016). The result of each evolution is to provide more information to attain objectives easily. This technical evolution is also reflected in the Architecture, Engineering, and Construction (AEC) Industry (Fatima, Saleem and Alamgir, 2015). In the past 10 years, design tools in the AEC industry have been improved from 2D modeling to 3D modeling. Furthermore, need more study on the evolution of Building Information Modeling adoption (Nawari, 2015b).

In the last two decades, Information Technology (IT) has revolutionized the adoption of advanced Computer-Aided Design (CAD) modeling in building design (Feng, Mustaklem and Chen, 2012). It has made the final products more efficient and less costly since it provides the data needed for building performance analysis and evaluation as design on the project proceeds (Chen, et al. 2016). Based on the survey from American Institute of Architects (AIA), Building Information Modeling (BIM) technology experienced a 160% increase in use by the mainstream architectural community between 2005 and 2009. Even though, many problems are associated with the adoption of this technology, particularly in developing countries. The use of BIM requires an empirical model as practical guidance on the achievement of building performance. Despite an increase in the software's adoption, the construction industry is still experiencing barriers implementing BIM (Zou, Kiviniemi and Jones, 2016; Nawari, 2015a).

Building Information Modeling (BIM) has emerged from three-dimensional (3D) architectural design technology to a comprehensive 'methodology to manage the essential building design and project data throughout the building's lifecycle'. The knowledge domain of BIM is expanding with its implementation in many countries in the conceptualization, design, construction and operation of the buildings (Cho, et al., 2011). Such initiatives can be categorized with respect to the type of main stakeholders taking initiatives, such as the public

and private sectors, as well as by the class of initiatives (Zou, Kiviniemi and Jones, 2016). BIM initiatives have been classified into the policy, process and technology fields. This study aims to examine the factors affecting the adoption of BIM among construction industry in Libya. The present study has a significant contribution on the post-war recovery in Libya.

This research aims to analyse the critical success factors of Building Information Modeling adoption in the construction industry based on the current adoption of design tools. In addition, to identify the barriers in the adoption of BIM and to encourage their use is also an important issue that needs to be analysed. A fundamental model of BIM adoption has validated as main guideline for academia and practitioners in the construction industry in Libya.

Discussions on the Gaps Identifications

It is widely accepted that technology is an important ingredient in any nation's ability to prosper and compete within the global economy. Technology has been described as the engine of economic grows, which emphasises two critical aspects: Firstly, the core position of technology relative to other role players in the economy and secondly, the importance of growth (Zou, Kiviniemi and Jones,

2016). The latter aspect leads to the concept of innovation and more specifically technological innovation, which is described in the same publication as the mechanism through which technology can be leveraged to create wealth and to

contribute towards a better quality of life (Nawari, 2012).

In order to foster these concepts into full-blown and active role players, the endeavors of already established businesses to maintain technological supremacy alone, will not be enough to satisfy the growth requirements. According to Davis (2000) this scenario is particularly true for emerging economies, where growth needs are more demanding than in developing countries. A consistent stream of new entrants (managers) is required to participate in the economic activities and to satisfy these needs (Nassar, 2012).

The acceptance and effective utilisation of Information Systems (IS) by individuals, company and organisations are areas of research that have gained importance in recent years. The Technology Acceptance Model (TAM), introduced by Davis and associates (Davis, 1989; Davis et al., 1989), is one of the most widely used research constructs in the study of IS utilisation. Studies using a variety of computer-related scenarios have provided the TAM with extensive empirical support. The TAM uses two distinct but interrelated beliefs, perceived usefulness and perceived ease of use, as the basis for predicting end-user acceptance of computer technology (Eadie, et al., 2014).

There is a strong international consensus on the significant benefits of information and communication technologies (ICTs) to economies (Zou, Kiviniemi and Jones,

2016; Cribbs, et al., 2015).Specifically, ICTs provide cost savings through efficiencies and economies of scale, enable the wider dissemination of needed services of societal benefit, and afford opportunities to develop new services industries and markets that create jobs, return income, and drive growth (Dossick and Neff, 2011).

Furthermore, information technologies and Information systems provide enormous potential for enhancing productivity of stakeholder in the construction industry in both public and private sectors(Zou, Kiviniemi and Jones, 2016). However, net returns on IT/IS's capital have been observed to be higher in many of the developed countries than in developing countries (Eadie, et al., 2013a). The present study was found four research gaps as main problem for further clarification, testing and problem solving identification.

- **Gap1.** There is a need on the identification of critical success factors of BIM adoption in the construction companies in Libya.
- **Gap2.** There is a need on the evaluation of the influence BIM adoption on the building performance in the construction companies in Libya.

Gap3. There is a need on the examination of BIM adoption as a process on the relationship between critical success factors and building performance in the construction companies in Libya.

Overall, related to the BIM adoption, the present study summarise how does perceived usefulness, individual computer self-efficacy, and organisational influences affect the utilisation of BIM adoption and building performance during the early implementation phase? (Zou, Kiviniemi and Jones, 2016; Nanajkar and Gao, 2014; Eadie, et al., 2013b).

CONCLUSIONS AND RECOMMENDATIONS

By implementing BIM adoption mode, construction businesses within Libyan will be able to improve customer satisfaction, increase brand awareness and open up new revenue channels. Therefore this research will provide a good reference point. There will be a provision of a theoretically sound model in this research that can be used to guide the actions of stakeholder when contemplating BIM adoption and initiatives.

The beneficiaries of the research look beyond the academic significance of the research and find the suggested model simple, practical and easy to use when developing their BIM initiatives in areas of various construction ventures. This research hopefully provides a tool of reference for other researchers as well in the BIM adoption adoption in developing countries especially within the Libya manufacturing companies' society.

In order to explore the answer of the problems, the theoretical foundations and the research model will develop based on the Technology acceptance model theories originated from the theories of Theory of reasoned action (TRA) and Theory of planned behaviours (TPB). This theory is the fundamental of the TAM theory in the usage of information system (IS). The
details of the theory will be explained in the literature review of the research whereby to support the foundations of this research.

Overall, The importance of this research can best be illustrated by examining several examples where the lack of or inadequate development of managerial in the technological world has resulted in economic performances of industries, business sectors or even countries. The modern world has witnessed the dramatic growth and phenomenal emergence of the information technology (IT) in the construction industry over the decades.

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Public Housing Design In Aljabal Algharregion (Nafusa Mountain) – Libya Based On The Cultural Criteria

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ABSTRACT

The main objective will describe the public housing problems in Aljabal Algharbi Region (Nafusa Mountain) cultural and social, such as religion, privacy, customs and traditions affecting the development of a framework of Modern and culturally adequate housing for the population. And to work (Guidelines) which that will support the diverse government ministries in future public housing programs.

Libya started providing different types of housing through public housing, investment, housing, agricultural housing, houses for low-income and also to grant mortgage loans in an attempt to gain access to the full coverage for low-income housing projects.

These efforts can be seen in Aljabal Algharbi Region, in which many of the public housing projects, whether terrestrial or multi-story homes, But Regrettably, the most current housing has designed in keeping with the international style rather than with local characteristics. That's why many of Population the housing units have changed the interior design of their homes, According to fit the habits and culture of the community.

Therefore, Therefore, this study aims to identify and analyze the features of the culture of the population of public housing projects, in the three largest cities in Aljabal Algharbi Region (Garyan, Alzentan and Jadu), and the survey will be of the total population living in public housing complexes of the three cities.

Addition with the aid of a questionnaire and interview government officials. The data in this study will collect and analyzed using descriptive statistics and content analysis using SPSS.

Keywords: Housing Transformation, cultural, user needs. Sustainable Housing, and Privacy.

INTRODUCTION

The public housing sector is one of the most economic sectors benefit from the growth and economic development in the countries which are connected with the growth of the national and per capita income levels. Within redistribution the state budget policy to ensure the welfare and stability of a large number of the population; Libya has invested a large part of its oil revenues in building a modern healthy housing for a large segment of the population, LIBYA is considered one from countries that have largely succeeded in overcoming the bad housing conditions and raised the slogan of a healthy housing for every citizen. Therefor, Libya started providing different types of housing through public housing, investment, housing, agricultural housing, houses for low-income and also to grant mortgage loans in an attempt to gain access to the full coverage for low-income housing projects.

Through the housing plans in Libya, the government built many of the models of residential units and removed the huts that was spread in the big cities, which were realistically reflected the housing situation during the 1960s of the last century and constructed replaced by residential neighborhoods. Most public housing designs used in various sectors have been implemented in different areas of social climates and environments in Libya.

These efforts can be seen in ALJABAL ALGHARBI REGION, in which many of the public housing projects, whether terrestrial or multi-story homes, but many residents of the housing units have changed the design of the interior spaces and their homes and their interface according to their customs and traditions.

Because of the various influencing variables in the success of the housing policy, there is no real formula for successful housing, however, but if efforts of different disciplines Putting housing united would certainly be better than it is now. So, there is a need for the development of the design work by depending on what's provided by the architectural, social and political research

and economic information, this is if the aim is to improve the living standard of environmental housing for public housing. That systematic assessment provides information for the designer and encourages positive interaction with the environment, and establishes the rules of scientific research specialization. (Austin & Khan, 2012)

Public housing is home to more than half of the population in ALJABAL ALGHARBI REGION. Housing ,indeed, is more than just shelter. It can provide psychological comfort and social and cultural needs and affect to a large extent the well-being of its population.

Therefore, the researcher looks to evaluate the public housing in ALJABAL ALGHARBI REGION, since the evaluation studies in this area are limited in comparison with other research areas and also the lack of adequate funding for studies of this kind, since the decided budget for any housing project does not include the future studies and limit to the design needs and requirements of implementation only.

RESEARCH PROBLEM

Public housing delivery in developing countries often involves the provision of governmentfunded housing units. Over time, occupants transform such units to suit their changing needs or to increase and improve housing stock - a practice that has been the focus of several documented studies intended to inform policy makers about changing housing trends. Abandoned units have, (Maina, 2013).

According to (El Fortea, 1989:6). (Rapoport, 1981) : "Housing is essential, it is a basic human need and central component in Our daily lives. For most groups in our culture the dwelling is very Central.... Most time is spent on it; it is one's most valuable possession. It Has highest effective meaning and it is increasingly the locus of much Recreation previously occurring elsewhere.".

When Libya gained its independence in 1951, family size had increased, the death rate had declined and people married at a younger age. These factors required the Government to recognize housing, especially in the urban areas, as a major problem. However, as Libya was not in the position to solve any issues as, lack of technology, labor skills and perhaps, more importantly deficiency economic resources. Oil, in the late 1950's bettered Libya's economic status. However, most of its people still lived in unsuitable housing conditions or were homeless. The government gave those day time to try solving this problem. In 1966, the Ministry of Housing was created and the first housing program in Libya, Idris housing Project, was started. However, these efforts were ineffective because of a misunderstanding of the nature of the problem and except for a survey done by Doxiadis in 1964 no detailed study or research on the sites, housing design, environment of the areas and needs of the Libyan society was performed. As a result, no relevant information was available about housing requirements, size, type, socio-cultural needs.

In 1970s, Libya raised the slogan (healthy housing for every citizen) Therefore, the Ministry of Housing scheme began to provide various housing styles, through public housing, housing investment, agricultural housing, and low-income housing and the granting of a large number of real estate loans in an attempt to reach full coverage of projects, low-income housing.

Led the Government to creating a new project "urgent housing projects," in early 1970. "The state has endeavored to provide an adequate house for each family in terms of quality, size and standard, taking into consideration the potential and planned changes of the economic and social conditions, (Libyan Ministry of Housing, 1976 quoted by El-Fortea, 1989:8) The Libya, like many developing countries, has developed and determined to execute the plan for housing production in order to meet a fast growing demand.

Regrettably, the most current housing has designed in keeping with the international style rather than with local characteristics. In the housing sector the Ministry of Housing has been using Western technology in the construction of large scale housing schemes. To execute these large scale projects. There was a need for foreign experts and foreign labor has grown to 200,000 in 1980, about 41.3 per cent of the total workforce in the country (Attir, 1983).

The majority of these housing units are single-story and Flats in multi-storey buildings, a form of housing not suited to Libyan family socio-cultural values such as the need for privacy, security and prestige. In Libya, a huge number of schemes are built by foreign companies who adapted international designs using up-to-date technologies. The schemes do not consider the indigenous' habitats and settlement features. Almost all contemporary buildings do not provide the Libyan society's existing needs and failed to do so. A huge percentage of the change in modern-day housing could be seen in the residential design and the interior (i.e., the users closed balconies, divided rooms, made new openings, extra space built on roofs, built tents, etc.). In Libya, a traditional settlement mirrors man's response to the necessity to preserve the social organization, and revering social and cultural traditions.

In spite of the family activities' variations, structure, and how life is lived in the midst of urbanization and modernization, it has not affected the segregation between sexes and The association between the interior and exterior spaces stayed the same. The arrangement of the interior spaces permits male visitors and guests to access easily without disturbing the household, mainly the female members. The family stays as a vital social institution and plays a role in determining the built environment's design.

However, is confirmed (A. Shawesh, 1992)The of new housing schemes and traditional houses suitability in terms of socio- cultural values and way of life, has never been assessed or researched on. With an exception for a survey conducted by Doxiadias in 1964,(Awotona, 1990).there was no existing comprehensive study or research on Libyan housing. Some researches were carried out in the last decade and generally focused on the housing issues and not on the impact of social-cultural values on housing designs. The development phase in the recent years gives a rich basis of phenomena that needs to be researched and studied.

According to (A. M. Shawesh, 1996): "Environmental evaluation of housing design, especially in terms Of human needs, has been used successfully in many countries, The main virtue of such evaluation is to provide lessons And knowledge which help those involved in the housing

environment, Particularly architects and planners, in the decision- making process, In order to create forms that meet essential socio -cultural values In Libya no such studies have yet been carried out. Therefore, The author recommends some directions for further research and Possible implementation that could be continued by Libyan Colleagues, architects and planners who care about the housing Design and for the Secretary of Housing, which is the official Body responsible for housing in Libya. This means that there is a need to Carrying out a similar study in the coastal and mountain regions of the country are most important In Order to give a complete picture of suitable housing Design of Libyan society as a whole ".



Figure 1: Framework

AIMS AND OBJECTIVES

Above all, the main objective will describe the public housing problems in ALJABAL ALGHARBI REGION and all their the cultural factors affecting the development of a framework of contemporary and culturally adequate housing for the population. And will be made

(Guidelines) which that will support the diverse government ministries in future public housing programs.

- 1- To understand the impact of cultural and social factors in Libya the successful development of public housing.
- 2- Investigate the level of satisfaction of the population in their homes in relation to their socio-cultural values. This investigation will also provide enough factors needed to understand what have been contributed to the discrepancies in housing establishment and dissatisfaction levels with modern housing.
- 3- To identify key stakeholders in the construction industry in Libya and them understanding of public housing that meets the needs of the population.

RESEARCH QUESTIONS

- 1- What are the important socio-cultural values that affected the built environment?
- 2- What do people feel about their public house's design?
- **3-** What is the current understanding of the key stakeholders in Libya the construction industry in relation to culturally sustainable housing?

LIMITATIONS OF THE RESEARCH

This research is limited to analysis models for public housing. In ALJABAL ALGHARBI REGION, study and understand the impact of cultural and social factors on this change designs Most viewed by the population. This research seeks a solution for sustainable housing in ALJABAL ALGHARBI REGION that Adopts and respects the conservative Islamic culture of the community, the local and social.

Sustainability is composed of three main branches, is the economic, environmental and Cultural. However, when and discuss sustainability and the environment and economic sustainability often receives more The attention of researchers On the other hand, social and Cultural sustainability receives considerably less attention. However ,Cultural sustainability is essential if the other two strands of sustainability were to achieve. Having discussed the importance of Cultural sustainability and the functions of housing, this study will investigate the Cultural sustainability of housing (Fung & 馮嘉媛, 2008).

SIGNIFICANCE OF THE RESEARCH

The significance of the present proposed study concluded with the following:

1. Identifying a common problem generally in most urban centers in Libya.

2. This study contributes to add scientific material pertaining to the subject as long as the ALJABAL ALGHARBI REGION needs it if it is taken into account the historical development of patterns and models of housing in the city which reflects the different forms of social and economic life and behavior of individuals in the use of housing according to the requirements of the local environment.

3. The Architect needs to know the reactions towards what he designed. Since the existing gap between theory and practice cannot be reduced except by continuing studies on what is being done. Because the assertion of the feasibility of scientific theories is not only reviewing the effectiveness of these theories.



Figure 2: The location of the study area

LITERATURE REVIEW

Privacy

According to (Mohammed. A. H & Dahlan . A. S, 2008). Individuals and groups need for privacy in their houses as a condition of daily needs, and is different from this requirement depending on the medium in which they live, Therefore, we find that privacy is a prerequisite must be taken into account when designing any space used by people, privacy is one of the most important factors that affect the individual in his dealings with the vacuum that is used and determine whether this is appropriate to the nature of the void or not

Hospitality Habits

Traditional Islamic teachings and traditions involve guidelines that have direct applications in the domestic sphere. The principles of privacy, modesty, and hospitality are central to these guidelines; Each principle has an effect on the design of Muslim homes.

Awareness of the nature of the Muslim perception of homes and the use of space is necessary for architects, building designers, engineers, and builders to be properly equipped to meet the needs of clients.

Impact of Socio-Cultural Factors in the Built Environment:

In terms of cultural needs of the residential environment It should reflect the way of life and cultural norms and values of society. These cultural factors are not rigid rules are written (Abdalla, 2007) said, they are always under the change and modify to suit the setting, time, and transmitted through the process of social upbringing from one generation to another. Thus, it is not surprising, the way people practice their activities of daily life and the way we look at things vary from one community to another. However, for the full satisfaction of the cultural needs of the people, housing and the environment resulting must take into account and be able to preserve the cultural heritage and support the people's way of life .

Culture, beliefs and traditions of the people are reflected in the architecture and the built environment. According to ($Er \oslash$, 2006) socio-cultural characteristics and the life style of the residents have a great effect on the design of the dwelling unit. It is believed that the physical form of the built environment resulting from the behavior patterns of people in the community. This opinion means that the traditional way of life can dictate the design of the housing, and the organization of space, and determine the form of buildings, and the beliefs and customs. Social and cultural values such as religion, privacy, are very powerful factors to make people build their homes to reflect these values.

Social and Cultural Sustainability

The word sustainability resulting from the environmental movement in the 1960s and 70s, the term "sustainable development it has become "a buzz word in the development governments strategies since 80S. (Roseland, 2012) sustainability is meets the needs of the present without compromising the ability of Future generations to meet their own needs, there are other strands of Sustainability, a "social sustainability", "cultural Sustainability "and" economic sustainability.

Religious Needs

Religion is an important factor, particularly in developing countries. (Silberman, 2005) that "religion is an extension of the field of people's social relationships beyond the confines of human society" quoted by. Thus, man must observe the principles and rules of the religion in his society because religion is a very significant value in a scheme of social-cultural values that has a direct influence on people's feelings and their behavior on their houses. The moral system of Islam directly affected the built environment within which Muslims live. With the spread of Islam, the world has witnessed a special system of settlements that reflect the Muslim way of life.

Privacy of others must be respected and a considerate attitude towards one's neighbours is important to ensure the privacy of the community. Anyway. Privacy of the family is not limited to the visual but also other sensory avenues at the dwelling level the need to control social interaction and behavior had a very strong impact on the dwelling design and use of space in traditional Islamic settlements .

The need for every family to have their own dwelling space has led to a clear segregation between public and private space. The separation between the inside and outside of the dwelling and between the two sexes is physically manifests in the various forms.



Figure 2: For culture needs (Ahmed, 2000)

METHODOLOGY

The overview of the research methodology has shown that due to the subject investigated, the most relevant method for the study of culture is the survey in perceptions of providing cultural needs in housing and specific features of the design housing which receives satisfaction. The study will be based on the following methods and techniques:

- a) Review of literature and documentary sources
- b) Survey interview

c) Case study (In-depth interview, site observation and analytical review of drawings and pictures of the housing unit and its neighborhood).

d) Interview survey: to obtain objective responses from the people.

. In this study, it is also suitable to obtain objective responses to people.

The researcher will focus on measuring the social and cultural values at three levels (privacy, The hospitality habits and religion): first to study user satisfaction with the interior design of their homes. Secondly, to study the changes that they have made in the design of housing and its causes.



Figure 3: Framework Of The Research Methodology

The Expected Results And Conclusion

Observed in the design of the apartments in the neighborhood lack of warehouse space and the privacy degree and private balconies are also limited in a society that still uses a porch for storage and dissemination of laundry without adventure to engage in another activity in the balconies as is the case in some other communities, and through personal observation notes the closure of the terrace the use of metal windows for protection and others been incorporated vacuum porch to the rest of the interior spaces of the apartment.



Figure 4: Of The Research

The interior spaces of residential units have a significant impact on the lives of users, design, Despite the satisfaction of users of what provided them with homes from the comforts of lighting and ventilation, hand and some privacy, but reservations about custom spaces and method of use of space, which Encourage them to intervene and make the changes that they deem appropriate and most suitable for them.



Figure 5: Of The Research

In the situation of public housing, land and dual-containing courtyard, front and rear, as in the third and fourth model, which spreads distributed in various shops study area, clearly visible and through personal observation of the researcher that he may enter them a lot of not satisfied satisfied Very satisfied Versatile for storage sit only Publishing washing adjustments in their windows, even in the original design, as has Add vacuum to receive the men (Mrbuah) is far from the entrance of women to maintain privacy entrance.

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A Feminist Reading of A Short Story To Inculcate Critical Thinking Among Female Undergraduate Students

Subrina Haque, Dr Karthiyaini Devarajoo

ABSTRACT

This qualitative study explores the use of literary text to enhance critical thinking among female students in an ESL classroom. The sample is a class of 10 undergraduate female ESL multinational students. An experimental research design with a pre and post-test was carried out to evaluate students written responses before and after the treatment. Students' responses were graded based on a standardised Assessment Rubric for Critical Thinking (ARC, 2010). The treatment was a reading class of 5 intensive sessions over a period of 3 weeks based on a short story. The feminist reading of the short story was designed to include 6 lessons with readings, discussions, debates and short writing tasks. All students' work was documented and compiled in individual portfolios to chart each student's progress in this experiment. Findings revealed that students were able to respond at a higher level of critical thinking after various activities were carried out based on the reading of the literary text.

Keywords: feminist, short story, literature, critical thinking

INTRODUCTION

Developing critical thinking skills and critical thinking disposition in college students has been set as a primary goal in higher education for decades. Recently it has become more urgent in implementing this goal to enhance students' employability in the fast-changing workplace.

With new ideas of a borderless world and the concept of global village becoming a reality and statements such as "the world is flat" as Thomas L. Friedman proclaimed in one of his bestsellers

(2005), the focus on a multicultural and multilingual education becomes a necessity at all levels of education.

Educators have long been aware of the importance of critical thinking skills as an outcome of student learning. Critical thinking has been identified as one of several learning and innovation skills necessary to prepare students for post-secondary education and the workforce (Lai, 2011). This is similar to the introduction of Creative and Critical Thinking Skills (CCTS) as a component in the Malaysian curriculum at all school levels.

This qualitative study examines the use of a short story as a trigger to generate critical views and reflections among 10 undergraduate female participants.

STATEMENT OF PROBLEM

In an Association of American College and Universities (AACU) Report (2005), as few as 6% of college graduates were considered proficient in critical thinking. Three years later, in a survey conducted on behalf of AACU (2008) on "How Should College Assess And Improve Student Learning?" most employers stated that the majority of college graduates were not prepared in the key areas such as critical thinking, writing, self-direction and global knowledge which are most in need of improvement if promotion is desired. This scenario is a global phenomenon as even in Malaysia critical and creative thinking skills (CCTS) were recent initiatives implemented in the education system.

Though critical thinking has been listed as a core area to be cultivated and assessed in higher education for decades, including as one of the eight domains in all programmes at institutions of higher learning in Malaysia (MQA, 2011), critical thinking instruction still needs to be carried out more systematically and explicitly in classrooms so that students' thinking abilities can be more critical and their employability enhanced.

Graduates can function well within society, evaluate the validity of information available, make better personal, business or leadership decisions. Scholars and educators (Braun, 2004; Kalyczynski, 2001) have advocated that developing critical thinking skills are essential to help students think clearly and make sound judgements in life. It is believed that with good critical thinking ability, graduates can be better prepared to compete and exercise their rights and responsibilities of citizenship in a global community.

OBJECTIVE AND RESEARCH QUESTIONS

The objective of this study is to explore the use of a short story to generate discussion among the participants and to examine if the discussion were critical and based on their reflections. Thus, this study seeks to answer the following questions:

- 1. Does the use of a short story in an ESL class trigger critical thinking among the students?
- 2. What is the level of critical thinking among female undergraduate students?

Critical Thinking

There are various definitions of the term critical thinking. These include "the propensity and skill to engage in an activity with reflective skepticism" (McPeck, 1981, p. 8); "reflective and reasonable thinking that is focused on deciding what to believe or do" (Ennis, 1985, p. 45); "skillful, responsible thinking that facilitates good judgment because it 1) relies upon criteria, 2) is self-correcting, and 3) is sensitive to context" (Lipman, 1988, p. 39); "disciplined, self-directed thinking that exemplifies the perfections of thinking appropriate to a particular mode or domain of thought" (Paul, 1992, p. 9); thinking that is goal-directed and purposive, "thinking aimed at forming a judgment," where the thinking itself meets standards of adequacy and accuracy (Bailin et al., 1999, p. 287); and "judging in a reflective way what to do or what to believe" (Facione, 2000, p. 61).

For the purpose of this study, critical thinking is defined as the ability of undergraduate students to be able to exercise "reflective and reasonable thinking that is focused on deciding what to

believe or do" (Ennis, 1985, p. 45) and "judging in a reflective way what to do or what to believe" (Facione, 2000, p. 61). Guided by this definition, this study aims to examine the difference in the participants' responses to given situations based on their personal reflections.

Critical thinking includes the component skills of analyzing arguments, making inferences using inductive or deductive reasoning, judging or evaluating, and making decisions or solving problems. Background knowledge is a necessary but not a sufficient condition for enabling critical thought within a given subject.

Critical thinking involves both cognitive skills and dispositions. These dispositions, which can be seen as attitudes or habits of mind, include open- and fair-mindedness, inquisitiveness, flexibility, a propensity to seek reason, a desire to be well-informed, and a respect for and willingness to entertain diverse viewpoints. There are both general- and domain-specific aspects of critical thinking. Empirical research suggests that people begin developing critical thinking competencies at a very young age.

Although adults often exhibit deficient reasoning, in theory all people can be taught to think critically. Instructors are urged to provide explicit instruction in critical thinking, to teach how to transfer to new contexts, and to use cooperative or collaborative learning methods and constructivist approaches that place students at the center of the learning process. In constructing assessments of critical thinking, educators should use open-ended tasks, real-world or "authentic" problem contexts, and ill-structured problems that require students to go beyond recalling or restating previously learned information. Such tasks should have more than one defensible solution and embed adequate collateral materials to support multiple perspectives.

Finally, such assessment tasks should make students' reasoning visible by requiring students to provide evidence or logical arguments in support of judgments, choices, claims, or assertions.

Literature as pathway to critical thinking

Literature reading is eminently congenial to the essential traits of critical thinking for the following reasons. First, the mental process of literature reading requires critical thinking skills. Literature reading is a complex process that requires readers to recall, retrieve and reflect on their prior experiences or memories to construct meanings of the text. While they are doing so, they need to demonstrate the following capacities: to differentiate facts from opinions; to understand the literal or implied meanings and the narrator's tone; to locate details related to the issues discussed; to find out the causal relationship or the connections between the events or actions; to detect an inferential relationship from the details observed; to be perceptive of multiple points of views; to make moral reasoning and fair-grounded judgments; and most of all, to apply what they have learned from this process to other domains or the real world. In a sense, readers are exercising what the critical thinking experts termed "explanation," "analysis," "synthesis," "argumentation," "interpretation," "evaluation," "problem-solving," "inference" "logical reasoning," and "application" (Brunt, 2005; Facione, 2007)

Regional or cultural boundaries have been dismantled due to the accelerating information exchanges and economic interactions in the global community. Any global citizen is obliged to cope with the international trends and prepare himself/herself with skills that help him/her learn how to learn. "Though there are certain aspects of critical thinking that may be 'foreign' in non-Western context, if students are not exposed to these skills, they will be denied the opportunities to complete [compete] in the global community" (Long, 2003, p. 230).

Literary texts that cross cultural boundaries enables teachers to explore the possibilities of supporting and enhancing critical thinking among students.

Research Method and Sample

This is a qualitative study which was carried out in an ESL classroom with 10 female undergraduate students. Due to the nature of this study, the participants were identified using a purposive sampling procedure. One of the criteria for selection of literary text for use in an ESL classroom is gender. As the short story *A Wife's Letter* by Rabindranath Tagore revolves around the role of women and a feminist reading of the text was decided by the researchers as appropriate for this study, all 10 participants were female students.

This is an experimental design in the sense that students were given the questionnaire as a written pre-test and then they were given the short story to read.

Upon completion of reading, a series of sessions based on the reading was conducted by both the researchers. The participants responded to the ARC guided questions. The participants' responses were evaluated using the ARC (2010) rubrics. After the 4 sessions, the participants were given the written post-test. Both the written pre-test and written post-test were compared to identify differences in students views before and after the reading of the text.

Research Design



Instruments

As a qualitative study, the instruments used to collect data for this study were an open-ended questionnaire (Appendix A) which was used for the pre-test and post-test. The participants were also given the ARC guided six questions (Appendix B) to be answered after reading the text. These responses were evaluated using the Assessment Rubric for Critical Thinking (ARC, 2010) (Appendix C) which is an established rubrics for evaluating critical thinking.

The Assessment Rubric for Critical Thinking (ARC, 2010) is a global rubric developed for the St. Petersburg College to provide a snapshot view of how student learning is being affected by the critical thinking QEP initiative. It is designed to assess a variety of student projects from a critical thinking perspective. The ARC rubric is designed to be flexible enough to address a number of student project modalities including written and oral communications. Thus, the use of this rubrics to evaluate the participants' written and oral discussion was deemed apt.

Data Collection and Analysis

This is a study in progress currently. All ten participants were willing cooperative ESL undergraduate students at a Malaysian private university. The first instrument was administered was an open-ended questionnaire (Appendix A) during the first session. Participants were given sufficient time to respond to the 6 questions which was administered as a written pre-test. All 10 participants were willing and cooperative in responding to the questions in the questionnaire.

The second of the five sessions was a context setting session where the researchers provided the setting and context for the short story they were to read. The reason for this session was to assist the young participants to envision the tone, mood and setting of the story which is in stark contrast to their own current situation. For the third session, the students were given the text to read and they returned for the fourth session for the written response to the six ARC guided questions (Appendix B). These six questions are tasks that are stipulated as mandatory for the use of the ARC (2010) rubrics for evaluation of critical thinking skills:

1. Communication: Define the problem in your own words.

2. Analysis: Compare & contrast the available solutions within the scenario.

3. Problem Solving: Select one of the available solutions and defend it as your chosen solution.

4. Evaluation: Identify the weaknesses of your chosen solution.

5. Synthesis: Suggest ways to improve/strengthen your chosen solution (may use information not contained within the scenario).

6. Reflection: Reflect on your own thought process after completing the assignment.

- a. "What did you learn from this process?"
- b. "What would you do differently next time to improve?"

After the written response, the researchers used the rubrics to evaluate participants' responses. Each participant was evaluated individually based on the rubrics provided in the ARC. For the final and fifth session, the post-test was administered and the participants responded to the same six questions for post-test. Participants were given sufficient time to complete the written questionnaire so that they will be able to reflect, if they wanted to, as reflection is a key element in critical thinking.

Discussion

During the first session, the ten female undergraduate students responded to the pre-test in the comfort of their own time. All ten of them responded to all the 6 questions in an elaborate manner with detail explanation of their response.

In response to the first question on their responsibilities as a daughter in the family, the word that appeared the most was family (14), care (10), help (9), parents (9), work (6), mother (5), sibling (4), good (3). There was no mention of "father" in any of the participants' responses.

Pre-test	Post Test
Family (14)	Family (11)
Care (10)	Care (5)
Help (9)	Help (2)
Parents(6)	Parents (3)

Table 1: Responses to Question 1

There seems to be a theme that is emerging from the responses where their responsibility as a daughter in the family is seen as a helper and care-giver to the family, parents especially mother and their sibling. Being mostly Asian participants, the traditional and stereotypical role they see around them seems to have influenced the responsibilities that they take on as a daughter in the family.

For the second question on their responsibilities as a women in their society, the word that appeared the most were help(6), protect (5), work (4), good (3). There was no mention of the other words used to describe their responsibility in the family.

Pre-test	Post Test
Help (6)	Help (8)
Protect (5)	Protect (2)
Work (4)	Work (5)
Good (3)	Good (2)

Table 2: Responses to Question 2

There is not much difference in the responses between the Pre-test and post-test with reference to their role in society. This could be due to the fact that they are all still students as such their involvement in the society as an adult woman might be still limited.

However, there seems like an absence of a strong link between their role in the family and society. They see themselves as a helper, protector and worker within the society. These students see the extension of their responsibility in the family to the society. The lack of repetitive verbs to describe their responsibility within the society could indicate that the participants had a different role in society based on their different cultural, religious, ethnic and national background, hence a lack of similar views from the participants.

It was observed during the second session that the participants, all in their early 20s, were not familiar with the context and setting of the short story *A Wife's Letter*. The researchers noticed that all of them were not familiar with the traditional culture of the Asian context of women's limited or non-existing role in the family and society. There were many instances of shy laughter and shock exclamations when the roles of traditional women in the Asian context were discussed during this session. The senior researcher was able to share personal experiences of traditional role of women in the family and society in Malaysia.

For the third session, the participants were given the text *A Wife's Letter* to read at their leisure. Only five participants responded to the six ARC questions after completing the reading. Hence the response for these five participants' pre-test and post responses were compared.

They returned for the fourth session after reading and comprehending the text. During this session, the participants were given the tasks from the ARC to discuss and share their ideas individually. Data collected during this session was analysed to determine the level of critical thinking before and after the reading session. Of the five students who responded to the ARC guided questions, only 2 participants showed an Exemplary level of critical thinking performance in their responses. The other 3 participants were at low Emerging level of critical responses for all their six questions give.

However, a noted difference was observed in the 5 students responses to the pre-test and post-test questions. It signifies that after reading the test, participants have reflected on their own responsibilities in the family and society. They have been more critical in what their responsibilities are. They is a clear shift in their views.

Pre-test	Post-test
Parents (9)	Parents (0)
Family (5)	Family (0)
Care (5)	Care (0)
Help (4)	Help (4)

 Table 3: Responses for the five participants

Limitations and suggestion for further study

Due to the small sample used for analysis in this this study, a pattern could not be identified in the responses to the ARC guided questions. However the analysis of responses to the pre-test and post-test does show a shift in the participants' views on the responsibilities in the family and society. The two participans' high level critical thinking performance could be due to other variables such as family background, exposure to other reading materials and their cultural background. This is the limitation of this study.

We suggest that further study using a bigger number of participants and a treatment over a longer period of time might reveal different critical performance levels among the participants. There is still room for further study.

CONCLUSION

There is substantial evidence based on previous studies that literature texts such as short stories can be used in an ESL classroom to trigger and generate critical thinking among students. The literary texts that shadows real life and raises issues close to the students' heart provides almost authentic situations that encourages reflection among students and they are able to respond to problem solving tasks with much interest and engagement.

Critical thinking exercises should be an on-going task in all classes at all levels of study.

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Enterprise Intelligence to provide an End-to-End Holistic Solution for Corporate-NGO Partnerships in Malaysia

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ABSTRACT

Currently, Non-Governmental Organizations (NGOs) have started taking on the responsibility in improving the economic and social development in any country. As the world progresses towards a borderless culture, strategic alliances between various entities have taken centre stage in business protocols. As a viable member of a society, NGOs' have ventured into the arena of strategic alliances in order to stay relevant and be able to serve the community in a more efficient way. This paper attempts to investigate the current operating procedures of NGOs in Malaysia which encompasses the current type of technology adopted and the reasons behind adopting the technology. The four major issues which does have a direct affect on their efficiency as an organization is the lack of budgets to adopt new technology, themanual systems or very minimal technology usage, the volume of data used is overwhelming for manual systems and the lack of transparency issue due to the volume of data and inefficient systems in place.

The paper also wishes to investigate obstacle NGOs might face when adopting any new technology, as well as the readiness or the acceptance when adopting new technology to enhance organizational performance. This paper proposes to build a business intelligent framework at the back end to manage the volume of data that feeds the necessary information to three main branches of the system via a Supply Chain Management System (SCM), a Customer Profile Management System (CRM) and an Enterprise Resource Planning System (ERP) at the front end of the solution. To solve the issue of budgets the aim is to source for free ware applications which will then be integrated for a smooth end-to-end enterprise resource planning solution. Keywords: NGO, SCM, ERP, Business Intelligent (BI)

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INTRODUCTION

NGO's have always been a part of a country's economy that directly attempted to improve the human development index count of a country. Though the fundamental concept of an NGO has never changed, its internal and external procedures have definitely evolved. Since a decade ago, a slow but very evident evolution has taken place especially in the aspect of how an NGO reacts with other business entities. The catalyst of the change is the goal to improve every day business operations and strategies to remain relevant. (Stafford, Polonsky, & Hartman, 2000).

In a recent interview, Infosys Executive Chairman N.R Narayana Murthy was quoted explaining that there is a need for developers to design solutions to enable NGO's to function better (Itika Sharma Punit - Business Standard, 2014). This sentiment is also shared by the global community. The business, governmental and social sector acknowledge the significance to of forming strategic alliances among each other to ensure sustainability. However, NGOs generally by and large face finance related issues in terms of:

- Types of technology used for day to day operations
- The lack of budgets to adopt new technology.
- The manual systems or very minimal technology usage.
- Employing Information Technology personnel with the required IT knowledge

It is due to these issues that prevent or hinder a smooth business relationship between the business and non-profit sectors. To manage competition while managing customer's requirements, co operations have started to function in a very dynamic environment. This can only be achieved if the decision makers of the business make necessary informed decisions (Habjan and Popovic, 2007). In order to make informed decision, these decision makers require value –added information that is borne from data gathered from within and outside of the industry. If there is no technology in place, the business executives in question may face an overload flow of information when making the said information (Arnott and Pervan, 2005). This is a problem that transcends industries and sectors within an economy.

The wide-range of data provided makes for difficult to analyze without proper filtering methodsmethods which are provided by a full-fledged data mining system. It is common knowledge that a business intelligent system that supports a data mining plug in is a very expensive technology. Indirectly, many businesses lack the ability to attain this. Thus, this results in loss in productivity and wrongful decision making (Hilgefort, 2010).

If the fundamental concept of an NGO and a profit-earning organization was compared, a distinct difference would be detected. A profit earning organization has many red tapes and a hierarchy – a chain of command. However, an NGO is more flat line based organization hence less bureaucracy. With a different setup the business rules and protocol are completely different. An NGO is more concerned with enriching the communities' lives. It is less concerned with streamlining daily operations and more concerned with its chosen causes. Nonetheless, an NGO must change the way it operates- it must operate as a profit earning organization if it has intentions to:

- Ensure the partnerships formed to serve a community can sustain for a long period of time as all parties are integrated properly.
- There are proper reporting generators within the system to help manage transparency issues.
- The daily administration operations within the NGOs are smooth.

NGOs require technology to manage user profile or volunteers, staff members, donors and business partners. They require a system to streamline administrative work. This paper aims to work towards developing this into a tangible system. Along with all these items that need to be checked off, readiness of the NGO to accept a new technology within their domain is also very crucial. A technology acceptance model needs to be followed to measure this element as well.

As a result of the issue at hand, a possible Business Intelligent tool that provides an End-to-End Enterprise Resource Planning Solution is proposed. This solution aims to integrate a customer relation management system, a supply chain management system and an enterprise resource planning system to ensure a holistic approach that streamlines all operations.
LITERATURE REVIEW

NGO – Corporate Partnership

Twenty four years ago a declaration was made in Rio Earth Summit – 1992 on the important role a partnership holds to ensure sustainable development. Ten years later, in another summit, the term Corporate Social Responsibility (CSR) was coined. The term CSR meant that every business was encouraged to participate in social activities to boost public relations within the economic world. This was the catalyst that sparked the interest of coperation's to form alliances with NGO's. The relationship shared by NGO's and corporations is a symbiotic relationship whereby the NGO benefits by the monetary, technology and public reach it gains. On the other hand, the corporate manages to gain a marketing edge, a boost in public relations as well as tax exemptions.

These alliances are fashioned and applied in a variety of ways. These alliances come in different shapes and sizes since an alliance can be forged between small, big, local, international, public or private limited companies. Due to the different setups, analyzing and combing through the organization to form a solid and clear bond can be very tricky. The reason for this is that there is a vast gap between corporations and NGOs. Both organizations serve the public, however their structure, their culture and hierarchy and operational objectives are very different.

Business Intelligence

Essentially a Business Intelligent (BI) System makes use of twotypes data namely operational and historical data. These records are stored a built-in repository system, filtered and managed by an analytical tool. This system is used to depict important information that provides a competitive edge to decision makers. The main aim of a BI system is to improve the accuracy of the timelines

and increase precision of the quality of the information. With a BI system, managers will be equipped to make more informed and holistic decisions for the betterment of the company. An example of how BI system can assist a profit earning organization is that applications and tools found in a BI system assist corporations in analyzing patterns and trend formations in market shares, assist in building customer profiles, their preferences, highlighting the company's capabilities and market conditions.

A BI system aims to ease data interpretation especially when dealing with large volumes of data. A BI system is a technology is capable of managing large volumes of raw data in order to recognize new patterns to build possible business opportunity links. The information provided by the system helps the inline to establish if alterations of the business process or business approach is required in response to the current market trends. The different facets of applications found within the Business Intelligent System ensure a holistic business environment which ensures an informed and precise data input. (Marketa Horakova, Hana Skalska, 2013)

Integration of SCM, CRM, and ERP

The fundamental concept of a Supply Chain Management (SCM) encompasses all activities from the planning phase to the delivery phase of a product. A full fledge SCM system uses predetermined algorithms that best serves the dynamic changes of the markets' supply and demand. These synchronized planned schemes allow corporations to moderate the bullwhip effect that can affect the profit margins of a company (Lee et al. 1997). According to Reinartz et al. (2004) a Customer Relationship Management (CRM) system is a collection of methodical processes that is expands from customer introduction to customer maintenance to customer termination. The system is supported by hardware and software intended to develop the business performances as a whole. A CRM system prevents data redundancy issues as it provides a central database hub of customer information (Hendricks et al. 2007).

The fundamental perk of an Enterprise Resource Planning (ERP) System is its ability is to act as a decision support system. A proper ERP system opens the channels for different business areas

to communicate in order to achieve a shared goal. This is achieved by its ability to improve operation effectiveness, reduce expenditures, and improve overall relationships among business stakeholders. (Yinfeli Li, 2016)

A CRM system works in the front end of the company as employees of the company log in the system to add, delete, edit or update the customer profile. A SCM system assists with back end processes by tracking the product from the beginning of the assembly line to the end of the assembly line. An ERP on the other hand gives decision makers a holistic bird's eye view of all the processes. A fully integrated CRM, SCM and ERP ensure an End-to-End Solution that assists with all aspects of business related processes. For this integration to work, it is essential for all applications to source data from the same hub. The repository system should be strong and versatile enough that it caters to all three systems.

Conceptual Framework

Taking into account that Malaysian NGO's daily operating procedure is similar to a Small and Medium Enterprise. The item keeps them apart is that the NGO's should not reap in profit. The idea behind the possible solution is the integration of CRM, SCM, ERP which is supported by a Business Intelligent System and helps filter the data to its respective applications in the framework.

Figure 1 below explains a full fledge BI framework which provides an End-to-End Enterprise Resource Planning Solution. If embedded within and NGO –Corporation Partnership platform, it has the potential to encourage efficiency, improve daily operation procedures and eliminate transparency issues.



Figure 1: Conceptual Framework of Enterprise Intelligence: End – to – End Solution for NGO-Corporate Partnership

The NGO-Corporate Partnership platform will act as a hub for all NGO's and corporate companies that allow whilst having an embedded User Interface that is similar to a Supply Chain Management System and a Customer Relationship Management System to address issues of:

- Managing Donor Profile
- Managing NGO Profile
- Managing Charity or Event Profile
- Managing Related Government Agency Profile
- Managing Daily Operations within and NGO
- Managing Strategic Alliance Activity Execution
- Tracking of events, cash flow, manpower and project required items

CONCLUSION AND FUTURE RESEARCH DIRECTION

The main aim of this paper is to shed light on possible available avenues specifically technology based solutions if merged can assist in improving the efficiency and effectiveness of a NGO and Business Partnership. This paper hopes to get technologists excited about the prospect of positive change they can bring in the lives of so many people with the existence of this solution in place.

The potential of the solution is that it can also be used as a research tool to study the adaptation factors of a variety of technological modernization in the context of NGO-Business Partnership. The research on this topic can be further expanded to examining the reason for the sluggish manner information technology is adopted in the said environment. Besides that, researchers can also investigate feasible methods to overcome hindrances to information technology adoption within NGOs.

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Impacts of BRAC Teacher Training for Secondary School English Language Teacher on Classroom

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ABSTRACT

The English language teaching scenario in rural secondary level educational institutions in Bangladesh is not up to the mark due to certain shortcomings in the whole teaching process and lack of implementation of earned skill from the training is one of them. BRAC Education Program (BEP) organizes training sessions for the secondary level English teachers in different times. The aim of the study is to examine the effects of learning from the BRAC teacher training program of rural secondary school English teachers in the classrooms. A quantitative research designs is used in the study. The study traces the changes in the teachers in terms of their pedagogic skills, language skills development, knowledge about Communicative Language Teaching (CLT) and their attitudes towards this new approach and its effects on teaching. The study finds out that implementation of knowledge and skills gained through training varies according to age, sex, motivation, experience, and even the regions. Therefore, the effects of the teacher training sessions vary from one region to another region. The findings of the study create an opportunity to the education policy makers to take proper initiatives to motivate the teachers and the learners towards teaching and learning through CLT approach which apparently influences teachers to bring positive changes of attitude and behaviors in their teaching of English at rural secondary level. The study suggests for a next study to be conducted in identifying learners' motivation level in rural secondary level in learning English in Bangladesh.

Keywords: Teacher training, CLT Approach, English teachers, BRAC PACE Program, Secondary level

INTRODUCTION

Background and Context

English was used as a second language before 1971 in Bangladesh. During the Pakistan period, when Bangladesh became a part of Pakistan (1947-1971), English retained its position as an essential subject of study. In independent Bangladesh, English occupies the place of being the most important foreign language. English is taught and learned as a compulsory subject alongside Bangla, the first language, from the primary level up to the highest level of study. Introducing English at the earliest grade and going communicative since 1997(Hamid, 2005) were two recent English language teaching (ELT) policy initiatives to develop Bangladeshi human capital. Our students are weak in English, as a result they can't apply English in their practical life successfully (NCTB, 2003, p. 3) that's why CLT approach was set as corrective intervention since 1997 and it is hoped that CLT would revitalize these weak students' ability to learn English by improving the standards of teaching and learning English at different levels of formal education. CLT requires interactive classroom activities with the integration of the four language skills of listening, speaking, reading and writing. Nevertheless, for the construction of sufficient interaction and quadruple- skilled integration in classrooms there awaits some barriers for the Bangladeshi teachers.

Teachers' Professional Development

Teacher training is a part of professional development in teaching profession. English teacher training programs in Bangladesh mainly deal with three elements: the teachers' English language ability, teaching skills and the knowledge about the contents of the lessons of the prescribed text books. Through the teacher training program in Bangladesh the authority expect that the teacher will be skilled and competent enough to properly teach the students through CLT approach. But problems may arise when the mixture of three different expectations works together in a short time training session. Moreover, the educational background of most of the secondary school teachers is very poor and sometime it is seen that the level of their educational qualification is

under the mark. This is also a barrier to make teacher training effective and applicable in classroom teaching. Teachers' professional development will be the most effective one when it is an ongoing process (Carrington & Robinson, 2002) that creates change and new understandings within schools that are quietly, yet most certainly revolutionary (Cardno, 2006). In the field of teaching second or foreign language teaching, Communicative Language Teaching (CLT) has settled since 1970s.

In Bangladesh, National Curriculum and Textbook Board (NCTB) has designed the secondary and higher secondary English for Today (EFT) books based on this approach where the learners have adequate scope to practice four language skills equally through different activities. But lack of sufficient knowledge and skills of using the EFTs' in classroom teaching the aim of designing the book is not achieved with reasonable success. One of the important reasons is the lack of awareness and understanding about the use and significance of designing the books in this way among the rural secondary English language teachers. Though NCTB provided some orientation through different English Language Teaching Organizations (ELTO) and projects to accomplish the aims and objectives of redesigned EFTs among teachers and the stakeholders, it is found that most of the rural secondary English language teachers are not getting ample opportunity to receive the orientation provided by government through various projects and English language teaching organizations. Bangladesh is a country where most of the secondary schools are in the rural areas and it is found that the competence and confidence level considering the knowledge of English language and teaching English language of most of the rural secondary schools English language teachers are not up to the mark (Baseline Survey 1990 in Rahman, et. al. 2006).

Communicative Language Teaching Approach

CLT approach has been introduced in late 1990s in the field of teaching English in Bangladesh. According to Richards and Rodgers (1986) the goal of teaching language through CLT approach is to develop learners' communicative competence where the main concept is language as the means of communication. In the same way the objectives of introducing CLT approach of teaching English language in Bangladesh is to ensure the use of English language in daily life/ practical life communication replacing the most familiar Grammar Translation Method of teaching. CLT and GTM differ significantly in terms of the objectives of applying teaching techniques or approach and methodology. CLT is characterized as a broad approach of teaching with clearly defined sets of classroom practices. The features of CLT approach according to David Nunan (1991) are: i) An emphasis on learning to communicate through interaction in the target language, ii) the introduction of authentic texts into the learning situation, iii) the provision of opportunities for learners to focus not only on language but also on the learning management process, iv) an enhancement of the learners own personal experiences as important contributing element to classroom teaching, and v) an attempt to link classroom language learning with language activities outside the classroom. To cope with the changes of teaching an adjustment training of teaching applying CLT approach is required to teachers that would of necessity to bring a paradigm shift in their attitudes and beliefs.

BRAC English Language Teachers Training Program

BRAC is the world largest non-government organization working in Bangladesh and 12 other countries to alleviate the poverty level by empowering the poor to legalize their potential through bringing a positive change in their lives. Like other activities to reach the goal BRAC started to work in the field of education in 1985 as BRAC non-formal primary education (NFPE) renamed as BRAC education program (BEP) in 2003. BEP program is active in five major areas: non-formal primary education, the pre-primary schools program, the adolescent development program (ADP), the multipurpose community learning centers and the mainstream Secondary Schools Support initiative which builds the capacities of rural secondary school teachers and helps to improve classroom pedagogy as well as the overall quality of education. In 2001, BRAC education program started training program of English language teachers of rural non-government secondary schools. The aim of this training program is to enhance the teaching capacity of English teachers to cope with the demands of the revised curriculum.

BRAC Post- Primary Basic and Continuing Education (PACE) Program took the initiatives to provide teacher training support in 2001 in 22 rural secondary schools. Till now PACE program

is working to enhance the potential of the rural non- government secondary school teachers teaching capacity providing subject based residential teacher training. BRAC has been providing subject based in- service residential training to the teachers of English, Mathematics, General Science, Geography and Values education since 2002 through its Post-Primary Basic and Continuing Education (PACE) program. PACE English training consists of three residential modules. The first two is for 12 day and the third one is for 5 days refresher training.

Aim of BRAC Teacher Training

BRAC-PACE program conducted a needs assessment survey and found that most of the rural secondary English teachers were facing several problems in dealing with new teaching materials designed by NCTB based on CLT approach which eventually hinder the quality of teaching. It resulted in increased failure in public examination. As a result, BRAC PACE program designed residential training for those rural teachers to bring out positive changes. It was felt that English language teachers aiming at training his or her learners in using language learning strategies should learn about the learners, their interests, motivation and learning styles.

OBJECTIVE OF THE STUDY

The objective of this study is to determine the relationship between teacher training and the improvement of classroom teaching in Secondary level English education in Bangladesh.

RESEARCH QUESTION

What is the relationship between teacher training and the improvement of classroom teaching in Secondary level English education in Bangladesh?

LITERATURE REVIEW

Professional development (training) can help teachers to become skilled in their profession which will help the institution (school) providing effective teaching to the learners. A school is four

walls surrounding a future, where teachers work as architects, in the process of building the basis of future architects of the nation and society as well. Wenger (1998) addresses the teachers' community as the key to transform people's lives. Teaching is a heavy and sensitive responsibility which requires the teachers to inspire themselves with the quality of dedication and being resourceful (Alam & Haque, 2010; Alam et al. 2010). Considering all the above mentioned it is obvious that teachers have a great role in teaching by which the learners will be benefitted and for that they need to be skilled professionals. There are many alternatives to become skilled in any profession especially in the profession of teaching if the teachers wish to enrich themselves to become skilled in their respective profession they can do the following activity in their daily life.

These are they can take part in professional training, they can arrange co-teaching/team teaching, peer coaching, study group, action research, reflective writing, portfolio development, selfdirected professional development etc. Training is one of the ways of becoming skilled in the profession. Teacher training brings positive impacts on teachers' knowledge, attitudes, beliefs, teaching practice and last of all it will bring a positive impact on students' achievements. The aim of teacher training program is to create the opportunities to the teachers to rethink and re-shape their ideas of teaching methodology, dealing with content, pedagogy and t beliefs about learners' ability, which brings a positive change in their teaching. Smyle (1995) noted that learning subject matter and instructional technique alone are not enough; side by side, language teachers need to change their beliefs and actions. Guskey (2000) argued that change in beliefs and attitudes occur subsequently in the change in practice and result from teachers observing the impact of changes in their practices on students' outcomes. In a survey of higher secondary level teachers' perceptions and attitudes in an in-service CLT training course, Rahman (2003) investigated the apparent mismatch between the traditional mindset of English language teachers and the demands made by the introduction of the communicative approach to ELT.

Teaching language through communicative approach helps the learners to develop competencies and abilities to be fluent, proficient and accurate in the target language. According to Brown (2000) communicative competence is widely accepted as the best way to ensure successful language teaching. "Interaction is the collaborative exchange of thoughts, feeling or ideas between two or more people, resulting in a reciprocal effect on each other. Theories of communicative competence emphasize the importance of interaction as human beings use language in various contexts to 'negotiate' meaning, or simply stated, to get an idea out of one person's head and into the head of another person and vice versa." (Brown, 2001). Sometimes students' behaviors also object to the interactive and integrative management of an ELT classroom. Teenaged students could be "unruly" (Brown, 2001) being in the freedom of pair and group activities "where discipline is the major issue" (Brown, 2001). To "circulate among the groups, listen to students, and offer suggestions and criticisms" (Brown, 2001) it would demand more time and effort than a teacher can usually afford. According to Littlewood (1981), the teacher is a facilitator of his students' learning. According to this, a teacher has to play various roles like- manager of all classroom activities.

The introduction of any new approach to language teaching is usually problematic because it entails a paradigm shift for all the stakeholders involved, especially teachers (Defeng 1998, p. 678 in Magid, 2006). A paradigm shift by definition involves a change in attitude, which is why it is relevant to consider the attitudes of teachers. Richardson (1994 in Sato & Kleinsasser 1999, p. 496) recommends focusing on teachers' beliefs and practices in order to understand how they make sense of the teaching and learning process. Mazid (2006) found in Zimbabwe that to shift the teacher from Grammar Translation Method (GTM) and Audio Lingual Method (ALM) to CLT approach 'an adjustment of teaching methods was required of teachers that would of necessary entail for an attitudinal paradigm shift'.

Careless (1998 in Hall & Hewings, 2001) notes that when teachers are favorably disposed to an approach they are also likely to support its implementation, but when they are unfavorably disposed they may prove resistant to the change in attitude required to implement the approach. Teachers who are generally perceptive and sensitive to required adjustments in attitudes are better able to make the paradigm shift required to become facilitators of classroom discourse (Van der Walt, 1990; Harmer, 1995 & Holliday, 1997). Many teachers have difficulty in changing from being authoritarians to being facilitators.

Freeman (1991 in Magid, 2006) maintains that teacher education should integrate four basic constituents: knowledge, skills, attitudes and awareness. Hargreaves (1994 in Clemente 2001, p. 47) argues that we have much to learn about teachers' feelings, emotions and desires when they actually teach in classrooms. It stands to reason that teachers' attitudes in the classroom play a pivotal role in the successful implementation of the Communicative Approach and the learning process.

RESEARCH DESIGN

Method and Participants

Quantitative research method is used in the study. A questionnaire is used for the teacher who took part in the training provided by BRAC PACE program. The trained teachers have been asked to put their responses regarding each and every question mentioned in the questionnaire. In the questionnaire, 52 trained teachers took part from different rural secondary schools from different districts of Bangladesh. The participants are from rural and urban schools. The random selected populations are considered as the representative of the total population.

Process of Data Collection and Analysis

In the process of data collection most of the time, the researcher was involved directly. To collect the data the researcher selected the teacher, school, training program and the area (district) randomly. Before starting data collection the questionnaire was prepared for teacher, the questionnaire was also discussed with the experts (class teacher) to test its relation to reflecting subject matter, training, clarity, wording and difficulty level, which proved the validity of the questionnaire. All the numerical data gathered for this study were processed and analyzed manually.

FINDINGS AND DISCUSSION

Teacher's Personal Views Regarding Teaching and Training

According to the result found through questionnaire it is obvious that most of the participants agreed (79%) with successful implementation of CLT (see Table-1). 88% (see table-1) believe that training make them prepared/skilled to implement CLT approach in teaching English in their respective institutions. None of the teachers agreed with the statement which said that the implementation of CLT approach is impractical. Most of them (58%) (See table-1) disagreed and 34% agreed with that statement and the rest was neutral. Another statement was related to the rigidity on traditional teaching techniques. Here 50% (see table-1) teachers agreed and 42% trained teachers disagreed to be rigid on traditional teaching (see table-1) and the rest were neutral. That means out of 52 respondents believe in changing teaching methods and approaches, the ratio among agree, disagree and neutral are 26, 22 and 4 respectively. From the above discussion it is found that after receiving BRAC English language (English) training most of them become skilled and competent in teaching. They also mentioned that though in applying it (Table-1).

Teacher's Professional Views on Training Implementation

The 4th part of the questionnaire was designed to find out the view of teachers regarding training implementation. For every option the respondents had five alternative options on Likert scale. The questionnaire was divided into 7 sub headings and these were related to classroom management, time management, role of teachers motivation, confidence level of the trained teachers, support from the parents and school management committee, and overall success through learners public and school's (half yearly and promoting from one class to another) result. The first statement was the application of CLT approach in teaching increase the academic achievement (e.g. grades). From the responses it is found that 66% teachers agree with the

statement out of them 8% strongly agree, 19% disagreed with the statement and rest 15% were in neutral position. The second statement was about classroom management "CLT makes classroom management more difficult". In response to this statement 77% teachers disagreed, 17% agreed and 6% were neutral.

Teacher's Personal Views regarding teaching and training		ngly gree	Disagre	e	Neu	ıtral	Agree	2	Strong Agree	gly
I understand communicative teaching- learning well enough to implement it successfully.	0	0%	8	15.38%	3	5.77%	31	59.62%	10	19.23%
The amount of communicative teaching- learning training I have received has prepared me to implement it successfully.	0	0%	2	3.85%	4	7.7%	43	82.69%	3	5.77%
The training in communicative teaching/ learning has not been practical enough for me to implement it successfully.	8	15.38%	22	42.31%	4	7.7%	16	30.77%	2	3.85%
I prefer using familiar teaching methods over trying new approaches.	1	1.92%	21	40.38%	4	7.7%	22	42.31%	4	7.7%
I believe I can implement cooperative learning successfully.	0	0%	0	0%	2	3.85%	43	82.69%	7	13.46%
I have too little teaching experience to implement cooperative learning successfully.	8	15.38%	10	19.23%	6	11.54%	23	44.23%	5	9.62%
I find that involving students in group/pair works is too difficult in the class.	5	9.62%	35	67.31%	3	5.77%	8	15.38%	1	1.92%
Training helps the professionals to become skilled	2	3.85%	0	0%	2	3.85%	21	40.38%	27	51.92%
Makes teachers feel more competent as educator/ Eases the pressure on me as a teacher.	1	1.92%	4	7.7%	10	19.23%	25	48.08%	12	23.08%
Requires extra time to plan learning activities.	0	0 %	7	13.46%	3	5.77 %	35	67.31%	7	13.46%

Table-1: Teacher's Personal Views Regarding Teaching and Training

Trained Teachers' Preference of Teaching Method

To get a clear picture of the implementation of CLT approach in classroom teaching in the questionnaire the teachers were asked whether they like to bring change in selecting teaching methods and approaches. The statement was "I prefer using familiar teaching methods over trying new approaches". In response to the statement, 29 teachers (24 male and 5 female) disagreed with the statement that means that they were interested to bring changes in teaching through new methods and approaches, 18 (13 male and 5 female) teachers agreed with the statement that means they are not interested to bring changes of applying methods and approaches in their teaching. Here it is found through the questionnaire that BRAC teachers training were able to convince 57% male teachers to apply CLT approach in teaching English to achieve the goal of NCTB which designed the EFT's for secondary level learners based on CLT approach. 31% of the male teachers are not convinced to apply CLT approach or bring changes in teaching applying new methods and approaches. On the other hand the ratio of female teachers applying new approaches (CLT) were 50% positive and another 50% was negative. That indicates that the male teachers are more convinced than the female teachers12% male teachers held neutral position. It shows that 69% teaches are interested to bring changes in their teaching by the way of applying teaching methods and approaches. In response to bringing changes in teaching English the teachers who are around 26-30 years, 44% of them agreed to bring changes in applying teaching methods and approaches, 44% were not interested to bring changes in teaching methods and approaches and the rest 11% were in neutral position. Among the teachers around 31-35, 64% agreed to bring change, 36% were not interested to bring change in teaching methods and approaches. Teachers around 36-40 years, 50% were interested to bring change, 44% were not interested to bring change and the rest 6% were neutral to bring changes in teaching learning process (methods and approaches). The teachers who were more than 40 years, 67% of them were interested to bring changes, 20% were not interested to bring changes and the rest 13% were neutral in response to bringing changes in teaching-learning process. In total it is found that 69% teaches are interested to bring changes in their teaching by the way of applying teaching methods and approaches. From this analysis the researcher found that a significant change occurs among the teachers who were around 31-35 and more than 40 years old. It means that BRAC training significantly affect the teachers' perception to bring a change in teaching methods and approaches to become skilled in teaching as well as to create a skilled generation who will be able to use language they have learned in everyday life communication.

Gender vs. Confidence of Applying Cooperative Learning Process

It is stated earlier that the teachers who teach English in rural secondary schools are not up to the mark to teach English because most of them don't have English background or training on teaching English through CLT approach. BRAC assists these less confident teachers to enhance their potential through training on applying cooperative teaching –learning process. Through the training BRAC ensures ample opportunities to the trainee teachers to have clear understanding about cooperation between teacher-learner, learner-learner and learner- teacher to practice language learning activities in congenial teaching learning environment. To find out the result whether the training was sufficient to raise the trainee teachers' confidence level regarding the implementation of cooperative learning one statement was, "I believe I can implement cooperative learning successfully". In response to this statement 60% female teachers opined that they are not capable enough to implement cooperative learning in classroom teaching. 57% male teachers also observed that they are not capable to implement cooperative learning in their classroom teaching. 58% teachers responded that they are not confident enough to implement cooperative learning in their classroom teaching. 58% teachers responded that they are not confident enough to implement cooperative learning in their classroom teaching. 58% teachers responded that they are not confident enough to implement cooperative learning in their classroom teaching in their classroom teaching in their classroom teaching in their classroom teaching (Table-2).

	Strongly										
	disagree	e	Disag	ree	Neı	ıtral	Agı	ree	Strongly Agree		Total
Female	1	10%	5	50%	0	0%	4	40%	0	0%	10
Male	7	17%	17	40%	5	12%	13	31%	0	0%	42
Total	8	15%	22	42%	5	10%	17	33%	0	0%	52

Table 2: Teachers' Confidence on Applying Cooperative Learning (according to sex)

Age vs. Confidence of Applying Cooperative Learning Process

In response to implementing cooperative teaching-learning in classroom teaching 44% teachers were confident, 44% teacher were not confident who are around 26-30 years old. The teachers who are around 31-36 years old, 73% of them were not confident to implement cooperative learning in classroom teaching, the rest 27% were confident. 50% teacher were not confident, 44% teacher were confident and the rest 6% were neutral in response of implementing cooperative learning in their classroom teaching who were around 36-40 years old. The teachers who were more than 40 years old, 67% were not confident, 20% were confident and the rest 13% were in neutral position in response to implementing cooperative learning in classroom teaching (Table-3).

	Stron	gly								gly									
Age	disag	ree	Dis	agree	Ne	Neutral A		Neutral		Neutral .		Agree		Agree		Agree			Total
20-25	0	0%	0	0%	1	100%	0	0%	0	0%	1								
26-30	0	0%	4	44.5%	1	11%	4	44.5%	0	0%	9								
31-35	2	18%	6	55%	0	0%	3	27%	0	0%	11								
36-40	3	19%	5	31%	1	6%	7	44%	0	0%	16								
40+	3	20%	7	47%	2	13%	3	20%	0	0%	15								
Total	8	15%	22	42%	5	10%	17	33%	0	0%	52								
%	15.39		42.31		9.62		32.69		0	0									

Table-3: Teachers' Confidence on Applying Cooperative Learning (according to age).

Teacher Training Helps Increase Academic Achievements

To trace the trained teachers' professional views on the relation between the application of CLT approach and academic progress, the researcher set a statement and found that the responses varied according to the age and gender of the teachers. In total out of 52 trained teachers 34 (both agree and strongly agree) believe it helps to increase the academic achievements, 10 believe it

does not help to increase the academic achievements and the rest were neutral. Considering the gender it is found that 67% male teachers believe it helps the learners to increase their academic achievements, 14% believe it does not help to increase the academic achievements and rest 19% were in neutral position. On the other hand 60% female teachers think it helps to increase the academic result and the rest 40% think it does not help to increase the academic achievements. (See figure- 1 and 2).



Figure- 1: Gender vs. percentage of the views on increased academic achievements



Figure-2: Age vs. respondents' views on increased academic achievements.

Training Creates Opportunity to the Teachers to Be Learning Facilitator Rather Information Provider

In traditional teaching learning system it is found that most of the secondary schools teachers played the role of giving information while teaching in the classroom e.g. teaching grammatical rules, definition etc. in a GTM based class it is found that most of the secondary teachers played the role as an information giver/provider for learning language where they provide the rules of learning language and ask the students to memorize those rules. Receiving BRAC training on CLT approach the attitudes of teachers towards the learners become changed, the training make them understood to involve the learners in leaning language through practice rather memorizing the rules of language and in the process of practicing language. That means the trained teachers get the opportunity to become learning facilitators instead of information giver (providing the rules). In response to the statement it is found that 35 teachers were in favor of the statement, 6 were not in favor of the statement and the rest 11 teachers were neutral. It is found that 90% female teachers agreed with the statement, 10% of them strongly disagreed with the statement. On the other hand 57% of the male teachers agreed, 5% strongly agreed, 12% disagreed and the rest 26% held neutral position in responses to the statement (figure-19).



Figure-3: The Percentages of the Respondents who Think Training Creates Opportunity to Become Learning Facilitator Instead of Information Provider

CONCLUSION AND RECOMMENDATIONS

Finally, BRAC training has a great impact in the field of teaching. BRAC training covered the rural teachers and it is found that after receiving training they are doing better in the field of teaching e.g.- some of them are working as master trainer at BRAC training program and the training projects organized by the governments. Some of them are working with various training programs as part-time trainers/facilitators. Before receiving training they never thought about it. Some of them are doing better in their profession also and by observing them the others are becoming motivated. Especially, the teachers who are working in the rural areas are deprived from opportunities for improvement. But BRAC training program brings them forward as skilled and successful English language teachers. They are recognized by their teaching and reputation. The The students are also doing better after learning from these teachers. findings also indicate that due to enough motivation, positive attitudes and beliefs, lack of awareness among the community the trained teachers are facing difficulties to ensure the implementation of their training in classroom teaching. Based on the findings from the study some recommendations are given below:

- i. Periodic refresher training could be arranged as a part of continuous professional development where the trained teachers will share their practical experiences to bring the implementation of training true and successful, as a part of ongoing professional development.
- ii. Adoption of any new approach requires a paradigm shift in attitudes and beliefs (Vander Walt 1990, Harmer 1995 and Holliday 1997) which contradict with accustomed traditional teachers. Therefore there is a strong need to make a bridge between the teachers understanding and the teaching methodologies which will help the teachers to shift from traditional to CLT teaching.

- iii. As it is obvious that most of the rural secondary school's English teachers are from different backgrounds, more attention needs to be given on the improvement of the trainee teachers' English language skills.
- iv. Future training should focus on supporting trainee teachers to develop a personal awareness related to the teaching and learning of English based on sound and principled understanding of the pedagogy of language education, the curriculum and the subject itself.
- v. Rather than receiving theoretical training, classroom observation and analysis of actual classroom practices where the trainee teacher will get instant feedback could assist the teachers' instantly to ensure the successful implementation of CLT approach,. It also assists to ensure the practicality of the training and its further improvement according to the cultural context of the teachers.
- vi. Sustainable and language competency based evaluation system is needed to ensure the implementation of CLT with focuses on four basic skills (Listening, speaking, reading and writing) of language which will help the teachers as well as the learners to be interested in learning language through CLT.
- vii. Class observation and model teaching could be organized in the locality of trained teachers schools where the teachers of that locality will get chance to observe how to manage large class and the mixed able students so that all the learners get equal emphasis on learning according to their needs through CLT approach.
- viii. Orientation could be organized with the schools authority and community to make them aware about the importance of learning language to become competent for effective communication rather learning language to get instant result in the examination.
- X. BRAC could take initiatives to organize team work among the trainee teachers

where they will reflect on their teaching sharing experience with each others as a part of reflective learning.

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Appendices

Appendix 1: Research tools (the questionnaire)

Questionnaire (teacher)

"The implementation of Teacher training (English language ability, Teaching skill, pedagogy) in classroom teaching"

Disclaimer: This information is going to be used only for academic purposes and will not be disclosed to anybody or any organization.

(Dear participants please read the questions carefully and try to answer all the questions.)

A. PERSONAL INFORMATION

1. Age:□ 20–25 □ 26–30 □ 31–35 □ 36-40 □ 40+ 2. Gender: \Box male \Box female 3. Name of the institution and Location: 4. What is your last academic degree? 5. Years of teaching completed E. 25 A. 0 to 5 years B. 5 to 10 years C. 11 to 15 years D. 16 to 24 years years or more 6. Language for instructions and activities in the classroom: **Bangla D** English □ Mixed 7. Which one is more important to you while learning a language?

□ Fluency □ Accuracy □ Both

8. Amount of professional development workshop/ training that you have received and what are they (e.g-ELTIP, EIA, BRAC, B.Ed etc):

9. Number of years you have been implementing communicative language teaching/ learning:

A. None B. Less than 2 years C. between 2 and 4 years D. Between 4 and 8 years E. More than 8 years

10. Typical class size in your institution/class:

A. Less than 25 students B. 25 to 35 students C. 36 to 45 students D. 46 to 60 students

- E. More than 60 students
- 11. Preferred teaching methodology (choose only one).
 - a. Largely teacher-directed (e.g., teacher-led discussion, lecture)
 - b. More teacher-directed than student-centered
 - c. Even balance between teacher-directed and student-centered activities
 - d. More student-centered than teacher-directed
 - e. Largely student-centered (e.g., cooperative learning, discovery learning)

B. Using the scale provided, please rate the extent to which you agree or disagree with the following statements regarding the implementation of teacher training in the classroom:

	completely	mostly	Some	Little bit	Not
		-	what		at all
Teacher maintained the class time					
Instruction was given clearly					
Sufficient time was given to the students					
according to the activities/tasks					
Control over the class					
Control over the content					
Control over the teaching methods and					
techniques					
Teacher encouraged the students					
Classroom language was English					

Teacher's Personal Views regarding teaching and training	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree		
I understand communicative teaching-learning well enough	to						
implement it successfully.							
The amount of communicative teaching- learning training I	have						
received has prepared me to implement it successfully.							
reactical enough for me to implement it successfully	een						
I prefer using familiar teaching methods over trying new							
approaches.							
I believe I can implement cooperative learning successfully	<i>.</i>						
I have too little teaching experience to implement cooperati	ive						
learning successfully.							
I find that involving students in group/pair works is too diff	icult	in					
the class.							
Training helps the professionals to become skilled							
Makes teachers feel more competent as educator/ Eases the							
Pressure on me as a teacher.							
Requires extra time to plan learning activities.							
Teacher's Professional Views on training							
implementation	~	e	e				~
	lgl.	gre	gre	al	, ,	e e	ngl. e
	IOI	isa	isa	auti		gre	gre
In ano and domin a chieve ment (a chieve des)	S	Д	Ω	né		4	A S
increases academic achievement(e.g-grades)							
Makes classroom management more difficult.							
Is successful only if teachers have enough							
motivation.							
Makes teachers feel more competent as educators.							
Training gives teachers the opportunity to be							
learning facilitators instead of information providers.							
Training is successful only if there is the support of							
parents and School Managing Committee.							
Requires extra time to plan learning activities.							

Teacher's Professional Views on students responses and effects	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Using communicative language learning promotes co-					
operation among students.					
My students presently lack the skills necessary for					
Peer interaction helps students obtain a deeper understanding of the material.					
My students are resistant to working in cooperative groups.					
Communicative learning/teaching places too much emphasis on developing students' social skills.					
Using communicative approach fosters positive student attitudes towards learning.					
Communicative approach of learning holds bright students back.					
Motivates students to get more involved in learning activities.					
Helps accommodate students' personal learning styles.					
Promotes the development of students' interpersonal communication skills (e.g ability to relate or work with others).					
Improves student learning of critical concepts and ideas.					
Communicative approach of learning gives too much responsibility to students.					
Do your students have English speaking environment in your institution/ class?					
Engaging in cooperative learning interferes with students' academic progress.					
CLT promotes in students development of communication skills.					
Motivates students to get more involved in learning activities.					

Appendix 2: Class observation tools:

Observation checklist:

Name of the school:

Class:

Upazilla:

District:

Classroom setting/ learning environment:

	completely	mostly	Some	Little bit	Not
			what		at all
Classroom facilities-well equipped and					
furnished					
Seating arrangement is suitable for					
different activities					
The classroom was spacious					
Classroom was well ventilated					
~1					

Classroom management:

Teaching materials:

	completely	mostly	Some	Little bit	Not
			what		at all
Teaching materials were appropriate					
according to the students level					
The content was relevant to the lesson					
teaching materials were used following					
proper sequence					
Others					

Students' responses:

	completely	mostly	Some	Little bit	Not
			what		at all
Students felt comfortable with the teacher					
Students liked pair/ group works					
Students participated in every steps of					
learning/discussion					
Students asked teacher if they faced					
difficulties					
Students were interested to speak in					
English					
Others					

Classroom interaction pattern (short note):

Date:

Factors That Influence Mobile Learning Readiness In Infrastructure University Kuala Lumpur (IUKL)

Kamaluddin Yahaya Yakubu, Abubakar Sadeeq Sani, Janagiammal Ramasamy

ABSTRACT

The use of mobile technologies in the classroom is transforming teaching and learning in higher institutions. Mobile learning, or M-learning, has become a new educational paradigm, gaining popularity especially at institutions of higher learning. This study examined the relationship between demographic and technological factors towards M-learning readiness among undergraduate students in Infrastructure University Kuala Lumpur (IUKL). A mobile questionnaire application was created to collect data for this study. The findings of this study indicated that the respondents are ready to adapt M-learning based on demographic and technological factors.

Keywords: m-learning, higher education, technology, demography.

INTRODUCTION

Among the foremost keys for sustainable development in the world is Education. This is due to the increasing dynamics of the world which subjects the countries to the pressure of quickly catching up with the rest of the world in terms of emerging technology, business, and research as well as sports. Yearly, more of the global population connects with the network, the bandwidth goes high significantly and its utilization becomes more integrated in all the aspects of the global processes. Being connected to this network provides windows of opportunity, fulfilment, competition and success to individuals. Even though some places in the world are having infrastructural issues, majority of the inhabitants perform a lot of their tasks using their mobile devices. Mobile technology has given us the opportunity to instant access of emails, publications, online games, shopping, bank transaction, social services, governmental activities and sports remotely using our mobile devices.

According to (Qiang, 2009) "The mobile platform is emerging as the single most powerful way to extend economic opportunities and key services to millions of people," In terms of education, how do mobile technologies contribute? According to (Supyan Hussin, 2012) "The advancement of mobile technology has opened up a myriad of learning opportunities for students in Higher Learning Institutions who need to cope with a complex and demanding learning environment." The approach of E-learning has provided windows of opportunity for different people to attend classes remotely in real time. Students extensively use their mobile devices to send short email messages and view huge number of web pages each week, during the waiting time between classes (Thornton, 2004). Mobile devices can be an effective educational platform, due to the fact that mobile devices are easily accessible by students and provide adequate support for standard Internet technologies. Using modern methods and techniques integrated in M-learning, help in making the learning of our student more interesting, more interactive, widely available and flexible (Mohamed Sarrab, July 2012).

According to (Shittu Ahmed Tajudeen, 2013), research study has revealed the growing use of mobile phone for teaching and learning process, yet, there appear to be little empirical study as to what promote student acceptance of this new phenomenon in e-learning, most especially in the developing world like Malaysia and Nigeria. But according to (M.E. Marwan, 2013), M-Learning technology has been absorbed into the education scenario in Malaysia but it still at the early stage. The study was carried out at a number of universities and colleges in Malaysia and proved the acceptance and high tendency shown by the students of M-Learning based on the results of the study. IUKL has an E-learning site intended for learning purpose but it is not completely utilized by both students and educators. One of the important thing about this study is finding out the model or factors that really determine readiness to mobile learning.

On assumption we can say that the students are ready for mobile learning because they have the gadgets or devices necessary for mobile learning but are those assumptions right? Are students ready for mobile learning just because they have mobile phones, tablets, PDA etc.? In this paper

we are looking into two factors that determine readiness which are technological and demographics factors. As stated early on regarding readiness factors.

PROBLEM STATEMENT AND HYPOTHESIS

With the increasing readiness of students of higher institutions towards adapting mobile learning in Malaysia, no studies has been undertaken to determine the students' readiness towards adapting mobile learning technology in IUKL. There are factors that influence students' readiness towards adapting mobile learning. So far, none of these factors has been explored in IUKL.

The hypothesis for this study are:

H₁: IUKL students are ready to adapt mobile learning based on demographic factors
H₂: IUKL students are ready to adapt mobile learning based on technological factors
The objective of this study is to investigate the readiness of IUKL students towards adapting mobile learning based on demographic and technological factors. This study will at the end help to prove our hypothesis.

LITERATURE REVIEW

While it looks that mobile devices have of late added the ability to function as educational tools, Alan Kay installed the idea of a mobile learning device in the late 1960s. Mr. Kay anticipated the book Dyna, a movable gadget for students who show text and graphics related to a script. In reality, Kay's research paper, "Children for a personal computer of all ages," is a device that closely resembles today's tablet PCs (eg Apple iPad) (Naijmi A., 2009). The ten years that followed the vision of Kay, information processing systems has become more private and more profitable. A survey conducted by the Research Centre found that 85% of US adults own a cell phone, with much higher percentages in young age groups. Actually, the study found that 96% of adults in the 17-30 ages are possessors and 90% of adults aged 31-50 years are possessors. In 2010, the International Telecommunication Union estimates that 77% of the world population would be having a mobile phones or devices by the end of the year (Chen, 2013). According to

Kennedy, mobile phones are even more ubiquitous with university students, with more than 97% of students were born since 1980 as holders. Referable towards the increase in capacity of most mobile phones, the number of users using their phones to access the Internet is also rising sharply. In 2012, the Malaysian Communications and Multimedia Commission consider that in Malaysia as much as 68.8% of smartphone users accessed the Internet through their phones. Many mobile learning seen as an extension of e-learning or e-learning in mobile devices, but their relationship between them, they differ in several ways. According to Joanne Chan mobile learning is more dynamic. In fact, no student or user will spend an hour or more to stare at their mobile devices while trying to slip through the platform slides and include knowledge (Lopes, 2007).

An initial phase in accepting a flexible learning hypothesis is to separate what is extraordinary about portable learning identified with different sorts (which for this situation are the separation and e-learning) Business learning. Indeed, even the understudies in a school will move from space to room and move from one subject to another (F Aljuaid Nada Mansour, 2013). Mobile learning enlightens existing practices of taking in another point. In setting the portability of discovering that the examination's object, we can better see how information and aptitudes can be moved in different connections, for example, home and school, how learning administration can happen through life changes, and how new innovations can be intended to bolster a general public in which individuals go on more attempting to pack learning into the interstices of regular life.

A mobile learning model ought to incorporate the noteworthy discovering that happens outside the classrooms and address lobbies that individuals start and structure their exercises to empower procedures and scholarly accomplishment. A study by Vavoula (Rahamat, 2013) of every day grown-up learning uncovered that 51% of expressed times of learning occurred at home or own office of the learner in the work environment or at 'common environment of the learner. The rest occurred in the working environment outside of the workplace (21%), open air (5%), in the place of a companion (2%) or recreational offices (6%). Different spots expressed (14%) included spots of love, the specialist's office, bistros, handyman shops, and autos. Interestingly, just 1% of the self-study happened transportation, proposing both that portable learning is not inexorably
connected with physical development, and on the other hand it might be conceivable to outline a New innovation that backings learning for expanding measures of time individuals spend voyaging (Jazihan Mahata, 2012).

A mobile learning theory must consider the worldwide utilization of individual and joint innovation. (Arrigo and Ciprì, 2010), more than 75% of the general populace and 90% of youthful grown-ups have a cellular telephone. An examination was led in 2004 at the University of Birmingham found that 42.8% of understudies claimed portable workstations. However these discoveries demonstrates the colossal contrasts to get to innovation around the globe, yet they show a pattern no less than one property, and for approximately few individuals, the force segments of mobile innovation, there including cell telephones, cameras, music players, and portable PCs. An important pattern for a hypothesis of learning in the mobile world is that some developing nations, especially in sub-Saharan Africa, are bypassing the altered phone system to introduce cell telephone systems in provincial regions (Motlik, 2008). These offer the open door for individuals in rustic groups to make telephone calls as well as to get the advantages of mobile administrations, for example, content and media informing. We are presently seeing a profoundly exposed meeting of versatile innovations, for example, organizations outline and market portable processing communicators, joining phone capacities, camera and remote interactive media PC. Another just as vital meeting happens between the new individual and flexible innovations and new ways to deal with long lasting learning (Arrigo and Cipri, 2010).

RESEARCH DESIGN



Figure 1: Research Framework

A quantitative research was selected for this study. The instrument used is a mobile questionnaire application that contains 30 sets of close-ended and some open-ended questions on demographic and technological factors towards mobile learning. The target population of this study is infrastructure university (IUKL) students in Malaysia. The sample comprises of 125 participants from each of the six faculties at the university. According to the data population obtained from the registrar's office the total population of bachelor students in IUKL is 1,798, post graduate 84 students and 934 as foundations and diploma students. They comprised of 53% male and 47% female participants. The participants' age ranged from 18 to 33.

COLLECTION AND ANALYSIS

Out of 150 questionnaires, 126 were usable. Unusable questionnaires included missing and unanswered sections in the survey instrument. Therefore, the data from 126 respondents were analyzed in this study.

Table 1: Statistics of demographics of respondents

Demographic	Gender	Age	Race	Faculty	Qualification	Mode of study
	126	126	126	126	126	126
Missing	0	0	0	0	0	0

Demographic Characteristics of the Respondents

The demographic characteristics of the respondents are shown in Table 4.2. The gender distribution of the respondents was quite even, with 55.6% male respondents and 44.4% female respondents.

Table 2: Gender of respondents

Gender	Frequency	Percent	Cumulative percent
Male	70	55.6	55.6
Female	56	44.4	44.4
Total	126	100.0	100.0

Age group	Frequency	Percent	Cumulative Percent
17-20	23	18.3	18.3
21-25	45	35.7	54.0
26-30	34	27.0	81.0
31-35	18	14.3	95.2
aboye 35	6	4.8	100.0
Total	126	100.0	

Table 1: Age of respondents

FINDINGS

The result indicates that those factors that determined readiness are demographics, technological and user awareness. About 41.3% of the respondents are Arabs, then 33.3% Asians with 17.5% from Africa followed by last and smallest group from other races with 7.9%. Technological advancements have brought many positive changes in the way we learn. With technological innovations and affordability, learning can take place through mobile devices. The students in IUKL are ready for mobile learning as 82.84 percent of the students imagine themselves learning through their mobile devices. From the sample obtained, 97.91 percent of the learners have at least a mobile phone purchased within the last three years, Students in IUKL expressed their readiness to learn courses which are reading in nature and would like to listen to the conventional version of the IUKL print based modules. Students also like to receive mobile contents such as reminders, tips and audio and video files.

From the sampled students, almost half, that is, 47.98 percent learners are ready to learn through mobile devices within the next 4-5 months and another 15.73 percent expect to be ready within 7 to 12 months. In order to enable mobile learning, 65.95 percent students also expressed their willingness to purchase a new mobile device and 55.91 percent are willing subscribe to additional mobile services.

In this study, having look at the technological aspects, it shows that the higher percentage of the race willing to adopt mobile learning indicates their usage and acceptance of mobile devices in day-to-day activities thereby making it easier for them to use mobile devices in learning.

According to the result we obtained, we can see that demographic and technological factors alter mobile learning usage. The students under the age group of 21-25 years (35.7%), followed by 26-30 years (27%), use more mobile devices for learning purpose. Demographically and technologically it shows that students with the higher percentage tend to utilize mobile devices for learning purposes more than those with lower percentage. This is also an indication that awareness plays a major role in the usage of mobile devices for learning.

Those students that use the mobile applications and there are from a certain place tend to achieve higher levels of performance. This is independent of whether the motivation was intrinsic or extrinsic noting that fewer than half of the students who downloaded application instances bothered to upload to results in significantly improved and accepted. On comparing the study hours of students from Asia and Arab under mobile learning and those on–school program spent studying per day, it was found that majority of 44 percent of the student on mobile learning mode studied for less than 2 hours a day while the majority (74 percent) of those under the conventional learning program spent between 4 - 7 hours studying a day. It was further revealed that study hours per day on mobile devices significantly cover more knowledge than those with conventional process.

Further analysis of the 17.5% from Africa and 7.9% from other race that uses mobile devices in learning are still in tender process to fully utilize their devices for learning purposes. For years, pundits have been predicting that mobile learning was on the verge of taking off, as soon as the technology evolved to a point where mobile learning could be adequately supported. The fact that the majority of the respondents have used e-learning before means they are already exposed to the use of technology for learning. This fact may explain their response when asked if they would utilize m-learning if it is made available in IUKL. A total of 90.9% of the respondents answered in the positive to the question. This is despite the fact that 79% of them have never utilized m-learning for their own learning. This is in line with the literature that views m-learning

as an extension of e-learning or online learning (Yamaguchi, 2005), and thus exposure to elearning will ease the one's adoption and perception of m-learning.

The other variable investigated in this study was students' mobile self-efficacy. Students must have a high level of confidence in using mobile technology as part of their teaching and learning process; this is essential to ensure that M-Leaning would be successful. Six items were used in this study to measure students' mobile self-efficacy in an M-Learning environment (Correlation Table 4-11). The findings indicated that only two items were classified at a high level, namely the item: "using mobile devices would improve my ability to learn." This item scored a mean 1.0556(SD=.29136). The other item "willing to adapt a mobile device for learning" had a mean = 1.0238 (SD=.15306). Meanwhile the item with the lowest mean was "I would be able to use M-learning only if I had seen someone else experience it before I try it myself" with a mean = 1.0098(SD=.2984). These findings showed that the respondents had a moderate level of self-efficacy in using M-learning.

CONCLUSION AND FUTURE RESEARCH

This research has given an indication of the level of readiness of mobile learning in IUKL. The responses for three areas of readiness i.e., Demographics, Technological, and awareness were analyzed and interpreted. On the whole, respondents welcomed the idea of combining mobile learning into future courses, as they were already familiar with computing and communication activities that mobile learning may require. The results indicate that the students view mobile learning favorably, yet there are a few challenges to overcome. The most immediate issue is the lack of awareness among the students on the benefits and shortcomings of mobile learning. If IUKL is to implement mobile learning, it has to give priority to solve this issue. The discoveries of this study don't speak to an entire picture of mobile learning readiness among IUKL students. In any exploration on readiness, it is fairly incomplete to investigate one gathering of respondents that is the students for this situation. There are two other imperative gatherings i.e., administrators and instructors or lecturers, whose reactions should be concentrated as well. Every gathering is related of each other. Administrators must be prepared with a solid supportive network that gives infrastructure and mobile phone gadgets, human resource training for

lecturers, annual spending plan for mobile learning, and incentives to advance a more prominent implementation of mobile learning at the university. Future research should investigate how ready administrators and instructors in accepting mobile learning are. It is recommended that the University management should invest very fast on mobile Learning by improving the IT Infrastructure and organizing more training and seminar on mobile Learning content development.

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APPENDIX: QUESTIONNARIE QUESTIONS

Demographic Question

1. In which Faculty are you registered?

Architecture and the Built Environment	1
Applied Sciences	2
Business and Accountancy	3
Engineering	4
Information Technology	5
Media and communication	6

2. What type of qualification are you currently registered for?

Diploma	1
Undergraduate degree	2
Post graduate studies	3

Foundation	3
English program	4
Other	5

3. Indicate your mode of study?

Full-time	1
Part-time	2

17-20	1
21-25	2
26-30	3
31-35	4
Other	5

4. What is your age group? (In completed years)

5. What is your gender?

Male	1
Female	2

6. What race group do you belong to?

African	1
Arab	2
Asian	3
Other	4

Technological Questions

I have a sufficient extent of self-confidence to make decision to adopt m-learning

I intend to adopt a mobile device for university courses

I have a sufficient extent of control to make decision to adopt m-learning

I plan to participate in m-learning if introduced next year.

I predict I would use a mobile device for my courses.

I would have more opportunities to create knowledge in my coursework with a mobile device.

I am confident about using a mobile device for my courses.

I plan to use a mobile device if a course has mobile learning functions.

I would be able to actively access coursework material with a mobile Device.

I would be comfortable to use a mobile device in my courses.

I would be able to control the pace of learning in my classes with a mobile device.

I think other students in my classes would be willing to adapt a mobile device for learning.

I have a sufficient extent of knowledge to use m-learning.

Most people who are important to me would be in favor of using a mobile device for university courses.

I think the students would be in favor of utilizing m-learning in their course work.

Using m-learning in my coursework is a wise idea.

I believe that mobile devices would be useful for my learning.

Using m-learning in my coursework would be a pleasant experience.

I believe that using mobile devices would allow me get my Work done more quickly.

I believe that using mobile devices would improve my ability to learn.

I believe that mobile devices would be easy to operate.

I believe that mobile devices would be easy to use.

I believe it would be easy to access course material with my mobile Device

I believe it would be easy to access course material with my mobile.

Internationalization of Higher Education : International Students' Satisfaction at Private Universities in Malaysia

Chong Pui-Yee, Tham Siew-Yean & Andrew Kam Jia-Yi

ABSTRACT

Malaysia aspires to be an international education hub and the Ministry of Higher Education (MoHE) has set a target to attract 200,000 international students by the year 2020 (KPTM, 2007). An annual average of growth of 11.8% is needed to achieve this target. The needed growth rate seems difficult to attain as the average annual growth rate from 2008-2013 is only 4.3%. This leads to the research questions focused this study: what are the important factors that influence satisfaction of international students; what is the satisfaction level of their educational experiences in Malaysia; and what is the model in measuring international student satisfaction? There is as yet no study that has created a standardized and measurable indicator of student's satisfaction that can be empirically examined for its validity (Ong, CH, 2014; Lim, 2013; Hishamuddin et al, 2008). Based on this research gap, the objectives of this research are to: (i) create a new model, the MISS-Model (Malaysia's International Student Satisfaction-Model) that enables a uniform assessment of international student satisfaction; (ii) identify the strongest domain that influence international students' satisfaction; and (iii) propose policy recommendations to key stakeholders for enhancing the quality of higher education. Face-to-face interviews will be conducted with international students to identify the elements that builds the foundation of the MISS-Model. Upon identifying the elements, a questionnaire will be developed to further verify the validity of the MISS-Model. This is followed by a survey which will be conducted at private HEIs in the Klang Valley. The MISS-Model will also be empirically tested using the Structural Equation Model. The outcomes of this research are: (i) a new instrument (the MISS-Model) to conduct national and institutional surveys in the future; (ii) new policies and strategies to attract international students. This will contribute towards enhancing inflows of international students for the attainment of the education hub vision of the country.

Keywords: Internationalization of higher education; International student satisfaction, education hub.

INTRODUCTION

Internationalization of higher education has gained great attention by many countries in the past decades. The effort of internationalization by each country and institution may be different, focusing on different dimensions of internationalization. The most given attention is the recruitment of international students. The traditional choice of study countries are United States, United Kingdom, Australia, Germany and France (OECD, 2013). In the recent decades, there are many new study destinations in the international education market such as Malaysia, Singapore and China in the report by Observatory of Borderless Higher Education (OBHE) in year 2007.

The focused on international education was due to the lucrative returns of education export. According to 2005 World Bank report (World Bank 2007) it was recorded that over US\$28 billion was generated from education export. An estimated of US\$14.1 billion are from United States, US\$6 billion from the United Kingdom and US\$5.5 billion from Australia. As for Malaysia, the income generated through education export was recorded at RM2.6million in the year 2010 (MoHE, 2011). Besides economic motivation, some institutions intensify its internationalization to improve its university ranking. The number of international student is one of the criteria in the evaluation of university ranking by QS World University Rankings and The Times Higher Education World University Rankings.

The flow of international students will continue to grow. The International Development Programmes in Australia has forecasted an estimates increased by fourfold in the global demand for international education with approximately 7.2 million students by 2025.

PROBLEM STATEMENT

Although Malaysia aspires to be an international education hub, it faces stiff competition from many emerging markets that share the same or similar aspirations - for example Singapore Global Schoolhouse, Hong Kong Regional Education Hub and a few in the gulf countries namely Dubai International Education City and Qatar Education City (Knight & Morshidi, 2010). At present, Malaysia is capturing 2% of the international market, along with Singapore at 2% and South Korea at 1.5% (Tham, 2013). Though Malaysia is at par with Singapore and South Korea in competing for international education market shares, the market is getting tougher. The development of branch campuses in many regions such as the Middle Eastern and Far East (Sharma, 2012) has posed great challenges to Malaysia's drive for attracting international students. The impact can be seen in the drop in student enrolment from Saudi Arabia and China. There is a drastic decrease of enrolment of about 26% from Saudi students from 2008 to 2011. The enrolment of students from China has fallen drastically from 10,731 in year 2003 to 5,272 in year 2011, indicating a decrease of about 50%. Even though there is increment in total international students enrolment, Malaysia should not underestimate the threat from emerging contenders. In order to stay competitive in the international higher education market, Malaysia needs to improve on its pull factors for attracting international students to the country by understanding what determines the satisfaction of international students. This study focuses precisely on this factor, namely the satisfaction level of international students studying in the country.

There are many efforts and initiatives made by the Malaysian government to attract and ensure that international students who study in Malaysia will have a satisfying experience. Despite these policy endeavours such as the development of Internationalization Policy for Higher Education Malaysia 2011 and the Operational Framework for International Student Management 2012, the country has failed to achieve its intended target of international students. There are only 114,000 international students studying in Malaysia in the year 2015, which is still far below its intended target of 150,000 by 2015 (KPT, 2016). The available data shows that the average growth of international students from 2008 to 2013 is only 4.3% per annum. However, it requires an average of 11.8% of annual growth from 2015 to 2020 for the country to meet the target of 200,000 international students by the year 2020. Hence, this research intends to identify a plan to spur growth by first understanding international students' satisfaction.

Consistent with past literature, student satisfaction is a key strategic variable

in meeting the challenges of stiff competition for international students in international higher education (Arambewela, Hall & Zuhair, 2006, Arambewela 2003; Harvir et al, 2000). The literature indicate that satisfied students can help to attract more potential students to the institutions through student loyalty and positive word of mouth (WOM). WOM operates such that higher satisfaction levels may lead to more recommendations to family members and friends to pursue higher education with a particular higher education service provider (Arambewela, 2003; Arambewela et al 2006; Douglas, McClelland & Davies, 2008; Mavondo, Tsarenko & Gabbott, 2004). This in turn contributes towards customer retention, growth and financial stability for the education industry and subsequently leads to better branding and reputation for the country. It is also important for the university as it improves its ranking across a number of league tables (Douglas, McClelland & Davies, 2008).

At current juncture, there is no comprehensive documentation of international students' satisfaction on their learning and living experiences in Malaysia. By comprehensive, we mean that elements such as academic services on campus, non-academic services on campus, external living environment out of campus, image or the brand of country and university and perceived value or trade-off between what student received against what they have paid or sacrificed, are factored into the measurement of international students' satisfaction. Existing studies by Lim (2013) and Hishamuddin et al (2008) only focused on two elements which are academic services and non-academic services on campus, while external environment has been overlooked. Ong (2014) is the closest study that encapsulates all five elements however, her case study is limited to only one public university. Ong's study is also only limited to eight sub-factors that influence satisfaction, compared to 61 sub-factors that this research intends to investigate.

While there may be many factors that influence international students' satisfaction, the absence of a formal model may lead to a few problems in terms of standardizing the measurement for a comprehensive indicator of satisfaction. An empirical model such as the proposed MISS-Model will provide a framework to understand factors that influences students' satisfaction more accurately as it will undergo formal empirical reliability tests after interviews and surveys. The model will also include an element that has yet to be investigated in Malaysia, namely the word-of-mouth (WOM) phenomenon. WOM is noted as an important variable in post behaviour of

customer satisfaction. Previous studies by Ong (2014), Lim (2013) and Hishamuddin et al (2008) did not explore the effect of satisfaction through the WOM. This study will also investigate the implications of WOM from the five domains.

RESEARCH QUESTION

- 1. What are the important factors that influence international student satisfaction?
- 2. What is the level of satisfaction of international students who study in Malaysia?
- 3. What is the model in measuring international students' satisfaction?
- 4. What are the policy recommendations and business strategies required for improving international students' satisfaction in Malaysia?

OBJECTIVES

- 1. To identify factors that influence international student satisfaction in Malaysia. (to address research questions 1).
- 2. To identify the level of satisfaction of international students in Malaysia (to address research questions 2).
- 3. To develop a MISS-Model (Malaysia International Student Satisfaction Model) in measuring international students' satisfaction (to address research questions 3).
- 4. To propose policy recommendations to the ministry and HEIs based on the empirical findings (to address research question 4).

LITERATURE REVIEW

Factors Measuring International Students' Satisfaction

Based on literature review, there are many research themes on international students: from micro level of investigations to macro national policy level. It is summarized into five dominant themes (i) factors that influence the choice of study destination, (ii) international students experience and expectation, (iii) challenges, problems and adjustment faced by international students, (iv) perspective on service quality and (v) factors that influence satisfaction. Table 1 (Appendix 1) is a collection of the themes and corresponding variables from our literature review. It shows that the breadth of discourse on students' satisfaction stems not only from the satisfaction of service outcome but also involves the process of receiving the service (Li & Guisinger 1992, Reardon et al 1996, Zhang et al 2010 in Bianchi & Drennan, 2012).

Therefore, aspects beyond "academic needs" such as the living conditions and learning environment in the host country is taken into account. Our initial literature review have further led us into consolidating the factors into three broad domains: (i) internal environment (academic and non-academic services on campus) and (ii) external environment (external living environment out of campus) iii) Independent factors. Independent factors are included to accommodate the theory of customer satisfaction - which describes image and perceived values as independent domains that drive satisfaction. Based on literature review, the working definition and research framework is proposed in Figure 1.



Figure 1 - Proposed Framework for the development of MISS-Model

Internal environment comprises of two areas which are academic environment and nonacademic environment (Bianchi & Drennan, 2012). Internal Academic Environment domain covers all educational services. It refers to teaching quality, study programme, teaching staff and method of instruction, engagement of teachers with students, academic performance of the students, industrial training and other services and facilities related to teaching and learning, as for example computer laboratory and library facilities (DeShields et al, 2005; Douglas et al, 2008; Bianchi & Drennan, 2012; Arambewela, 2006).

As for Internal Non-Academic Environment domain, it includes other support services within the campus that are non-academic related, as for example accommodation, security, student services, student clubs and society, orientation, transportation, gym, and attractive campus with shops (Bianchi & Drennan, 2012; Douglas et al, 2008; Mavondo et al, 2004; Arambewela, 2006). The non-academic services form part of the overall student satisfaction as they consume such services while on campus.

External environment includes the social and physical dimension outside of the university campus (Arambewela & Hall, 2011b). The notion that external environment plays a vital role in a student's satisfaction hinges on the time spent (almost one third) outside of the campus vicinity integrating into the host country's community. They take the form of social relationship such as friendship patterns, discrimination, housing and accommodation, beautiful touristic attractions and good weather, and well organized and safe city with good customer service, transportation and medical services, experiencing a new culture, food and language, feeling welcomed and accepted by local people (Bianchi & Drennan, 2012). All these contribute to the entire experience and will impact the overall international students' satisfaction.

Image and reputation of a country and institution is a strong determinant of student satisfaction. Image refers to the brand name that adds prestige to the students through the international recognition of their degrees at home. Temizer & Turkyilmaz (2012) found that image has a positive effect on student satisfaction and loyalty.

Perceived Value is the "perceived level of service quality relative to the price paid by students" (Temizer & Turkyilmaz, 2012 p.3804). Variables in this domain include tuition fee, total cost of living at the host country and the overall living experience gained from studying abroad.

SIGNIFICANT AND CONTRIBUTION OF STUDY

The MISS-Model is an instrument for measuring international students' satisfaction. The outcome will help in the development of strategies to attract international students and making Malaysia a choice destination for studying in institutions of higher learning. It can be used in national surveys as a valuable instrument to assess the performance of existing policies in making the country an education hub and for meeting the 200,000 international students target by the year 2020 as stipulated in Malaysia National Strategic Plan of Higher Education Phase 1 (2007-2010) (MoHE, 2007). It is also an important instrument to ensure the quality of education service providers as the model sets certain standards and criteria for satisfaction. The Malaysian Qualifications Agency (MQA) can embed these requirements into the Malaysian Qualifications Framework (MQF) as additional variables for enhancing the quality of higher education in the country.

METHODOLOGY

Description of Methodology

To develop the MISS-Model, this study will use both quantitative and qualitative research methodology. Based on the research framework in Figure 1, interviews with international students will be conducted. The goals of the interviews are two folds, one is to verify the variables from literatures and another is to identity new variables beyond existing literatures. The outcome from interviews will strengthen the credibility of the research instrument which is the survey questionnaire. The primary data from the survey questionnaire will be used as the foundation and input for the creation of a MISS-Model.

In order to establish empirical relationship among the domains, SEM (structural equation modelling) is utilized to test those connections. Figure 2 is the construction of SEM model to empirically link and measure the magnitude of impact of the proposed domains. The construction of hypotheses in SEM are backed by the following arguments:

- When the needs of academic services on campus are met, it will results in higher satisfaction of international students. Therefore,

Hypothesis 1 : There is a positive relationship between academic services on campus and international students' satisfaction in Malaysia.

- When the needs of non-academic services on campus are met, it will results in higher satisfaction of international students.

Hypothesis 2: There is a positive relationship between non-academic services on campus and international students' satisfaction in Malaysia.

- Apart from academic and non-academic services, students' satisfaction hinges on the needs of external living environment out of campus. Hence

Hypothesis 3: There is a positive relationship between external living environment out of campus and international students' satisfaction in Malaysia.

- Student's satisfaction also accounts for image, hence branding and institutional reputation are crucial external elements for supply side service provider

Hypothesis 4: There is a positive relationship between image, brand and reputations and international students' satisfaction in Malaysia.

- The fusion of economic and personal considerations such as perceived values between costs and services affects students' experiences in Malaysia

Hypothesis 5: There is a positive relationship between perceived values between cost and services and international students' satisfaction in Malaysia.

- Hypothesis 6: When all factors above (i) academic services on campus; (ii) non-academic services on campus; (iii) external living environment out of campus; (iv) image, brand and reputations and (v) perceived values between cost and services and international students satisfaction are met, it will generate positive word of mouth (WOM) which is a source of growth generating instrument for the services industry.

We hypothesize academic services as the strongest domain that influences international students' satisfaction; and hinging on the strengths of non-academic factors, positive WOM contributes towards the growth in the number of international students in Malaysia.



Figure 2 : SEM Modelling of MISS-Model

Instrument

A survey questionnaire will be developed to evaluate the service experiences of international students. Questions using Likert scale is used as it is more manageable for large sample sizes (Echtner and Ritchie, 1991; Ryan 1995 in Pawitra & Tan, 2003). The questionnaire will have two parts; Part One identifies the demographics of the respondents; and Part Two comprises of seven sub-sections covering Academic and Non-academic Services on campus, External Environment, Image, Perceived Value, Post Behaviour (or behavior after studying and living in Malaysia). A pilot test will be first conducted and the Cronbach's Alpha test is used to test the reliability of the instrument. The objective of the pilot is to cross-check the validity and effectiveness of the variables in answering research questions.

Sampling Frame and sample size

This study focuses on private higher institutions (PrHEIs) over public institutions because more than 70% (refer to Table 2) of international students are studying in the former. Only the local PrHEIs with university status will be examined as these institutions housed the most international students who pursue degree programmes (refer to Table 3 & 4). The majority of the private universities are located in the Klang Valley and therefore all the 29 private universities will be invited to participate in the survey. The study only imposes a few conditions to strengthen the credibility of the sample. First, the sample respondent must be an international student and have studied at the institution for more than a year in their degree program. This is to ensure they are credible subjects with accumulated experiences to provide feedback on learning and living in Malaysia. About half of the international students who registered at PrHEIs are enrolled in degree program (refer to Table 5).

Number of Sample

As the total number of targeted population is unknown, the study will use the method proposed by Kercie & Morgan (1970) and Cohen et. al (2001) in Chua (2006) to determine the sample size based on the total population. They use the rule of thumb of data significance at of 0.05 with reliability of 95%. Adapting their rule of thumb, this study targets 1,000 respondents and therefore if the number of institutions who agree to participate are 20, then each institution will be given 50 questionnaires.

Method Data Collection

The method of data collection varies according to response rate. While online method is preferred, hardcopy questionnaires will be distributed as well using either by mails or by personal contact. Our data collection strategy focuses on liaising with the international office of the institutions. This method is deemed most effective based on previous studies in which is between 89% (DeShileds et al, 2005) to 97% (Mavondo et al, 2004). Another targeted source

will be through the International Students Society. If the data collection is not encouraging, the alternative plan is to liaise with lecturers with the permission of the institutions.

Data Analysis

Data collected will be analyzed through quantitative and qualitative analysis. Statistical package for the social sciences (SPSS) and Analysis of Moment Structures (AMOS) will be used to analyze the quantitative data and the development of MISS-Model. Structural Equation Modeling (SEM) will be used to verify the MISS-Model. Content analysis software NVIVO will be used to analyze the qualitative data collected from interviews.

LIMITATION AND CHALLENGES

Firstly, the challenge of getting the cooperation from participating HEIs and their international students. Secondly is the resources in terms of financial resources in data collection.

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(1) Choice of Study Destination	(2) International students experience	(3) Challenges, problems and	(4) Perspective on	(5) Satisfaction of International Students
	and expectation	adjustment	service quality	
 Choice of University 	 Experiences of Learning 	 Academic Challenges 	 Quality of academic 	1. Academic
 a. study programs 	 engagement and interaction 	a. different methods of	staff	a. high standard of teaching materials, meeting the
b. courses	with lecturers	teaching & learning	a. demonstrating	objective of the course and study outcome,
c. fees	 teaching delivery 		engagement with	academic workload, quality of lecturers, lecturers
d. facilities	 c. mentoring and tutoring 	2. Non Academic Challenges In	students	should engage, provide feedback, always
e. support services	assistance	Campus	b. helpful	available, friendly effective delivery of lessons,
f. intellectual climate	d. counselling	a. healthcare	c. effective delivery	admission requirement.
g. teaching quality	e. club and society	b. accommodation	of teaching	b. modern and up to date facilities of laboratory,
h. teaching staff and	f. socialization	transportation.	d. advising	computing, classroom and library;
methods	g. orientation.	c. loneliness	e. care and concern	c. recognition of the qualification
i. recognition of courses,		d. Not being cared for or lack	f. English	2. Non-Academic
j. image and prestige of	(Azmat et al, 2013; Slethaug & Manjula,	of sense of belongingness to	proficiency	a. easy access to information, standard of
the university	2012; Akiba, 2008)	the community in campus		accommodation, counseling, international
		(Zuria Mahmus et al, 2010).	2. Quality of support	orientation program, sense of belongingness,
(Mashkuri & Chong, 2011;	2. Experiences of Living		staff	friendly environment efficient and friendly
Veloutsou et al, 2005;	a. Language	3. Social challenges		administrative staff especially those in
Arambewela, 2003; Smith et al.,	b. Culture	a. Food	3. Quality of facilities	international office, good condition of
2002; Townley, 2001; Geall,	c. friends from own country	b. Discrimination	a. computer lab	recreational and sport facilities, opportunity for
2000; DETYA, 2000; Burke,	d. proximity to home country	c. Climate	b. library	socialization in club and society, financial
1986 in Arambeweia & Hall,	e. Intendiy people	d. Religion		
2009).	1. safety and security	e. cost of fiving	(Snekarchizaden et. al.,	5. Social
2 Chains of country	g. cost of living	I. difficulty in interacting with	2011; Azizan Rajab et al.	a. Irrends and relatives, social distancing,
2. Choice of country	n. employment	local	2011)	discrimination and acceptance from community,
a. safety	1. migration opportunity	g. language		safety and security, communication and
b. Inte-style	2 Expostation	2012: Sussala & Dooyaikarasi 2011;		opportunity, logal framework a g visa
d transportation	3. Expectation	They amples & Parvinder 2010: Abdul		opportunity, legal framework e.g. visa
a recial discrimination	h reputation of the university	Pahman Embong 2013)		(Sam 2001: Arambawala 2003: Arambawala at
f visas	c good teaching quality	Raiman Embolig, 2015)		al 2006: Arambewela & Hall 2006:
g immigration potential	d friendly and caring lecturer	4 Adjustment		Arambewela & Hall 2009: Arambewela & Hall
h friends	e good support staff to support	a to new culture		2011b: Lim 2013: Hishamuddin et al. 2008:
i family	admission registration finance	b. lack of social support		Ikwuagwu 2010: Lim 2013: Chong & Amli
i climate	and visa matters	(example no friends or		Hazlin 2013)
k culture	f. friendly environment	family members in host		4 Image
	g. safe place to live	country).		a. reputation or prestige of the institution
(Veloutsou et al. 2005:	h. employment and migration			(Arambewela, 2003: Arambewela et al. 2006:
Arambewela, 2003; Lawley.	opportunity	(Yusliza, 2011 & 2012; Yusliza.		Arambewela & Hall, 2006; Arambewela & Hall.
1998; Duan, 1997; International		Junaimah & Chelliah, 2010; Yusliza		2009; Arambewela & Hall, 2011b).
Development Programs, 1995 in	(Azmat et al, 2013; Slethaug et al, 2012;	& Abdul Kadir, 2011; Yusliza &		5. Fee & Cost of living
Arambewela & Hall, 2009).	Akiba, 2008).	Chelliah, 2010; Suseela &		a. Fees and cost of living (Sam, 2001;
		Poovaikarasi, 2011; Thavamalar &		(Arambewela, 2003; Arambewela et al, 2006;
		Parvinder, 2010).		Arambewela & Hall, 2006; Arambewela & Hall,
		·		2009; Arambewela & Hall, 2011b).

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	TOTAL	%
Public HEI	4770	5045	5239	5735	6622	7941	14324	18485	22456	24214	25855	26232	28826	195744	27%
Private HEI	13472	22827	25158	25939	33903	36449	33604	50679	58294	62705	45246	57306	52598	518180	73%
TOTAL	18242	27872	30397	31674	40525	44390	47928	69164	80750	86919	71101	83538	81424	713924	100%

Table 2: Data of international student enrollment at Public and Private HEIs between 2001-2013.

Table 3: Total International Student Enrolment at PrHEI from Year 2008 to 2013 According to Status of PrHEIs

	University	College University	Branch Campus	College	Total
Total Enrolment Yr 2008-2013	120,700	69,482	17,139	119,522	326,843
Average (divide by 6yrs)	20,117	11,580	2,857	19,920	54,474
%	36.9%	21%	5%	36.6%	100%
Ranking	1	3	4	2	

Table 4: Total International Student Enrolled in Bachelor Degree at PrHEI from Year 2008 to 2013 According Status of PrHEIs

	Universiti	Kolej Universiti	Cawangan Luar Negara	Kolej	Total		
Grand total Yr 2008-2013	74,016	37,014	10,925	35,494	157,449		
%	47%	24%	7%	23%	100%		
Ranking	1	2	4	3			

Table 5: Total International Student Enrolment at PrHEI from Year 2008 to 2013 According Level of Study

Peringkat Pengajian	2008-2013	%	Ranking			
PRA DIPLOMA	13	0.004%				
PRA SESI	2,087	0.639%				
SIJIL	72,734	22.254%	2			
DIPLOMA	41,510	12.700%	3			
DIPLOMA LANJUTAN	2,497	0.764%				
SARJANA MUDA	157,449	48.173%	1			
DIPLOMA LEPASAN IJAZAH	970	0.297%				
SARJANA	27,101	8.292%				
PhD	7,208	2.205%				
PROFESIONAL	4,781	1.463%				
LAIN-LAIN* Kursus Asas & Pendek	10,490	3.210%				
Total	326,840	100.000%				



Figure 3 : Research Flow Chart

		2015		2016							2017														
Project Activities	0	Ν	D	J	F	М	Α	М	J	J	Α	S	0	Ν	D	J	F	Μ	Α	М	J	J	А	S	0
1. Literature review																									
2. Development of model																									
3. Interviews to verify model																									
4. Report writing																									
5. Development of instrument (survey questionnaire)																									
6. Pilot instruments																									
7. Instruments improvisation after pilot																									
8. Second pilot																									
9. Instruments improvisation after second pilot																									
10. Data collection																									
11. Analysis and modeling																									
12. Final project report																									

Figure 4 : Research Timeline
Motivational Strategies for Teaching English Language Skills: A Study of Tertiary Level Teachers

Md Mahadhi Hasan

ABSTRACT

In the era of English Language (L2) teaching and learning, applying motivational strategies has become an important issue for the L2 teachers of all levels and identifying these motivational strategies is more important for teachers of L2 in tertiary level, specifically. This study attempts to identify the motivational strategies used by the L2 teachers in tertiary level and the impacts of those strategies in English language (L2) learning. Qualitative research design has been conducted using the research instruments like interview with 20 L2 teachers of tertiary level, FGD with 30 L2 learners of tertiary level and observations of four English language classroom with a checklist. The result of the study shows that rationalizing the importance of learning, giving explanatory and positive feedback during and after performance, giving extra care to the weaker and demotivated learners, using real life examples, using up-to-date issues as teaching content, using audio-visual aids, ignoring mistakes until learners become competent to a certain level, using teaching techniques like pair work, group work and project work, arousing interest among the learners to share both in oral and written version, creating competitive environment in the class, building a learning-oriented teacher-student relationship, using humour and fun appropriately, raising high expectation of the learners and doing interaction in and out of the class with the learners are the motivational strategies used by the L2 teachers of tertiary level. The study asserts that appropriate use of the identified motivational strategies in L2 classes will enhance learners' motivation level in tertiary level. The study recommends for a next study to be conducted on defining the relationship between learners' socioeconomic background and learning of English language.

Keywords: Motivational strategies, Tertiary level, English language teachers, L2 Learners, Use of motivational Strategies, Demotivation, Effects of Motivation.

INTRODUCTION

In current time of second language teaching and learning, teachers are looking for new strategies by which s/he can motivate learners. If learners are highly motivated, the level of achievement is also very high in most cases. Without identifying the widely used motivational strategies used my language teachers, it would be difficult for teachers to select the appropriate motivational strategies in second language (L2) classroom. Specifically, the tertiary level teachers have to be selective about motivational strategies for motivating their learners in the classroom. Tertiary level learners are not easily motivated if the proper ways are not maintained by the teacher. Therefore, this study tries to find out the motivational strategies used by teachers in second language classroom in tertiary level in present context of language teaching. The appropriate motivational strategies can possibly increase the level of learning by the learners in a second language classroom.

Background of the study

Motivating young people is a fundamental part of what is to be a teacher (Smith, 2000). A teacher needs to use the motivational strategies in the second language classroom to trigger up the achievement of the learners. Motivation prepares successful second language (L2) learners and communicators who becomes self-confident (Ebata, 2008). Johnstone (1999) defines motivation as a stimulant for obtaining specific goal. Likewise, Ryan and Deci (2000) mentioned that to be motivated is to progress or to be on the right way to do something. Crump (1995) believes that interest, keenness, excitement and eagerness towards learning any item are the prime constituents of motivation. Cook (2000) affirmed that all language learners of different ages do not learn language in the same way. He has proposed three main factors which influence Second Language Acquisition. These three factors are age, personality and motivation. Cook (2000) further claims that among the three factors, motivation is the most influential in Second Language Acquisition. The mentioned studies leave a research gap as still there is no clear study in examining the $390 \mid P \mid ag \mid e$

motivational strategies used by the teachers of tertiary level English language classes. Therefore, it is important to do further research on teacher's use of motivational strategies in second language classroom which will enhance language learning by the learners of L2 and make language learning environment enjoyable ones.

Purpose of the Study

The purpose of the study is to identify the motivational strategies used by the tertiary level English language teachers in the classroom and the impacts of motivational strategies in English language learning.

Research Questions

The purpose of the study will be fulfilled throughout the two main research questions: What motivational strategies are used in English language teaching classroom by the teachers? What are the impacts of motivational strategies used in English language (L2) teaching classroom?

Significance of the Study

Since the study is on motivational strategies in second language classroom, so the importance of this study is very high among the language teachers. The teachers will be able to learn more about motivational strategies used in a language classroom. Teachers will be able to see what motivational strategies are used by other second language teachers. The students of Second Language (L2) will be benefited by the study because the teachers will use effective motivational strategies in their classroom if they get the result of the study at their hand once. Moreover, with the use of the recommendations from the study, the English language teaching would become easier if the teachers use the identified strategies throughout their teaching in L2 classroom. Learners of tertiary level would also feel more motivated in learning second language if the appropriate strategies are used by the teacher.

REVIEW OF LITERATURE

Definition of Motivation

Motivation is basic essential part of learning (Brewer & Burgess, 2005). Dörnyei and Ushioda (2011) mentioned that second language motivation is an important factor for learning any additional language. They also mentioned that in any field of knowledge, motivation is an important factor. They emphasized on practical aspects of learning language than the theories. During last two decades researchers are found to be more interested to show that L2 learners are able to learn more if they are motivated and if their learning goal is known to them (Dörnyei & Ushioda, 2011). Scholars of this field define motivation in terms of goal and working for achieving that goal. Harmer (2001), and Williams and Burden (1997) define motivation as a cognitive force that internally drive the learner to do something to reach the goal. The latter researchers define motivation as a "decision act" which provokes the intellectual effort for achieving the goal. In line with them, Reeve (2005) considers motivation as a process, not merely an end product.

However, as Dörnyei, (1994) noted that motivation is the centre of debate in learning L2. He found different affective factors affecting the learning of L2 and Dörnyei (1994) names those as affective factors or affective components. Following the components, Gardner (1985) defined motivation as: "The combination of effort plus desire to achieve the goal of learning the language plus favourable attitude toward learning the language." Here desire can happen in a learner for two reasons; firstly for learning the language from the inner-self and secondly for gaining any benefit by using the language.

Integrative and Instrumental Motivation

Ellis (1994) mentioned that motivation is the factor for what learners feel the need to learn language. Moreover, motivation can be defined in terms of two factors: learners need for communication and their attitude towards the language community (Lightbrown & Spada, 2001). They clarified that learners' intend to speak second language whether for being close to the 392 | P a g e

community or to achieve their goal by using the language. Gardner and Lambert (1972) defined the above mentioned situation as integrative motivation and instrumental motivation. If a learner is motivated instrumentally, he/she will learn the language for achieving a goal. On the on the other hand, in integrative motivation, a learner feels love or interest to learn the language. Study has affirmed that success or failure in second language learning depends largely on these two types of motivation (Lightbrown & Spada, 2001). However, there is a link between these two types of motivations. Both of these motivations are responsible for learning L2. Soh (1987) viewed that integrative and instrumental and integrative goals are the opposite ends of a continuum. Others, such as Clement and Smythe (1977) found that both goals are positively related.

Motivation in the Research of L2 Learning and Teaching

A massive number of research look into the L2 motivation to investigate its complex and compound nature and the manner in which it leaves an effect on the L2 learning process. L2 motivation research, during the 1960s, 1970s, and 1980s, was highly influenced by the social psychological approach which was influenced by the work of Gardner and Lambert (1959, 1972, & 1985). This approach incorporated societal and individual psychology to illustrate L2 motivation which leaves a vital function in mastering a target language. They showed that L2 motivation is key factor to improve or deter L2 learning. In the 1990s, there was a move from a social psychological view of motivation to a more educational and cognitive motivation. This shift can be attributed to the need to expand L2 motivation research to incorporate classroomoriented variables and motivational factors that are more relevant to language teachers (Crookes and Schmidt 1991; Dörnyei 1994; Oxford and Shearin 1994). These studies stress the importance of learning environment as an L2 motivational factor. As a result of the new research approach of L2 motivation, studies were more relevant to teaching practice and the L2 classroom, and incorporated more classroom-oriented variables and factors relevant to language teachers. Dörnyei and Otto (1998) has presented "the process model of L2 motivation" and Dörnyei (2000 & 2001) elaborated this more. Language teachers found dynamism and fluctuation in their classroom and motivating learners became easier task for teachers (Dörnyei 2000 & 2001). Later, it is found that this process model is not working very well in motivating learners because the

context and purpose of language teaching was rapidly changing. Dörnyei (2005), then, presented a new theory- "L2 Motivational Self System".

This theory has revealed the gate to understand individual varieties in L2 learning.Since L2 motivation is the main factor in fixing the amount of learning of L2 by learners, so the motivational strategies are the pillars of motivation in L2 classroom. These strategies are considered as "those motivational influences that are consciously exerted to achieve some systematic and enduring positive effect" (Dörnyei, 2001). Many prominent researchers have put emphasis on motivational activities in L2 teaching and learning and the researchers of this field are Dörnyei (1994), Oxford and Shearin (1994) and William and Burden (1997). All ESL (English as Second Language) teachers need to study motivational strategies will motivate their learners (Dörnyei, 2001). There are researchers (Bernaus & Gardner, 2008; Guilloteaux & Dörnyei, 2008; Bernaus, et al., 2009 & Papi & Abdullazadeh, 2011) who have worked on teachers' use of motivational strategies in L2 classroom and these researchers have also tried to draw link between the use of motivational strategies in L2 classroom and learners' achievement in this learning process.

Teachers' Care & Competitive Classroom Environment for Motivation

Different researchers have found different motivational strategies used in English language teaching classrooms. Vasquez (1988) found that Student perceptions of whether the teacher cares for them have meaningful effects on their performance and behaviour. If the teacher cares for their student and students feel that caring by their teachers, then they will be motivated to learn the language. Creating a competitive environment in the classroom is another way of motivating language learners to do far better than learning in an environment without competition. Maller (1929) found that in any study of incentives the element of competition holds a prominent place. It usually causes an act to be performed better or faster than it is performed by others or than the individual himself performed it before. In line with Maller (1929); Meek (1989) and Vasquez (1988) also gave importance on high expectations of students that motivates students to compete and perform better than any other stage.

Using Humour and Entertainment for Motivation

Humour plays an important role in the classroom in motivating the language learners. Weaver and Cotrell (1987) have proposed a ten step sequential strategies to motivate learners in the classroom. From the ten steps proposed by Weaver and Cotrell (1987), it is found that teacher can use different strategies in the class to create humour and consequently motivate the language learners. Their study gave importance on smile on the face, music, and movie, proper planning, learning learners' names and creating a give-and-take environment etc. in the classroom. In line with Weaver and Cotrell (1987), Hunsaker (1988) also found that humour plays a vital role in the classroom to motivate learners. Hunsaker (1988) formulated the idea that humour has a power to stimulate the learners in the classroom and they get clear illustration of the topic and consequently high motivation occurs with them without any tension.

Motivation through Interaction and Encouragement

Similarly, Palardy and Palardy (1987) explained nine preventative strategies for the teachers of English language. Palardy and Palardy emphasized teacher's role in the classroom. Here, they have mentioned the need for exact interactive pattern, presence of mutual respect and setting the rules in the classroom. Brown (1988) wrote that teaching is interaction that facilitates learning. If you cannot interact with them, you can't teach them. Brown (1988) also mentioned for practicing mutual respect which arouse motivation among the learners. He also mentioned for the need of appropriate teaching content to arouse motivation in the classroom. Kristmanson (2000) found that an encouraging and participatory classroom environment also increase learners' motivation.

METHODOLOGY OF THE STUDY

This study is conducted through qualitative research method. Three research instruments have been used to conduct the study. The instruments used here are teacher interview, FGD with learners and observation of L2 classes.

Participants and Research Instruments

The participants of the study are the teachers of L2 and Learners of L2. Interview with a questionnaire containing 15 questions related to the study are conducted with 10 language teachers of tertiary level. The selected teachers have L2 teaching experience in tertiary level from four to seven years. Then, three FGD is conducted with three groups of learners with a questionnaire containing eight questions connected to the topic of the study. Each FGD is contained with 10 learners. So, the total number of learners is 30 from tertiary level English language courses for conducting FGd. The learners are from both Bangla and English medium milieu and now they are pursuing their undergraduate degree in diverse fields where they have to do English language courses are mandatory for them. Then, five tertiary level English language classes. To gather in depth data during observation, an observation checklist with seven criteria including sub criteria has been used.

Analysis of the Data

In this study, the results are analyzed through discourse analysis in the qualitative frame of data analysis. Firstly, the interviews, FGDs and classroom observations are done in the language institute and recorded in audio recording device. Then the recorded data are transcribed and finally deduced as the results found for the analysis of the study. Then the data are triangulated in qualitative data analysis. Data collected through all three instruments are triangulated for reaching a more reliable answer to the research questions posed in the first chapter of the study.

RESULTS AND DISCUSSIONS

The collected data from teacher interview, FGD and classroom observation has been discussed here. The data collected through the three instruments have been triangulated for reaching a more reliable conclusion of the study.

Motivational Strategies Used by the Teachers in L2 Classroom

Teachers use different motivational strategies in L2 classes in tertiary level. Teachers find it difficult to continue successful English language class without holding the motivation of learners. Encouraging learners (Weaver and Cotrell, 1987) even if they make mistakes is a strategy to motivate L2 learners in tertiary level. It is also found in the L2 classroom that learners become interested to talk and write when they are motivated by the teacher, so encouraging learners is a motivational strategy used by teachers to motivate learners in L2 classroom. Explaining the rationale (Knowles, 1990) for learning any language skill is another way of motivating learners in tertiary level. Almost all teachers of tertiary level interviewed mentioned that most of the learners feel the need for learning if they are explained the reason for their learning any item of language. During classroom observation, it is noticed that some teachers are explaining the need for learning any aspect of language and learners are found motivated to participate and perform. Teachers explained the importance of English language for good job, higher education and obtaining respect from other people. So, the clear gain made by the experimental group are quiet consistent with the previous studies. Moreover, taking care of L2 learner (Vasquez, 1988) through conducting consultation with weaker and demotivated students is another way of motivating L2 learners. Most of the teachers during interview and class hour are found giving much care to their learners.

Giving real life examples (Weaver and Cotrell, 1987) are also used by teachers as a motivational strategy. The same thing is seen during their class hour and learners also mentioned about their liking for real life examples. Learners of tertiary level like the real life and contextual examples and the teachers are found using the real life examples in L2 classes; e.g. few teachers are found giving examples of good speakers and readers of English in their classes.

Since, most of the learners learn L2 for grades and good jobs, teachers sometimes motivate learners instrumentally (Ellis, 1994). Teachers tell the immediate and long-sighted benefit of learning L2 and learners become motivated to learn English. More than 80% learners in the L2 class are instrumentally motivated and the rest are indirectly or intrinsically motivated. So, motivating learners directly saying the immediate benefit is another motivational strategy used by

tertiary level language teachers. In line with this, few teachers mentioned the need for both instrumental and intrinsic motivation (Clement & Smythe, 1977).

Use of up-to-date issues as texts or teaching material is another motivational strategy used by teachers of tertiary level to motivate learners intrinsically or indirectly (Harmer, 2001). Teachers mentioned the need to use texts related to current age; e.g. "selfies", and "e-shopping" to motivate learners of tertiary level. Likewise, same texts are found to be used in most of the teachers' classes and, moreover, the booklets used in the respective institute are also seen to be filled with current issues. So, the use of recent issues as teaching materials is one of the strategies to motivate L2 learners of tertiary level.

Then, ignoring mistakes for a certain level is another strategy used by the teachers of tertiary level to motivate L2 learners. Most of the teachers mentioned the importance of ignoring mistakes and how it motivates learners to perform more than during interruption. Similarly, it is found that, in speaking classes, speakers speak continuously since their mistakes are not counted one by one. On the contrary, it writing classes, it is found that learners do hesitate to write fluently because they are afraid of making mistakes in their writing. Teacher does point out the mistakes and errors in writing through oral and written feedback. Learners of tertiary level likes speaking classes most since their mistakes are not counted seriously. So, ignoring mistakes to a certain level is another motivational strategy used by L2 teachers in tertiary level. Moreover, assigning learners in pair work and group work also motivates the learners of tertiary level. Both teachers and learners have mentioned the need for pair work and group work (Brown, 1988) to accelerate the motivation level of learners in learning L2. So, pair work and group work are used as a strategy to motivate the learners of tertiary level by their teachers.

Use of appropriate teaching material is also important in motivating learners as mentioned by the teachers. Topics which arouse much debate or curiosity can be used in language classes since learners feel motivated to engage themselves in such topics. Learners can try to bring out solution of the issues underlying in the teaching content through discussion, writing and brainstorming (Brown, 1988). Thus, learners practice language and learn language in tertiary level. In all four classes observed, it is noticed that teacher's put their learners into a problematic situation where

learners are required to speak or write and solve the issue. Thus language learning occurred in L2 classes in tertiary level. Learners are found more motivated to perform language skills in this way. Therefore, choosing and designing appropriate teaching materials is one of the strategies to motivate learners of tertiary level.

Moreover, providing opportunities like audio-visual aids in L2 classes motivate learners of tertiary level (Kristmanson, 2000). In all four classes it is found that most of the teachers use songs, video documentaries related to the teaching objective to motivate learners. In FGD, learners have also mentioned the need for using audio-visual contents in their classes. In speaking and listening and listening classes, learners are more motivated due to the incorporation of audio-visual contents. However, in writing and reading classes, teachers did not use enough audio-visual content and learners are found less motivated in the class. So, appropriate incorporation of audio-visual aids is another motivational strategy used by the teachers of tertiary level. Teachers" use of positive and explanatory feedback and inspiring words also motivate learners of tertiary level. It is found that teachers used words and expressions like "wonderful", "excellent" and "thank you" etc. to motivate learners of tertiary level.

Additionally, content-wise explanatory feedback also motivate learners to learn L2 in tertiary level. Both teachers and learners have mentioned that recognizing successes also motivates learners to perform better in L2 classes of any skills. During observation of the classes, it is found that all teachers recognize the little successes accomplished by the learners in the classes and learners were motivated. So recognizing the good performance and success of learners is another strategy used by the teachers to motivate learners of tertiary level.

Moreover arousing interest and creating a competitive environment (Maller, 1929) in the class is another strategy for motivating L2 learners of tertiary level. Teachers are found to create a competitive environment in the class and learners learned more in the competitive environment. Teachers are also found to rationalize the marks learners obtained in particular language skills and fewer marks achievers revived as motivated learners in the class. So creating competitive environment and rationalizing the marks (grades) are other ways of motivating learners of tertiary level. Teacher-student relationship also plays a vital role in motivating learners. As teachers

mentioned that they maintain a good relationship with their learners, same thing is found in the language classes when observed.

Impacts of Motivational Strategies in L2 Classroom

All motivational strategies used by L2 teachers in their classes do not work carrying same degree of success in L2 teaching and learning in tertiary level. Some motivational strategies like rationalizing the need for learning, interaction between teacher and learners, proper application of humour and fun, teacher-student relationship, proper classroom environment, reformative feedback, creating mutual respect and appropriate selection of content are found to be more successful motivational strategies in L2 classes. On the contrary, scolding learners for studying more, creating fear among the learners, same classroom setting for all classes and providing more marks are less effective motivational strategies used by L2 teachers in tertiary level.

Rationalizing or justifying (Knowles, 1990) the need for learning any skill of L2 is an important motivational strategy in motivating L2 learners. In the classes observed it is found that learners become enthusiastic when they are told the reason for learning the language skill. Interaction between teacher and learners is another important motivational strategy in motivating learners of tertiary level. In the classes observed, it has been noticed that almost all learners like to interact with the teacher and within themselves. Throughout interaction, learners have a chance to practice speaking or solving the answers of reading texts. Humour and fun plays an important role in motivating L2 learners of tertiary level. The teacher needs to apply humour properly aiming at enhancing the competence level of the learners. Teacher has to be smiling, spontaneous and stories need to be used related to subject matter (Weaver & Cotrell, 1987) and learners will respond in the class. In the classes observed, it has been found that almost all teachers have injected humour in all segments of the lesson to be taught and learners were much motivated to speak, write, listen and read. Even, in FGD, learners have mentioned that they like classes where teacher makes the class entertaining. So, using humour and fun is another strategy to motivate L2 learners of tertiary level.

Learning-centred teacher-student relationship with mutual respect is also an important motivational strategy to motivate learners of tertiary level. Most of the teachers interviewed have asserted that teacher-student relationship plays a vital role in motivating learners of tertiary level. Even in the classes, it has been found that learners of tertiary level learn when there is an existence of mutual respect between teacher and learners. Teachers must feel comfort with themselves, their learners, their subject matter and teacher needs to consider his/her learners adult enough (Palardy and Palardy, 1987). Thus, the teacher will create a good relationship embedded with mutual respect. Most of the learners of tertiary levels mentioned in FGDs that they want to learn in a classroom environment where good relationship and mutual respect exists between teacher and learners. Creating proper learning-centred L2 learning environment is another important motivational strategy to motivate the learners of tertiary level. The classroom atmosphere needs to be anxiety free where learners will not be afraid to make mistakes and where their mistakes will be answered with reformative feedback by the teacher (Kristmanson, 2000). In the classes observed, it has been noticed that learners feel like speaking, writing, listening and reading as the teacher created a learning- centred atmosphere in the class. Moreover, during FGD sessions, learners have also urged for the need for a good environment in the classes. The classes observed were fully equipped with necessary equipment for learning L2 in tertiary level. So, creating proper learning atmosphere is another important tool to motivate learners of tertiary level.

Giving explanatory and reformative feedback is another important motivational strategy used by the L2 teachers of tertiary level. Uses of appropriate teaching content can be a technique to motivate learners of tertiary level. Almost all the teachers have asserted that the teaching content needs to be culturally, and contextually appropriate for the L2 learners (Brown, 1988). Almost all teachers are found using the teaching contents which goes with Bangladeshi learners learning context. Teachers are found using audio-visual contents and same type of material is wanted by the learners in the FGDs. Likewise, most of the learners have also mentioned their liking for new and contextual topics as they feel interest to talk, write, read and listen about these topics. At the end of the classes, it is found that learners are enthusiastic and spontaneous to do activities related to culturally and contextually appropriate topics. So, use of appropriate teaching content is another important motivational strategy to motivate the L2 learners of tertiary level.

However, strategies like rebuking learners for more work is not found as an effective motivational strategy in teaching L2 in tertiary level. In the classes where teachers have tried to create fear among the learners, learners were found demotivated learn and perform. Even learners have mentioned that they cannot learn or enjoy the classes where the learning environment is filled with fear and anxiety (Kristmanson, 2000). Moreover, if the classroom setting is not suited with the class, then both learners and teachers do not feel comfort to learn or teach L2; e.g. in speaking class, learners feel free to talk when teacher sits facing the learners in a U-shape classroom. On the other hand, in reading or writing classes, learners can sit in rows facing the teacher. Additionally, there should be enough space for group work and pair work in the class as deduced from the observations of the classes.

In the classes, many learners are found motivated though their grades are low than many others in the same class. It is not the grade, but the rationalization (Knowles, 1990) of the grades by the teacher to the learners is more important to motivate learners. Moreover, negative feedback, mundane teaching contents, humiliation in public, lack of teachers' self-motivation and preparation to execute the lesson, also demotivate learners of tertiary level in learning English language. If teacher's motivation is high, then learners will also be spontaneously motivated to learn L2 as noticed observing the classes.

CONCLUSION AND RECOMMENDATIONS

Finally, it can be claimed that in this era of L2 teaching in tertiary level certain factors need to be brought under consideration and motivation is the important factor. Throughout the analysis, the study has found that both direct and indirect motivation is important in motivating the learners of tertiary level. The study has identified the motivational strategies used by the L2 teachers of tertiary level are rationalizing the importance of learning, giving explanatory and positive feedback after performance, setting the proper classroom atmosphere for learning, giving extra care to the weaker and demotivated learners, using real life examples, using up-to-date issues as teaching content, using audio-visual aids, ignoring mistakes until learners become competent to a certain level, and using teaching techniques like pair work, group work and project work.

Additionally, arousing interest among the learners to share both oral and in written version, creating competitive environment in the class, building a learning-oriented teacher-student relationship, using humour and fun properly, creating an anxiety free learning atmosphere, raising high expectation of the learners and doing interaction in and out of the class with the learners are also important motivational strategies used by the teachers and learners also like these motivational strategies in learning L2 in tertiary level. It is also found that interaction, rationalization of learning, explanatory positive feedback, use of humour and fun, use of appropriate teaching material, creating learning centred environment and techniques like pair work and group work are more successful motivational activities used by the L2 teachers of tertiary level. On the contrary, it is also found that negative feedback, mundane teaching contents, humiliating learners in public, lack of teachers'' self-motivation and preparation to execute the lesson are less successful motivational activities used by the L2 teachers of tertiary level. The study recommends the teachers to use the motivational strategies found in the study because the use of effective motivational strategies arouse interest among the English language learners to learn the language effectively.

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Appendices

Appendix-1

Institution			
Class			
Level			
No. of students		M:	F:
present			
Date:		Time: Class	
		started:E	Ended:
Observer			
Name of the trainee			
teacher			
Topic of the lesson			
Educational	White Board /B	lack board/Push Pir	1
resources used	Board/Others		

Classroom Observation Checklist

CHECK LIST

	Compl etely	Mos tly	Somew hat	little bit	Not at all
CONTENT AND EXECUTION					
The language of instruction was					
appropriate for the learners.					
Teacher(TT) followed the lesson plan					
Teacher's presentation of material					
was meaningful, motivated,					
contextualized					
The teacher used a variety of					
activities like group work, pair work,					
questioning, etc					
There were smooth transitions					
between activities					
The amount of teacher talk and					
student talk was appropriate					

The overall outcome of the class was					
Comments: (Specific comments please)					
Motivatio	onal Strate	gies		1	1
	Comple	Most	Somew	little	Not
	tely	ly	hat	bit	at
					an
Teacher motivates learners					
Teacher uses motivational strategies					
properly					
Teacher uses phrases to motivate					
learners					
Teacher uses humor/jokes/funny ideas					
to motivate students					
Teacher uses audio-visual aids to					
motivate learners					
Comments: (Specific comments please)					
(
TREATMENT OF FI	PROPSAN	ND FFF	DBACK		
TREATMENT OF EI	RRORS AN	ND FEE Most	DBACK	little	Not
TREATMENT OF EI	RRORS AN Comple	ND FEE Most	DBACK Somew bat	little	Not
TREATMENT OF E	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please)	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please)	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please)	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please)	RRORS AN Comple tely	ND FEE Most ly	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please) CLASSROON	RRORS AN Comple tely MANAG	ND FEE Most ly EMEN	DBACK Somew hat	little	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please) CLASSROON	RRORS AN Comple tely 1 MANAG Comple	ND FEE Most ly EMENT	DBACK Somew hat	little bit	Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please) CLASSROON	RRORS AN Comple tely 1 MANAG Comple tely	ND FEE Most ly EMENT Most ly	DBACK Somew hat	little bit little bit	Not at all Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback CLASSROON The class atmosphere was warm.	RRORS AN Comple tely 1 MANAG Comple tely	ND FEE Most ly EMENT Most ly	DBACK Somew hat	little bit little bit	Not at all Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback CLASSROON The class atmosphere was warm, open and accepting	RRORS AN Comple tely MANAG Comple tely	ND FEE Most ly EMENT Most ly	DBACK Somew hat	little bit little bit	Not at all Not at all
TREATMENT OF EI TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please) CLASSROON The class atmosphere was warm, open and accepting Students seemed to be clear about	RRORS AN Comple tely MANAG Comple tely	ND FEE Most ly EMENT Most ly	DBACK Somew hat	little bit little bit	Not at all Not at all
TREATMENT OF EI TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please) CLASSROON The class atmosphere was warm, open and accepting Students seemed to be clear about what they should be doing	RRORS AN Comple tely 1 MANAG Comple tely	ND FEE Most ly EMEN Most ly	DBACK Somew hat	little bit little bit	Not at all Not at all
TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please) CLASSROON The class atmosphere was warm, open and accepting Students seemed to be clear about what they should be doing Student participation was active and	RRORS AN Comple tely 1 MANAG Comple tely	ND FEE Most ly EMENT Most ly	DBACK Somew hat	little bit little bit	Not at all Not at all
TREATMENT OF EI TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please) CLASSROON The class atmosphere was warm, open and accepting Students seemed to be clear about what they should be doing Student participation was active and lively	RRORS AN Comple tely MANAG Comple tely	ND FEE Most ly EMENT Most ly	DBACK Somew hat	little bit little bit	Not at all Not at all
TREATMENT OF EI TREATMENT OF EI Learners were motivated after the feedback Teacher was positive in giving feedback Comments: (Specific comments please) CLASSROON The class atmosphere was warm, open and accepting Students seemed to be clear about what they should be doing Student participation was active and lively Sufficient time was given to	RRORS AN Comple tely I MANAG Comple tely	ND FEE Most ly EMENT Most ly	DBACK Somew hat	little bit little bit	Not at all Not at all

Learners were motivated during					
interaction	\				
Comments: (Specific comments please) . 1 . (1 .1			
what kind of language used to manage	students (ru	ide, thre	atening, no	on-threate	ening,
friendly, cozy, etc.)					
TEACHING ME	THODS/T	ECHNI	OUES		
	Comple	Most	Somew	littla	Not
	tely	lv	hat	hit	at
	tery	IJ	mat	510	all
There was use of teaching techniques					
according to the objective of the					
lesson					
Was motivation embedded in the					
content and methods					
The teacher used interactive					
pedagogy successfully					
Comments: Comment on the teaching	techniques u	sed: eli	citation. de	monstrati	on.
discussion, etc. Level of understanding	scaffolding	p. etc			,
	,,	5,			
TEACHER-DESIGNED/SUF	PLEMEN	TARY N	MATERIA	LS	
TEACHER-DESIGNED/SUP	PLEMEN	FARY N Most	MATERIA Somew	LS little	Not
TEACHER-DESIGNED/SUF	PLEMENT Comple tely	FARY Most	MATERIA Somew hat	LS little bit	Not at
TEACHER-DESIGNED/SUF	PLEMENT Comple tely	FARY N Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUP	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level	PLEMENT Comple tely	TARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and	PLEMEN Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUP Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of	PLEMENT Comple tely	TARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUP Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments:	PLEMENT Comple tely	TARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments: (Specific comments please	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments: (Specific comments please	PLEMENT Comple tely	FARY Most ly	MATERIA Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments: (Specific comments please LEARNING ENVIRONN	PLEMEN7 Comple tely	TARY Most ly	MATERIA Somew hat STITUTE	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments: (Specific comments please LEARNING ENVIRONM	PLEMENT Comple tely 	TARY Most ly	MATERIA Somew hat STITUTE Somew	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments: (Specific comments please LEARNING ENVIRONN	PLEMENT Comple tely 	THE INST	MATERIA Somew hat STITUTE Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments: (Specific comments please LEARNING ENVIRONN	PLEMENT Comple tely) IENT AT T Complet ely	TARY Most ly	MATERIA Somew hat STITUTE Somew hat	LS little bit	Not at all Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments: (Specific comments please LEARNING ENVIRONN The classroom facility was	PLEMEN7 Comple tely) IENT AT 1 Complet ely	TARY Most ly	MATERIA Somew hat STITUTE Somew hat	LS little bit	Not at all
TEACHER-DESIGNED/SUF Materials were appropriate according to the age level Materials were appropriate and relevant according to the content of the lesson Materials were aligned to objectives of the lesson plan Materials were used effectively and efficiently Materials used were interesting Comments: (Specific comments please LEARNING ENVIRON The classroom facility was adequate and furnished with	PLEMENT Comple tely	THE IN Most ly	MATERIA Somew hat Somew STITUTE Somew hat	LS little bit	Not at all

The seating arrangement is suitable for activities					
The classroom was spacious (allows enough movement for both T and Ss) to organize the lesson effectively					
The classrooms had well ventilation, access of natural light, fresh air					
Comments: (Specific comments pleas	e) Also obse	rve the	surrounding	g environ	ment

Overall Comments:

Appendix-2

Interview Questions for Teachers

Teacher:	Date of Interview
Taught module:	Teaching duration:
Interviewer:	Gender: Male/female

- 1. What difficulties do you face in teaching English?
- 2. What strategies do you use to motivate your students?
- 3. How do you motivate students to learn language skills?
- 4. Which language skill do the students like most in the class and why?
- 5. What teaching materials do you use to motivate your students?
- 6. Are students always motivated? What do you do if any student is not motivated in the class?
- 7. What words and expressions do you use in the class to motivate your students?
- 8. If it is a big classroom, how do you motivate the students?
- 9. Does marking leave any effect on students' motivation? If yes/no, tell why?
- 10. If it is a heterogeneous classroom, how do you motivate students?
- 11. If students do not want to speak, write, listen or read, what do you do to motivate them to learn?
- 12. Do you use audio-visual aids in the class? If yes, then explain how do you incorporate audio visual aids to motivate learners?
- 13. What is the nature of relationship you maintain with the students? How such relationship motivates/demotivates your students?
- 14. Do you make your teaching content motivational? Yes/no. Explain why?
- 15. What other things you do to motivate students?

An Investigation Of Readiness And Perception Of Mobile Learning In Ict Subject Among Undergraduate Students In Private University In Kuala Lumpur

Rajani Balakrishnan, Dr. Mohammed Awadh Ahmed Ben Mubarak

ABSTRACT

Mobile learning have become the necessity in Higher Learning Institution (HLI) education. Students are exposed to technology every day and the use of mobile learning is increasing day by day as the benefit of using it is inarguable. Mobile learning is a new form of learning utilizing the unique capabilities of mobile devices. Although mobile devices are ubiquitous on Higher Learning Institution (HLI), student readiness and perception for using mobile learning has yet to be fully explored in Malaysia. The purpose of this study was to explore student's' perception and readiness using mobile learning technology in Information communication technology (ICT) subject. The respondents are thirty two undergraduate students from a private University in Kuala Lumpur, who have participated in this study. The data collected through questionnaire were analysed using Statistical Package for the Social Sciences (SPSS). The findings of this study indicated that the respondent's perception of the mobile learning is satisfying and they are ready to use if it will be implemented in their HLI.

Keyword: mobile learning, Edmodo, ICT subject, Higher Learning Institution (HLI)

INTRODUCTION

The growth of technology started transforming every aspect of life in today's world. The dawn of the 21st century has seen the best of the technological developments right from space- science to agriculture, manufacturing, education, communication and even to robots. This technological development contributes immensely to integrate all platforms and people,

especially to the younger generations, to contribute and to communicate more i.e., stay connected. This has happened because of mobiles phones evolution. Mobile phones on the other hand started growing beyond its basic functionality to connect and communicate, and also to do all sorts of computer based activities. Mobile phone's together with internet has revolutionized the way people connect and communicate traditionally. Mobile phones are manufactured with the capability of functioning similar to that of desktops computers. Thus the history of mobile phones from 2000 has given its best in terms of connectivity, content and sharing through internet evolutions. Already, the educational sector started utilizing the internet and computers effectively; as a result, these educational institutions have started exploring the possibility of going mobile, because of the reason that it benefits all of them inside their community in terms of time and knowledge and also enable everyone to use internet from their mobile phones.

PURPOSE OF THE STUDY

The main purpose of the study was to investigate the perception of undergraduates on the adoption of mobile technologies for learning in a Universities in Kuala Lumpur Specifically the study investigated the student's readiness and perceptions of the M-learning in higher learning institutions HLI.

LITERATURE REVIEW

With Mobile, today's technology has reached out to our palms ubiquitously and offering benefits directly. Looking forward, the future of mobile learning lies beyond technological access, affordability, connectivity, as it's clear that the success of mobile learning lies purely on understanding how learning and technology intersects with social and cultural factors. Even today, mobile devices are restricted inside institutions in developed nations and these restrictions have changed the way that people interact with the technology. Using technology does not yield effective outcomes on teaching and learning practices, but it is possible only through deeper

understanding of education through technology (Ng'ambi, 2013). At the same time the mobile learning adoption was influenced by personal innovativeness, self-efficacy on student intention, and readiness to use mobile learning (Mahat, Ayub, and Wong, 2012). M-learning with handheld devices should co-operate learning environments with individuals or with-in a group on their course of education (Ozdamli, 2011). With right tools and frame the benefits of learning directly reaches students as well as teachers. Taking into account what needs to be delivered, the structure and performance of every framework should need to understand the real needs of instructor and learner (Alvarez, Alarcon, & Nussbaum, 2011). Mobile learning system should be of high quality with simple user interface, so that users can easily perceive and understand, which in turn allows wider acceptance of the application (Ali et al., 2014). Users such as learners or students must have control over their personal data, applications, and resources so that they can track that data and ensure where their data exits. Similarly, mobile learning should offer user access control on data flow, to whom and from where the data flows, and builds security strength to the mobile learning application (Sarrab & Bourdoucen, 2013; Hsu, 2012).

Mobile Learning

Mobile learning is an extension of e-learning that commonly utilizes various mobile devices such as mobile phones, PDA, and laptop's defines Georgieva, Smrikarov and Georgiev (2005). The point at which the e-learning blend with internet technology to create a learning experience, that are available at anytime and anywhere is termed as mobile learning (Kambourakis, Kontoni and Sapounas, 2004). However there are differences that uniquely separate e-learning from mobile learning in terms of network, devices, accessibility, connectivity and learning type. The mobile learning helps to collaborate with each other and expand discussion & investigations beyond the boundaries of classroom (Alexander, 2006; Bryant 2006). The flexibility of mobile learning is that of attracting educational materials everywhere (Dew 2010) and addressing the convenience of downloading learning content anytime and anywhere with multiple formats (Fallaize, 2010). Researchers were able to discover that availability to information help benefit in learning circumstance. Also class rooms with communicative technologies, when compared to traditional class rooms, increase the engagement of students (Cobcroft et al., 2006).

Mobile Learning Theories

Researchers have formulated different theories of learning practices such as constructivist, informal learning, situated, collaborative, and behaviourist (Naismith et al., 2006). However there are other theories such as theory of planned behaviour (TPB), Social cognitive theory (SCT), Technology acceptance model (TAM), innovation diffusion theory (IDT), unified theory of acceptance and use of technology (UTAUT), which are mainly employed to study mobile user's behaviours. Different theories and models are employed for different purposes, while TAM model was widely used to study innovative adoption models that reflect the factor affecting the use of newer technologies (Bagozzi, Davis, & Warshaw, 1992). Learners using expectation confirmation theory (ECT) tend to analysis their satisfaction levels through assessment that affects their behaviour (Venkatesh, Thong, Chan, Hu, & Brown, 2011). Mobile learning adoption was influenced by personal innovativeness, self-efficacy on student intention, and readiness to use mobile learning (Mahat, Ayub, and Wong (2012). Also perceived long term usefulness affects intention to adopt mobile learning (Liu, Li, and Carlsson, 2010) and learning self-efficiency predicts the learning satisfaction (Shen, Cho, Tsai, and Marra, 2013). Using UTAT, factors such as ease of use, perceived usefulness, and social influence have important effects on behavioral purpose. In order to find the usefulness of mobile medium, it is critical to find the students perception on adopting mobile learning (Iqbal & Qureshi, 2012). TAM with ease of use and usefulness requires additional factors to predict student's acceptance of technology (Edmunds, Thorpe, & Conole, 2012). Although, studies on TAM investigates the acceptance among students, social acceptance as an organization factor is more dominant factor affecting behavioral intention (Park, S. Y., Nam, M. W., & Cha, S. B. (2012).

Mobile Technologies

In order to provide the mobile devices with online communication or communication with the other mobile devices, there are four different communication or connection technologies used, and these are GPRS, Wireless(Wi-Fi), Bluetooth and Infrared. These communication technologies are available in some mobile devices. The mobile devices that do not have these technologies are

supplied with communication ability by using one of the transferring technologies such as USB, Compact Flash Card and PC Card (PCMCIA). Wi-Fi, which is mostly preferred in mobile devices, is a technology that provides devices such as personal computers, play stations and digital audio players with wireless internet. Mobile learning devices and technologies instantly provides interaction between the learners and the teachers, among classmates or with learning systems (Wang, Liu, Horng, & Chen, 2003). The learning devices are able to be used intensively in managerial and educational processes in many associations, and they also play an important role in developing interaction within the classes or outside the classes in educational institutions.

Mobile Learning In Higher Learning Institution (Hli)

While m-learning has the potential to support all forms of education, higher education is a particularly appropriate venue for the integration of student-centered m-learning because mobile devices have become ubiquitous on college campuses. Various m-learning attempts have been applied in higher education. For example, college students can receive formative evaluation and feedback from their instructors via a mobile device (Crawford, 2007). A Face-to-face course can be supported by Quick Response (QR) codes that offer an Internet link to supplemental resources (Grant & Gikas, 2011). Administrative tasks, such as checking attendance and learning progress, can also be done with a mobile device. Some universities such as Stanford, Abilene Christian, and the University of Washington, have been pioneering M-learning (Keller, 2011); but implementing m-learning in higher education is still challenging because of social, cultural, and organizational factors (Corbeil & Valdes-Corbeil, 2007; Traxler, 2007, 2010). Therefore, understanding perceptions toward m-learning should be the First step to implementing m-learning on college campuses Few researchers have studied how and why college students adopt m-learning (Liu, Li, & Carlsson, 2010; Lowenthal, 2010; Wang et al., 2009). Those researchers mainly focus on students' acceptance of m-learning by using intension or use as dependent variable. Liu et al. (2010) find that perceived usefulness and personal innovation have influenced the adoption of mlearning when they investigated the factors of m-learning adoption with Chinese college students using the Technology Acceptance Model (TAM) which explains how people accept a newsystem (Davis,1989). Using the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh & Davis, 2000), Wang et al. (2009) found that five factors including performance 415 | Page

expectancy, effort expectancy, social influence, perceived playfulness, and self-management of learning were significant factors in adopting m-learning with Taiwanese college students. Unlike the study of Lowenthal (2010), Wang et al. (2009) employed only three factors including performance expectancy, effort expectancy, and self-management of learning and find that three factors have influenced the adoption of m-learning of U.S. college students. To the best of our knowledge, however, no studies have considered students' perception concerning the ease or difficulty of m-learning. The technology acceptance models used in previous studies focused on users' perception toward a specific technology's functionality and characteristics (Benbasat & Barki, 2007), but m-learning is a whole new approach to learning. Thus, we conjecture that students will adopt or abandon m-learning based on their judgments about their capability to perform in an m-learning environment. Thus, we are particularly interested in the theory of planned behavior (Ajzen, 1991) that considers such factors as behavioral control.

Mobile Edmodo

Edmodo is a learning management system that provides a private virtual space for students and teachers to share and discuss text, images, audio, and video. It has become a popular platform used in primary and secondary schools as well as universities in the U.S., but its functionality, ease of use, and cross-platform simplicity make it a good fit for EFL contexts at all levels as well. Edmodo, is common to all operation systems of smartphones; it provides useful tools for students and teachers to interact online outside class anywhere, anytime (Hourdequin, 2014).

METHODOLOGY

The survey type for the current study was matching the nature of descriptive study. The questionnaire used to collect data is adopted from Pamella (2011). The respondent was randomly selected from one private University in Kuala Lumpur. A total of 32 undergraduates students have participated in this pilot study.

Category	Age	Statistics
Preteens & Teens	Up to 19 years old	12.5%
Adults	20 to 49 years old	73.1%
Seniors	50 years and older	14.4%

Table 1: 2014 Statistics of Hand Phone Use by MCMC Statistics Department

Grouped into broad generational age bands, it can be seen that adults account for 73.1% of all users followed by pre-teens and teens by 12.5% and seniors with 14.4%.

Statistics (SPSS)

Table 2: Prior Knowledge	on using Mobile Phones	(I know how to)
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S/N	Items	Yes	No	Mean
1	Access the internet from a mobile device	100%	-	1.00
2	Download a podcast on a mobile device	70%	30%	1.30
3	Download a mobile application on a mobile device	93.3%	6.7%	1.07
4	Find the definition of a word I don't know on a mobile	93.3%	6.7%	1.07
5	Use a mobile device of a calculator	02.20/	6 70/	1.07
3	Use a mobile device as a calculator	95.5%	0.7%	1.07
6	Set an alert/ alarm for a due date on a mobile device	90.0%	10.0%	1.10
7	Translate a sentence into another language on a mobile device	80.0%	20.0%	1.20
8	Access a social networking site on a mobile device	86.7%	13.3%	1.13
9	Send an email on a mobile device	93.3%	6.7%	1.07
10	Post a comment to a blog or respond to a post on a	73.3%	26.7%	1.27
	mobile device			

There are only two measurement items (i.e., "yes" or "no") for the prior knowledge on using mobile devices for the activities listed above. All the respondents rated positively 100% that they access internet form the mobile devices. Students also have showed 93.3% on "download a

mobile application on a mobile device", "use a mobile device as a calculator" and "send an email on a mobile device". 30% of the students never "download a podcast on a mobile device".

1	Download an application that helped you learn	90.0%	10.0%	0.90
	something new?			
2	Used your mobile device to look up something that you	93.3%	6.7%	0.93
	didn't know or didn't understand during class?			
3	Engaged in social networking on your mobile device?	86.7%	13.3%	0.87
4	Wrote notes on your mobile device to remind yourself	86.7%	13.3%	0.87
	of an assignment?			
5	Set an alert/ alarm or reminder on your mobile device to	80.0%	20.0%	0.80
	help you remember that an assignment was due or a test			
	was coming up?			
6	Texted a classmate during class?	90.0%	10.0%	0.90
7	Texted a classmate about the content of the class?	83.3%	16.7%	0.83
8	Texted a classmate about the teacher's ability?	56.7%	43.3%	0.57
9	Texted a classmate about the level of engagement in the	60.0%	40.0%	0.60
	class (i.e. I'm bored, this is cool, etc.)			
10	Taken pictures or video with your mobile device that	90.0%	10.0%	0.90
	you used for an assignment.			
11	Accessed an Educational Management System (e.g.	70.0%	30.0%	0.70
	Edmodo) on your mobile device?			
12	Read an article or assignment on your mobile device?	86.7%	13.3%	0.87
13	Used your mobile device as a study tool?	83.3%	16.7%	0.83
14	Played an educational game (e.g. words with friends) on	63.3%	36.7%	0.63
	your mobile device?			
15	Others	13.3%	86.7%	0.13

Table 3: Mobile Readiness

One of the important variable investigated in this study was student's mobile readiness. Students must have a high level of confidence in using mobile technology as part of their teaching and learning process; this is essential to ensure that M-Leaning would be successful. 14 questions are used to measure the mobile readiness among the undergraduate students. The mobile readiness indicated the result 93.3 % for "Used your mobile device to look up something that you didn't know or didn't understand during class?" and the item scored a mean = 0.93. It also indicate that students often Google the things that they don't understand, e.g. Jargon words, new terms, during lectures. 90% download an application that helped you learn something new? Texted a classmate

during class? Taken pictures or video with your mobile device that you used for an assignment and the mean = 0.90. Others in the questionnaire, 13.3% students answered that they play online game while waiting for the lecturer to enter the class or during break time. 70% of the students answered that they have accessed an Educational Management System (e.g. Edmodo) on your mobile device? The mean = 0.70. The lowest mean =0.57 for the question "Texted a classmate about the teacher's ability?" 63.3% the students "played an educational game (e.g. words with friends) on your mobile device?" mean = 0.63.

CONCLUSION

M-learning is a new concept in the Malaysian education system even though statistics have shown that most Malaysians possess mobile phones as reported by Malaysian Communication and Multimedia Commission (MCMC) in a survey in 2010. University students often use their mobile phones mainly for communication rather than for educational purposes.

This study investigated students' prior knowledge on using mobile phones (i know how to.....) personal innovativeness and also their readiness in an M-learning environment. It is believed to impact M-learning, namely prior knowledge on using mobile phones. During this study, the participants downloaded Edmodo application into their laptop and smartphones. Students receive lecture notes, quizzes from their lecturers through Edmodo. Students were also needed to respond to certain messages and upload their assignments using the Edmodo application as part of their course evaluation. Studies by Kenny et al. (2010), Lu and Viehland (2008), Tsai et al. (2010) also show that students have positive mobile self-efficacy in an M-learning environment.

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Analyzing Elements The Climate Hun City An Internal Comfy House In Libya

Osama Omar Hasen Eshkorfu & Zulkifili Bin Hanafi

ABSTRACT

Climate plays an important role in human life, it has a direct impact on nature and human conditions. Thus, mankind puts in a lot of effort since ancient time to adjust himself to the elements of the climate. Architectural designs have an objective of harmonizing the outer shell of the buildings with the climate in their environment. This is to create a comfortable heat that contributes to the less use of mechanical solutions to provide a substitute for natural thermal comfort which significantly contribute to the consumption of electricity in the home. Consumption of electricity will require the production of a considerable quantity of electrical power that will contaminate the environment and drain the natural resources while also contributing to a high monthly bill. This study attempts to compile a climate classification of the region and the thermal rates, the development of measures and treatments of the environment and the proposed outer envelope of the buildings, especially the surface is also analyzed. This study is based on the descriptive statistical analysis of climate elements and their characteristics. The methodology of analysis of all data collected in this study is based on the climatic data taken from two sources namely Meteorology Station and the Ministry of Agriculture. This study also presents several methods used for the research such as thermal rates for comfort, tables, and graphs in the presentation of data. This study focused on the area of climate analysis and try to gain access to climate rating of the region, weather classifications according to months and comfort heat of the study area. It tries to access scientific results upon which the study contributes to creating harmony between the outer shell of the building and the surrounding environment for the provision of a comfortable indoor climate that moves away from the use of mechanical means to achieve thermal comfort.

INTRODUCTION

When you begin the design of any building, whether public or private. It is expected for one to identify and study the climate elements, surrounding the building and the impact of these elements on the external thermal envelope of the building. This is done to reach the optimum design through the achievement of thermal comfort inside the building. As such, it is important to identify and analyze climate. (Szokolay, 1973), provides a scientific definition of climate as "an integration of time of the physical states of the atmospheric environment, and the characteristic of a certain geographical location". Two significant aspects are highlighted in this definition (time and location) which reflect an infinite variety of climates among lots of climate classification systems. The system is generally the most accepted definitions as it classifies it into five basic climatic zones (Hot, humid, dry climates, Temperate, Cold, Arctic polar climates) (Konya, 2013). Libya is characterized by diversity in climate by virtue of its geographical location, located between latitudes 320.580 to 450.180 in the north and longitudes 240.590 to 90.180 to the east. This makes most of its territory lay within the hot, dry climate, which is characterized by drought and high temperatures rise . This includes the Hun city, which has a little part of it comprisises of semi-wet climate and semi-dry. Climatic data analysis is very important to create a design that provides thermal comfort for users. All climate data of the City Hun taken from the Meteorological Station between the periods 2012 to 2015.

1. Hun - Introduction and Location

Hun city is located between longitude 15.75 east and latitudes 29.08 north, the basin and is in a straight line approximately 265 km from the Mediterranean Sea. Hun city is bounded to the east part of the Oasis Jufrah and 14.5 km from Suknh and 19 km to the west, Dan, and that away from the area of Abu consort about 300 kilometres to the south of the Libyan coast. It lies in the central region populated plain flat stretching from south to north and runs low in the direction from the northeast to the southwest bounded on the east and Mount Dan a west black mountain as shown in figure (1) (Aldbibi, 2007).


Figure 1: The site of Libya from the world and the location of City Hun from Libya

2. Analyzing Elements The Climate Hun City.

The analysis of the climate of Hun City will be done by first reviewing the climatic data obtained from the Meteorological Station in Libya and analysis done in Excel. The second section on this the research paper will analyze the climate of Hun City and discusses the most appropriate passive design measures Mahoney tables.

2.1 The Air Temperature

According to Marx, air temperature is the most important element which determines thermal comfort (Markus & Morris, 1980). As between the other elements ,giving that the variation in the local air temperature must be studied and the effects of such variance used for architectural design purposes (Nikolopoulou, Baker, & Steemers, 2001). Through the climate analysis of the Hun city for the years, four recent deductions were made; first, that the hot temperatures during the day and close to the moderation of the night in the summer. Secondly, it has recorded an average maximum temperature in the month of July ranging from $36c^0$ to $40c^0$ and the average minimum temperature for the same month from $17c^0$ to $27c^0$. Thirdly, it deduced that temperatures are also close to moderation during the day and extremely cold at night in the

winter. Lastly, it has registered an average maximum temperature in January from $17c^0$ to $27c^0$ and the average minimum temperature in the same month from $5c^0$ to $10c^0$ as shown in Figure (2) below.



Figure 2: Monthly average temperature maximum and minimum & Cbroasgrdrjat temperature recorded during the years (2012.2013, 2014.2015)

2.2 The Extent Thermal Monthly And Annual

According to Mohamed, the extent of the monthly thermal is the difference between the average monthly thermal maximum and minimum temperatures. This means the extent thermal annually is the difference between the temperature of the coldest month and hottest month (Al-Homoud, 2005) The extent thermal monthly and annual high heat are also considered. In the study area, winter ranging from $10c^0$ to $16c^0$ and in the summer ranging from $15c^0$ to $18c^0$. Also recorded is the average thermal extent of annual. In Four years, recently ranging from $30.3c^0$ to $33.9c^0$ as shown in Figure (3) below.



Figure 3: Thermal the extent of the monthly & Thermal extent of annual recorded during the years (2012.2013, 2014.2015)

2.3 The Relative Humidity

Rising temperature air increases with saturation degree, which leads to low relative humidity, while the opposite occurs when low temperature air the micro (Al-Homoud, 2005). The air becomes saturated with water vapour, when the relative humidity 100%, that is a dry climate. When the relative humidity is less than 50% and the average moisture is between 50-70%, it is a humid climate. When the humidity is greater than 70% the relative humidity of the air will vary with any change in air temperature (Lawrence, 2005). In hot, dry regions relative humidity is usually low. There has been high relative humidity in the air in the past four years during the winter, ranging from 94% to 100%. And in the summer, ranging from 82% to 99%.While minimum relative humidity the winter, ranging from 7% to 20% and in the summer, ranging from 4% to 13%. It is also considered average minimum relative humidity in the air in winter when it ranges from 40% to 60%. In summer, it ranges from 29% to 32%, which is considered as low as shown in Figure (4) below.



Figure 4: The Higher And Minimum Relative Humidity & Average Relative Humidity Recorded During The Years (2012.2013, 2014.2015)

2.4 The Rain

According to the results of research by Mahdi, the areas that receive the amounts of rain above 50mm does not exceed an area of 18% of the area of Libya. The bulk of Libya decreases rain average of about 50mm, but mostly desert areas have a rain average of least 10mm (Abdullah & Al-Mazroui, 1998). The average monthly total for the amount of rain which was registered in the last four years is considered very low. In the winter, the amount of rainfall rate from zero to 24.6mm. As for the spring ranging from zero to 10.5 mm. While in the autumn ranging from zero to 0.3mm and in the summer, ranging from zero 0.2mm this is shown in Figure (5a). It is evidenced by the monthly average and the annual number of rainy days very weak, where monthly ranges from 0.5 to 5 days and average annual rates to ranging from 0.3 to 18.5 days a year as shown in Figure (5b).



Figure 5a: Value the downfall of rain & The percentage rainfall in the seasons recorded during the years (2012.2013, 2014.2015)



Figure 5b: Days rainfall in the seasons & The annual average number of rainy days recorded during the years (2012.2013, 2014.2015)

2.5 The Wind

Wind blows in different directions, different speeds starting from light winds to hurricane. Knowing the wind characteristics, the speed and direction are of great significance, this is because it is the root cause of extreme weather conditions such as hurricanes, clouds and rain, and storms. This is done to know the degree of human feeling comfortable or anxiety (Patel, 2005). The direction of the movement of wind prevailing in the study area from the northeast to the southeast, with some of the trends that are blowing in some seasons, but they are not a prevailing (such as tribal wind). The southerly winds blowing desert loaded dust as shown in Figure (6a). It is also considered average wind speed monthly the winter, ranging from 2.2m/s to 3.8m/s and in the summer, ranging from 2.2m/s to 3.5m/s. And unstable at higher gusting in the spring and autumn speed ups from 4m/s to 4.5m/s as shown in Figure (6b).



Figure 6a: The prevailing wind direction in the seasons recorded during the years (2012.2013, 2014.2015)



Figure 6b: Average wind speed recorded during the years (2012.2013, 2014.2015)

2.6 The Solar Radiation

The Solar radiation element is controlled by climate, this is as a result of it been the ultimate cause of all changes and motions in the atmosphere. According to research carried out by the Lamb, the climate in any location can be determined by the net gain and loss of heat in the form of radiation (Lamb, 1972). In Hun City, the highest amount of solar radiation was recorded in the

summer 744kw/m², while the lowest estimated amount recorded in winter was 300kw/m2 due to the spread of the clouds and the short length of daylight hours. The total length of daylight hours in winter ranges from 8 to 9 hours, while in the summer 14 to 15 hours as shown in Figure (7) below.



Figure 7: Amount of direct solar radiation during the period 2000 -2015& Sunshine duration

3. Thermal comfort for each month by years from 2012 to 2015.

Using the adaptive equation, Tc was calculated for each month using monthly temperatures maximum and minimum for each month of all years, from 2012 to 2015 (Nicol et al., 1994). The results of monthly thermal comfort for all the years are summarized below and shown in Figure (8).

- 1. The winter months (December, January, and November) have less temperatures during the night, which is away from the thermal comfort levels. To gain access to thermal comfort level, there is the need to balance a difference of about $10c^0$ to $13c^0$. But when temperatures in the daytime are close to the thermal comfort levels, in other to gain access to the thermal comfort levels, there I need to balance a little difference of about $2c^0$ to $5c^0$.
- 2. In the summer months (April, May, July, June, August), temperatures are elevated during the day and away from the thermal comfort level. To gain access to the thermal comfort levels, there is a need to balance up a difference of about $7c^0$ to $11c^0$. Whereas when temperatures at night are low, close to the thermal comfort levels, in other to gain access

to the thermal comfort level, there is a need to balance up a little difference of about $2c^0$ to $6c^0$.



by years from 2012 to 2015.

4. Thermal Neutrality For The City Of Hun

The thermal neutrality of the human body as defined by Humphrey and Auliciemes is the temperature at which a person feels thermally neutral (i.e. Comfortable)(Elaiab, 2014). Other studies made use of climate data of the city to compare the result to get more accurate values. The studies were based on laboratory and field works in which people were thermally investigated under different conditions. Based on the equations of Humphrey and Auliciemes, the predicted neutral temperature for the Hun city for the average summer and winter days is shown in Table (1). The Table shows that Auliciemes overvalues the thermal neutrality temperatures in the winter months, while Humphrey does the same for the summer months. Based on the above

equations, the predicted neutral temperature for a Hun city in the average summer and winter days are shown below for the years 2012, 2013, 2014, and 2015.

Years	Neutral temperature in Winter	Neutral temperature in Summer
Year2012	From 19.7 c^0 to 24.4 c^0	From 25.5 c^0 to 30.4 c^0
Year2013	From 19 c^0 to $24c^0$	From 24.4 c^0 to 30.3 c^0
Year2014	From 19.5 c^0 to 24.5 c^0	From 25 c^0 to 30 c^0
Year2015	From 20 c^0 to $25c^0$	From 25.5 c^0 to 30.3 c^0

Table 1: Result of comfort temperatures in Hun city, according to the methods, both from Humphrey andAuliciemes seasons, summer and winter for years 2012 to 2015

When applying the results of the above-mentioned predicted thermal neutrality on the maximum and minimum temperatures, the following are deduce.

4.1 Neutral Temperature, For Summer In The Year (2012 To 2015)

Temperatures during the day in the summer are so high to the extent that it stray away from the thermal comfort level by almost 10 degrees. As for the Night period, the temperatures approach the thermal comfort level in some months as shown in figure (9) below.



Figure 9: Neutral temperature in summer in Hun city from 2012 to 2015

4.2 Neutral Temperature, For Winter In The Year (2012 To 2015)

Temperatures during the night in winter are very low as it strays away from the thermal comfort level by almost 15 degrees. As for the day time, the temperatures approach the level of thermal comfort in some months as shown in Figure (11) below.



Figure 10: Neutral temperature, on winter for Hun City from 2012 to 2015

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5. Analyzed The Climatic Data By Using The Mahoney Table

The use of Mahoney table is an appropriate measure for avoiding negative designs of residential buildings (Upadhyay, Yoshida, & Rijal, 2006). Upadhyay made use of the Mahoney tables to analyze climate data for the city of Baghdad in Iraq, which has a hot, dry climate rating to find the daily average thermal comfort limit. The importance of applying the analysis as suggested by Mahoney is that it is required for maintaining thermal comfort. Thus, Mahoney analysis can be applied to the climate Hun City. This table is based on the most important climate data record (air temperature, relative humidity, rainfall, and wind) for the years (2012-2014). The input data analysis and results are shown in table (2) which shows the passive design recommendations table recommended for passive design for Hun city.

Passive measure	Recommended passive techniques	
Layout	Compact courtyard planning.	
Spacing	Compact layout of estates.	
Openings	Very small openings, 10–20% & Exclude direct sunlight.	
Walls	Heavy external and internal walls.	
Roofs	Heavy roofs, over 8h time-lag.	
Outdoor sleeping	Space for outdoor sleeping required.	

Table 2: The recommended passive techniques for Hun City obtained from Mahoney tables

Results

The geographical location of the Hun city located between longitude 29°07′16″N 15°56′25″E, that as hot and dry climatic area. The following diagnosis of the prevailing climate of the study area, which depends on weather conditions recorded by the Department of Meteorology and Environmental Protection.

Diagnosis Of The Climate In The Region Hun

- I. The climate of Hun city is characterized by high thermal extent monthly and annually with an average difference between the highest and lowest temperatures. The highest monthly temperature recorded in winter is between $10c^{0}-16c^{0}$ degrees, and in summer between $15c^{0}-18c^{0}$ degrees and a scored thermal annual extent of $33.9c^{0}$.
- II. In summer, the average monthly temperature ranges for dry air temperature of the micro end is within $17c^0$ to $27c^0$. While the monthly average maximum temperature ranges from $36c^0$ to $40c^0$. In winter, the range of average monthly dry air temperature by the end of the minor is within 17 c^0 to 27 c^0 also. The monthly average maximum temperature ranges between $5c^0$ to $10c^0$.
- III. The relative humidity is generally the upper rates ranging from 40% to 60% and lesser rates ranging from 29% to 32%.
- IV. The rainfall amounted to very little with the highest amount recorded as 25mm during the past years. Majority rainfall recorded where in the winter and spring month, while in the summer lacking rainfall.
- V. The Climate of Hun area features a semi-vertical sunlight and temperatures ranging from 352kw/m2 to 748kw/m2.And the brightness of the sun is at it is lowest in the month of December and is highest in the rest of the summer months. The period of the brightness and clarity of the sky amounts to large availability of thermal energy.
- VI. The direction and movement of wind prevailing in the study area are from the northeast to the southeast, blowing the hot, dry winds and tribal winds laden with dust on the city.

Diagnosis Thermal Comfort For Each Month The Region Hun

The toughest months of winter are December and June in the summer, both are characterized by:

I. The month of December is characterized by impairment temperatures during the Night. It is characterized by the length of time and limiting its time during the day in which

temperatures are relative to the thermal comfort level. The amount of solar radiation is considered less in the month due to the short time of the day.

II. The month of June of the year is characterized by high temperatures during the day. It is characterized by a length of time for daylight and limiting it's time during the night. The temperature is relative to the thermal comfort level, and the amount of solar radiation is highest in the month due to the length of time of day and the angle of incidence been vertical.

The Results Of Applying Mahoney Tables, Climate City Huns

The passive design recommendations obtained from Mahoney tables are as follows.

- I. Protect the outer shell of the building, using the style of the shadows.
- II. Reduce the outer shell of the building to show rays of the sun through the compact design of the buildings.
- III. Reduce the size of the windows to be very small openings, 10-20% and the exclusion of direct sunlight from them.
- IV. External and internal walls and heavy roofs.

CONCLUSION

The study above shows that a large part of Libya is located within the desert climate and particularly Hun city which is the study area. The climate rises in temperature during the day and mild during the night and low humidity during the day in summer, especially in the month of June. It has a characteristic of long daylight hours and lesser hours at night in summer. The city has a characteristic atmosphere very low temperature during the night and mild during the day in winter. It is also characterized by length of winter hours at night and short daylight hours. The study showed that the summer season is an important season of the year for the city, which needs architect to do designs to protect the outer shell of the buildings from sun rays with special roofs during summer and allowing the sun rays to heat the building in winter. In summary, the atmosphere of Hun city needs a system which will protect the buildings from the sun rays in summer and allows it to heat the building in winter.

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Compact Uwb Antenna Design For Mimo Application

Nurhazarullyana Binti Nor Akhirrudin

ABSTRACT

In this study, a compact printed Multiple-Input-Multiple-Output (MIMO) antenna with a dimension of 32×70 mm² has been proposed for Ultra-Wideband (UWB) systems applications. The design constitutes of two identical UWB antenna elements, which is etched onto a Taconic TLC-30 printed circuit board. The proposed antenna has been designed and simulated using computer simulation software. For validation purposes, antenna prototype is fabricated and tested. The UWB-MIMO antenna yields an impedance bandwidth of 2.9 to 12 GHz with a return loss of less than-10 dB. Furthermore, the isolation characteristic between the two antenna elements is more than 15 dB within the operating frequency range. The designed structure is found to provide good MIMO/diversity characteristic across the UWB band.

INTRODUCTION

Current communication technologies have significantly increased the capacity to access the multimedia contents which placing larger bandwidth demands for mobile devices. Short range high-data-rate Ultra Wideband (UWB) radio technology has been suggested as a suitable technology for wireless personal area network applications. Owing to its good multipath immunity and precise ranging, feasible design and implementation of UWB subsystems has received great attention from various researchers in telecommunication fields. The bandwidth of UWB transmission technology is defined by Federal Communications Commission (FCC) to have a range from 3.1 to 10.6 GHz for commercial applications. However, power spectral density for portable devices using this license free technology must be limited to a maximum of -41.3 dBm/MHz (FCC, 2002). This will hinder the development of UWB communication

systems with very high data rates or covering larger distances. It is therefore essential to find a solution to overcome this scenario.

One possible solution is to design UWB systems with multiple antennas which can increase the channel capacity or the range significantly. It is interesting to note that Multiple Input Multiple Output (MIMO) radio system uses multiple antennas to transmit several parallel data streams simultaneously. Thus, the MIMO concept can be applied to the UWB systems to improve the link reliability, capacity or the range of the channel (Foschini and Gans, 1998; Shiu et al., 2000). The antenna is considered an important component in the UWB-MIMO technology which affects the overall performance of the proposed system. Planar antennas are widely used in UWB applications because of its light weight, conformal nature, easy to fabricate and to integrate with other microwave devices (Shin et al., 2008; Chung et al., 2009; Sim et al., 2010; Chahat et al., 2011; Huang and Chen, 2012).

In practice, due to limitations on the physical size of the portable radio devices, the distances between multiple antennas are small. However, closely packed radiating elements inevitably leads to mutual coupling effect which degrades the arrays performances. Several studies about UWB-MIMO antenna array have been reported recently. In literature (See et al., 2008), two suspended UWB plate antennas are designed for MIMO applications. However, the design is unable to satisfy the entire UWB spectrum. Najam et al. (2010) suggest a planar antenna systems based on two heterogeneous antenna elements for UWB-MIMO technology. In another design (Phairat and Chanchai, 2011), a quasi rhomboid shaped element bowtie antenna for MIMO applications is proposed.

This study presents a compact UWB-MIMO antenna array. The structure comprises of two identical UWB antenna elements. The designed antenna is compact as compared to those in Najam et al. (2010) and Phairat and Chanchai (2011). The mutual coupling and envelope correlation between the antenna elements are investigated to provide insights into the operation of the MIMO array. Experimental and simulated results of the fabricated prototype are presented.





(c)

Fig. 1: Geometry of the UWB antenna element (Units in mm); (a) Front view; (b) Rear view; (c) Side view



Fig. 2: Fabricated antenna element photograph



Fig. 3: Simulated and measured return loss of the antenna element

SINGLE ELEMENT

Figure 1 illustrates a general schematic of the UWB antenna element. It is located in the x-y plane and the normal direction is parallel to the z-axis. The antenna is constructed on Taconic TLC-30 substrate with thickness approximately 1.575 mm and relative dielectric constant of 3. The radiator with dimensions 30×32 mm² is excited via a 50- Ω micro strip feed line that is connected to a Sub-Miniature version A (SMA) connector at the edge of a substrate board. The simulation results were obtained from the commercially available Computer Simulation Technology (CST) Microwave Studio package, which is based on the finite integration technique for electromagnetic computation. As seen in Fig. 2, a prototype of the single element UWB printed antenna is fabricated using the optimized parameter values tabulated in Table 1.

The return loss of the fabricated antenna is measured using a calibrated Rhode and Schwarz® ZVL vector network analyzer. The simulated and measured return loss curve has been depicted in Fig. 3. This figure reveals that the return loss of the antenna is more than 10 dB over a bandwidth range of 2.9 to 12.0 GHz. A reasonable agreement is achieved between simulation and measurement results. The slight differences between the two graphs can be attributed to the

effect of SMA connector and fabrication tolerance. The normalized radiation patterns of the radiator in the E-plane (y-z plane) and H-plane (x-z plane) at various frequencies are plotted in Fig. 4. The results clearly show a stable omnidirectional pattern in the H-plane and a quasi-omni directional pattern in the E-plane.

MIMO CONFIGURATION

The antenna element described in pervious section exhibit all the desirable frequency domain characteristics demanded by the present UWB radio systems. Thus it is used to develop the proposed UWB-MIMO antenna. Figure 5 shows the geometry of the MIMO array composed by two identical radiating elements. To minimize mutual coupling effect, the distance between antenna elements feeds should be optimized. For this reason, in the present design, a distance between radiating element ports of 0.45λ (45 mm) at 3 GHz is considered for the MIMO array. The overall dimensions for the UWB-MIMO case are 32 mm×70 mm. The photograph of the fabricated UWB-MIMO array is shown in Fig. 6.













Fig. 5: Proposed MIMO array configuration

Fig. 6: Fabricated antenna array

RESULTS AND DISCUSSION

Figure 7 shows the simulated as well as the measured reflection coefficient plots of the proposed UWB- MIMO antenna structure. It is noticed that the measured-10 dB return loss bandwidths are from 2 to 11 GHz, which cover the UWB frequency range. The measured results agree with the simulated results well. The little difference between them is probably due to the manufacturing defects.

As reported in Zhou et al. (2010) and Najam et al. (2010), the mutual coupling performance of a MIMO antenna can be examined using both the forward transmission coefficient, S12 and the reverse transmission coefficient, S21. The measured mutual coupling between the ports is less than -15 dB across the frequency band of interest, as shown in Fig. 8. Figure 9 plots the normalized radiation patterns of the proposed antenna at 3, 6 and 9 GHz at E- and H-plane, respectively. The results indicate that antenna behaves nearly omni-directional in H-plane. A quasi-omnidirectional pattern is observed in E- plane due to uneven and complex current distributions. Figure 10 shows the measured gain at bore sight ($\theta = 0^0$, $\phi = 0^0$) for the MIMO antenna. It is seen that the antenna gain varies from 3.25 to 6.25 dBi across the UWB frequency region.

It is well known that correlation coefficient and diversity gain are closely interrelated in MIMO systems. Low correlation value concludes to better diversity gain. The mathematical relationship between diversity gain Gapp and correlation pe can be described as (Rosengren and Kildal, 2006):

$$G_{zpp} = 10\sqrt{1-|\rho|} \tag{1}$$



Fig. 7: Return loss of the MIMO array



Fig. 8: Transfer parameters of the MIMO array



Fig. 9: Simulated E - plane and H - plane radiation patterns of the MIMO array at (a) 3 GHz, (b) 6 GHz, and (c) 9 GHz



Fig. 10: Measured gains of the MIMO array at boresight

According to Salonen and Vainikainen (2002), the envelope correlation pe between the two radiators for the designed MIMO array can be obtained from the simulated S-parameters and is given by:

$$P_{e} = \frac{\left|S_{11}^{*}S_{12} + S_{21}^{*}S_{22}\right|^{2}}{\left[1 - \left(\left|S_{11}\right|^{2} + \left|S_{21}\right|^{2}\right)\right]\left[1 - \left(\left|S_{22}\right|^{2} + \left|S_{12}\right|^{2}\right)\right]}$$
(2)

The envelope correlation of the proposed MIMO system is presented in Fig. 11. From the result, it can be seen that the correlation for the designed antenna is less than -20 dB conforming its suitability for handheld MIMO devices.

CONCLUSION

This study proposes a compact two element MIMO array with a size of 32×70 mm² for portable UWB devices. The impedance bandwidth of the designed antenna ranges from 3 to 12 GHz. The broadband MIMO array features stable radiation pattern and high gain in a wide frequency band. Measurements show that proposed antenna has mutual coupling less than -15 dB within the UWB spectrum. From the antenna diversity results, it has been shown that the correlation coefficient value is less than 20 dB across the UWB band. It is anticipated that the presented antenna can be utilized for applications that incorporate UWB-MIMO technology.

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Improving The Thermal Performance Of The External Shell In The Housing Section In Libya

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ABSTRACT

This research discusses the architectural vocabulary of the desert/hot – dry climate region in Libya focusing on the residential buildings in the city of Sebha as an applied example, and this study presents the climatic features of the area of study (Sebha) specifically. Also this research presents the architectural vocabulary of the external shell of the building and the climatic treatment that falls in line with the area of study (dry hot climate).

This research contains an empirical study of the residential buildings in Sebha where the researcher tried to insert proper architectural vocabulary into the residential buildings through a simulation program (ECOTECT) which in turn leads to the improvement of the temperature in the architectural space.

So this study discusses the special vocabulary of the external shell in the desert environment in Libya through:-

- Studying the elements of the external shell of the building and studying methods of protecting it.
- Studying the climatic characteristics of the region.
- Studying ways to handle the external shell of the building.

Keywords: External shell - Internal temperature - The housing sector in Libya

INTRODUCTION

The climate has a direct impact on the human condition, in fact the human adaptation toward the surrounding climate is not flexible enough so that we feel constantly comfortable in any climate like when we are exposed to high temperature or sever cold; the human body tries to adjust to those surrounding changes, whereas the climate inside those spaces is nothing less than a part of the whole architectural picture. And the external shell of the building is just a direct expression of the functional element behind this shell and throughout the urban development along the centuries and trial and errors; every region in the world has its own shells that stems from the surrounding environment in which it becomes a transitional media for the climate factors to the point where the internal space becomes suitable for its inhabitants. In modern residential buildings, the characteristics of the external shell are not compatible with the climatic conditions of the desert cities. This negatively affects the comfort of the residents. Therefore, in this paper the type of construction materials used and the characteristics of the outer shell elements were studied and reviewed.

This work aims to present the elements of the external shell, to show climatic treatments for every element of the external shell, to generate an architectural form for the external shell for the residential building that's is compatible with the hot/dry climate of Libya, and to reach to a thermal comfort point in the space without the need to use mechanical utilities and reducing the urge to do so.

The Elements Of The External Shell:

For the architect to reach the ability of creating a valid climatic environment inside an architectural space, he has to study the different architectural elements of the buildings such as walls, roofs and openings. These are the main thermal transmission pass ways in the building as shown in figure 1.



Figure 1: Method of heat transfer in and out of the external elementshttp://www.yourhome.gov.au/passive-design/insulation

Roofs

Roofs are planes that form the top surface. The roofs are either made of thick trees which cover the top and achieve shade or through making covers and industrial roofs that can be made of concrete or thick wood. Roofs are considered the main source for heat transition in and out of the building. That is because the roof is exposed to direct sunlight throughout the day while the walls are only exposed partially and for a few hours.

The heat transfer through the roof differs depending on the material used to construct it. Wherever the material used in constructing the roof has rapid heat gaining and losing properties, the quantity of heat penetrating the space is much bigger than the heat outlet. Therefore, the best materials used here are the materials that have the acquisition of loss and gaining heat slowly because of its ability to retain heat throughout the hours of the day. As a result, they become a heat source at night as shown in figure 2.



Figure 2: Methods of heat radiation throughout the day into the space through the roof-(2012), فهمي-محمد

Walls

Walls are the planes that form the vertical part and are called the architectural walls where they are considered the elements that mostly frame the space and divide the building into partially closed or closed space. The external walls on the dry\hot climate expose to extreme sunlight which its intensity differs depending on the sun path in the sky globe throughout the day and through the year. In addition, the intensity of the solar radiation that falls on those walls depend on the direction of those walls. For instance, the north walls receive solar radiation that is different than those received by the west and south walls throughout the day. Walls are not exposed to the same sun light as the roof. That is because the walls do not expose all day long to the sunlight, also the sun leaning angles of the walls are different of the roofs. This leads to decrease in the intensity of the sun rays on the walls as shown in figure 3. The walls are exposed to another source of heat which is the reflected rays from the ground.



Solar gain in Opaque walls

Figure 3: The heat exchange between the outside and inside of the building through the walls- Elaiab, Fatima M. (2014)

External openings

Windows are considered as the important external opening for the building. The three main functions of the windows are: Intromission of the direct and indirect sunlight, Intromission of fresh air and providing view. Also, it is considered one of the most important elements of the house which leads to the inverted leaking of the heat whether it was from inside or outside. Windows represent the weak point in the external shell of the building where it gains the most rays through these openings. Therefore the treatment of those openings has an important role in decreasing the thermal load inside the building's spaces.

Protecting The External Shell

Protecting the building from the exposure of the solar radiation is considered one of the most important things that can be done in order to decrease the thermal gain of the building. The thermal gain is affected by many factors as follows:

The Orientation of the Building

The orientation of the building is preferred to take the longitude axis of the building in the east west direction which means that the North West direction is the long lined façade, therefore the solar radiation falls on the south façade as shown in Figure 5.

The Shape of the Building

The shape of the building is important in defining the quantity of shade, the shadows differs from flat panel building to another curved panel building and the more complex the building shape the more shadows it will generate as shown in Figure 6.



Figure 5: The amount of solar radiation falling on a façade according to its direction

الوكيل-شفق, سراج – محمد (1985)



Figure 6: Shape of the building and the shadows it generates- (1985) الوكيل-شفق, سراج – محمد (Treating the opaque parts (walls and roofs)

Roof Treatments

Roof treatments can be done using thermal insulation material according following points.

- 1- Using one of the roof finishing and the layer starts with 2 cm in thickness and the thicker the layer the more effective the thermal insulation.
- 2- Constructing the roof in two complete separate tiles to leave a space for air rotation.
- 3- Using a thermal insulation as SILTON to be placed straight on top of the concrete slab, also covering the planes with natural materials like clay and planting green roofs.
- 4- Using water sprinkles on the roof or benefiting of the plant transpiration of the roof garden.
- 5- Using hollow tiles in constructing the roof.
- 6- Using water basins (separate whole roof).
- 7- Covering the bottom surface by extending out the building walls with dark colored materials in order for it to absorb the sunlight that might reflect from the ground so it doesn't reflect again on the building.
- 8- Using curved shapes for the roof where it is known that the curves are not entirely exposed to the sun rays.

Figure 7 shows the roof treating.



غريب- نادر, (2005) / فهمي-محمد (2012), غريب- نادر

Wall Treatments

The external walls of the building are exposed to direct sunlight, therefore when choosing the suitable material for building the walls is fundamental to protect the internal spaces in the hot regions from large temperature swings throughout the day. So it is Important to take measured reserves when designing these walls to decrease it's thermal penetrating ability. and that can be achieved through the following:-

- a- Using insulation material in walls.
- b- Constructing the walls out of materials that slowly gain and transfer heat.
- c- Constructing double slab walls to create an insulating vacuum.
- d- Constructing double slab walls that allows air passages in between and decreases thermal loading.
- e- Cladding the walls with heat reflecting materials.
- f- Shading parts of the wall with extensions.



Figure 8: Treating the external walls using double slabs and reflective material- (2012), فهمي-محمد (2012)

Selecting The Building Materials

Using building materials that help maintain the heat and stops the effect of the direct sun light and thermal insulation as (Adobe Bricks) which is rarely used in rainy regions, where the Adobe Bricks are considered the best natural material that can provide thermal insulation for the building, and when used in big quantities helps provide good insulation for the internal spaces of the house and also those bricks are available locally in the hot regions. Also wood can be used to make flat roofs and domes, and it's usage is increased due to its good insulation qualities especially in hot regions. Its also used as an assisting material in building walls so if there is any cracks shadowing it doesn't effect the other walls.

The Openings Treatments

The openings in a building are considered a main source of heat and air penetration to the interior, so the factors that control the quantity of heat penetration should be studied through those openings and they can be treated through:-

- a- Using sun breakers:-
- Shedding light on the external shell elements.
- Representing the climatic treatments for every element of the external shell.

- Reaching an architectural form for the external shell for a residential building appropriate and in line with the dry hot climate of Libya.
- Horizontal sun breakers
- Vertical sun breakers
- Assembled sun breakers.



Figure 9: The different types of sun breakers and the usages of it's shadowshttps://www.pinterest.com/pin

b- Controlling the air flow

In order to create and aerobic movement in any space it is necessary to provide two openings; one of them is an entry and the other is and exit.



Figure 10: Modality of controlling the air in rooms.

https://swazischool.wordpress.com/2012/09/

The Climatic Factors in Libya

Libya is located in the center of the North African coast line on the Mediterranean Sea. The climate in the African continent is divided into (hot/dry) desert climate, semi desert climate (region of study), warm moderate climate. The hot weather prevails in Libya in the desert part of the country and it is distinguished with high temperature levels and high solar radiation rates where the average temperature in the most hot months is (25°) accompanied with humidity, and the average of highest temperature is (45°) and the lowest it (10°) .

The City of Sebha

The city's geographical and astronomical locations

Sebha is located in between latitudes 27°.7 - 27°.00 north, and longitude 14°.23 east and 420 m above sea level. Sebha is located 750KM south of the capital Tripoli and is bordered by small hills from north north east and south. It is surrounded by moving sand mounds in the north and north west and is considered the capital of south Libya.



Figure 11: Location of Sebha - (2008), فريوان-وليد, Google earth

Climatic history

Sebha is known for its desert hot dry climate, and the temperature rises in summer to reach its highest in August and September, whereas in winter the temperature drops to it's lowest in December and January. And it rarely rain where the rain rates are found to be the lowest in Libya. The climatic file for Sebha has been prepared using (METEONORN 7) and entering this data into the program (climate consultant 6.0) to get the climatic information in order to be able to insert it into the program ECOTECT. and in the following tables are the distinguished climatic values of the city.
MONTHLY MEANS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC	
Global Horiz Radiation (Avg Hourly)	429	487	547	581	581	591	602	609	556	500	454	405	Wh/sq.m
Direct Normal Radiation (Avg Hourly)	722	684	688	554	587	512	648	709	664	639	741	721	Wh/sq.m
Diffuse Radiation (Avg Hourly)	71	91	104	130	147	132	119	98	118	105	65	66	Wh/sq.m
Global Horiz Radiation (Max Hourly)	769	879	968	1027	1049	1078	1095	1047	973	903	801	709	Wh/sq.m
Direct Normal Radiation (Max Hourly)	1021	1024	988	985	936	976	986	948	975	973	1004	992	Wh/sq.m
Diffuse Radiation (Max Hourly)	286	301	276	343	393	517	458	184	398	305	114	206	Wh/sq.m
Global Horiz Radiation (Avg Daily Total)	4514	5382	6501	7367	7772	8084	8135	7880	6767	5668	4845	4181	Wh/sq.m
Direct Normal Radiation (Avg Daily Total)	7585	7545	8159	8268	7842	8379	8757	9166	8081	7236	7899	7446	Wh/sq.m
Diffuse Radiation (Avg Daily Total)	746	1016	1247	1661	1973	1810	1611	1270	1434	1198	700	686	Wh/sq.m
Global Horiz Illumination (Avg Hourly)	45748	51794	58209	61905	62507	63518	64518	64953	59979	53833	48584	43312	ых
Direct Normal Illumination (Avg Hourly)	69236	65897	66398	62987	57199	60421	54067	69831	54517	61983	72567	69080	ых
Dry Bulb Temperature (Avg Monthly)	11	14	20	24	29	32	34	33	31	25	18	13	degrees C
Dew Point Temperature (Avg Monthly)	0	0	1	2	5	7	7	8	8	8	3	1	degrees C
Relative Humidity (Avg Monthly)	47	40	30	26	23	22	20	22	27	34	39	45	percent
Wind Direction (Monthly Mode)	310	300	300	300	100	290	60	310	290	90	70	70	degrees
Wind Speed (Avg Monthly)	3	3	4	4	5	4	4	4	4	3	3	3	m/s
Ground Temperature (Avg Monthly of 1 Depths)	21	19	18	19	21	24	27	29	30	29	27	24	degrees C

Table 1: Climatic data for the city of Sabha- program Climate Consultant 6.0

In the previous table the climatic information for the direct horizontal sun rays, the outstretched horizontal light, the dry temperature, dew point, relative humidity and the wind velocity.

The Chosen Form

It is a two story residential building located 3km south west of the city. Consists of ground floor with 12 spaces divided between bedroom, guestroom, bathrooms, kitchen. The first floor divided into two apartments and is considered to be around 340m², and due to the big area it receives a high quantity of solar radiation. The proportions of windows to the area of the facades is as;-

	North	East	South	West	
	facade	facade	facade	facade	
Façade area	122.88m²	165.92m ²	114.24m²	147.56m²	
Opening	8.08m ²	8.52m ²	2.72m ²	13m²	
proportions					

Table 2: Proportions of opening to building facades- researcher



Figure 12: Location of the building- Google earth



Figure 13: Front and back facades- researcher



ground plan



first floor plan

Figure 14: Ground and first floor plans - researcher

Outer Shell Improvements

Studying the reality of the situation we will study the thermal performance of the external shell of the building in its upright position and knowing the difference in internal and external temperatures that we can achieve in the location of the bedroom has been defined due to its 462 | P a g e

importance for the user as a study example. In the following forms the location of the bedroom has been illustrated as (study sample). The building's orientation in its current state and the external form of the building.



Figure 15: Form and orientation of the building and the space that has been chosen for this studyresearcher (program ECOTECT)

Table 3: Details of the external shell - researcher(program ECOTECT)

window	roof	wall
Biopenies Layers Acoustics Advanced Export No Highlight > [Al Types] > Wood While Fin (Acoustic) > Wood Wood Wood > Wood Wood Noving Slass > Wood Field Dovide > Wood Field Dovide > Wood Field Dovide > Calculate Thermal Properties >	Properties Lavers Accountics Advanced Export No Highlight [A1 Types] • • OUTSIDE Wood White Fr (Across Green E Wood White Pre (Across Green E Woodwoil Rooring Slabs Woodwoil Rooring Slabs Wood Reit Undelay OUTSIDE OUTSIDE Wood Woodwoil Rooring Slabs Wood Reit Undelay wood Reit Notes wood Reit Notes INSIDE	Properties Levent Acountics Advanced Export No Highlight > [M] Typed] > Wood Virginia Price (Acoust) > Wood Write Fit (Acoust) > Wood Write Evenent Wood > Wood Acoust Fit (Acoust) > Wood Write Evenent Wood > Wood Acoust Fit (Acoust) > Layer Name Width Layer Name Widt
Layer Name Width Density Sp. Heat Conduct Type 1. Glass Standard 6:0 2300.8 836.800 1.046 75	Layer Name Writih Density Sp Heat Conduct. Type 1. Sci (Avg. Prooc) 250.0 1300.0 1046.000 0.837 115	2 Block, Holiow, Hoasywoight 200.0 1220.0 340.000 1.350 35 3 Plaster Building (Molded Day 10.0 1250.0 1088.000 0.421 85

Studying The Internal Temperature On The Hottest Day Of The Year

 2^{nd} June has been chosen as the hottest day of the year to calculate based on this date. And it is originally considered the summer solstice day and the longest day of the year, where the internal

and external temperature has been measured for the (zone:3) and accounting the difference in between them throughout the day in order to know the difference between them during the peak hours of the day and whether it is with in the thermal comfort zone.

 Table (4) the difference between internal and external temperatures of the building during the hottest day of the year- researcher (program ECOTECT)

HOUR	INSIDE	OUTSIDE	TEMP.DIF		
	(C)	(C)	(C)		
00	39.6	31.3	8.3		
01	39.4	30.4	9.0		
02	39.3	29.9	9.4		
03	39.2	29.3	9.9		
04	39.1	29.0	10.1		
05	39.1	29.2	9.9		
06	39.1	30.8	8.3		
07	39.2	32.6	6.6		
08	39.3	34.5	4.8		
09	39.5	36.3	3.2		
10	39.7	37.9	1.8		
11	40.0	39.2	0.8		
12	40.2	40.1	0.1		
13	40.5	40.8	-0.3		
14	40.8	41.0	-0.2		
15	41.0	40.9	0.1		
16	41.2	40.2	1.0		
17	41.0	39.1	1.9		
18	40.6	37.6	3.0		
19	40.7	36.5	4.2		
20	40.5	35.3	5.2		
21	40.5	34.1	6.4		
22	40.2	32.9	7.3		
23	39.7	31.7	8.0		

From the table we can see that the internal temperature were higher most of the time than the external temperature due to the thermal retention inside the space and the air movement around the building. Where we find that the peak hours outside the building around 14:00 noon was 41° and 40° .8 inside the building. That means that the difference between the outside and inside of the building is 0.2° . Where the outer sector of the wall and the size of the openings needs to changed.

Studying The Building After The Modification

In this experiment the orientation of the building has been changed and also the elements of the external shell. Which consists of the best glass type, sun breakers, best wall type, best roof type and merging them together into one mass then we will know the difference range between the internal and external temperature for the study sample. The results where as the following:-

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Figure 16: Form and orientation of the building and the location of the space that has been studied – researcher (program ECOTECT)



 Table 5: Details of the external shell - researcher(program ECOTECT)

Studying The Internal Temperature During The Hottest Day Of The Year

 2^{nd} June has been chosen as the hottest day of the year to calculate based on this date. And it is originally considered the summer solstice day and the longest day of the year, where the internal and external temperature has been measured for the (zone:3) and accounting the difference in between them throughout the day in order to know the difference between them suring the peak hours of the day and whether it is with in the thermal comfort zone.

Table 6: The difference between the internal and external temperatures during the hottest day of the year - researcher(program ECOTECT)

HOUR	INSIDE	OUTSIDE	TEMP.DIF
	(C)	(C)	(C)
00	31.7	31.3	0.4
01	30.9	30.4	0.5
02	30.4	29.9	0.5
03	29.9	29.3	0.6
04	29.6	29.0	0.6
05	29.8	29.2	0.6
06	31.3	30.8	0.5
07	32.9	32.6	0.3
08	34.4	34.5	-0.1
09	34.6	36.3	-1.7
10	34.7	37.9	-3.2
11	34.8	39.2	-4.4
12	34.9	40.1	-5.2
13	35.0	40.8	-5.8
14	35.0	41.0	-6.0
15	36.0	40.9	-4.9
16	36.9	40.2	-3.3
17	36.8	39.1	-2.3
18	35.6	37.6	-2.0
19	35.5	36.5	-1.0
20	34.4	35.3	-0.9
21	34.3	34.1	0.2
22	33.2	32.9	0.3
23	32.1	31.7	0.4

From the table we can see that the temperature inside the space decreased slightly after adjusting the orientation of the building but the thermal retention is still there during the night. Where we note that the internal temperature is higher than the external and that the temperature during the peak hours outside the building at 14:00 pm was 41° and inside the building was 35° with 6°.0 difference.

CONCLUSION AND RECOMMENDATIONS

CONCLUSION

According to what has been done during the previous theoretical studies, and after achieving the results as what we have shown in the tables (3-4) and (5-6), we concluded the following:

When measuring the temperature on the hottest day of the year the difference between the internal and external temperatures during peak hours was (0.2°), where the internal temperature was (41.8°) and the external was (41°) are above the thermal comfort rate by

(14.8°) which might bother the user and lead them to use mechanical utilities to reach the comfort point.

- The orientation of the building has been provided by the software climatic analysis that has been entered, also the type of the external material has been modified according to the location of the openings provided by the software after analyzing the sun movements around the building.
- After measuring the temperature during the hottest day of the year again the difference between the internal and external temperatures at peak hours was(6.0°) where the internal temperature reached (35°) and the external was (41°) outside the building, so that the temperature has been decreased by (6°) but remains about the thermal comfort rate by (9°), and here we need the help of mechanical utilities to reach it.
- From the previous adjustments the internal temperature has been decreased to the maximum and without any help of mechanical utilities. By that, it can get a remarkable saving in energy usage and then saving in coasts.

RECOMMENDATIONS

To reach a comfortable internal environment with the less wasted energy, we recommend:

1st on the architectural planning level:

- The usage of the compact urban texture that works on protecting the buildings from winds loaded with dust and sand and reduces the quality of direct solar radiation falling on the external shell.
- Shading lanes and tracks to protect the o=pedestrians from the severe sunlight to result in shadowing the facades.
- Creating thick tree belts to face the dust winds and to purify the air entering the building.

2nd On designing the external shell level

- When designing the outer openings it should be small in area considering the ventilation, where the upper openings Be done so that the hot air can exit through it with the usage of ground air tanks to help the air exchange.

- Using appropriate sun breakers with adding extensions and breaks in the building façade to provide shading which works on reducing the temperature of the air inside the spaces.
- Building the external walls thick enough using double slab walls so the air can move in between. Also using salience for several stories and horizontal sun breakers.
- Using the coarse materials on the outer shell to add shading with light colors due to the ability to reflect light.
- Building double slab roofs separately to leave space for air or using insulation materials as SILTON placed on top of the concrete slabs or using water basins or using curved shapes for the roof.

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Using Packed Bed Filter Filling With Glass Particles To Enhance The Water Quality Of Klang River At Shah Alam, Selangor, Malaysia

Salah Omar Habberrih

ABSTRACT

Recently, water evaluation in the developing countries has become a critical matter. The concern about monitoring quality of water bodies has been increasing in order to evaluation the short-term condition and the future resources management. The assessment of water quality is playing a big role in managing the water resources worldwide. In Malaysia, the government is seeking dramatically to reduce the flow of pollutants into water sources in addition to providing the necessary means to address the pollution that happens in order to prevent the spread of this issue. Using of glass particles as a packing area in the packed bed filter technology is one of the various methods to enhance the water quality in the rivers. This technology was proved a great success as a primary clarifier for the waste and drinking water treatment plants due to the removing of the suspended and dissolved solids including paper, plastic, particles, grit, and sand. In this study, the river water quality is the main consideration of the study. The monitoring of water quality by checking the water variables (pH, biological oxygen demand BOD, chemical oxygen demand COD, total suspended solids TSS, dissolved oxygen DO, and ammonia nitrogen NH3-N) with in situ and laboratory. These parameters will use to estimate the water quality of the river. Hence the water samples will obtain from three main different points in the industrials Zone of Klang River at Shah Alam, Malaysia. The using of packed bed filter in the laboratory is to assess the efficiency of it in enhancing the river water quality. Microsoft Excel software program is the software that will use due to analyzing the gathered data statistically. The aspect results will provide a clear picture and new data for the condition of Klang River and evaluate the water quality condition for in that particular region of Malaysia.

INTRODUCTION (PROBLEM STATEMENT, AIM, OBJECTIVES)

Water has become critical because of concerns over water availability in the future, especially in developing countries. Currently, most of the natural water sources are good for industrial and domestic use without treatment, while not be suitable for drinking. Moreover, use water without treatment may be good for irrigation of certain crops, further is not good for other crops (Husain, Husain, & Arif, 2014).

Packed bed is using in many applications in the chemical industry although of development in an industry in recent years. Where it is used the packed bed in separation processes and reaction (Calis, Nijenhuis, Paikert, Dautzenberg, & Van Den Bleek, 2001). The evolution of the packed bed industry, in general, is facing several challenges, including continuing to develop and improve efficiency while ensuring competition in the market. At the present time, the most common reactors used in the chemical industries are the packed bed, due to their higher conversion rate in weight compared with other the catalytic reactors in the market (Rom, 2014). As shown in figure (1).



Figure 1: Packed Bed filter (Rom, 2014).

The Mechanism Of Packed Bed Reactor:

In chemical processing is used the packed bed reactor in several applications, like catalytic reactions, separation, distillation, absorption, and stripping. Physical dimensions of the beds fundamentally different, due to the diversity used in applications of the beds. Reactors consist of a cylinder such as a canal or a pipeline including the pellets or particles, and fluid that flows inside the tube the catalyst. The liquid passing through of the tube and reacts with the catalyst, where the changing chemical composition of the liquid (Rom, 2014). As shown in figure (2).



Figure 2: Packed Bed filter (Rom, 2014)

PROBLEM STATEMENT

Water quality is the indicator of the occurrence of changes in the ecosystem, associated directly with the economic and social development in countries. Water monitoring in developing countries, of the most important issues in recent years (Pesce & Wunderlin, 2000), due to the concerns over the scarcity of fresh water in the near future. At present, the existing water sources in the world may be safe to drink without treatment, but may not be so in the near future (Crittenden, Trussell, Hand, Howe, & Tchobanoglous, 2012). It may be suitable for other activities such as home use or irrigate crops and is not suitable for drinking. Using packed bed reactor to enhance water quality becomes a significant method, due to the

low cost and simplicity of water treatment process of Klang River industry area at Shah Alam.

The questions are:

1- How to assess the water quality of Klang River water body?

2- How the packed bed filter filling with glass particles contribute to the improvement of the

Klang River water quality?

Aim And Objectives Of Study

Current water quality all over the world of the most important issues causing concern, high rate of pollution of water resources due to increased human activities consumed for water. As a result of pollution from point sources or non-point, whether chemical, biological or sediments from of sources the municipality, agricultural or industrial contribute to water pollution (Bakan, Özkoç, Tülek, & Cüce1T, 2010). Clean water after the filter is essential for several purposes of healthy living. Moreover, increase of human activities, which affects its physicochemical and microbiological quality. The increasing problem of deterioration of river water quality, therefore it is necessary to enhance water quality.

The aim of this study is to enhance the water quality of the Klang River by using packed bed filter. Rivers are the most important natural resource for human development, but it is polluted by the disposal of the sewage, industrial waste affects the quality of water. The followings are the specific objectives:

Objectives will be:

To evaluate the water quality of Klang River in the industrial area at Shah Alam To assess the efficiency of using packed bed filter for water quality enhancement.

Study Site

The Klang River is a river which flows through Kuala Lumpur and the state of Selangor, Malaysia. The river drains an area of 1,288 km², from the mountain rainforests of along Peninsular Malaysia, and eventually flows into the Straits of Malacca (Mohamed et al., 2015). Selangor state areas contain less water catchment for what is in the Klang and Petaling. Half of the Klang River basin has been allocated residential, utilities and infrastructure. While 20% of the reserve forests, and includes a variety of land uses, industrial facilities, commercial and open space (Sharif et al., 2015).

The most developed areas in the industrial sector in Malaysia is the Klang River basin area. Fresh water availability depends directly on the extent of environmental deterioration (Othman et al, 2012). This study will focus on the area of Shah Alam as a site of the study. This area is characterized as a variety industries area that discharging their wastewater into the Klang River. Figure 3 illustrates the study site on map Google Earth.



Figure 3: The site of the study of Klang River at Shah Alam

Study Background

Water is the most important natural resources due to its presence on a large scale in the world (Vörösmarty et al, 2010). The most troubling issue is meeting the water needs to ensure continued economic growth and other activities dependent on water and with a dearth of fresh water suitable for all activities without treatment (Poonam, Tanushree, & Sukalyan, 2013). At present, with the increasing population and development in all fields such as industrial, agricultural, which caused a dramatic reduction in the availability of fresh water with several other factors (Poonam et al., 2013). As a result of the inability to meet demand for water from surface sources, making the communities looking for other sources of water such as digging wells and extraction of groundwater to meet the

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essential needs of fresh water. Monitor water sources regularly and continuously ensure determine the water quality and its i mpact on the surrounding ecosystem. Moreover, monitoring water quality used in several of human activities like domestic use, industrial and agricultural to avoid any future problems (Goher, Hassan, Abdel-Moniem, Fahmy, & El-sayed, 2014). Assess the overall water quality in the often difficult, due to the difficulty of analyzing a large number of samples, each containing different concentrations of many parameters. Probably can analyze parameters individually or groups such as nitrogen load by evaluating the proportion of ammonia, organic nitrogen, and nitrates, available through these analyzes preliminary information about the overall quality of water (Pesce & Wunderlin, 2000).

Water Quality Indicates:

Rivers are natural systems that carry decomposed and particulate materials in one direction as a result of human activity, or from natural sources. Influencing factors on surface water quality are human activities in general, and land use excessively, as well as the use of pesticides and fertilizers in agriculture crops without censorship (Azhar, Aris, Yusoff, Ramli, & Juahir, 2015). Water quality index (WQI) is the most important method of effective and useful to get an assessment of the water quality. The Water Quality Index to assess the quality of water from 0 to 100. The first to develop water quality index is Horton, essentially a mathematical as a means of arithmetic through which you can get a single value of several tests. After the Horton, many scientists from around the world worked on the development of water quality index based on an assessment of various water quality parameters. Fundamentally, the water quality index worked made several attempts to provide a specific mechanism is based on the assessment of water quality levels on an ongoing basis and ensure that no errors occur in the estimation of water quality (Sarala Thambavani & Uma Mageswari, 2014). Economic and social evolution relies on changes in the environment, which are assessed through monitoring of the water quality.

During the water quality index can present the information in a simple to the political decision-makers and the general public. Often determine the validity of water quality in

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the Water Quality Index all over the world adopted the suitability for human use (Rao, Rao, Hariharan, & Bharathi, 2010). Clean water is essential for various purposes to ensure live healthy (Mandal, Upadhyay, & Hasan, 2010). Rivers of the most important natural resources for the continuation of human development. Unfortunately, rivers have been contaminated by human activities which affect the physical and microbiological properties. Rivers polluted by indiscriminate disposal of municipal or industrial waste directly without any treatment process. Lies the importance of continuous monitoring of water quality in determining the deterioration of the ecosystem in general and the quality of rivers in particular. (Mishra, Mukherjee, & Tripathi, 2009). The use of National Sanitation Foundation Water Quality Index (NSFWQI) to determine the water quality standard based on nine parameters like temperature, total phosphate, pH, biochemical, dissolved oxygen, *Fecal Coliform*, turbidity, dissolved oxygen, total solids, and nitrates. As a matter of fact, applied on eight of parameters, so in the absence of *Fecal Coliform*. Therefore, occurred modification in weight. Modified total weight score remained 1. It allowed the amendment if there was a decline in water quality (Effendi & Wardiatno, 2015).

Six parameters, namely, chemical oxygen demand (COD), dissolved oxygen (DO), biochemical oxygen demand (BOD), suspended solids (SS), pH, and ammonia nitrogen (NH3-N) for considered to assess the overall condition of the river water. The most important water quality standards are dissolved oxygen, where it is the amount of oxygen dissolved in the water and is produced through the mixing of microscopic bubbles of oxygen with water. In addition, it used to measure the ratio of oxygen, the amount that is available biochemical activity in the body of water. A measure of the total amount of oxygen removal of chemically or biologically water on specific temperature and at the time. The result gives an indication of the total dissolved oxygen in the water. The concentration of oxygen which is required in every part of the deterioration of certain organic substances and oxidation. Moreover, the chemical oxygen demand is a measure that the equivalent organic matter susceptible to oxidation and oxidation. Most strong chemical applications determine the chemical oxygen demand number of organic contaminants in surface water or wastewater, which makes it chemical oxygen demand a useful measure of water quality. Total suspended solids consist of insoluble organic

material in the water and characterized by large size operating on oxygen consumption (Othman et al., 2012).

The formula used for calculating WQI is:

WQI = 0.22 SIDO + 0.19 SIBOD + 0.16 SICOD + 0.16 SISS + 0.15 SIAN + 0.12 SIPH (1).

Where:

WQI = water quality index.
SIDO = sub-index of DO.
SIBOD = sub-index of BOD.
SICOD = sub-index of COD.
SIAN = sub-index of AN.
SISS = sub-index of TSS.
Sip H = sub-index of pH.

Materials And Equipment

1. Packed Bed

A packed bed is defined a hollow pipe, tube, or any other vessel that is filled with packing materials. Packaging is made in several forms, including random shape such as Raschig rings or in specific forms (Dahekar & Gulhane, 2013). Some packed beds are containing absorbent or catalyst particles like granular activated carbon or zeolite pellets. Figure 4 shows the packed bed.



Figure 4: Packed bed filled with spherical glass material (IUKL Lab)

2. Pressure Pumps Selected

Stainless steel single impeller centrifugal pumps. Featuring the one piece volume manufactured using Ebara's unique plasma stamping process.

Specifications: Single stage centrifugal pump, closed impeller. The maximum working pressure is (8 bars) and the maximum liquid temperature is (60 $^{\circ}$ C), that for models CDXM/A, 70/ 05- 70/07- 90/ 10.

Motor Data: TEFC, 2 poles, 50 Hz. Insulation class F IP55 protection. 1 Phase - 230 Volt 3. Weight 8.3 kg. Phase - 230/ 240 Volt (dual voltage motors) ~ Inbuilt overload protection for 1 Phase.

Range: 25 mm Ø discharge 0.37 to 1.5 kW - 1 Phase 0.37 to 1.8 kW - 3 Phase.

3. Water Sample Collection

Water samples will collect from the site directly by using high-density polyethylene (HDPE) gallons and stream program is analyzed for a variety of parameters depending on current program needs and resources. The laboratory performing the analyses may require additional special collection procedures for some parameters.

Sampling method: After the election of three points in the middle of the river on equal distances (50 m) and a fixed depth of (10 cm) below the water surface. The collection of samples will be three samples at each point. The subtotal of samples will be (three points x three samples = nine samples). Points will be in the form of the straight line during the course of the river stream.

During the water sampling process, the data of temperature and pH function. Of the other parameters should be recorded in situ.

□ Then the samples are saved in HDPE gallons, labeled and write down the time, location and the temperature then stored in an icebox and transported to the laboratory for analysis within 24 hours.

Lab Experiment:

1. Dissolved Oxygen (DO) Experiment

The concentration of dissolved oxygen in the water of the most important parameters that indicate water quality. Dissolved oxygen device consists of two poles, which in turn measures the amount of dissolved oxygen in the water, and the reading screen. There are several forms of markets including portable and small and large, but they work on the same principle. The result from the interaction between the two poles of the device with the dissolved oxygen is an electrical signal commensurate with the concentration of dissolved oxygen (Hargreaves & Tucker, 2002). In this study, will use a portable device for measuring

dissolved oxygen in the field (YSI 550A). Furthermore, measure the dissolved oxygen in the lab (YSI 5000 dissolved oxygen meter), that after filtering the water to assess the efficient the filter to enhance the proportion of dissolved oxygen in the water.

2. PH Determination

PH measures the extent of alkaline (basic) or acidity of any liquid. In any given liquid, some atoms of water dissociate to two forms hydroxyl ions OH, and hydrogen ions H. The pH mean is measuring of any of the ions is a greater concentration in any the liquid than the other ions. PH is a measure of environmental degradation that may occur as a result of various pollutants entering the water body. Lower the pH level has a disastrous impact on the natural water sources. PH is associated positively with the conductance the electricity (Patel & Vaghani, 2015). In this study, will use a portable device for measuring PH in the site (YSI 100-1PH/TEMP PROBE KIT). Moreover, measure the PH in the lab (SensIONTM – PH3 – HACH), that after filtering the water to assess the efficient the filtration.

3. Chemical Oxygen Demand (COD) Experiment

The chemical oxygen demand assesses the amount of oxygen necessary to be able to oxidant chemicals of organic material, this is done through the strong chemical oxidant. An example of this potassium dichromate under reflux conditions. Listed some the uses of the COD test:

- Determines the degree of contamination of water bodies and self-purification capacity.
- \Box Assess the efficiency of the treatment plants.
- \Box Evaluation of the pollution load.

In this study will using the DRB 200, and DR 2800 COD digestion device to measure chemical oxygen demand (COD) in water samples.

4. Biochemical Oxygen Demand (BOD5) Experiment

Biochemical oxygen demand is the amount of oxygen needed to support the biological activity of living organisms in the water, including chemical processes or oxygen absorbed (Verma and Singh, 2013). There is a unified global standard for measuring and monitoring the levels of organic material is biodegradable in wastewater is a BOD5 test. The 5-days biochemical oxygen demand is to determine the amount of oxygen consumed by organisms in the water during the currency of biological oxidation of organic matter dissolved for five days. Biochemical oxygen demand test depends on several factors, including putting the samples into the refrigerator at a specified temperature, oxygen concentration, and the presence of toxins in the samples, and the quality and quantity of the organisms in the samples (Pasco, Baronian, Jeffries, & Hay, 2000). In this study will be the measurement of BOD5 by a device (YSI 5000 dissolved oxygen meter). BOD5 is measured in two stages: the first stage is measured DO₀, while the second stage is measuring the same sample after five days (must put in the refrigerator at constant temperature) then conduct a mathematical process to find the value of BOD5 as follows:

$$BOD_5 = \frac{DO_0 - DO_5}{P}$$

Where:

DO0 = Initial dissolved oxygen.

DO5 = Dissolved oxygen after 5 days incubation at $20 \ {}^{0}C \pm 1 {}^{0}C$.

P = Decimal volumetric fraction of the sample used.

5. Ammonia Nitrogen (NH3-N) Experiment

There are two forms of ammonia in aqueous solutions are NH3 and NH4, often have a negative impact on aquatic organisms. Ammonia generated from waste (NH3), even at low concentration are more toxic forms (Chen, Ling, & Blancheton, 2006).

6. Total Suspended Solid (TSS) Experiment

Total suspended solids defined as a solids material consisting of inorganic and organic materials that are not dissolved in the water (suspended). As a result of high concentrations of suspended solids caused reduced water quality, because of the suspended solids absorb light (Verma and Singh, 2013). The Sample is taken usually 100 ml, scrolling through the filter papers. The diameter of the filters between 22 to 125 mm (Gray, Glysson, Turcios, & Schwarz, 2000 In this study will use a device that filtered water, then put it into the oven to dry filter paper. After that do the mathematical process to find the value of TSS as follows:

mg/L Total Suspended solids = $\frac{(E - D) \times 1000}{\text{Sample Volume in ml}}$

Where:

D = Filter paper, mg. E = Filter paper + Dried Residue, mg.

7. Temperature

Water temperature of the most important factors for the continuation of aquatic life. The organisms present in the water rely on the surrounding temperature in several purposes. The effect of temperature is not limited to only the objects metabolic activity. Moreover, a significant impact on the transmission properties of gasses and settling rates (Tchobanoglous et al. 2003). At higher temperatures, less oxygen can dissolve in the water and fish and other organisms have a hard time living. In this study will use a portable device (YSI 100-1PH/TEMP PROBE KIT) to measure the temperature in the field.

Statistical Analysis

After collecting samples and testing them in the lab, it requires appearing the final results by use the statistical analysis and mathematical. Through a statistical analysis of the data obtained after analysis of water samples, the result of the assessment the water quality is data that are useful in the management of water resources (Sharif, 2015).

Microsoft Excel software program will use due to analyzing the gathered data statistically. Graphs will use in order to show the variation in the data provided. The analysis will provide a clear picture of the water quality for Klang River industry area at Shah Alam region, Malaysia.

Research Flow Chart



Flow Chart of Research work



3.7. Research Gantt Chart:

Significance And Implications Of The Study

Water is important to the economic development and ensures sustainability in the world. Water is used in several activities such as used in rural areas for agriculture and domestic use. Moreover, civilized areas in the home use are used as well, adding to the many uses in the industrial field. Water quality used for domestic, industrial or agricultural can be neglected to a certain extent, while the water used for drinking must be of high quality. Through water quality rating can recognize the biological characteristics, physical and chemical of the water that impacts directly on the ecosystem. Maintaining the quality of surface water is important. It not only in the importance of maintaining streams and rivers, but also to meet the water supply and the continued development of the industrial and agricultural areas. Moreover, get water suitable for human consumption (Sharif, 2015).

Klang River water bodies have polluted on the most measures of comparisons are chemical, physical and biological. Klang River is losing quality due to human activities from a point source or non-point sources. The river is polluted from the industrial wastewater influx into the river. The expected outcome of this study will be to obtain a good quality of water after passing the river water through a filter which contains the glass particles. To enhance of Klang water quality for water supply, and provide water for this sector, good water quality will be obtain using the packed bed filter filling with glass particles with low operation costs. As well as it contributes to removing contaminants of Klang River at Shah Alam area.

CONCLUSION

The Klang River is located in areas between populated densely, and surrounded by factories from all sides, due to increasing the number of pollutants. Therefrom, it has become improvement the Klang River water quality an urgent need to get the water for domestic and drinking. Moreover, to improve the river water quality to need several of steps and operations, that must be pre-arranged.

In this study, it has been dealt with the filtering process using the packed bed filter as laboratory work to test the effectiveness of this filter for improvement the water quality the river to be used in agriculture and water supply plants. Three points took samples in a straight line in the middle of the river stream, and the distance between each point to another is 50 meters. Three samples will be taken from each point. The static program data analysis that will use for data analyzing is a Graphical analysis of water quality data by using excel worksheet programs.

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Assessment Of Water Quality And Its Effect On The Aquatic Life At The Industrial Area In Klang River Shah Alam, Malaysia

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ABSTRACT

Basically, as a general purposes of assess the water quality in the water bodies are to control the water pollution and protect the aquatic life for future generations. Water Quality Assessment is a survey of the state of water bodies and identifies risks and threats in both the short and long term. This study aim to estimate physical and chemical water quality and evaluate the effects on the aquatic species in Klang river at one of the main industrial areas in Shah Alam, Selangor. The highest rate of industry growth and the rapid development made this river considering as a one of the most developed area in Malaysia. The excess use of chemicals due to the manufacturing and industrial activities exacerbating crisis and worsening water pollution of the Klang river. The gather data consist of two kinds in general, in-site and laboratory analysis data when the water samples collect from five main stations in the study site. Seven parameters mainly, dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), suspended solids (SS), Phosphate (PO4⁻³), Nitrate (NO⁻³) and ammoniac nitrogen (AN) are deem for the evaluation of overall condition of river waters in the laboratory. While pH, temperature, dissolved oxygen and turbidity and conductivity will determine in-situ by using single parameter probe and a multi parameters probe devices. The data will analyze statically due to Microsoft Excel software. The result will show explain the condition and the degree of pollution for the Klang river water clearly and the concentration of contaminates. Hence the result will be helpful to identifying the potential impact on the aquatic lives including fishes, turtles, algae and unsubmerged plants. Klang River as an artery that feeds the city of Kuala Lumpur and Selangor state due to that the necessity to protect this resource comes from.

Keywords: Water quality; physical; chemical; Klang river; in-situ.

INTRODUCTION (PROBLEM STATEMENT, AIM, OBJECTIVES)

Over the past two decades, much research has shown that ecosystems with more species are more efficient at removing pollutants water than are ecosystems with fewer species (Cardinale, 2011). Natural factors and human activity can affect the aquatic environment in many ways, synthetic substances may be added to the water, the hydrological regime may be altered or the physical or chemical nature of the water may be changed. Most organisms living in a water body are sensitive to any changes in their environment, whether natural (such as increased turbidity during floods) or unnatural (such as chemical contamination or decreased dissolved oxygen arising from sewage inputs). Different organisms respond in different ways. The most extreme responses include death or migration to another habitat. Less obvious responses include reduced reproductive capacity and inhibition of certain enzyme systems necessary for normal metabolism. Once the responses of particular aquatic organisms to any given changes have been identified, they may be used to determine the quality of water with respect to its suitability for aquatic life. Research has increasingly recognized that human actions at the landscape scale are a principal threat to the ecological integrity of river ecosystems, impacting habitat, water quality, and the aquatic life via numerous and complex pathways (Allan, 2004).

What is the role of aquatic life in maintaining the ecosystem services on which a growing human population depends? Recent surveys of the terrestrial literature suggest that local species richness may enhance ecosystem productivity and stability. However, the importance of aquatic life changes at the landscape level is less clear, and the lessons from local experiments and theory do not seem to easily extend to long-term, large-scale management decisions. These issues are particularly enigmatic for the world's oceans, which are geographically large and taxonomically complex, making the scaling up from local to global scales potentially more difficult(Worm et al., 2006)

Water Quality

Rivers and streams are the two most important areas of water catchments. These sources are now being contaminated with pollutants and water quality is getting worse over time in many parts of

the world. Water is normally used for drinking, in industries, for recreation, fishing, irrigation and polluted water is again discharged back to the source and sometimes without treatment. A lot of care should be taken to control organic, chemical and microbial pollution for maintaining drinking water quality. Some water quality parameters, such as dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), suspended solids (SS), ammoniac nitrogen (AN) and pH are generally used to define water quality (Gopinath & Tamjis, 2008). Also Rivers play a significant role in providing water resources for human and ecosystem survival and health. Hence, river water quality is an important parameter that must be preserved and monitored. As the state of Selangor and the city of Kuala Lumpur, Malaysia, are undergoing tremendous development, the river is subjected to pollution from point and non-point sources (Othman, ME, & Mohamed, 2012).

The water quality index contains unit less, single dimensional numbers between 0 and 100, with a higher index value representing good water quality. A numerical index is utilized as a management tool in water quality assessment. Water quality can be judged either by individual parameters for any specific interest or by a few, selected, important parameters to judge the overall water quality. Many countries make use of the WQI method to assess overall river status. These indices differ from country to country but share a similar concept, where a few important parameters are selected and compounded to numerical rating for the evaluation of river water quality.

Six parameters, namely dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), suspended solids (SS), ammoniac nitrogen (AN) and pH, are considered for the evaluation of overall status of river waters. DO is defined as the amount of oxygen that dissolved in water which occurs when microscopic bubbles of gaseous oxygen are mixed in water. It is considered as one of the most essential water quality parameters, as it is used for measuring the oxygen amount that is available for biochemical activity in water. BOD is defined as a measure of the total amount of oxygen removed from water biologically or chemically in a specified time and at a specific temperature. It gives an indication of the total DO concentration which is required throughout some organic matter degradation and oxidation. The COD is a measure of the equivalent of the organic matter susceptible to oxidation by strong chemical

oxidants. Most applications of COD determine the amount of organic pollutants found in surface water or wastewater, making COD a useful measure of water quality. SS often consist of a large content of suspended organic matter. Their decomposition also consumes oxygen. AN is defined as the amount of ammonia and ammonium compounds. These compounds are transferred into the environment out of the different sources such as waste incineration, sewage treatment, cattle excrement and car exhausts. The pH of surface waters is specified for protection of fish life and to control undesirable chemical reactions.

The Klang River

The Klang River drains an area of 1288 km² from the steep mountain rainforests of the main central range along Peninsular Malaysia (Othman, ME, & Mohamed, 2012). Klang River (3° 13' 01.33", 101° 40' 54.92") is approximately 120 km length. The main river and its tributaries flow through the Federal Territory of Kuala Lumpur and part of the state of Selangor and eventually into the Straits of Malacca. The upper catchment that comprises the Selangor districts of Gombak and Hulu Langat is mountainous and still covered by tropical forest. The middle catchment is the populous urban areas within Kuala Lumpur. The lower catchment includes the Selangor districts of Petaling and Klang. Half of the river basin has been developed for residential, infrastructure and utilities, 20% are permanent forest reserves, and other land uses include institutional, open space, community facilities, commercial, industrial and squatter (Sharif et al., 2015). The rainfall peaks in April and November to December. The average annual temperature ranges between 29 and 32 °C. April to June recorded the maximum temperatures (Bae HK, 2013).

PROBLEM STATEMENT

In water management has led to the development of water quality index of Klang river at Shah Alam area for safeguarding the functional integrity of aquatic ecosystems. The functional integrity of aquatic ecosystems is characterized by a number of physical and chemical factors and their interaction. Ecosystems objectives attempt to describe a desired condition for a given ecosystem through a set of variables, taking into account the ecological characteristics and uses of the water. The quality of water in the Klang River at Shah Alam area is poor and harmful to the aquatic life due to the presence of contaminants. Determination the condition on certain physical and chemical properties of water that could serve as indicators of the overall condition of the aquatic life in Klang River at Shah Alam area.

Aim Of Study And Objectives

According to the Environmental Quality Report (Department of Environment 1989), the Klang River is regarded as one of the rivers which have been seriously affected by pollution. Discharges of wastewater from industrial activities in the Klang River basin have also contributed to increasing levels of organic chemical pollutants in the waterways these pollutants have a negative effects on aquatic life .Therefore this study will investigate of theses pollutants and how much these contaminates effect on aquatic of the Klang river basin. Ecosystems produce multiple services and these interact in complex ways, different services being interlinked, both negatively and positively. Delivery of many services will therefore vary in a correlated manner, but when an ecosystem is managed principally for the delivery of a single service .Other services are nearly always affected negatively. The specific objectives of this study are:

• To assess the water quality of Klang River at the industries area in Shah Alam / Selangor according to the Malaysian standards.

• To identify the impact on the aquatic life, especially the unsubmerged plants and fishes in the study area at Shah Alam industries.

RESEARCH QUESTIONS

This research will discuss the water quality matter of the Klang river parameters. It will focus on what the kind of parameters after each water intake point. This includes the process analysis samples of water that will take from the river basin. Research questions have been developed to meet the objectives in a structured way. These research questions are limited to the Klang river basin include only the at Shah Alam area.

- How much the water quality parameters of Klang River are suitable to Malaysian water quality standards?
- What is the potential effects on the aquatic life in Klang river?

Study Area

The water quality of the Klang River basin, one of the most densely populated areas within the region, is significantly degraded due to human activities as well as urbanization (Othman et al., 2012). A great concern of protecting aquatic ecosystems has significantly increased in order to conserve the availability of the resources through sustainable development (Juntunen et al., 2013). The Klang River Basin is considered as the most developed area in Malaysia with the highest rate of industry growth. The availability of clean water is decreasing due to environmental degradation (Othman et al., 2012). The upper reaches of the Klang River serve as an important source of water supply to an estimated population of two million people in this region, together with its growing industrial activities (Poon, Herath, Sarker, Masuda, & Kada, 2016). The study area is surrounded by a variety of industries that discharge there wastewater to the river after it followed a series of primary and advanced treatments (fig.1). The discharge of industrial wastewater into the river may contain high concentrations of dissolved and suspended contaminants and hazardous chemicals that are likely to have a risk to the aquatic life in the river.



Figure 1: the study area and water sampling of Klang River
Background of Study

The most unique feature of Earth is the existence of life, and the most extraordinary feature of life is its diversity. Approximately 9 million types of plants, animals, protests and fungi inhabit the earth. So, too, do 7 billion people. Two decades ago, at the first Earth Summit, the vast majority of the world's nations declared that human actions were dismantling Earth's ecosystems, eliminating genes, 30 species, and biological traits at an alarming rate. This observation led to a daunting question: How will loss of biological diversity alter the functioning of ecosystems and their ability to provide society with the goods and services needed to prosper?(Cardinale et al., 2012). However, the quality need has often been neglected. Quality should infer holy well a water supply fulfills the needs of the intended user and must be evaluated on the basis of its suitability for the intended use. If two different water supplies are available, one will usually produce better results or cause fewer problems than the other and is therefore considered more acceptable or of better quality. In the case of drinking water, people have always expressed a preference for one water supply over another (Karaman, 2001). (Karaman, 2001). The better tasting one becomes the preferred water supply. This is a personal preference, but taste is a simple evaluation based on the relative acceptability for the intended use. Specific uses will have different quality needs. After chlorination, low salinity rater is of excellent quality for municipal use but may be too corrosive for industrial use without further treatment. Such Salt-affected soils develop from a wide range of factors including: soil type, field slope and drainage, irrigation system type and management, fertilizer and maturing practices, and other soil and water management practices(Bauder, Waskom, Davis, & Sutherland, 2011).

There are many different physical, chemical and biological parameters that can be used to measure water quality and therefore, there is no single answer to the question of what is water quality'(GEMS & Programmes, 2006). Water quality may be assessed in terms of, among others, 'quality for life' (the quality of water needed for human consumption), 'quality for food' (the quality of water needed to sustain agricultural activities), or 'quality for nature' (the quality of water needed to support a thriving and diverse fauna and flora in a region) and the selection of parameters used to assess the quality of water depends largely on the intended use of the body of water (Carr & Rickwood, 2008). Water Quality Index (WQI) is computed based on 6 main

parameters, Biochemical Oxygen Demand (BOD5), Chemical Oxygen Demand (COD), Ammoniacal Nitrogen (NH₃N), pH, Dissolved Oxygen (D.O) and Suspended Solids (SS). The estimation of the water quality condition weather in clean, slightly polluted or polluted category and to classify the rivers in Class I, II, III, IV or V based on Water Quality Index (WQI) and Interim National Water Quality Standards for Malaysia (INWQS) every year (DOE, 2007).

(Centre & Group, 2006) recognized that the major human-induced threats to aquatic ecosystems and biodiversity are unsustainable exploitation, habitat change, pollution, invasions by exotic species, and global climate change. Chemical analyses can give very accurate measures of the amounts of individual substances in a river, but they only consider the water passing at the moment of collection(Masundire & Mackay, 2002).Water returning after irrigation is usually poor in quality since it is usually loaded with compounds of, nitrogen (N) and pesticides and phosphorus (P) if water is laden with sediments from the eroded soil(Mhlanga, Day, Chimbari, Siziba, & Cronberg, 2006).Stated that ecological indicators are mainly used to assess the condition of the ecosystem health, as early-warning signals of ecological problems, and as barometers for trends in ecological resources. It has been recognized that, if chemical analyses were paired with the ecological indicators they can show the state of the water over a long period of time.

Different riverine organisms have been used as ecological indicators in studies on ecosystem health ranging from fish assemblages, macro-invertebrates, diatoms, protozoans, and zooplankton (Brendonck et al., 2003);(Smith, Samways, & Taylor, 2007); (Holeck et al., 2008).According to (Brainwood, Burgin, & Maheshwari, 2004)macro-invertebrates' diversity and richness have been noted to respond more directly to larger scale and localised watershed influences. However, not all organisms are equally sensitive to disturbance, it is equally important to identify species that are restricted to a narrow range of conditions as they may be good indicators of change. A variety of macro-invertebrates require specific habitats, conditions and they also respond differently to in stream and land-scope perturbation. In a study on lake restoration(Pollan & Flautt, 2007) noted that the main focus should be particularly on Ephemeroptera(E), Tricoptera(T), and Plecoptera(P) orders because of their sensitivity to stream conditions and viability to act as stream healthindicators. Comparing pre- and post-restoration data sets, they revealed that these sensitive

macro-invertebrates increased substantially in the months after the restoration project had been completed. It was concluded that the population ratio of the sensitive macro-invertebrate species to tolerant species indicated that the lake was recovering.Moreover, MacDonald and Niemi (2004) noted that resident species' diversity can also be used as indicators of change in ecosystem health as they can reflect an early decline of a habitat.

In Swaziland, a survey was carried out along the Lusutfu River on the response of macroinvertebrateson an agricultural catchment; *Perlidae*and *Heptagenidae*were identified as resident species (services., 2006). It was observed that, the water quality of the river deteriorated, with decrease in these sensitive resident species due to the sugarcane plantations. Therefore, species' diversity was used to set assessment points for the river's health status and water quality monitoring. (Smith et al., 2007)concur that resident species' diversity can be used as ecosystem and river health indicators; in their study the adult *Odonata*which was a resident taxa and occupied a spectrum of aquatic habitats was used successfully to assess the river's health. The results revealed that their diversity scores decreased along environmental gradients showing a similar trend to other macro-invertebrates used earlier on. Thus, these vagile insects reflected the immediate structure of the habitat, as well as the general condition of the river.

METHODOLOGY

Data Collection

Sampling time and locations.

•

ater samples

Due to spatial and temporal variations in water chemistry a monitoring program that will provide a representative and reliable estimation of the quality of surface waters is necessary. Thus, monitoring programs including frequent water samplings at many sites and determination of a large number of physicochemical parameters are usually conducted resulting in a large data matrix, which needs a complex data interpretation(Simeonov et al., 2003).Water quality kits from lab performing analyses, which include containers for all sample parameters to be analyzed and preservatives as required. Disposable gloves (for sampling trace metals), Long-handled plastic dipper (for wetland sampling), large sampling container or wide-mouth plastic mixing jug with lid Lab chain of custody sheets.

• The data collecting and water samples

Water samples collected for the river and stream program are analyzed for a variety of parameters depending on current program needs and resources. The laboratory performing the analyses may require additional special collection procedures for some parameters.

• The Water Quality will assess for certain number of samples will obtain from the Klang river, of five different points. The area of study where chosen nearby some industries and manufacturing activities that dispose waste water to the river. The main reason for that is to estimate the differences in water quality during the flow of the river in different points.

• Method of sampling: is to take a certain number of samples within the same point (each site 3 samples). Then the samples will save in bottles and keep it to be ready for transfer to the laboratory to run with the other parameters.

• The number of samples taken from each point = $(3 \text{ samples} \times 5 \text{ points})$, meaning the total samples 15 samples

• The number of Points that samples be taken, arena in a straight line as shown in Figure (1). Moreover, the distance between points = 30 meters.

Using a sharpie, label each sample container or bottle, time, using GPS in order to record the site location and site number/name is recorded also. Record lab sample kit number on program-specific Data Sheet. Collect water samples before stirring up the stream bottom.

Lab Experiments

Lab Experiments uses data tests that are related to :

• Water Temperature Test

It is clear from these reviews that temperature is an important physical property of flowing waters because of its enormous significance for all freshwater organisms dissolved oxygen measurement(Webb, Hannah, Moore, Brown, & Nobilis, 2008).

• pH Test

pH is a measure of the acidic or basic (alkaline) nature of a solution. The concentration of the hydrogen ion [H +] activity in a solution determines the pH. Mathematically this is expressed as:pH = -log [H ⁺](Kumar & Puri, 2012). Use the Laboratory pH Meter device to measure pH level in water Samples.

• Total Solids (TS)

Total solids is a measure of all the suspended, colloidal, and dissolved solids in a sample of water. This includes dissolved salts such as sodium chloride, NaCl, and solid particles such as silt and plankton. An excess of total solids in rivers and streams is a very common problem (Patil, Sawant, & Deshmukh, 2012).

• Ammonia Nitrogen Experiment

Ammonia exists in aqueous solution in two forms: NH3 and NH4. Although both forms may be toxic to fish, unionized ammonia (NH3-N) is the more toxic form at low concentrations(Chen, Ling, & Blancheton, 2006).

• Nitrate (NO₃-N)

The nitrate is the stable form of combined nitrogen for oxygenated systems. aquatic life can be affected indirectly by increased nitrate concentrations in the water.

• Total Suspended Solid Experiment (TSS)

Suspended sold pollutants due to external events would cause significant adverse impacts on the river water quality, and also cause the increased turbidity of the river water. SS pollution should be effectively evaluated and controlled(Lai, Tu, Yang, Surampalli, & Kao, 2013).

• Conductivity

Conductivity is a measure of water's capability to pass electrical flow. This ability is directly related to the concentration of ions in the water . A sudden increase or decrease in conductivity in a body of water can indicate pollution.

• Turbidity

Turbidity is caused by particles suspended or dissolved in water that scatter light making the water appear cloudy or murky. Particulate matter can include sediment -especially clay and silt.

• Phosphate (PO4 ³⁻)

Phosphate PO4 ³⁻ form of Phosphorus. Phosphate can have major consequences on aquatic life when present in a concentration above 0.05 mg/L. (Kumar & Puri, 2012).

• Dissolved Oxygen (DO) Experiment

Dissolved oxygen concentration (DO) is considered the most important water quality. An oxygen meter has two components—the sensor (sometimes called the probe) and the meter. Various types of sensors are available, but they all operate in basically the same way: the sensor reacts with oxygen and an electrical signal is produced in proportion to the oxygen concentration(Hargreaves & Tucker, 2002).

• Chemical Oxygen Demand (COD) Test

Chemical oxygen demand (COD) is one of the most widely used metrics in the field of waterquality analysis in many countries, and is frequently used as an important index for controlling the operation of treatment plants, effluent monitoring, and taxation of pollution (Zheng et al., 2008).Use the DRB200 COD digestion device to measure chemical oxygen demand (COD) Water Samples.

• Biochemical Oxygen Demand (BOD)

Measurement of BOD has long been the basic means for determining the degree of water pollution. It is the most important measurement made in the operation of a sewage treatment plant by compassion of the BOD income from sewage with the BOD of the effluent water leaving the plant.

Static Program Data Analysis

Water quality data are often collected at different sites over time to improve water quality management. Water quality data usually exhibit the following characteristics: non-normal distribution, presence of outliers, missing values, values below detection limits (censored), and serial dependence. It is essential to apply appropriate statistical methodology when analyzing water quality data to draw valid conclusions and hence provide useful advice in water management(Fu & You-GanWang, 2012). The Static program data analysis that will use for data analyzing is Graphical analysis of water quality data by using excel worksheet program. Graphs provide visual summaries of data, quickly and clearly describe important information contained in the data, and provide insight for the analyst into the data under scrutiny. Graphs will help to determine if more complicated modeling is necessary.

Expected Outcome and the Importance and the Benefits of the Research

This study will come out with clear picture of the water quality of Klang River, specifically the affect of industry growth on the water and aquatic life. This study will provide a new data in order to investigate and assess the water quality in this particular industries area. Moreover, This study will show the condition of Klang river and the suitability for the aquatic including fishes and the unsubmerged plants. Checking the appropriateness will be done by comparing the gathered data with the Malaysian water quality standards to achieve that goal. There is aspect to find a high concentration of the contaminants that will affected the life style in this area. Decrease in the Dissolved Oxygen (DO) and non-matching of the Biochemical Oxygen Demand (BOD5), Chemical oxygen demand (COD) and the others parameters to water quality index and Malaysian Water Quality standards as aspect finding in this study. This study will pay attention by regulators to reduce the discharge of industrial effluents into the river in a manner guaranteed to be the river's ability to address the contaminants naturally with no harm to the environments and aquaculture.

CONCLUSION

The Klang River considering as the most developed area in Malaysia with the highest rate of industry growth. The availability of clean water is decreasing due to environmental degradation (Othman et al., 2012). The use of excess chemicals and pollutants due to the manufacturing and industry activities exacerbating the crisis and the worsening water pollution Klang River. In addition to that, these pollutants are difficult to treat by the river naturally, which would adversely affect aquatic organisms in this region. Klang River as an artery that feeds the city of Kuala Lumpur and Selangor state in general in order to that the necessity comes to protect this resource, especially on aquatic and plant level. Furthermore, this study will improve that the river environmental factors have directly and indirectly affected aquatic assemblages.

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Fungsi Dan Makna Kata Penghubung Waktu Dalam Kompilasi Lirik Lagu Pekaka Bercerita

Siti Noor Riha Sulong, Normaliza Abd Rahim

ABSTRAK

Kajian ini adalah bertujuan untuk mengkaji tentang fungsi dan makna kata penghubung waktu yang digunakan dalam kompilasi lirik lagu Pekaka Bercerita. Kajian ini adalah bertunjangkan kepada tiga matlamat utama. Pertama, kajian ini adalah untuk mengenal pasti dan menghuraikan fungsi kata penghubung waktu yang digunakan oleh penulis lirik dalam kompilasi lirik lagu Pekaka Bercerita. Kedua, kajian ini akan membincangkan kata penghubung waktu yang digunakan dalam lirik lagu Pekaka Bercerita ini dari sudut makna linguistik yang meliputi makna dari segi nahu dan leksikalnya. Ketiga, kajian ini adalah bertujuan untuk menghuraikan makna kata penghubung waktu dari segi makna sosiobudaya dari aspek semantik dan pragmatik. Kajian ini dijalankan dengan menggunakan Teori Relevans yang dipelopori oleh Sperber & Wilson (1986, 1995) yang menekankan fungsi kognitif, iaitu melibatkan konteks, kesan konteks (kognitif) dan juga usaha memproses. Seterusnya, kajian ini pula adalah dijalankan dengan mengaplikasikan kaedah penelitian kualitatif deskriptif. Selanjutnya, data kajian yang digunakan dalam kajian ini adalah berdasarkan kepada senikata dalam kompilasi lirik lagu Pekaka Bercerita karya Normaliza Abd Rahim, 2016. Karya ini telah diterbitkan oleh Dewan Bahasa dan Pustaka. Setiap pengolahan dari lirik lagu ini sudah pasti memberi impak yang besar kepada masyarakat khususnya golongan kanak-kanak. Ringkasnya, hasil kajian menunjukkan bahawa tidak semua kata penghubung waktu itu membawa makna seperti yang terdapat dalam ayat mahupun ujaran.

Kata Kunci: Karya Sastera, Lirik Lagu, Kata Penghubung Waktu, Kanak-kanak.

PENGENALAN

Tidak dapat dinafikan bahawa bahasa merupakan alat komunikasi yang amat penting bagi manusia. Melalui bahasalah, manusia dapat melahirkan perasaan, pendapat , keinginan, maklumat, maksud, dan sebagainya. Oleh sebab bahasa merupakan sesuatu unsur yang dinamik, maka bahasa sentiasa dianalisis dan dikaji dengan menggunakan pelbagai pendekatan. Antara pendekatan yang digunakan ialah melalui pendekatan wacana. Hal ini demikian kerana, kajian wacana merupakan satu kajian yang akhirnya akan menjurus kepada penghasilan ilmu bahasa yang memberi fokus kepada makna dan konteks. Makna ayat yang dilihat secara terpisah akan mempunyai maksud yang berbeza atau persekitaran linguistik yang ingin disampaikan. Oleh itu, untuk memperlihatkan kesinambungan idea dalam ayat-ayat yang membina wacana, setiap wacana perlu mempunyai dua ciri yang penting, iaitu kohesi dan juga koherensi.

Kohesi merujuk kepada ciri-ciri linguistik yang membantu dalam menghubungkan satu urutan ayat sehingga melahirkan sesuatu teks yang padu. Manakala koherensi pula merujuk pada bentuk-bentuk bahasa yang memperlihatkan perkaitan logik antara idea dalam sesuatu teks. Pembahagian kohesi yang diberi oleh Halliday & Hassan (1976) meliputi beberapa aspek iaitu rujukan, penggantian, ellipsis, dan penghubung. Wong Kheng Seng (1993) pula menyatakan bahawa tautan adalah membabitkan organisasi dalaman sesuatu teks dan hubungan antara unsur dalam sesebuah teks yang dimungkinkan melalui penggunaan rujukan, pengguguran, kata hubung dan pautan leksikal. Jadi, kohesi dan koherensi dalam sesuatu teks secara tidak langsung akan bahawa terdapat pelbagai bentuk bahasa yang boleh digunakan untuk menunjukkan menyampaikan maklumat dan fakta dalam sesuatu wacana supaya kesinambungan ideanya wujud. Penggunaan kata hubung merupakan salah satu daripada beberapa cara untuk menghubungkan klausa dalam sesuatu ayat untuk mewujudkan pertautan dan keteraturan fikiran. Halliday & Hassan (1975) menyatakan bahawa kata penghubung adalah merupakan alat tautan yang berfungsi untuk menghubungkan unsur linguistik dengan unsur linguistik yang lain atau dalam konteks hubungan semantik sebagai satu ketentuan cara yang berhubungan secara sistematik dengan yang mendahuluinya (Sanat Md. Nasir, 1992). Dengan kata lain, penghubung boleh dikaitkan dengan kata hubung yang digunakan untuk menghubungkan antara kata dengan kata, frasa, klausa, ayat, dan satuan yang lebih besar.

SOROTAN KAJIAN

Nguk Mui Yap & Ahmad Khair Mohd Nor (2003) telah melakukan penelitian yang mendalam bagi penggunaan kata hubung dalam karya kreatif ini. Dalam kajiannya, Nguk Mui Yap & Mohd Nor telah melihat penggunaan kata hubung tetapi dan atau dalam novel imam. Kajian yang dilakukannya juga adalah merupakan kajian yang berbentuk analisis kandungan yakni kajian yang mengkaji kata hubung gabungan tetapi dan atau sahaja di dalam ayat bahasa Melayu. Jadi, tumpuan yang utama dalam kajiannya adalah berfokus kepada sudut fungsi dan penyebaran kata hubung berkenaan dalam ayat sahaja. Kajian ini juga turut mengaplikasikan penggunaan teori relevan yang dipelopori oleh Sperber & Wilson (1995) bagi menyokong hasil dapatan kajian. Bagi kata hubung gabungan atau, penggunaannya hanya digunakan dalam satu keadaan sahaja iaitu sebagai kata penghubung dalam ayat yang menghubungkan kata, frasa dan klausa. Kata hubung gabungan atau lazimnya hanya digunakan untuk menyambungkan kata, frasa atau ayat yang mendukung fakta yang berurutan. Di samping itu, penelitian yang dilakukan oleh Nguk Mui Yap & Ahmad Khair Mohd Nor (2003) ini turut menyentuh tentang cara penggabungan ayat yang menggunakan kata hubung tetapi dan atau ini dibicarakan dalam dua keadaan iaitu penggabungan dengan pengguguran bahagian yang sama dalam ayat dan penggabungan tanpa pengguguran mana-mana bahagian dalam ayat. Hasil daripada penganalisaan didapati penggunaan kata hubung tetapi dalam ayat lebih banyak berbanding kata hubung gabungan atau. Bagi penggunaan kata hubung gabungan tetapi dalam ayat, penggunaannya digunakan dalam dua keadaan iaitu sebagai kata hubung dalam ayat dan sebagai kata hubung antara ayat yang lebih merujuk kepada unsur gaya bahasa atau penanda wacana dalam ayat. Bagi penyebarannya, kata hubung tetapi ini didapati dalam dua penyebaran iaitu pada bahagian tengah dan hadapan ayat. Hal ini selaras dengan kenyataan Zaitul Azma Zainon Hamzah (2006) yang menyatakan bahawa kata hubung merupakan kata yang diberikan tugas untuk menjadi agen yang memancangkan ayat serta menzahirkan makna ayat yang disampaikan agar menjadi lebih tepat.

Seterusnya, Norfazila Abd Hamid (2014) turut menyentuh tentang kata hubung di dalam kajiannya. Dalam kertas kerja tersebut telah dihuraikan tentang fungsi kata hubung 'dengan' dalam ayat berlandaskan teori relevan. Fungsi kata hubung "dengan" yang dihuraikan berlandaskan teori relevan ini dikutip daripada data korpus dalam novel Salina karya A. Samad

Said dan teori ini sememangnya mampu mengaitkan maklumat linguistik dan pragmatik. Hasil kajian jelas menunjukkan bahawa maklumat pragmatik dapat membantu makna sesuatu ayat bahasa semulajadi diinterpretasi dengan tepat oleh pendengar sama seperti makna yang dihajati oleh penutur. Pentakrifan makna yang hanya berlandaskan maklumat semantik linguistik ini tidak mencukupi. Oleh itu, dengan adanya penggabungan ilmu linguistik dan maklumat yang ada dalam ilmu pragmatik akan memantapkan lagi penginterpritasian makna. Sehubungan itu, dapatan kajian menunjukkan kata hubung "dengan" bukan sahaja bertindak sebagai kata hubung tetapi turut memainkan fungsi lain dalam dalam menginterpretasikan makna. Kajian ini dilihat hampir sama dengan hasil kajian yang dijalankan oleh Siti Khariah Mohd Zubir (2007) yang melihat bahawa kata hubung sebagai satu alat yang kohesif dan efektif bagi menghubungkan unsur-unsur linguistik dan semantik yang terdapat secara berturutan.

Selanjutnya, Lim Kai Chee (2011) juga melakukan kajian yang hampir sama iaitu kajian yang berkaitan dengan penggunaan kata hubung dalam teks. Walau bagaimanapun, kajian Lim Kai Chee (2011) ini lebih menjurus kepada penggunaan yang mana dan di mana sebagai kata hubung. kajian yang dilakukan itu adalah bertujuan untuk melihat sejauh mana penulisan dalam bahasa Melayu telah dipengaruhi oleh bahasa Inggeris. Data yang diambil juga adalah sedikit berbeza dengan kajian-kajian lain yang sebelumnya. Hal ini demikian kerana, kajian ini memberi fokus kepada data yang diambil daripada paparan-paparan teks di dalam surat khabar tempatan. Kajian yang dilakukan oleh Lim Kai Chee (2011) ini juga turut mengaplikasikan penggunaan teori relevan yang dipelopori oleh Sperber & Wilson (1995) bagi menyokong semua dapatan bagi hasil kajian. Kesimpulannya, kajian ini dilihat dapat menunjukkan bahawa penggunaan kata hubung di mana dan yang mana dalam akhbar-akhbar tempatan sebagai sesuatu yang sudah boleh diterima umum sebagai kata hubung. Selain itu, hasil kajian itu juga memperlihatkan bahawa perkataan di mana banyak digunakan dalam akviti atau kejadian, konsep abstrak, tempat, masa, dan juga keadaan. Kenyataan ini juga turut disebut oleh Azman Wan Chik (2000) yang menjelaskan bahawa konteks penginterpretasian makna sesebuah wacana akan menjadi lebih efektif jika struktur penggunaannya lebih diperluas dan diperkembangkan.

Seterusnya, Tatiana Darofeeva & Luidmila Demidyuk (2004) juga menjalankan kajian yang berkaitan dengan kata hubung. Kajian yang dilakukan oleh Tatiana Darofeeva & Luidmila

Demidyuk (2004) ini ialah berkaitan dengan perbandingan antara kata sendi dan juga kata hubung di dalam bahasa Indonesia dan juga bahasa Melayu. Tujuan kajian yang dilakukan adalah untuk menyelesaikan tentang kelainan dua bahasa tersebut khususnya bagi penggunaan kata sendi dan juga kata hubung dalam ayat. Hasil daripada kajian yang dijalankan telah menampakkan dengan jelas bahawa bahasa Melayu dan juga bahasa Inggeris mempunyai perbezaan yang sangat ketara dari segi jumlah kata-kata mahupun makna disebalik kata-kata yang diungkapkan. Hasil kajian yang dijalankan oleh Tatiana Darofeeva & Luidmila Demidyuk (2004) dilihat hampir sama dengan hasil kajian oleh Zurinah Hassan (2008) yang menyebut bahawa kesukaran untuk mendalami maksud dan penggunaan sesuatu unsur dalam ayat atau perkataan boleh diungkapkan sekiranya pendengar memahami apa yang disampaikan oleh pewacana dengan hanya memahami unsur kata tugas yang diserapkan dalam ayat.

OBJEKTIF KAJIAN

Memandangkan kata hubung memainkan peranan sebagai salah satu unsur kohesi dalam wacana, maka kajian ini akan menganalisis kata penghubung waktu dalam kompilasi lirik lagu *Pekaka Bercerita* karya Normaliza Abd Rahim. Kajian ini adalah merupakan kajian yang mengkaji tentang fungsi dan makna kata penghubung waktu dalam wacana karya kreatif lirik lagu *Pekaka Bercerita*. Sehubungan dengan hal itu, wacana yang menggunakan kata penghubung waktu akan dipetik dan juga dikaji dari segi makna linguistik dan juga makna sosiobudaya. Makna linguistik dalam konteks kajian ini ialah tentang makna kata penghubung waktu dari segi makna leksikal serta makna struktural (Zaitul Azma Zainon Hamzah, 2002). Selanjutnya, makna sosiobudaya pula merangkumi aspek semantik dan pragmatik yang di dalamnya mengandungi konsep lakuan pertuturan (Zaitul Azma Zainon Hamzah, 2002). Dengan kata lain, fokus kajian ini adalah untuk mengkaji fungsi dan makna kata penghubung waktu yang akan dianalisis mengikut konteks makna linguistik dan makna sosiobudaya yang menggabungkan ilmu semantik dan pragmatik dengan bertunjangkan kepada teori Relevans yang diasaskan oleh Sperber & Wilson (1986, 1995).

METODOLOGI

Batasan kajian merupakan satu perkara yang sangat penting dalam perjalanan sesebuah kajian. Hal ini demikian kerana, batasan kajian merupakan rujukan asas dan pegangan sebelum merancang strategi sesebuah kajian. Jadi, batasan kajian bagi kajian ini adalah meliputi beberapa bahagian penting iaitu merangkumi sampel, instrumen, prosedur dan juga teori bagi menghasilkan kajian yang sempurna. Berikutan dengan hal itu, sampel kajian bagi kajian ini adalah dengan memanfaatkan teks kompilasi lirik lagu Pekaka Bercerita sebagai bahan utama kajian. Teks lirik lagu ini merupakan karya seni Normaliza Abd Rahim. Karya khas untuk golongan kanak-kanak ini adalah merupakan sebuah karya yang telah diterbitkan oleh Dewan Bahasa dan Pustaka. Secara keseluruhan, lirik lagu Pekaka Bercerita ini mempunyai 20 buah lirik lagu. Walau bagaimanapun, kajian ini hanya akan melibatkan 5 buah lagu sahaja kerana hanva lagu-lagu ini yang memanfaatkan penggunaan kata penghubung waktu . Lagu-lagu tersebut terdiri daripada lagu Sungai Duyung, Mengapa Gagak Berbulu Hitam, Burung Cenderawasih, dan Budak Membina Negeri. Kajian ini merupakan kajian analisis kandungan, maka analisis data akan dilakukan dengan menganalisis kehadiran kata penghubung waktu dalam lirik lagu yang terlibat dengan menghuraikannya berdasarkan fungsi dan makna sosiobudayanya dengan bertunjangkan kepada teori Relevans yang dipelopori oleh Sperber & Wilson (1986, 1995). Teori relevans yang dipelopori oleh Sperber & Wilson (1986, 1995) ini menggariskan tiga prinsip utama iaitu terdiri daripada konteks, kesan konteks dan juga kos proses. Prinsip konteks ini tidak hanya mlihat kepada maklumat tentang persekitaran fizikal yang paling dekat dengan ujaran yang terdahulu. Malah, prinsip konteks ini juga turut merangkumi masa depan, kepercayaan dan keagamaan, andaian am tentang budaya dan juga kepercayaan terhadap pemikiran pewacana. Seterusnya, prinsip kesan konteks pula menjurus kepada kesan kognitif yakni andaian awal yang ada pada pendengar. Akhir sekali, berkaitan dengan kos proses iaitu sesuatu yang memerihalkan tentang usaha memproses dalam menginterpretasikan setiap makna ujaran yang diujarkan oleh pewacana (Sperber & Wilson, 1995). Ringkasnya, perinsip-prinsip yang digariskan oleh Sperber & Wilson (1995) ini adalah merupakan prinsip yang boleh memberikan keutamaan kepada bentuk komunikasi yang boleh difahami di antara penutur atau pewacana kepada pendengar.

Keputusan dan Perbincangan

Penggunaan kata hubung waktu dalam kompilasi lirik lagu *Pekaka Bercerita* akan dihuraikan dari sudut fungsi dan maknanya. Berikutan dengan hal itu, makna kata penghubung waktu ini akan dihuraikan berdasarkan kepada makna linguistik dan juga makna sosiobudaya. Bertepatan dengan pendapat Nor Hashimah Jalaluddin (1990) menyatakan bahawa pemberian makna dari sudut pragmatik ini adalah lebih menjurus kepada pemberian maklumat bukan linguistik yang akan membantu para pendengar memperoleh makna yang disampaikan dengan lebih tepat. kenyataan ini turut disokong oleh Normaliza Abd Rahim (2014) yang menyatakan bahawa makna pragmatik adalah lebih jelas jika ditambah dengan pertimbangan konteks situasi, sehingga makna yang diperoleh adalah makna wacana yang sempurna. Contoh bagi penggunaan kata penghubung waktu dalam lirik lagu *Pekaka Bercerita* ini boleh dilihat dalam lagu *Sungai Duyung* menerusi bait yang berikut.

Data 1: Sungai Duyung

(Lirik: Normaliza Abd Rahim)

Pada zaman dahulu Ikan duyung suka tinggal di laut Yang dalam dan sejuk airnya Tenggelam dan timbul datang bermain di pantai

Ikan duyung Sering terlihat di atas batu di permukaan laut Di waktu senja ketika matahari akan terbenam

Ikan duyung Datang dari sebuah lautan Mencari tempat baharu Sampai ke muara sungai Buah-buahandan bunga-bungaan ' Redup selalu

*Ikan duyung Memudiki sungai sampai ke hulu Nyatalah sesuai untuk didiami Akhirnya mereka pindah juga dari sini Kawasan air yang lebih terbuka di hati Ikan duyung Pindah semula ke tempat asal Namun, orang sedar akan kehadirannya Lalu dinamakan Sungai Duyung

Ikan duyung Dating dari sebuah lautan Mencari tempat baharu Sampai ke muara sungai Buah-buahan dan bunga-bungaan Redup selalu

*Ikan duyung Memudiki sungai sampai ke hulu Nyatalah sesuai untuk didiami Akhirnya mereka pindah juga dari sini Kawasan air yang lebih terbuka di ha

Berikut ialah bait yang terlibat bagi data 1: R2{5} Ikan duyung {6}Sering terlihat di atas batu di permukaan laut {7}Di waktu senja *ketika* matahari akan terbenam

(Normaliza Abd Rahim, 2016)

Bait yang dipetik dalam lirik lagu *Sungai Duyung* di atas ialah *Di waktu senja ketika matahari akan terbenam*. Kata penghubung waktu yang digunakan oleh penulis lirik dalam lagu ini ialah kata penghubung waktu *ketika*. Jika diperhatikan, kata penghubung waktu ketika di atas adalah berfungsi sebagai penyambung ayat yang menjadi keterangan kepada ayat utama atau klausa bebas supaya bahagian ayat keterangan kepada ayat utama menjadi sebahagian daripada ayat yang lebih besar yakni dikenali sebagai ayat berkait. Oleh itu, jelas menunjukkan bahawa dalam R2 {7} di atas, penulis telah menggabung jalinkan dua ayat induk yang utama iaitu ayat induk (1) *Di waktu senja* dan ayat keterangan (2), *ketika matahari akan terbenam*. Rajah1 bagi ayat ini akan menunjukkan fungsi kata penghubung waktu *ketika* dapat dilihat seperti yang berikut:



Rajah 1: Penggunaan Kata Hubung Waktu Ketika Dalam Lagu Sungai Duyung

Dari aspek leksikal, perkataan ketika dalam rajah di atas membawa maksud pada tempoh, masa atau merujuk kepada waktu yang tertentu. Jika dilihat pula pada kedudukan perkataan ketika dalam ayat tersebut, maka barulah perkataan ini boleh dikategorikan sebagai perkataan yang berfungsi sebagai kata penghubung waktu. Seterusnya, dari segi makna linguistik pula, kata penghubung waktu ketika ini menerangkan tentang apa yang telah dinyatakan dalam klausa inti (ayat induk) dan klausa bawahan (ayat keterangan). Perkataan ketika dalam bait di atas itu adalah sesuatu yang berlaku serentak atau bersama-sama. Hal ini demikian kerana, penggunaan kata penghubung waktu ini boleh berfungsi sebagai kata yang menerangkan tempoh atau masa kejadian bagi sesuatu perkara. Dalam bait di atas, kita dapat melihat bahawa peristiwa dalam ayat induk iaitu di waktu senja adalah berlaku serentak dan seiring dengan peristiwa dalam ayat keterangan iaitu matahari akan terbenam. Apabila mengambil kira konteks penggunaan kata penghubung waktu berdasarkan makna sosiobudaya pula, pendengar pasti memperoleh maklumat lain pula berdasarkan kepada bait {7} dalam R2 dia atas iaitu tentang kebiasaan masyarakat Melayu yang berpegang kepada pantang larang yang melarang keras keluar daripada tempat tinggal atau rumah sewaktu maghrib atau senja yakni sebelum tibanya waktu malam kerana diyakini waktu senja tersebut adalah waktu keluarnya syaitan-syaitan yang boleh mengganggu manusia. Sehubungan dengan hal itu, wajarlah jika penulis lirik menerapkan bait {5} dan {6}

dalam lagu *Sungai Duyung* ini agar dapat menyempurnakan maksud tersirat bagi keseluruhan maksud R2 dalam lirik lagu ini. Bait tersebut berbunyi seperti {5} *Ikan Duyung* dan {6} *Sering terlihat di atas batu di permukaan laut.*

Dalam bait ini, penulis cuba menyampaikan bahawa ikan duyung akan sentiasa keluar daripada tempat tinggalnya pada waktu hampir senja sahaja bagi melihat alam sekeliling. Kenyataan di atas boleh dibuktikan dengan adanya penggunaan perkataan sering di awal bait {6} di atas. Jadi, di sini penulis lirik cuba untuk mendidik minda kanak-kanak agar mencontohi tabiat ikan duyung ini yang hanya akan keluar pada waktu senja dan akan kembali ke tempat tinggal atau rumah masing-masing sebelum tibanya waktu malam. Meskipun penulis lirik menggunakan watak ikan duyung sebagai watak utama dalam lirik ini, tetapi penyampaiannya masih lagi boleh diterapkan kepada golongan kanak-kanak, memandangkan golongan kanak-kanak seringkali menggunakan watak-watak binatang seperti kura-kura, kancil, buaya dan lain-lain sebagai ikon dalam proses memotivasikan diri mereka (Nik Hassan Nik Abd Kadir, 2007). Malah, Normaliza Abd Rahim (2014) juga menyebut bahawa sekiranya pendengar dapat memahami dan memberi tindak balas yang baik, maka ini bermakna penulis lirik telah berjaya mengekspoiltasi minda pendengar khususnya golongan kanak-kanak. Hal ini sama sekali bersesuaian dengan teori relevans yang menyatakan bahawa sesuatu ayat akan menjadi relevan, yakni sesuatu andaian digabungkan dengan konteks bagi melahirkan impikasi dan kesan konteks yang membolehkan ianya kembali pada masa atau lebih dikenali sebagai proses deduktif yang terdahulu (Sperber & Wilson, 1995).

Seterusnya, kata penghubung waktu lain yang digunakan dalam kompilasi lirik lagu *Pekaka Bercerita* ialah kata penghubung waktu *selep*as yang boleh dilihat dalam bait lirik lagu *Mengapa Gagak Berbulu Hitam di bawah*:

Data 2: Mengapa Gagak Berbulu Hitam

(Lirik: Normaliza Abd Rahim)

Suatu hari Si merak terjumpa sejenis pokok Boleh membuat warna Merak mahu kelihatan cantik Dengan mewarnakan bulu-bulunya

Merak sudah bersiap sedia Gagak diminta datang membantu Selepas mewarna si merak gembira Dia cantik seperti ratu

Tiba pula giliran si gagak Diwarnakan bulunya oleh si merak Namun si gagak mula hilang sabar Akibat perutnya yang merasa lapar

Atas desakan si gagak sendiri Satu warna sudah selesai Si gagak lantas terbang ke sungai Dengan haloba memakan bangkai

Kini gagak hanya berbulu hitam Dek keran sifat dirinya yang gelojoh Kini gagak hanya berbulu hitam Gagak langsung menjadi hodoh Kesian gagak hey

Berikut ialah bait yang terlibat bagi data 2 di atas:

R2 {6} Merak sudah bersiap sedia

- {7} Gagak diminta datang membantu
- {8} Selepas mewarna si merak gembira
- {9} Dia cantik seperti ratu

(Normaliza Abd Rahim, 2016)

Bait yang di kenal pasti menggunakan kata penghubung waktu dalam lirik lagu *Mengapa Gagak Berbulu Hitam* ini ialah bait {8} iaitu *Selepas mewarna si merak gembira*. kata penghubung waktu yang telah digunakan oleh penulis lirik dalam seni kata lagu ini ialah kata penghubung waktu *selepas*. Fungsi kata hubung waktu *selepas* ini adalah merupakan subgolongan kata tugas yang bertujuan untuk memancangkan ayat keterangan waktu ke dalam ayat induk. Jadi, dalam bait tersebut terdapat satu ayat keterangan waktu yang tidak setara tarafnya iaitu *selepas mewarna* dan satu ayat yang setara iaitu *si merak gembira*. Fungsi kata penghubung waktu *selepas* ini boleh digambarkan dalam rajah 2 yang berikut:



Rajah 2: Penggunaan Kata Hubung Waktu *Selepas* Dalam Lagu Mengapa Gagak Berbulu Hitam

Sekiranya dihuraikan makna perkataan *selepas* dari sudut leksikal, perkataan ini membawa makna perkara yang telah berlalu, sudah, telah, dan selesai. Walau bagaimanapun, perkataan *selepas* dalam bait lirik lagu *Mengapa Gagak Berbulu Hitam* ini adalah berfungsi sebagai kata penghubung waktu yang menjelaskan tentang (1) perasaan burung merak setelah selesai menjalankan tugasnya iaitu mewarna tubuh si gagak dan (2) kepuasan si merak kerana menjadi lebih cantik dari si gagak. Hasil penelitian juga menunjukkan bahawa ayat pancangan hadir terlebih dahulu sebelum ayat induk. Hal ini menunjukkan bahawa peristiwa dalam ayat keterangan berlaku secara berurutan dengan peristiwa dalam ayat induk. Selain itu, berdasarkan kepada bait {7} juga, pendengar pasti akan memperoleh maklumat logik yang lain sekiranya diinterpretasi melalui interpretasi semantik. Antara maklumat tersebut ialah (1) si merak hanya akan merasa gembira setelah tugasan yang diarahkannya selesai. Jadi, jika tugasan mewarna badan gagak tidak selesai, mustahil sama sekali untuk merasa gembira meskipun badannya sendiri telah siap diwarna dengan cantik oleh si gagak. Walau bagaimanapun, makna sebenar kata penghubung waktu *selepas* ini tidak akan dapat dihurai hanya dengan makna semantik semata-

mata. Hal ini demikian kerana, penggunaan kata penghubung waktu selepasa dalam bait ini tidak dapat menerangkan waktu kejadian dengan tepat. Kata penghubung waktu selepas dalam bait ini mungkin terjadi (a) sebaik sahaja selesai mewarna, (b) beberapa ketika selepas mewarna, (c) agak lama selepas mewarna dan (d) sepanjang masa selepas mewarna. Oleh hal yang demikian, masalah kejituan makna bait lirik selepas mewarna ini hanya dapat dijelaskan dengan menggabungkan ilmu semantik dan pragmatik. Jadi, berdasarkan logik interpretasi semantik, pragmatik, budaya, sosial dan psikologi. Jadi, bait {8} menjelaskan bahawa sebaik sahaja atau sejurus sahaja selesai mewarna, maka hati si merak telah berbunga rianbg dan bahagia kerana berjaya selesaikan tugasnya dengan mudah, serta merasa gembira kerana melihat dirinya yang jauh lebih cantik berbanding si gagak kerana hanya diwarnakan dengan satu warna sahaja iaitu hitam. Si merak juga merasa gembira selepas mewarna kerana gagak kelihatan hodoh itu bukanlah kerana kesilapan dirinya tetapi disebabkan oleh kegelojohan diri gagak sendiri. Oleh itu, si merak boleh merasa gembira dengan dirinya kerana tidak terbeban dengan rasa bersalah kepada si gagak yang hodoh.

Seterusnya, kata penghubung waktu lain yang digunakan dalam kompilasi lirik lagu *Pekaka Bercerita* ialah kata penghubung waktu *hingga* yang boleh dilihat dalam bait lirik lagu *Burung Cenderawasih* di bawah:

Data 3: Burung Cenderawasih

(Lirik: Normaliza Abd Rahim)

Cenderawasih Burung yang cantik bulunya Terbang dan hinggap Di pucuk pohon tinggi

Cenderawasih Burung yang cantik bulunya Terbang dan hinggap Di pucuk pohon tinggi

Cenderawasih bertelur tidak banyak Selalunya sebiji Sudah bertelur ia terbang pergi

Pit pit pipit pit pit pipit

Jagakan anakku pipit

Pit pit pipit pit pit pipit Jagakan anakku pipit

Pipitlah yang mengeramkan telur hingga menetas Ibu cenderawasih tidak pulang lagi ke sarang Leka terbang kesana kemari di angkasa Lupa akan sarang dan anaknya Kerna bulunya asyik dipelihara

Pit pit pipit pit pit pipit Jagakan anakku pipit

Pit pit pipit pit pit pipit Jagakan anakku pipit

Cenderawasih asyik dengan kecantikan, rasa tinggi diri Anak pun tidak berjaga sendiri

Pit pit pipit pit pit pipit Jagakan anakku pipit

Pit pit pipit pit pit pipit Jagakan anakku pipit Jagakan anakku pipit Jagakan anakku pipit

Berikut ialah bait yang terlibat dalam data 3 di atas:

R6 {16}Pipitlah yang mengeramkan telur hingga menetas

{17}Ibu cenderawasih tidak pulang lagi ke sarang

{18}Leka terbang kesana kemari di angkasa

{19}Lupa akan sarang dan anaknya

{20}Kerna bulunya asyik dipelihara

(Normaliza Abd Rahim, 2016)

Bagi lirik lagu *Burung Cenderawasih* di atas, pengggunaan kata penghubung waktu yang telah dikena pasti ialah kata penghubung waktu *hingga*. Kata hubung waktu *hingga* ini merupakan kata hubung waktu yang boleh dikategorikan sebagai kata kata tugas yang berfungsi untuk menyambung ayat yang tidak setara sifatnya kepada ayat induk dan ayat yang dihasilkan ialah ayat majmuk pancangan. Dalam bait {6} di atas, ayat induknya ialah *pipitlah yang mengeramkan*

telur. Manakala ayat keterangannya pula ialah *hingga menetas*. Rajah 3 di bawah ini dapat menunjukkan fungsi kata penghubung waktu *hingga* dalam bait tersebut dengan lebih terperinci.



Pipitlah yang mengeramkan telu

Rajah 3: Penggunaan Kata Hubung Waktu Hingga Dalam Burung Cenderawasih

Perkataan *hingga* yang digunakan oleh penulis lirik ini hanya akan membawa maksud had waktu yang tertentu atau sampai kadar waktu yang tertentu sahaja. Hal ini demikian kerana, jka dilihat dari aspek leksikalnya, penggunaan perkataan *hingga* tersebut dalam bait lirik lagu ini hanyalah sekadar sebagai kata penghubung waktu sahaja. Walau bagaimanapun, dari aspek linguistiknya, penggunaan kata penghubung waktu *hingga* ini membawa maksud proses untuk menerangkan waktu berakhirnya sesuatu perkara , peristiwa mahupun perbuatan (Arbaie Sujud et. al, 2001). Oleh itu, kata penghubung waktu *hingga* ini secara tidak langsung membawa maksud apa yang dibawa oleh ayat induk iaitu pipitlah yang mengeramkan telur akan berakhir apabila hadirnya ayat dalam ayat keterangan iaitu hingga menetas seperti yang ditunjukkan di atas. Dengan makna lain, bait ini menceritakan tempoh aktu pengeraman telur yang telah dilakukan oleh burung pipit telah berakhir bilamana telur tersebut telah menetas. Seterusnya, berdasarkan interpretasi semantik pula, antara maklumat lain yang diperoleh ialah burung pipit tidak dapat membuat apa-apa pekerjaan yang lain sekiranya telur tersebut masih belum dapat menetas dengan sempurna. Dengan merujuk kepada apa yang mendahului dan mengekori dalam bait {16} di atas, penjelasan

tentang makna ayat dapat dilakukan dengan melihat konteks sebenar maksud ayat. Sebenarnya, burung pipit tidak dapat meninggalkan sarang yang mengandungi telur burung cenderawasih tersebut kerana bimbang akan keselamatan telur-telur berkenaan. Walaupun telur berkenaan bukanlah milik burung pipit, tapi atas dasar rasa tanggungjawab kerana telah diamanahkan untuk menjaga sehingga menetas, maka burung pipit terpaksa akur dengan tanggungjawab dan kepercayaan yang telah diamanahkan ke atas dirinya. Jadi, benarlah jika dikatakan bahawa ilmu semantik dan ilmu pragmatik perlu hadir seiring agar makna sebenar dalam ayat atau bait lagu dapat dieksploitasi (Normaliza Abd Rahim et al, 2015). Malah, Zaitul Azma Zainon Hamzah (2005) juga mennyatakan bahawa interpretasi semantik dan pragmatik akan mewujudkan makna yang efektif pada taraf eksplikatur dan implikatur dengan mempertimbangkan teks dan konteks situasi kebahasaan sehingga tiada bahagian ayat yang diabaikan. Hal ini dilihat selari dengan teori relevan yang menjelaskan bahawa andaian makna dalam ayat mempunyai kesahan yang tinggi kerana kesan konteks yang tinggi apabila dihubungkan dengan konsep persekitaran. Jelaslah bahawa tahap relevan sesuatu andaian itu harus digabungkan dengan konteks agar menghasilkan kesan konteks yang berkesan (Sperber & Wilson, 1995).

Seterusnya, kata penghubung waktu lain yang digunakan dalam kompilasi lirik lagu *Pekaka Bercerita* ialah kata penghubung waktu *pabila* yang boleh dilihat dalam lirik lagu *Budak Membina Negeri* menerusi bait di bawah:

Data 4: Budak Membina Negeri

(Lirik: Normaliza Abd Rahim)

Ada sebuah negeri Sering dilanda banjir dan kemarau Raja memerintah rakyat berpindah Harta benda, tanaman dan nyawa terkorban

Hingga tiba di suatu hari Seorang bidak ingin membantu Datanglah ia bersama gajah Membetulkan sungai dan anak air Banjir tidak melanda lagi

Pokok-pokok tumbuh menjadi hutan Tanah pula sejuk dan lembab Musim kemarau tiada lagi Hati gembira tidak terperi

Tiba masa bercucuk tanam Burung panggang pangkuh berbunyi 'Panggang pakuhhh Panggang pakuhhhh' Segantang kita tanam, seratus gantang hasil didapati

Tiba musim bercucuk tanam Burung jemput pula mengerahkan Sekalian rakyat mula bekerja 'Jemput put put jemput jemput jemput jemput'

Pabila kamu besar nanti Beta akan jadikan kamu Perdana Menteri Kerana kamu cerdik dan baik hati Aman dan makmur negeri ini.

berikut ialah bait yang terlibat dalam data 4 di atas:

- R6 {22}*Pabila* kamu besar nanti
 - {23}Beta akan jadikan kamu Perdana Menteri
 - {24}Kerana kamu cerdik dan baik hati
 - {25}Aman dan makmur negeri ini.

(Normaliza Abd Rahim, 2016)

Bagi bait lirik lagu {22}, kata penghubung waktu yang telah dikenal pasti ialah kata penghubung waktu *pabila*. Kata penghubung waktu jenis ini adalah berfungsi untuk menggabungkan dan juga memancangkan ayat yang mengandungi keterangan waktu ke dalam ayat induk. Manakala ayat yang akan terhasil selepas itu adalah merupakan ayat majmuk pancangan. Justeru itu, ayat keterengan waktu yang dipancangkan dalam ayat induk bait lirik lagu *Budak Membina Negeri* ini ialah *pabila kamu besar*, dan ayat keterangannya pula ialah *nanti*. Dari hasil pemerhatian, fungsi kata penghubung waktu dalam bait {22} ini boleh dijelaskan dengan lebih terperinci melalui rajah 4 di bawah.



Rajah 4: Penggunaan Kata Hubung Waktu Pabila Dalam Lagu Budak Membina Negeri

Perkataan *pabila* dalam rajah di atas menunjukkan tentang (1) masa, (2) ketika, (3) sebaik sahaja dan (4) apabila jika dilihat dari sudut leksikalnya. Walau bagaimanapun, perkataan pabila dalam bait {22} di atas sebenarnya menunjukkan tentang kata penghubung waktu yang menggambarkan tentang sesuatu yang masih belum berlaku dan merujuk kepada masa depan yang masih jauh lagi. Dengan kata lain, maksud sebenar perkataan *pabila* dalam bait {22} ini adalah merujuk kepada tempoh masa yang harus dilalui terlebih dahulu oleh budak tersebut untuk menjadi orang dewasa atau ringkasnya ialah tempoh untuk budak tersebut membesar. Hal ini selari dengan apa yang disebut oleh Norfazila Abd Hamid (2014) yang menyatakan bahawa penggunaan kata hubung waktu ini dapat menjawab dengan lebih tepat tentang pertanyaan bila sesuatu peristiwa akan berlaku. Melalui interpretasi semantik pula, maklumat lain yang akan diperoleh dalam bait {22} ini ialah tentang harapan besar yang diberikan oleh raja kepada budak yang membina negeri tersebut. Selain itu, bait {22} ini juga menunjukkan kepada pendengar tentang adanya ganjaran sekiranya kepandaian serta kelebihan yang dimiliki dalam diri dapat dimanfaatkan untuk orang lain. Seterusnya, melalui interpretasi semantik dan pragmatik pula, bait {22} ini akan menjadikan pendengar untuk berfikir bahawa raja terlalu mengharap dan bergantung dengan kepandaian yang terdapat dalam diri budak tersebut untuk menjaga negeri tersebut. Dalam analisis ini, kita dapat melihat bahawa interpretasi semantik dan pragmatik ini dapat mengolah tentang penggunaan kata hubung waktu pabila itu dari sudut yang berbeza iaitu sudut positif dan negatif. Meskipun begitu,

disini jelas memperlihatkan tentang permainan kata-kata yang diolah oleh penulis lirik bagi memujuk kembali minda kanak-kanak untuk sentiasa berfikir dengan cara yang positif apabila diselitkan bait {24}iaitu kerana kamu cerdik dan baik hati dan {25} iaitu aman dan makmur negeri ini secara tidak langsung memperlihatkan kepada pendengar tentang usaha raja tersebut untuk memberi penghargaan kepada budak tersebut dengan memberi pujian seikhlas hati sahaja dan bukanlah disertai dengan niat untuk mengambil kesempatan. Berikutan dengan itu, maka wajarlah jika unsur konteks dalam membuat sesuatu interpretasi teks atau ujaran perlu mengambil kira tentang maklumat psikologi pendengar (Rozaiman Makmun, 2007). Pendapat ini turut disokong oleh Hadijah Rahmat (2006) yang menjelaskan bahawa konteks ini tidak terhad kepada maklumat tentang aspek persekitaran semata-mata, malah ianya juga boleh melibatkan tentang masa depan, keperluan, budaya dan sebagainya.

KESIMPULAN

Penelitian tentang fungsi dan makna kata penghubung waktu ini adalah bertujuan untuk menghubungkan ayat yang tidak setara tarafnya kepada ayat induk. Dengan kata lain, kata penghubung waktu ini adalah sangat penting untuk memancangkan ayat keterangan waktu ke dalam ayat induk untuk menghasilkan ayat majmuk pancangan yang jelas dan tepat. Dari aspek makna pula, penggunaan kata hubung waktu ini telah dijelaskan tentang penggunaannya merujuk kepada aspek makna dan juga sosiobudaya. Ringkasnya, makna bagi bait-bait lirik lagu ini jika dihurai hanya berdasarkan kepada makna linguistik, maka penggunaannya akan menjurus kepada waktu berlakunya sesuatu peristiwa atau kejadian sahaja. Tetapi, apabila ianya diinterpretasi pula dari sudut semantik dan pragmatik, maka makna sebenar kata hubung waktu yang digunakan dapat dihuraikan dengan lebih mendalam. Hal ini demikian kerana, untuk mendapatkan makna sebenar bagi sesuatu bait atau ayat yang disampaikan, ianya haruslah dinilai juga dari sudut adegan sebenar atau maksud implisitnya dan bukanlah dinilai dari kata demi kata secara pandangan mata kasar semata-mata. Berikutan dengan itu, maka wajarlah jika unsur konteks dalam membuat sesuatu interpretasi teks atau ujaran perlu mengambil kira tentang maklumat psikologi pendengar (Rozaiman Makmun, 2007). Kesimpulannya, kajian ini mendapati bahawa dengan adanya penginterpretasian makna dari gabungan ilmu linguistik, semantik dan juga

pragmatik telah membantu pewacana untuk menyampaikan makna yang sebenar mengikut kehendak pewacana kepada pendengar.

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Investigating The Bilateral Impact Of Leadership Styles And Competencies On Perceived Academics' Performance Of Public Educational Institutions And The Economic Growth

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ABSTRACT

The purpose of this paper is to investigate the Bilateral Impact of Leadership Styles and Competencies on both Perceived Academics' Performance of Public Educational Institutions (PEIs) and the Economic Growth. Economists and majority of management scholars believe that efficient performance and effective leadership using most appropriate styles and competencies would significantly affect perceived academics' performance of universities which would in turn lead to quality improvement of university graduates in terms of creative thinking and innovation, increased labour power in the market. Being of less interest in profit making, (PEIs)- especially universities, are economy oriented institutions having the stability and progress of their country as a priority in their mission in terms of security, local and foreign investments, people's social welfare and the booming economy in general.

This paper presents a conceptual review of the literature pertinent to the theories of leadership styles and competencies and its bilateral impact on the perceived academics' performance and the economy as a whole. It attempts to answer several research questions relevant to the study variables.

The findings of the paper demonstrate that there are a number of different leadership schools/styles each of which requires different groups of competencies, traits, skills, and/or knowledge. The findings also indicate that universities have an obligation and fiduciary duty to support local and regional communities, making every action leading to community improvement. Both internal and external competition must be given high priority consideration when the community benefits and national economy are involved. Unsurprisingly, even private sector educational institutions are accelerating its competing

steps though combining its facilities, capital, and jobs in terms of mergers and/or acquisitions forming globalized corporations. Thus, there will be high demand for the authoritative people of PEIs to employ competent leadership teams possessing high standards of diversified styles and competencies that enable them to lead, direct and manage their educational institutions towards successful reforms during transformational periods in particular.

We suggest directions for further empirical research work to measure how significant are the impact of leadership styles and competencies on each dimension of the perceived academics' performance and possibly on the economy as a whole.

Keywords: Leadership Competencies, Academics' Performance, Economic Growth, and Higher Education.

INTRODUCTION

Educational organisations, like any other types of organisations, share the same arena; markets, customers and environment. They also use same human, social and capital resources that need to be dealt with by expert leaders/managers. Scarcity of resources and fierce competition has become the major phenomenon of modern world. Rapid internal and external environmental changes have further worsened organizations' profit realization which decelerated some economies for the benefit of others. Being of less interest in profit making, public organisations and specifically Public Educational Institutions (PEIs) are economy oriented institutions having the stability, sustainability and progress of their country's economy as a priority in their mission are now required to have effective and very competent leaderships equipped with the latest knowledge, skills and competencies that enable the economy to more flexible to encounter the vitality of world environment. Also, having in mind that this prime target represents a serious challenge to remain a market leader and sustain their competitiveness, PEIs' leaders must always be ready to ready to adapt and respond successfully to any changes and reforms required. Yet, one has to also realize that successful implementation of reforms in PEIs requires formulating feasible strategies directed and managed by competent strategic leadership that possesses specific competencies, skills, experiences, and other personal and managerial traits reinforced by high resource capabilities

relevant for dealing with the emerging and unforeseen situations in their environment. Such leadership, which is the main concern of this study, represents the core and essential element in the development of an ideal human capital needed specifically for the betterment of a variety of educational activities in terms of teaching, research productivity, and learning programs, innovation and creativity in curriculum, which would ultimately lead to rapid economic growth and prosperity of the country, (Nordin, 2011).

However, the significance of PEIs performance lies in educating of their community and creating graduates capable of incurring perceived change in their societies (Darwish, 2000). Other key public related concerns are the swift respond by the leadership of PEIs to the needs of society for educating more students, with greater learning standards, at lower costs, with greater pressure to innovate and support the institutional perceived mission, accountability and responsiveness in educational outcomes (Mehaffy, 2012). Though there is no evidence as to what constitutes the most specifically needed competencies by top leadership team or those who come in the next-level down, it is suggested that leadership should actively embrace more collaborative kind of competencies in order to proactively transform the existing culture of competencies that always correspond with the current market environment when unforeseen forces occur (Mehaffy 2012; and Matson 2013). However, competencies have become the tools needed for direction and change as well as help guiding thoughtful solutions in response to growing complexity as the very strength of the PEIs system is positioned in the heart of the independent thought. Therefore, PEIs leaders need a broader range of leadership competencies, creativity and autonomy of the people who work in them (Green 1999; Spendlove 2007) as there are cases stressing where competencies are, and can be, learned (Matson, 2013).

SIGNIFICANCE OF THE STUDY

The significance of this study stems from the fact that there is a growing interest in public sector education expressed by politicians, economists, professionals, leadership of PEIs and students around the world. This prevailing role of PEIs is manifested in the extant race of the advanced countries to secure high rankings in world-wide institutional records, apparently for

beneficial returns. Universities for example have an intellectual, moral and social responsibility to serve their societies. Moreover, modern education has been shown to contribute to the development of students' entrepreneurial intentions, although the findings are not entirely conclusive (Küttim, Kallaste, Venesaar & Kiis, 2014). Additionally, most PEIs are now adopting a more inventive, appropriate approach that fosters creativity and proactively respond and adapt to change occurring in their environment. Creativity promotes and nurture innovation, and the latter means new ideas and a possible change to existing systems, products and/or services in more than a marginal impact. Nevertheless, change appears to have taken place in technology intensive sectors where new entrepreneurial endeavors disrupt industries and markets to reap profit opportunities. A large part of this has been traced to the information and communications technology sector, which provides business opportunities for small innovative enterprises (Stamboulis & Barlas, 2014).

Furthermore, universities have an obligation and fiduciary duty to support local and regional communities, making every action leading to community improvement. Both internal and external competition must be given high priority consideration when the community benefits and the national economy is involved. Thus, there will be high demand for the authoritative people of PEIs to employ competent leadership teams possessing high standards of diversified styles and competencies that enable them to lead, direct and manage their educational institutions towards successful reforms during transformational periods (Matson 2013). Therefore, this study is concerned with exploring the relationship between Strategic Leadership Styles and Competencies (SLSC) on Perceived Academics' Performance (PAsP) and to assert the consequential impact on the country's Economic Growth (EG).

RESEARCH QUESTIONS

In this paper we shall review the literature in an attempt to answer the following issues:
(1) Are there differences exist between the terms leadership and management?
(2) Is there a variety of leadership styles available to be used in different context by leaders?
(3) Should the competencies needed for an effective leadership role are necessarily be related to the context and style in which leadership is exercised?
(4) How then the impact of the relationship between leadership styles and competencies and PAsP is materialized and consequently reflected on the economy?

CONCEPTUAL FRAMEWORK OF THE STUDY



The following figure exemplifies the theoretical framework of the study:

Figure 1: Theoretical framework

So, here we have one independent variable that is "Strategic Leadership" with its two dimensions; "Style" and "Competencies", also have two dependent variables; "Perceived Academics' performance" (PAsP) and "Economy" (E), and we finally have the mediating variable; "Training Programs" (TP) to act as a process through which leadership style and competencies are enhanced for the betterment of PAsP and augmenting E.

LITERATURE REVIEW

1 Strategic Leadership Style and Competencies (SLSC)

This is the only independent (exogenous) variable of the study. It will be covered in the literature through two main headings; the first being 'Comparison between the terms Leadership/Management' and the second is 'Strategic Leadership Style and Competencies' which will in turn be divided into two further headings; 'Strategic Leadership' and 'Leadership style and Competencies'. Clearly the reason is for a better comprehension and understanding, as follows:

1-1 Leadership/Management Compared

During the last two decades a large number of scholars, have made a distinction between executives who have overall responsibility for an organization and ultimately become accountable for what happens to the organization, i.e. Strategic Management (SM), and those who undertake the supervisory role, i.e. Strategic Leadership (SL). Their argument is based on the view that the first is about leadership "in" organisations, while the second is about leadership "of" organizations (Crossan et al. 2008). An obvious and clear cut distinction between the two is stated by Macmillan and Tampoe (2000) in their "Strategic Management (SM)" textbook. A very concise summary of the text's introduction page gives the following meaning, "SM is a combination of skill and an art; consisting of learnt knowledge with certain amount of technical competency, clear thought and sound judgement. SM represents the formal structured process by which an organization establishes a position of SL". This means SL is the outcome of SM in the sense that once the position of SL is established it would directly take over the driving seat and move towards achieving sustainable competitive advantage to overcome all probable global rivalry and environmental challenges.

Quinn et al. (1996) elaborate further on this point, defining eight roles of a leader that include four management models; Rational Goal, Internal Process, Human Relations and Open Systems Models. In "a director role, a manager is expected to clarify expectations through processes, such as planning and goal setting, to be a decisive initiator who defines problems, selects alternatives, establishes objectives, defines roles and tasks, generates rules and policies, and gives instructions. Producers are expected to be task-oriented and work-focused and to have high interest, motivation, energy and personal drive. As a monitor a manager is expected to know what is going on in the unit, to see if people are complying with the rules, and to see if the unit is meeting its quotas. The monitor knows all the facts and details and is good at analysis. As a coordinator a manager is expected to be dependable and reliable. The facilitator is expected to foster collective effort, build cohesion and teamwork and manage interpersonal conflict. A mentor is engaged in the development of people through a caring, empathetic orientation. This might be called the concerned human role. The innovator pays attention to the changing environment, identifies important trends, conceptualizes and projects needed changes and tolerates uncertainty and risk. A broker is particularly concerned with maintaining external legitimacy and obtaining external resources. The leader has this kind of competing roles need to possess the different kinds of competencies the perfect balance in every day work (Sydänmaanlakka, 2003: 94).

1-2 Strategic Leadership Style and Competencies (SLSC)

This heading also needs to be subdivided into and dealt with in two parts for a better exposure, as follows:

1-2-1 Strategic Leadership (SL)

Despite the increased interest in the topic of 'Strategic Leadership' (SL) or leadership generally, there has been little unanimity in defining it or how it should best be encountered. Actually, Kanji and Moura indicated that leadership is a frustrating concept by suggesting that there are "almost as many different definitions of leadership as there are researchers who have attempted to define the concept," (Jarbandhan, 2012:40). Although it is hard to see any widely accepted definition among leadership theorists, good definitions and clear concepts could enable us to achieve great breakthroughs in the study and practice of leadership. Leadership is often seen as a key factor in coordinating and aligning organizational processes (Lewis, Packard & Lewis, 2011). Nutt and Backoff viewed SL as "the process of guidance that sets a new strategy in place" (Jarbandhan 2012). Varney provides a broader definition where "SL is an interpersonal process for influencing individuals and groups to achieve organisational goals" (Varney, 2008 and Dimitrios et al. 2013). Another meaningful definition to SL, says "the leader's ability to anticipate, envision, and maintain flexibility and to empower others to create strategic change as necessary" (Hitt, Ireland & Hoskisson, 2007). SL is multifunctional, which involves managing through others, and helps organizations cope with change that seems to be increasing exponentially in today's globalized business environment and that SL requires the ability to accommodate and integrate both internal and external business environments of the organisation, and to manage and engage in complex information processing (Jooste & Fourie, 2009). However, authors such as House & Aditya (in Crossan et al., 2008) have also described the main tasks of SL in more details as follows:

"...SL includes: making strategic decisions concerning the products and services of organizations and markets; selection of key executives; and allocation of resources to major organizational components; formulation of organizational goals and strategy; providing direction for the organization with respect to the organization's domain; conceptualizing and installing organizational designs and major infrastructures, such as compensation, information, and control systems; representing the organization to critical constituencies such as representatives of financial institutions, government agencies, customer interest groups, and labor; and negotiating with such constituencies for legitimacy and resources." (Crossan et al, 2008).

1-2-2 Leadership Style and Competencies (LSC)

Wart (2003) declares that "Effective leadership provides an overarching sense of direction and vision, an alignment with the environment, a healthy mechanism for innovation and creativity, and a resource for stimulating the organisational culture." However, when reviewing leadership literature Dulewicz & Higgs (2005) argue that there is no evidence to substantiate the existence of a single prescription for effective performance (Higgs and Rowland, 2003). Therefore, how a leader should do or what s/he is expected to do relates to ability based on behaviour/style. It also relates to the ability to perform a task by integrating knowledge, skills and attitude, i.e. competencies. This integration will lead to the appropriate behaviour required to complete a task in line with a predetermined and desired performance level. This level in turn requires that the leader applies in appropriate ways these competencies to achieve fully-successful or exemplary performance in the job at hand (Jarbandhan 2012).

However, Wart (2003) stresses that apart from being uneasy topic in the past; strategic leadership is encountering even greater challenges in today's environments, and to the majority of those interested in this issue leadership is self-evident no matter what the setting is. Effective leadership provides high standards of quality products and services with a

feeling of job satisfaction and personal progress amongst employees. Effective job performance, for instance, depends on three components; a good fit with individual competencies, job's demands and the organizational environment. With this in mind it is easy to explain why a certain leader in an environment is not necessarily competent in another organizational environment. Boyatzis (1982, 21: cited by Sydänmaanlakka, 2003) argued that "A job competency is an underlying characteristic of a person which results in effective and/or superior performance in a job".

Globalisation and modernisation are creating a wide network of interconnected world. When talking about leadership competencies, it would probably be more convenient to look at leadership styles/schools first due to the complementary relationship in which the style/school mostly dictates the relevant typology of competencies. Generally speaking, there are different styles for different situations and that each style adopted by the leadership has certain or specific skills, traits and/or competencies that are favored by that style or relevant to the time-period in which the style was developed. Literature review indicated that there are a number of several leadership schools evolved during the last seven decades of the twentieth century (Jalocha, Krane, Ekambaram & Prawelska-Skrzypek, 2014), as shown in the following table 1.

Leadership School	The Period	Authors (examples)	Description
(1)Trait	1930s -1940s	Kirkpatrick& Locke,	Effective leaders show
		(1991)	common traits; leaders born
			not made. Example authors.
(2)Behavior or	1940s -1950s	Blake & Mouton,	Effective leaders adopt
Style		(1978), Tannenbaum	certain styles or behaviours;
		& Schmidt (1958)	Leadership skills can be
			developed.
(3)Contingency	1960s–1970s	Fiedler (1967), House	What makes an effective
		(1971), Robbins	leader depends on the
		(1991)	situation.
(4)Visionary or	1980s-1990s	Bass (1990)	Depends on which of the
Charismatic			two styles that are connected
			to this school -
			transformational or
			transactional. For
			transformational: concern
			for relationships; for

Table 1: History of leadership styles/schools (Adapted from: Muller & Turner, 2007)

			transactional: concern for
			process.
(5)Emotional	2000s	Goleman et al. (2002)	Emotional intelligence has a
Intelligence			greater impact on
			performance than intellect.
(6)Competency	2000s	Dulewicz & Higgs	Effective leaders exhibit
		(2003)	certain competencies,
			including traits, behaviors
			and styles emotions, process,
			intellect. Different profiles
			of competence better in
			different situations.
■ (7)Intelligent	2000s	Sydänmaanlakka P.,	An influential dialogue
Leadership		(2003)	between leader(s) and
			followers to achieve a shared
			vision effectively based on
			rational, emotional
			intellectual and spiritual
			intelligence.

Additionally, Higgs and Rowland, (2003) contend that effective leadership has to be seen in terms of a combination of:

- Personal characteristics which are required to enable an individual to engage in a leadership role in an effective manner;
- A range of skills and behaviours which need to be in place to provide effective leadership;
- A range of styles related to the context in which leadership is exercised; and
- A range of ways in which the leadership behaviours may be exercised in a way that matches the personal style of the individual leader.

Reviewing the literature shows an apparent confusion emerges in defining the difference between 'competency' and 'competence'. Teodorescu, (2006) cites Dubois (1998) definition of 'competency' as those characteristics -- knowledge, skills, mindsets, thought patterns, and the like -- that when used whether singularly or in various combinations, result in successful performance. In contrast, Teodorescu, (2006) described 'competence', as being equals worthy performance that leads directly to the most efficient accomplishment of organizational goals. Nevertheless, the concept of 'competence' generally refers to functional

areas and 'competency' refers to behavioural areas but the usage sometimes is inconsistent (Le Deist & Winterton, 2005). The confusion caused by such inconsistency and opposed to by many scholars such as (Wart, 2003; Vaculik et al., 2014; Brown & Squire, 2007; and Jałocha et al. 2014), has been well clarified by few scholars like (Strebler et al., 1997; and Hoffmann, 1999) who state that the term 'competence' and 'competent' refer to the state or quality of being able and fit. In other words, the term 'competency/ competencies' has usually been used to refer to the meaning expressed as behaviours that an individual needs to demonstrate, as opposed to the term 'competence' of performance (Chouhan & Srivastava, 2014). Nonetheless, the term competence is one of those concepts which in recent decades have become popular in reflecting both meanings.

According to Caupin et al., (2006), the competency has been originated from the Latin word 'competentia' which means "is authorized to judge", as well as "has the right to speak" (Chouhan & Srivastava, 2014). A competency is more than just knowledge and skills. It includes ability to satisfy variety of demands, utilizing and mobilizing all types of human and capital resources (including skills and attitudes) within a specific context. Rychen & Salganik (2003) point out that each key competency must;

- Contribute to valued outcomes for societies and individuals;
- Help individuals meet important demands in a wide variety of contexts; and
- Be important not just for specialists but for all individuals involved.

Furthermore, throughout the years, competency based approaches have proved to be a critical tool in many organizational functions, such as workforce selection and succession planning and performance appraisal that is for identification, aligning, and measurement purposes. Actually, the idea of competency based approaches within the corporate environment, referred to in the 1970s period, was first initiated into the human resource literature by the distinguished Harvard's psychologist, David McClelland, and their development and use since then has been overwhelming (Draganidis & Mentzas, 2006). These two scholars have also been able to construct their own definition of 'competence' as "a combination of tacit and explicit knowledge, behaviour and skills, that gives someone the potential for

effectiveness in task performance," and suggest that a competency should typically be defined within the following four posts:

Category: A group to which homogeneous and/or similar competencies belong.

<u>Competency</u>: A descriptive name for the specific competency.

<u>Definition</u>: Statement(s) that explains the basic concept of this competency.

<u>Demonstrated behaviour</u>: Behaviour indicators which an individual should demonstrate if the specified competency is possessed.

Still, according to Rychen & Salganik, (2005) key competencies are not determined by ad hoc decisions about what personal qualities and cognitive skills are desirable, but instead by careful consideration of the psychosocial prerequisites for a successful life and a wellfunctioning society. There are, however, instances where a business might possess extremely capable human resources, but they might not work on the position that suits them. This is where competency mapping and appraisal tools come to help the HR experts choose who should work on what position (Chouhan & Srivastava, 2014). As there are unlimited ranges of competency models that can be used by different individuals in different settings and for different purposes, the categorization of these competencies and consequently the number of their models and hence dimensions have been inconsistent. In accordance with the above competency perspective a 'competency model' has been described as a valid, observable, and measurable list of competencies that include key behaviors required for excellent performance in a particular role (Cernusca and Dima, 2007), whereas 'competency mapping' refers to the process whereby certain prerequisite competencies are identified, associated with, and are required to be excellently perform a specific organisation job, task or activity (Chouhan & Srivastava, 2014).

Hence, a competency model is a set of competencies that include the key behaviours required for excellent performance in a particular role. However, the latest HR competency model proposes that HR professionals must master six competency components especially in today's environments that are characterised with volatility and rapid pace of technological progress. These are: Credible activist; Strategic positioner; Capability builder; Change champion; Human resource innovator and integrator; and Technology proponent (Ulrich, Younger, Brockbank & Ulrich, 2012). Tucker and Cofsky (1994) suggest, on other hand, five competency components to be the leadership dimensions namely: knowledge, skill, self-concepts and values, traits and motives, whereas other scholars; such as Katz and Kahn (1986) have had their leadership competency model based on four competency dimensions: Technical or Functional, Managerial, Human and Conceptual. A third group of scholars, Carrol and McCrackin (1988) organized their competencies into three dimensions: Core competencies, Leadership / managerial competencies and Functional competencies (Chouhan & Srivastava, 2014).

Vaculik et al. (2014) argue that there are five types of leadership competency groups, such as professional, strategic, personal, social and intercultural, that are among the factors influencing their effectiveness, yet at the same time agree with other scholars on the significance of grouping the competencies into nine groups namely; relational, impartial, technical, creative, directive, tenacious, empowering, influential and strategic. In attempting to assess the influence of competencies on leadership effectiveness, Vaculik et al. (2014) remain skeptic as to which competencies are more relevant in predicting leadership effectiveness, and suggest a regrouping into different specific competency models.

However, while USA have increasingly been using the functional and cognitive competencies as an added range to their regular behavioural competencies model; the UK, on the other hand, is now increasingly using cognitive and behavioural competencies as an added range to their occupational functional competency model. As far as other European countries such as France, Germany and Austria, they have joined the group only recently, but adopting a comprehensive framework, specifying knowledge, skills and behaviours as their competency dimensions (Le Deist & Winterton, 2005).

2 Perceived Academics' Performance (PAsP)

University rankings have been the focus of attention when the performance of colleges is considered. There is no one comprehensive or unanimous definition to the PAsP variable due to the variations of related fields of industries, contexts and situations. Wang, (2010) argues

that organizational performance can be defined as "the extent to which organizational goals are achieved". According to the definition set by Lockett (1992), performance is defined as "a multidimensional construct and the common factors that are frequently associated with organizational performance are efficiency, quality, responsiveness, cost and overall effectiveness." This definition was further extended in 1994 by Armstrong to a "Performance Management" to indicate the "means of getting better results from the organisation, teams and individuals by understanding and managing performance within an agreed framework of planned goals, objectives and standards of achievement and competence" (Masron, Ahmad & Rahim, 2012).

As far as the academic staff performance is concerned, which is also termed as (Perceived Academics' Performance- PAsP), Gaither, Nedwek & Neal, (1994) define the term as "a quantity that measures some elements of an institution or its activity". Kong & Fu (2012) describe academics' performance as a multi-meaning term relates to the extent to which the evaluation of an academics' performance in a university/college may take. This evaluation extent which depends on the perspective of the operators or the stakeholders of the university/college may include the students. For the purpose of this study, the term PAsP shall only include, as will be detailed later, the efficiency of academics' performance in terms of teaching, research and publications, services provided and academic staff satisfaction (Almayali, 2014). Nonetheless, the non-availability of identical goals and objectives-oriented PEIs, especially in the developing countries, the use of one comprehensive set of academics' performance evaluation has become impractical. Likewise, as is explained by Wang (2010), the using of the traditional financial and accounting models in profit-oriented organizations; such as Return on Investment (ROI), sales growth and net profit margin etc., as a means of performance evaluation, especially for PEIs, have increasingly been under critics because of misleading signals for continuous improvements and the inadaptability to today's environment.

Perceived academics' performance is the core product of any higher educational institution (Al-Turki & Duffuaa, 2003). Accordingly, PEIs are under a continuous pressure, from government leaders, politicians, academicians and society in general, to measure and evaluate

their PAsP for accountability, quality assurance assessment, and competition and growth sustainability through using appropriate academics' performance indicators. These indicators have been defined as a quantitative measures related to an event or activity that should receive constant and careful attention from management for doing things right for business flourishing, given the same value as those of the "critical success factors", and had occupied a sizable amount of literature. Many other studies mentioned by Jalaliyoon & Taherdoost (2012) call for categorizing APIs into tangible or quantitative and intangible or qualitative. However, the following is a summary account of the four dimensions that encompasses PAsP.

2-1 Teaching

Apart from the actual process of lecturing teaching is an activity that normally include monitoring, assessing of students' progress and problem solving, curriculum preparation and all other peripherals which are set in line with the vision of the university/college. The processes associated with teaching and classroom learning should be at the heart of any call for change or innovation, as ultimately it is what the teaching staff delivers in the classroom that makes the difference in the learning outcomes of students (Medina & Encomienda, 2013). There are a number of methods through which teaching can be performed. The number ranges from face-to-face to distance teaching. According to Tang & Chamberlain (1997) classroom teaching and distance teaching are both regarded as the normal methods of teaching by a professor in academic course. The teaching quality of a lecturer is reflected in the students learning output, enabling the student to achieve high-quality learning (Ramsden, 2003; and Parpala & Ylänne, 2007). Good teaching can be defined as an extended awareness of the relationship between learning and teaching. Biggs & Tang (2003) uses the term "backwash" to indicate that the academic assessment determines what and how students learn more than the curriculum teaches.

Nevertheless, there is a relationship between teachers' approaches to teaching and students' approaches to learning. These approaches are stemming from the two studying approaches that are known as 'surface and deep' (Parpala & Ylänne, 2007). These authors carry on

explaining that a student applying a surface approach to learning concentrates on the text itself, leading to a reproductive orientation, whereas a student who is approaching learning at a deeper level aims at interpreting the meaning of the text. However, the results of an investigation made by Marton & Säljö (1976) had shown that students who adopted deep approaches to learning were more likely to have a higher quality achievement in learning than those adopting surface approaches. Ramsden, Prosser, Trigwell & Martin, (2007) argue that the context of learning as perceived by students determines the approach they use, while the approach itself represents a critical factor in explaining the quality of the outcomes of learning they achieve. According to Entwistle & Walker, 2002 two more studies of teaching in higher education have shown two different approaches to teaching. The first is the teaching as teacher-centered or content-oriented, and the second is teaching as student-centered or learning-oriented (Parpala & Ylänne, 2007). Kember and Kwan, (2002) who also found a relationship between lecturers' approaches to teaching and their conceptions of good teaching, and that approaches to teaching were strongly influenced by lecturers' conception of teaching. Lecturers who conceived good teaching as transmitting knowledge were more likely to use content-centered approaches to teaching. Teachers who conceived good teaching as facilitative in nature tended to use learning-centered approaches to teaching.

2-2 Research Productivity (RP)

It's generally agreed that the main functions of HEIs are teaching and research, though the distinction between research and education activities may be an important character in universities (Wang, 2010). Research has been defined as "any intellectually directed and disciplined investigation into the phenomena of human experience leading to a conclusion that increases the sum of human knowledge" (Almayali, 2014). Many countries have been expanding in these two functions in recent years. In China, for instance, the rate of spending on teaching and research has increased during 2000-2004 by 133% (Johnes & YU, 2008). Research universities may place more resources on research activities than educational activities, thus indicators in research dimension may take more credits in the overall measurement of academic performance (Wang, 2010). Research, in particular, is so important that it was described as being one of pillars that underpin a university's academic reputation.

It is also considered as a major contributor in the accumulation of new knowledge to the extent that it started to become a favorable part of the university's mission statement for attracting readers' attention (Wang, 2010).

The large amounts of public funding on research in public sector universities entailed rigid controls and effective APIs to ensure spending efficiency and the quality of researches are maintained. To exemplify the current spending amounts on scientific researches alone, in some developed countries as a ratio of their gross domestic product (GDP), has been ranging around 4% in Japan, 3% in the United States of America, and 2% in Europe (Almayali, 2014). Thus, the researcher in a university must have an obligation and opportunity to take a leading role performing a good quality research in accordance to specific criteria. The criteria may enhance the possibility of producing reliable findings. A faculty is expected to publish certain number of articles per year, proportionately related to his/her teaching workload, so as not to allow role conflicts (Tang & Chamberlain, 1997). Nonetheless, a higher priority has generally been given to researching for their wider audience effects than that of teaching which is seldom extends beyond the classroom, in addition to having a strong relationship rate with scholarly reputation (Ibid:214). The publication must also be in refereed journals and conferences accredited by the university and the institutions normally receive financial funding or rewards for fulfilling this objective; though scholars may become subject to penalties (Schulze, 2008). Usually, the number of publications, for instance, is a frequent quantifying measure on research output. The indicator is simple, yet the quality of these publications and their effectiveness are unknown due to lack of credible benchmarking, (Wang 2010).

2-3 Academic Services (AS)

Hashim & Mahmood, (2011) believe that while quality management in higher education has become the focus of research, there is an apparent literature shortage in relation to AS activity, as distinct from those of teaching and researching, Considering the prevalent sense of concern by HEIs in today's competitive environment for growth sustainment, a creative and effective relationship of student centric philosophy for attraction, retention and quality service provision have become so imperative as it need to be seriously established (Hasan, Llias, Rahman & Razak, 2009). As an attempt to remain competitive Sahney & Benton, (2008) emphasize that the employees' strong commitment to good quality service has a strong link to the organisational benefits such as the increase in revenue potentials, low cost effectiveness, and/or producing excellent graduates. Hashim, (2009) provides a number of such possible services that are primarily measured by means of administrative duties and consultation, faculty member service, department committee, volunteer or officer in a national, regional, and local counseling (Almayali, 2014).

Unlike the key performance indicators (KPIs) as mentioned earlier, Masron et al. (2012) argued that while the (KPIs) are vital in measuring 'tangible' or objective academic performance, there is another aspect of performance that has been ignored and is expected to have adverse effects on overall performance of the university, if such negligence is prolonged. This aspect is called 'key intangible performance' (KIPs), which consist of ten kinds of academic staff contributions. Eight of these (KIPs), as the above authors say, represent contributions made to the university/college and the other two are contributions made to the society or community (Masron et al., 2012). The university-oriented intangible contributions ascertain that the tasks and activities carried out by the academicians have been conducted in line with university's mission and vision (Al-Turki & Duffuaa, 2003; and Masron et al., 2012). In addition to academics' commitment for establishing good working relationships with fellow members, superiors and leaders based on mutual respect, high level of interpersonal, negotiation, and networking skills at the national and international levels, an up-to-date record should be kept for instituting positive change to researches that generate positive publicity and reputation to the university/college (Markom et al., 2012). The community-oriented intangible contributions, on the other hand, emphasize the fact that researches give direct and indirect benefits to society at large and others are voluntarily made by virtue of personal academic knowledge. The importance of intangible assets has been stressed by Seemann and Smallwood, (2004) who argued that intangibles are most significant growth driver in the US economy (Masron et al., 2012).

2-4 Academic Staff Satisfaction (ASS)

The ASS in public HEIs has been regarded as a main factor in determining the strength of the relationship between staff commitment and motivation, in one hand, and the quality and level of performance; in the other. According to Crossman & Abou-Zaki (2003) if we want to know the organizational health and quality of work ASS becomes a key factor and largely depends upon human resources (Sohail & Delin, 2013). The commitment and retention of academic staff are crucial to effective academics' performance; leading to healthy university/college climate that leads to further increase in ASS and consequently enhancing the learning environment with overall improvements in the overall productivity of the university/college (Noordin & Jusoff, 2009). There is no one comprehensive definition to ASS, nonetheless, based on Hoppock (1935); ASS is an individual's feeling toward his or her job, e.g. satisfied with his or her job (Mehrad, Hamsan, Redzuan & Abdullah, 2015). This inner feeling, according to Worrell, (2004) stems from a combination of psychological, physiological and environmental conditions, influenced by internal and external factors existing at the workplace and reflected on the individual (Mehrad et al., 2015). Furthermore, Al-Hinai & Bajracharya (2014) believe that there are six major factors that could affect ASS of academicians, enumerating them as; remuneration and development; management support; students; colleagues; workload; and status of job. Ssesanga (2003), on the other hand, sets seven factors listed under two main categories; (1) co-worker behavioural factors: supervision and intrinsic, facets of teaching, (2) contextual (extrinsic) factors relating to: remuneration, governance, research, promotion, and working environment (Ssesanga 2003).

3 Economic Growth

Higher education should aim to create a new, nonviolent society from which exploitation is excluded – a society where very well educated, motivated, and socially integrated individuals act guided by their love for mankind and by their wisdom (UNESCO, 1998a). The state has, among other obligations, a goal to orient and promote scientific development, and to support, inform, and co-fund the links between the university and the productive sector. In turn, the university should be granted full academic autonomy and should be provided with the

necessary resources to carry out its scientific and formative work. Nevertheless, the university also should be fully responsible as a center for the generation and production of knowledge, and it should be accountable to society for its use of public funds and resources. This implies taking on a responsible autonomy approach. Acting along these lines is a good example of a socially responsible university (Segrera, 2012). Such policy should yield direct positive impact on the country's economic growth. According to one empirical study, an increase of 1 percent in higher education spending leads to an increase of 0.55 percent growth in real output, and an increase of 1 percent in physical capital results in 0.35 percent growth in real output, (Fadaee 2008).

Higher education has a vital role to play in shaping the way in which future generations learn to cope with the complexities of sustainable development. Universities and higher education institutions educate highly qualified graduates and responsible citizens able to meet the needs of all sectors of human activity; they provide opportunities for higher learning and for learning throughout life; they advance, create and disseminate knowledge through research and provide, as part of their service to the community, relevant expertise to assist societies in cultural, social and economic development; they contribute to the development and improvement of education at all levels, including through the training of teachers (Fadaee, 2008). However, improved performance in higher education would provide highly educated graduates capable of indirectly making their own contribution in their country's economic growth as successful young entrepreneurs through establishing their own SME businesses. Increased numbers of profitable businesses should lead to reduce rates on unemployment, improve society life, increased rates of income and corporation tax levied by the government and possibly directed toward a variety of public sector institutions for further service provision to community.

FINDINGS AND DISCUSSION

According to the UNESCO (2004) reports in a World Debate Conference on Higher Education that highlights a number of suggestions for the improvement in higher education. Several urgent challenges were identified that need to be dealt with as soon as possible which "included updating teaching staff and the content of information taught, introducing electronic learning networks for translation and adjustment of main scientific contributions, modernizing management, and examining public and private education as well as those of formal, informal, and distance educational opportunities." However, the UNESCO presented its suggestions in three points; (1) Pertinence in higher education should be assessed in parallel with what society expects from institutions and what institutions do, with an unbiased attitude and more realistic interaction with society, aiming to facilitate access to both a comprehensive general education and a specialized education, including interdisciplinary courses often centered on specific skills and competencies. Both types of education prepare individuals to survive in diverse situations, and to adapt and remain open to change, (2) Higher education should "reinforce its functions of service to society and, in a more concrete way, its activities directed to eradicate poverty, intolerance, violence, illiteracy, hunger, damage to the environment and illnesses, analyzing the problems and facts that have been raised mainly through an interdisciplinary and transdisciplinary approach", (3) Higher education must "make a more significant contribution to the development of the overall education system, especially by raising the qualification of teachers, by producing better study programs, and by enhancing and improving educational research", Segrera (2012).

Literature review has confirmed that improved PAsP leads to high standards of graduates, increased market activities in terms of establishing more SMEs (small/medium size enterprises), generating further jobs and employment, increased income and profits, improved society welfare and finally economic growth sustainment through macro-economic theory, (Gray & Wert-Gray, 2012). So, theoretically, the study should contribute to the body of knowledge by providing conceptual evidence to support theories and previous literature related to the positive relationship between SLSC and PAsP and the consequent improvement in the economy. Practically, the substance of the study lies in its significant contribution in strengthening the leaderships' core competencies, and shall consequently transform into higher quality of academics' performance. Empirically, the researchers of this study also intend to undertake further quantitative research work that would reveal useful statistics as to the strength and/or the significant of this relationship. These statistical figures would provide

real indication as to the standard/quality of such relationship, and the magnitude of the enhancement in both PAsP and the Economy.

CONCLUSION

According to Shippmann et al., (2000) competency concept lies in the center of human resource management, providing a base for integrating key HR activities, performance management, training, development and reward management (Vakola, Eric, Soderquist & Prastacos, 2007). The use of competencies in human resource management is not something new, although the approach is still characterised by certain confusion related to what competencies are and how they should be identified, typologies, measured and implemented. This confusion explains the high rate of response by the developed countries in setting up their own mandatory training centers and accreditation bodies during the 1970s and 1980s of last century, for the derivation of a statement of competencies that are not a rewriting of the objectives of previous programs into new description of old practice (McAleavy & McAleer, 1991), but instead written in accordance to what has been described by 'Jessup' as; "a new initiative that analyses the functions employees carry out, paying particular attention to purpose and outcome with additional analysis carried out by, or on behalf, of employers and employees in the relevant sector and endorsed by them" (Jessup, 1989).

According to Penchev and Salopaju (2011), leaders and business entrepreneurs are both use specific opportunity recognition skills (competencies) with the exception that the latter possess more unique ones, that enable them to be vigilant and envision future profitable events. Interestingly, Taatila (2010) asserts that these entrepreneurs' competencies can be learned by leaders to further improve their organizations' performance. Examples of possible training programs are many and diverse. Wehrmeyer, W. & Chenoweth, J. (2006) assert the effectiveness and significance of continuing education courses in meeting the specific aims of increasing awareness and understanding of sustainability issues, with longer courses being more beneficial and providing qualitatively different experiences. Learning on sustainable development was maximised by overtly drawing on the collective past learning experiences

and knowledge of participants though carefully facilitated discussion that encourages the sharing of and building upon this knowledge base.

We have also seen that Quinn et al. (1996) clearly differentiate between the terms leadership and management and that a competency model is a set of competencies that include the key behaviours required for excellent performance by leadership in a particular role and context, while on the other hand there are a number of scholars remain skeptic as to which competencies are more relevant in predicting leadership effectiveness. Nonetheless it is suggested that leadership should actively embrace more collaborative kind of competencies in order to proactively transform the existing culture of competencies that always correspond with the current market environment when unforeseen forces occur (Mehaffy 2012; and Matson 2013). Finally, The effective performance of a leadership equipped with the appropriate style and proper set of competencies shall be transform into successful implementation of university strategies, high quality students output, accumulation of knowledge and creativity in society which will ultimately reflect on both the micro and macro-economic levels of the country's Economic Growth.

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Kelainan Makna Kata Dalam Bahasa Banjar Dengan Bahasa Melayu

Nur Hafizah Binti Razali, Normaliza Abd Rahim

ABSTRAK

Kepelbagaian etnik yang terdapat di Malaysia telah menghasilkan bahasa dan dialek yang berbeza. Sehubungan dengan itu, terdapat kosa kata yang berlainan makna walaupun mempunyai sebutan dan ejaan yang sama iaitu homonim terutama dalam bahasa atau dialek yang berbeza. Maka, kajian ini memberi fokus kepada kelainan kosa kata yang terdapat dalam Bahasa Banjar dengan Bahasa Melayu melalui sesuatu ujaran. Perkataan bahasa Banjar yang sama ejaan dan bunyi dengan bahasa Melayu namun mempunyai kelainan dari segi makna atau semantik akan dilihat penggunaan kata tersebut melalui sesuatu ujaran. Oleh itu, objektif kajian ini adalah untuk mengenal pasti dan membincangkan leksikal bahasa Banjar yang berhomonim dengan bahasa Melayu melalui ujaran. Sampel bagi kajian ini merupakan beberapa buah keluarga di Kapar, Klang, Selangor. Kajian ini menggunakan pendekatan kualitatif yang terdiri daripada kaedah pemerhatian dan temu bual. Teori analisis wacana oleh Brown & Yule (1983) diaplikasikan dalam kajian ini. Hasil kajian mendapati bahawa makna sesuatu kosa kata itu akan lebih difahami apabila dilihat dalam konteks ujaran atau ayat yang berdasarkan situasi. Oleh yang demikian, kajian berikutnya mengenai bahasa Banjar dan juga bahasa atau dialek lain boleh dijalankan dengan mengkaji pelbagai bidang misalnya kesantunan bahasa dan kebudayaan.

Kata kunci : kelainan bahasa, homonim, kata, bahasa Banjar, bahasa Melayu

PENGENALAN

Menurut Chambers & Trudgill (1980) sesuatu bahasa itu terdiri daripada sekumpulan dialek yang bersalingfahaman antara satu sama lain. Ciri kesalingfahaman adalah faktor penting bagi menentukan sama ada sesuatu variasi itu dialek kepada satu bahasa yang sama ataupun

lahir sebagai satu bahasa yang tersendiri (Khairul Azli Ab Manaf & Abdul Rashid Daing Melebek, 2016: 71). Dialek wujud daripada variasi yang terdapat dalam sesuatu bahasa. Variasi bahasa ialah kelainan pertuturan dalam sesuatu bahasa (Hudson, 1996). Sesuatu dialek boleh berkembang menjadi bahasa. Faktor yang menyebabkan dialek berkembang menjadi bahasa ialah jarak yang begitu luas antara kawasan-kawasan dialek itu dan kurangnya pertembungan antara penutur. Inilah yang berlaku pada bahasa Iban dan bahasa Melayu yang beberapa ribu tahun dahulu adalah dua dialek yang berkongsi bahasa induk yang sama. Hal yang sama juga berlaku antara bahasa Banjar dan bahasa-bahasa lain yang sangat dekat hubungan kekeluargaannya dengan bahasa Melayu. Oleh itu, dapat disimpulkan bahawa terdapat bahasa induk yang dialek-dialeknya berkembang menjadi bahasa penuh (Khairul Azli Ab Manaf & Abdul Rashid Daing Melebek, 2016: 75). Maka wujud perbezaanperbezaan yang agak menonjol dalam ketiga-tiga cabang bahasa dalam dialek-dialek itu, jaitu semantik, sintaksis dan fonologi boleh menyebabkan timbul pemahaman yang agak berkurangan. Seterusnya, pemahaman yang agak berkurangan ini boleh menimbulkan masalah dalam berkomunikasi sesama masyarakat penutur (Khairul Azli Ab Manaf & Abdul Rashid Daing Melebek, 2016: 75). Sehubungan dengan itu, kajian ini adalah berkaitan dengan penggunaan kata yang berhomonim iaitu kata yang mempunyai ejaan dan sebutan yang sama namun berbeza dari segi makna atau semantiknya. Makna perkataan tersebut perlu dilihat berdasarkan penggunaanya dalam konteks situasi sebenar iaitu melalui ujaran kerana membawa makna yang berbeza.

SOROTAN KAJIAN

Kajian mengenai dialek telah dijalankan oleh Chong Shin (2009) yang berkaitan dengan dialek-dialek Melayu di Lembah Baram. Kajian ini bermatlamat untuk menelusuri dialek-dialek Melayu di Sungai Baram yang terletak di bahagian Utara Sarawak. Hasil penelitian kajian ini telah menemui tiga varian Melayu di kawasan ini, iaitu yang pertama adalah Dialek Melayu Sarawak (DMS), kedua merupakan Dialek Melayu Brunei (DMB) dan yang ketiga ialah Bahasa Melayu Baram (BMB). DMS di Lembah Baram dari aspek ciri linguistik adalah sama dengan golongan DMS lain di Sarawak, seperti DMS Rejang, Saribas dan Kuching (Chong Shin, 2009). Manakala, bagi DMB merupakan kategori Subdialek Melayu Brunei

yang memperlihatkan sistem tiga vokal. Menurut Chong Shin (2009) BMB ini bersifat bahasa Pasar dan digunakan oleh suku-suku bumiputera bukan penutur dialek Melayu di Sekitar Lembah Baram. Kajian hampir sama juga telah dijalankan Chong Shin (2015) yang berkaitan dengan variasi dialek Melayu di Lembah Sungai Krian yang terletak di Sarawak tersebut adalah variasi Melayu Saribas atau Rejang?. *Lingua franca* utama di kawasan Sungan Krian adalah dialek Melayu. Dialek ini dituturkan oleh suku Melayu di sepanjang sungai ini dan merupakan bahasa komunikasi utama di pekan Saratok. Menurut Chong Shin (2015) setakat ini, terdapat hanya sedikit penelitian berkaitan dengannya dan tiada penelitian yang komprehensif, terutamanya tentang klasifikasi mengenai dialek ini. Hasil kajian oleh Chong Shin (2015) ini mendapati bahawa dialek Melayu tersebut adalah variasi Melayu Saribas. Selain tu, kajian yang hampir sama juga telah dilakukan oleh Siti Noraini Hamzah, Nor Hashimah Jalaluddin & Zaharani Ahmad (2014) mengenai variasi dialek Melayu di Perak Utara dari sudut analisis geolinguistik. Kajian oleh Siti Noraini Hamzah, Nor Hashimah Jalaluddin & Zaharani Ahmad (2014) ini mempraktikkan perkembangan teknologi kini dengan menggabungkan ilmu linguistik dan ilmu geografi dalam mengkaji variasi dialek.

Selanjutnya, kajian mengenai kelainan semantik dalam dialek Melayu Sarawak telah dikaji oleh Mary Fatimah Subet, Dayang Sariah Abang Suhai, Nur Ardini Jian Abdullah @ Elmie Jian & Salbia Hassan (2011). Terdapat banyak perkataan dalam Dialek Melayu Sarawak (DMS) yang sangat berbeza dengan dialek-dialek Melayu di Semenanjung dan Sabah. DMS mempunyai perbezaan yang paling besar dengan dialek-dialek Melayu lain di Malaysia. Pelbagai aktiviti integrasi kaum antara penduduk Malaysia dilaksanakan dan salah satu daripada cara yang diaplikasikan adalah melalui pemahaman terhadap makna atau semantik sesuatu bahasa yang dituturkan. Namun begitu, menurut Mary Fatimah Subet, Dayang Sariah Abang Suhai, Nur Ardini Jian Abdullah @ Elmie Jian & Salbia Hassan (2011) masih ada penduduk dari Semenanjung Malaysia dan Sabah yang keliru dengan makna perkataan DMS dengan Bahasa Melayu Standard (BMS). Berikutan daripada itu, berlaku salah faham, salah sangka, kegagalan menyampaikan maksud sebenar, prejudis dan seumpamanya. Hal ini dikhuatiri akan merencatkan konsep perpaduan kaum yang cuba dipertahankan. Oleh yang demikian, jalan penyelesaian perlu dicari dan salah satu kaedah penyelesaiannya adalah pemahaman yang jelas antara penutur dan pendengar terhadap sesuatu bahasa yang

dituturkan. Kajian ini merupakan kajian rintis yang melakukan pengumpulan kosa-kosa kata berdasarkan acuan semantik dan kerangka semantik yang dilihat pada permulaan kajian ini hanyalah makna pada peringkat permukaan sahaja, atau disebut sebagai semantik deskriptif. Semantik linguistik deskriptif atau semantik deskriptif adalah penelitian dan penghuraian tentang makna bagi ayat dan ucapan dalam sesuatu bahasa tertentu (Hashim Musa & Ong Chin Guan, 1998). Makna peringkat permukaan hanya dilihat pada bentuk logik atau makna leksikal dalam sesuatu ayat atau penggunaannya dalam ujaran. Kajian yang dilakukan oleh Mary Fatimah Subet, Dayang Sariah Abang Suhai, Nur Ardini Jian Abdullah @ Elmie Jian & Salbia Hassan (2011) ini bertunjangkan kepada tiga objektif iaitu yang pertama membezakan makna perkataan dalam DMS dengan makna perkataan dalam BM, khususnya yang terkandung dalam Kamus Dewan Edisi Keempat (2007), kedua adalah untuk mengenal pasti perkataan dalam DMS atau BM yang berkonotasi buruk antara satu sama lain dan objektif yang terakhir ialah mengumpul kosa kata DMS dan BM yang berhomonim, iaitu sama sebutan dan ejaannya tetapi berbeza semantik. Kajian makna leksikal juga telah dijalankan oleh Hishamudin Isam & Norsimah Mat Awal (2011) tentang analisis berasaskan korpus dalam menstruktur semula kedudukan makna teras leksikal setia. Bagi makna teras leksikal setia, masih kekal dalam bentuk metaforikal iaitu teguh hati (Hishamudin Isam & Norsimah Mat Awal, 2011). Menurut Hishamudin Isam & Norsimah Mat Awal (2011), semakin banyak makna baharu mucul disebabkan masyarakat penutur yang semakin kreatif dalam memanipulasikan penggunaan sesuatu leksikal.

Selain itu, kajian mengenai semantik juga telah dijalankan oleh Norsimah Mat Awal & Nur Liyana Zulkffle (2012). Kajian ini merupakan analisis semantik kata kerja *gerak* dan *campak* dalam dialek Negeri Sembilan. Kata kerja *gerak* dan *campak* ini dipilih oleh Norsimah Mat Awal & Nur Liyana Zulkffle (2012) kerana terdapat beberapa kata kerja lain yang bersinonim dengan kedua-dua kata kerja tersebut di samping wujud unsur hirarki makna pada kedua-dua kata kerja tersebut. Kajian ini menggunakan pendekatan semantik yang mempraktikkan Kerangka Teori Prototaip (Rosch, 1975). Kajian ini pada mulanya bertujuan untuk menunjukkan makna perkataan melalui konsep pemilihan contoh masdar dan bukan masdar bagi perkataan yang bersifat polisemi. Namun, berdasarkan hasil pengadaptasian dari teori ini didapati mampu menunjukkan hirarki makna perkataan khususnya kata kerja yang bersifat

sinonim berteraskan konsep pemilihan makna utama dan bukan utama. Selanjutnya, kajian ini menggabungkan konsep ruang dan waktu bagi memperincikan lagi perbezaan hirarki makna untuk dua kata kerja tersebut. Selain itu, proses pengumpulan data bagi kajian yang dilakukan oleh Norsimah Mat Awal & Nur Liyana Zulkffle (2012) adalah dengan memilih kata kerja bersumberkan senarai kosa kata dialek Negeri Sembilan hasil dari projek kajian Pemerian Semula Dialek Negeri Sembilan berdasarkan Dialektologi Bandar (UKM-SK-08-FRGS0003-2010) dan juga himpunan kosa kata daripada Kumpulan Sokongan Anak-anak Negeri Sembilan di dalam rangkaian laman sosual Facebook. Selain itu, bagi mengukuhkan lagi penelitian, kajian ini turut mendapatkan pengesahan daripada penutur natif dialek tentang sinonim dua kata kerja beserta contoh penggunaanya. Hasil kajian ini telah membuktikan bahawa ketajaman persepsi masyarakat penutur dialek Negeri Sembilan dalam mengkonseptualisasikan dan memperincikan perlakuan-perlakuan kehidupan harian mereka. Kajian semantik turut dijalankan oleh Muhammad Luqman Ibnu Hakim Mohd Sa'ad, Zaitul Azma Zainon Hamzah, Muhammad Zaidi Zakaria & Mohd Sollah Mahamed (2015) yang berkisar tentang analisis terjemahan struktur dan makna terhadap fenomena antara idiom dan kolokasi. Idiom adalah ungkapan yang tidak boleh difahami maknanya secara literal disebabkan pembentukannya yang mengandungi makna khusus, manakala kolokasi merupakan item leksikal yang lazim antara perkataan (Muhammad Luqman Ibnu Hakim Mohd Sa'ad, Zaitul Azma Zainon Hamzah, Muhammad Zaidi Zakaria & Mohd Sollah Mahamed, 2015).

Seterusnya, kajian yang dilakukan oleh Nurul Shahida Jamil & Maslida Yusof (2015) adalah mengenai analisis deiksis terhadap dialek Kedah. Deiksis menurut Huang (2007:13) melibatkan hubungan antara struktur bahasa dengan konteks bahasa yang diujarkan. Kajian yang dijalankan oleh Nurul Shahida Jamil & Maslida Yusof (2015) ini bertujuan untuk meneliti kategori dan fungsi elemen deiksis dalam dialek Kedah iaitu khususnya di kampung Kubang Lintah, Mukim Lepai, daerah Kota Setar (DKKS). Tempat ini termasuk dalam dialek Kedah Persisiran dan dipilih kerana menurut Asmah Omar (2008) subdialek Kedah Persisiran dianggap sebagai standard dialek Kedah. Data perbualan yang berlangsung spontan diperlukan dalam kajian ini kerana aktiviti berbahasa yang sebenar mampu menjelaskan penggunaan deiksis. Setiap deiksis mengandungi satu elemen yang dinamakan dietik yang

berfungsi dalam perbualan seharian. Antara elemen diektik adalah seperti aku, saya, kami, dia, hari ini, petang semalam, ini, itu, di sini, di situ dan sebagainya. Kaedah pemerhatian dan teknik rakaman dipraktikkan dalam kajian ini bagi memperoleh data. Kaiian ini menggunakan pendekatan kualitatif pengkategorian elemen dieksis berdasarkan kepada kerangka dieksis Huang (2007). Hasil kajian oleh Nurul Shahida Jamil & Maslida Yusof (2015) ini mendapati DKKS mengandungi kategori deiksis perorangan yang diungkapkan melalui kata ganti diri dan penggunaan vokatif yang diungkap melalui kata panggilan. DKKS juga memperlihatkan kategori deiksis masa dan deiksis reruang. Selanjutnya, kajian ini juga mendapati kategori deiksis sosial berkait rapat dengan deiksis perorangan iaitu berkaitan kodifikasi status sosial bagi penutur, pendengar atau orang ketiga atau entiti yang dirujuk. Dapat disimpulkan bahawa kajian ini memberi gambaran tentang sosio-budaya dan budi bahasa dalam percakapan sebagaimana yang dipamerkan oleh peserta deiksis DKKS (Nurul Shahida Jamil & Maslida Yusof, 2015). Selain aspek dieksis dalam dialek Kedah, kajian berkaitan kata soal atau kata tanya dalam dialek Kedah turut dijalankan oleh Fazal Mohamed Mohamed Sultan & Nurulafiqah Suhaimi (2012). Menurut kajian yang dijalankan, kata soal dalam dialek Kedah adalah unik dan bervariasi.

Kajian yang berikutnya adalah mengenai bahasa Banjar yang dijalankan oleh Nur Hafizah Razali & Normaliza Abd Rahim (2016). Kajian ini menfokuskan kepada ujaran yang dihasilkan oleh masyarakat Banjar di Selangor dari sudut pragmatik. Kajian ini dijalankan bertunjangkan kepada dua objektif iaitu untuk mengenal pasti dan membincangkan ujaran masyarakat Banjar dari sudut makna dan pragmatik. Kajian ini mengaplikasikan Teori Relevans oleh Sperber & Wilson (1986). Beberapa buah keluaraga yang berketurunan Banjar yang menetap di Pulau Carey, Kuala Langat,Selangor dijadikan sampel bagi kajian ini. Ujaran masyarakat Banjar yang diperoleh menggunakan teknik temu bual dan rakaman semasa masjlis sambutan perayaan, majlis bertunang dan kenduri kahwin dijadikan data kajian. Data kajian yang berupa ujaran masyarakat Banjar tersebut ditranskripkan dan seterusnya dianalisis menggunakan Teori Relevans (Sperber & Wilson, 1986, 1995). Hasil kajian mendapati bahawa pengaplikasian ilmu pragmatik penting dalam memahami sesuatu ujaran berdasarkan konteks dan situasi sebenar. Kajian yang hampir sama dengan kajian ini iaitu menggunakan teori Relevans adalah kajian mengenai penginterpretasian peribahasa dan perhubungannya dengan kemahiran berfikir (Hasmidar Hassan, 2016). Kajian ini berkaitan kemampuan pelajar yang terdiri daripada pelajar pendidikan guru dalam memahami makna peribahasa. Hasil daripada kajian yang dilakukan oleh Hasmidar Hassan (2016) ini mendapati ramai pelajar tidak memahami maksud implisit atau makna tersirat yang terkandung dalam peribahasa yang diberikan.

Berdasarkan kajian lalu yang telah dijalankan, terdapat lompang kosong yang mencetuskan kajian ini dilakukan. Berdasarkan kajian oleh Mary Fatimah Subet, Dayang Sariah Abang Suhai, Nur Ardini Jian Abdullah @ Elmie Jian & Salbia Hassan (2011) berkaitan kelainan bahasa antara Dialek Melayu Sarawak dan Bahasa Melayu Standard. Menurut kajian ini, ilmu pengetahuan berkaitan leksikal atau kata perlu dijalan bagi mengelakkan kekeliruan dan salah faham antara penutur. Oleh itu, berdasarkan permasalahan itu, kajian terhadap kata bahasa Banjar yang berhomonim dengan bahasa Melayu dijalankan.

Selanjutnya, kajian semantik leksikan ini bertunjangkan kepada dua objektif yang mana bagi memperjelaskan makna bagi kata yang berhomonim dalam bahasa Banjar dan bahasa Melayu Standard. Objektif pertama bagi kajian ini adalah untuk mengenal pasti kata dalam bahasa Banjar yang mempunyai sama ejaan dan bunyi tetapi berbeza makna dengan bahasa Melayu Standard. Seterusnya onjektif kedua adalah untuk membincangkan kata bahasa Banjar yang berhomonim dengan bahasa Melayu melalui ujaran dengan menggunakan Teori Analisis Wacana oleh Brown & Yule (1983).

METODOLOGI

Kajian ini menggunakan Teori Analisis Wacana yang dipelopori oleh Brown & Yule (1983). Data kajian adalah ujaran masyarakat Banjar yang mengandungi leksikal atau kata yang berhomonim iaitu mempunyai ejaan dan bunyi yang sama tetapi berbeza makna dengan bahasa Melayu. Leksikal atau kata ini dianalisis penggunaannya dalam bentuk ujaran bagi melihat makna kata tersebut berdasarkan konteks dan situasi sebenar. Subjek kajian merupakan tiga buah keluarga yang tinggal di Kapar, Klang, Selangor. Subjek berumur dalam lingkungan 40 dan 50 tahun. Kajian menggunakan teknik temu bual dan pemerhatian. Temu bual dijalankan dengan bertanyakan perkataan yang sama ejaan dan bunyi dalam bahasa Banjar dengan bahasa Melayu namun berbeza makna. Kemudian, kata tersebut dilihat penggunaannya dalam bentuk ujaran bagi mengetahui dengan lebih jelas makna sebenar berdasarkan konteks. Selain itu, kajian juga turut menerangkan contoh ujaran penggunaan perkataan tersebut dalam ujaran bahasa Melayu Standard. Perbualan yang mengandungi kata berhomonim ini dianalisis menggunakan prinsip pragmatik dan konteks wacana dalam Teori Analisis Wacana (Brown & Yule, 1983).

Teori

Teori yang akan digunakan dalam kajian ini ialah Teori Analisis Wacana yang dipelopori oleh Brown & Yule (1983). Wacana adalah unit bahasa yang melebihi batas ayat. Oleh itu, sesuatu wacana boleh dikatakan terdiri daripada ayat, sejumlah ayat, cerita, bab, buku dan sebagainya. Teori Analisis Wacana (Brown & Yule, 1983) merupakan teori yang mengandungi prinsip pragmatik dan konteks wacana. Menurut Brown & Yule (2003), wacana merupakan pengungkapan peribadi mengenai keadaan tertentu. Manakala menurut Burchell & Cook (2006), wacana merupakan bahasa yang digunakan ketika berkomunikasi dan berlaku secara lisan dan tulisan. Teori Analisis Wacana (Brown & Yule, 1983) ini mengandungi beberapa bahagian, iaitu rujukan (reference), praandaian (presupposition), implikatur (implicature) dan inferens (inference). Brown & Yule (1983:1) menjelaskan analisis wacana sebagai analisis ke atas bahasa yang digunakan. Selain itu, Stubbs (1983) mengatakan bahawa analisis wacana ialah usaha mengkaji organisasi bahasa yang melampaui peringkat ayat dan klausa.

Brown & Yule (1983: 1) menyatakan bahasa analisis wacana merupakan analisis ke atas bahasa yang digunakan. Oleh itu, analisis itu pastinya tidak akan dibatasi dengan deskripsi bentuk bahasa yang tidak terikat pada tujuan atau fungsi yang dirancang untuk menggunakan bentuk tersebut dalam urusan-urusan manusia. Sekiranya ada ahli linguistik yang memusatkan perhatian pada penentuan sifat normal sesuatu bahasa, penganalisis wacana akan menyelidiki untuk bahasa tersebut digunakan. Pendekatan dalam analisis wacana boleh dibahagikan kepada beberapa bahagian iaitu rujukan, praandaian, implikatur dan inferens.

Melalui pandangan semantik tradisional mengenai rujukan (reference), Brown & Yule (1983: 28) telah mengambil pendapat Lyons (1968:404) sebagai "hubungan yang hadir antara katakata dan barang-barang, di mana kata-kata ini dijelaskan pada perkataan (refer to) barangbarang". Pandangan ini turut diaplikasikan dalam penyelidikan-penyelidikan bahasa yang mendeskripsikan hubungan antara suatu bahasa tertentu dengan kehidupan dunia tanpa kehadiran pengguna bahasa. Namun, Lyons (1977:177) dilihat turut mengupas "rujukan" dengan barisan penyataan bahawa "penuturlah yang menunjukkan (dengan menggunakan suatu ungkapan yang sesuai) ia menerapkan ungkapan itu pada referensi dengan perbuatan mengacu (referring)" sekaligus memperlihatkan pandangan Lyons (1977) ini adalah penyataan terakhir yang harus iikuti oleh penganalisis wacana. Manakala, Strawson (1950) telah mengupas mengenai "rujukan" melalui konsep pragmatik sebagai "mengacu" (referring) iaitu bukan sesuatu yang dilakukan sebagai ungkapan tetapi sesuatu yang dilakukan oleh seseorang dengan memakai ungkapan. Oleh yang demikian, menurut analisis wacana, "rujukan" diperincikan sebagai perbuatan penutur.

Brown & Yule (1983:28) turut menganggap bahawa pengertian praandaian yang diperlukan dalam analisis wacana adalah praandaian yang pragmatik dengan penyataan "yang ditentukan batas-batasnya berdasarkan pembicara mengenai apa yang kemungkinan akan diterima oleh pendengar tanpa halangan" (Givon, 1979:50) Stalnaker (1978:321) turut mendefinisikan "dasar bersama" yang dikaitkan dengan ciri-ciri praandaian sebagai "apa yang digunakan penutur sebagai dasar bersama bagi para peserta percakapan". Maka, jelas menunjukkan bahawa kedua-dua penyataan ini ditafsir sebagai sumber praandaian yang ditunjukkan oleh penutur sekaligus Brown & Yule (1978:29) menyatakan bahawa mereka akan menolak anggapan bahawa praandaian berasal daripada kalimat atau proposisi.

"Implikatur" ialah perkataan yang pertama sekali digunakan oleh Grice (1975) bagi menjelaskan tentang sesuatu yang berkemungkinan dimaksudkan atau disarankan oleh penutur, tetapi sebenarnya berbeza dengan maksud sebenar yang dikatakan oleh penutur. Implikatur percakapan ialah dilihat lebih menarik perhatian penganalisis wacana yang menyatakan bahawa "impikatur percakapan" ialah implikatur yang diturunkan dari asas umum percakapan serta sejumlah konvensi yang kebiasaannya dipatuhi oleh penutur telah ditambah. Setelah menjalankan analisis mengenai erti yang dimaksudkan, dilihat bahawa "erti harfiah" melebihi "kalimat yang dibaca", dan mendapati bahawa sekumpulan besar persoalan yang berkaitan harus diberi perhatian. Secara keseluruhannya, Brown & Yule (1983:33) meringkaskan hal-hal yang penting melalui saranan yang disampaikan oleh Grice (1975). Penegasan mengenai implikatur-implikatur ialah hasil daripada makna pragmatik yang mempunyai ciri-ciri tertentu yang boleh dikenal pasti. Brown & Yule (1983) turut menyokong pernyataan Grice (1975) bahawa implikatur ialah "apa yang penutur mampu bayangkan, atau mempunyai makna, dan berbeza daripada apa yang penutur literal tuturkan". Selain itu, Brown & Yule (1983) turut menjelaskan bahawa Asas Kerja Sama perlu dipatuhi dan dikuti oleh penutur kerana penghasilan tingkah laku yang jujur dalam menghasilkan bahagian wacana akan memudahkan proses mengenal pasti implikatur.

Inferens hadir ketika penganalisis wacana yang merangkap pendengar tidak dapat memahami perkara yang dimaksudkan oleh penutur ketika menyampaikan sesebuah ujaran menyebabkan penganalisis wacana sering berusaha untuk mengandaikan. Andaian ini yang dimaksudkan dengan inferens, di mana inferens turut hadir dengan pelbagai cara. Inferens tertentu boleh dilaksanakan melalui inferens deduktif namun hal ini sangat sukar untuk ditemui dalam wacana seharian. Penganalisis wacana ataupun pendengar lebih kerap menghasilkan inferens yang agak longgar. Inferens boleh jadi akan salah, tetapi sebagai penganalisis wacana, Brown & Yule (1983:34) telah membuat inferens yang lebih bersifat kebarangkalian. Hal ini menunjukkan bahawa jika maklumat selanjutnya tidak bersesuai dengan inferens yang telah dibuat, mereka akan meninggalkannya kemudian langsung mengolah inferens yang lain pula.

KEPUTUSAN DAN PERBINCANGAN

Kata	Makna bahasa Banjar	Makna bahasa Melayu
Awak	Badan, tubuh	kata ganti diri kedua
Parut	perut	Bekas luka pada kulit
pulang	pula	Balik, kembali
Lawas	Lama	Luas, lancar buang air besar atau kecil
Awan	Dengan	Wap air yang bergumpal-gumpal di
		udara
Kacak	Cekik (perbuatan mencekik)	Tampan, segak
mamak	Empuk (daging)	Panggilan kepada lelaki india yang
		beragama islam

Jadual 1: Perkataan yang berhomonin di antara bahasa Banjar dengan bahasa Melayu

Data 1 : Awak

Makna awak dalam ujaran bahasa Banjar:

- S1: Ikam handak umpat akuk ka kadai? (kau hendak ikut aku ke kedai?)
- S2 : Kadak handak..awak neh panat...sakitan (Tidak hendak..badan ni penat..sakit-sakit)

Makna awak dalam ujaran bahasa Melayu Standard:

S1: Siapa nama *awak*?

S2: Nama saya Hayati.

Makna *awak* dalam Kamus Dewan Edisi Keempat (2007:92) adalah yang pertama merujuk kepada badan dan tubuh, makna kedua merujuk kata ganti diri kedua dan makna ketiga merujuk diri sendiri. Namun dalam perbualan bahasa Melayu Standard (BMS), penggunaan rujukan makna *awak* yang sering digunakan secara meluas adalah makna yang merujuk kata ganti nama kedua seperti dalam ujaran di atas. Manakala, makna awak yang merujuk tubuh badan jarang diguna pakai dalam ujaran BMS. Seterusnya, makna ketiga iaitu yang merujuk pada diri sendiri terdapat dalam dialek Perak. Makna *awak* dalam bahasa Banjar berdasarkan ujaran tersebut adalah *badan*. Situasi ujaran bahasa Banjar yang mengandungi kata *awak* di atas merupakan situasi di mana S1 merupakan sepupu kepada S2 bertanyakan ajakan untuk pergi ke kedai iaitu "Ikam handak umpat akuk ka kadai?" (kau hendak ikut aku ke kedai?) kepada S2. Seterusnya, S2 menjawab "Kadak handak..*awak* neh panat...sakitan" (Tidak
hendak..*badan* ni penat..sakit-sakit) sambil S2 memicit-micit badannya yang sakit itu. Perlakuan S2 memicit-micit badan merupakan rujukan (*reference*) berdasarkan teori Analisis Wacana (Brown & Yule, 1983) yang mana merujuk kepada perbuatan penutur. Menurut Strawson (1950), rujukan melalui konsep pragmatik sebagai mengaitkan (*referring*) iaitu bukan sahaja sesuatu yang dilakukan sebagai ungkapan tetapi sesuatu yang dilakukan oleh seseorang dengan menggunakan sesuatu penjelasan. Oleh yang demikian, perbuatan yang dilakukan oleh S2 iaitu memicit-micit badan merupakan rujukan kepada makna *awak* iaitu badan yang penat dan sakit. Oleh itu, dapat disimpulkan bahawa makna penggunaan kata *awak* dalam ujaran masyarakat penutur bagi bahasa Banjar dan BMS adalah berbeza walaupun mempunyai ejaan dan bunyi yang sama.

Data 2 : Parut

Makna parut dalam ujaran bahasa Banjar:

- S1: Anak ikam kenapak kadak sekolahan?(Anak kau kenapa tidak sekolah?)
- S2: Sakit *parut* makan padas semalam.(Sakit *perut* makan pedas semalam)

Makna parut dalam ujaran bahasa Melayu Standard:

- S1: Kenapa parut di kaki tu?
- S2: Jatuh basikal masa aku kecil.

Menurut Kamus Dewan Edisi Keempat (2007:1143) makna *parut* yang pertama merujuk kepada pemarut, parutan iaitu alat mengukur kelapa dan lain-lain. Manakala makna kedua ialah bekas luka atau bisul pada kulit. Contoh ujaran BMS di atas adalah merujuk kepada penggunaan makna *parut* yang kedua iaitu bekas luka pada kulit. Seterusnya, makna *parut* dalam bahasa Banjar adalah berbeza dengan BMS. Makna *parut* dalam ujaran bahasa Banjar di atas merujuk kepada perut. Berdasarkan perbualan yang menunjukkan makna *parut* dalam bahasa Banjar di atas, S1 bertanyakan kepada S2 sebab ketidakhadiran anak jirannya itu ke sekolah dengan mengatakan "S1: Anak ikam kenapak kadak sekolahan?"(Anak kau kenapa tidak sekolah?). Kemudian S2 yang memahami pertanyaan jiran itu membalas dengan mengatakan "Sakit *parut* makan padas semalam"(Sakit *perut* makan pedas semalam). S2

memberitahu kepada S1 bahawa anaknya tidak ke sekolah kerana sakit perut akibat makan pedas pada hari semalam. Berdasarkan ujaran ini jelas menunjukkan, makna *parut* dalam bahasa Banjar adalah perut bukan merujuk kepada parut luka atau pemarut dalam BMS. Apabila ujaran bahasa Banjar ini didengar oleh pendengar yang bukan daripada latar belakang orang Banjar, maka akan wujud inferens seperti pendengar akan beranggapan bahawa anak S2 tidak ke sekolah kerana sakit *parut* pada kulit yang luka kembali tetapi pendengar juga akan berfikir apa kaitan sakit *parut* dengan makan pedas. Inferens sebegitu akan wujud jika pendengar tersebut tidak mengetahui bahawa *parut* dalam bahasa Banjar merujuk kepada perut. Menurut Brown & Yule (1983), inferens hadir ketika penganalisis wacana yang merangkap pendengar tidak dapat memahami perkara yang dimaksudkan oleh penutur ketika menyampaikan sesebuah ujaran sehingga menyebabkan penganalisis wacana akan berusaha untuk mengandaikannya

Data 3: Pulang

Makna pulang dalam ujaran bahasa Banjar:

S1: Akuk kadak jadik umpat ikam..gigik akuk sakitan *pulang* (Aku tak jadi ikut kau...gigi aku sakit pula)

S2: Kadak apalah...ikam jangan lupak makan ubat.(Tak apalah..kau jangan lupa makan

ubat)

Makna pulang dalam ujaran bahasa Melayu Standard:

S1: Mari *pulang* ke rumah sekarang.

S2: Awak pulang dulu..saya ada kerja perlu siapkan.

Makna kata *pulang* menurut Kamus Dewan Edisi (2007:1244) Keempat ialah pergi ke tempat asalnya, pergi ke rumah, balik dan kembali. Manakala *pulang* dalam bahasa Banjar membawa maksud *pula*. Makna kata *pulang* dalam bahasa Banjar akan lebih jelas difahami dalam bentuk ujaran seperti di atas. S1 mengatakan kepada S2 bahawa dia tidak dapat mengikut S2 kerana sakit gigi iaitu "Akuk kadak jadik umpat ikam..gigik akuk sakitan *pulang* (Aku tak jadi ikut kau...gigi aku sakit pula). Kemudian S2 mengatakan "Kadak

apalah...ikam jangan lupak makan ubat"(Tak apalah..kau jangan lupa makan ubat), S2 tidak kisah S1 tidak boleh pergi bersamanya dan mengingatikan S1 supaya makan ubat. Berdasarkan Teori Analisis Wacana Brown & Yule (1983:28) menganggap bahawa pengertian praandaian yang diperlukan dalam analisis wacana adalah praandaian yang pragmatik dengan penyataan "yang ditentukan batas-batasnya berdasarkan pembicara mengenai apa yang kemungkinan akan diterima oleh pendengar tanpa halangan" (Givon, 1979:50). Maka, berdasarkan ujaran di atas, ujaran yang dihasilkan oleh S1 kepada S2 menepati prinsip praandaaian iaitu kemungkinan yang akan diterima oleh pendengar tanpa halangan.

Data 4: Lawas

Makna lawas dalam ujaran bahasa Banjar:

- S1: *Lawas* banar ikam gureng (Lama benar kau tidur)
- S2: Akuk kadak hingkat gureng malam tadi (aku tak boleh tidur malam tadi)

Makna lawas dalam ujaran bahasa Melayu Standard:

- S1: Kenapa aku tengok kau dari tadi asyik ke tandas saja?
- S2: Aku buang air kecil tak *lawas*.

Makna *lawas* berdasarkan Kamus Dewan Edisi Keempat (2007:900) ialah yang pertama bermakna luas (kawasan, pemandangan), lapang, terbuka dan makna yang kedua ialah lancar dari segi membuang air besar atau kecil. Manakala makna *lawas* dalam Banjar ialah *lama* yang boleh merujuk kepada tempoh masa atau benda. Berdasarkan ujaran di atas, jelas menunjukkan penggunaan makna kata *lawas* dalam bahasa dan situasi yang berlainan. Semua sedia maklum makna *lawas* dalam ujaran BMS. Namun, erti *lawas* dalam bahasa Banjar berlainan seperti ujaran bahasa Banjar di atas yang menunjukkan penggunaan kata *lawas* yang menunjukkan penggunaan kata *lawas* yang menunjuk kepada tempoh *masa yang lama*. Berdasarkan ujaran bahasa Banjar berikut, S1 mengatakan kepada S2 bahawa sangat lama S2 tidur iaitu "*Lawas* banar ikam gureng" (Lama benar kau tidur). Kemudian S2 membalas dengan mengatakan "Akuk kadak hingkat gureng malam tadi"(aku tak boleh tidur malam tadi) yang merupakan penyebab dirinya tidur lama.

Berdasarkan perbualan antara S1 dan S2 jelas menunjukkan penggunaan makna *lawas* berbeza dengan BMS. Merujuk Teori Analisis Wacana (Brown & Yule, 1983), wujud praandaian di dalam perbualan ujaran Banjar tersebut, iaitu apa yang digunakan oleh penutur iaitu S1 sebagai dasar bersama bagi dengan S2 yang merujuk kepada kefahaman atau kemungkinan yang S1 ingin mengetahui penyebab S2 tidur dalam tempoh yang lama walaupun S1 tidak bertanyakan soalan secara langsung. Namun, praandaian yang wujud melancarkan proses ujaran yang dihasilkan.

Data 5: Awan

Makna awan dalam ujaran bahasa Banjar:

S1: Ikam ka Klang *awan* sapak? (kau ke Klang *dengan* siapa?)

S2: Aku sorangan jak (Aku seorang je)

Makna awan dalam ujaran bahasa Melayu Standard:

S1: Awak! tengok bentuk *awan* tu macam kapal.

S2: Yelah! macam kapal dan *awan* yang sana tu macam orang.

Makna *awan* menurut Kamus Dewan Edisi Keempat (2007:93) adalah wap air yang bergumpal-gumpal di udara. Makna *awan* dalam BMS adalah seperti ujaran di atas yang merujuk kepada awan yang terdapat di langit. Manakala makna *awan* dalam bahasa Banjar adalah *dengan* iaitu kata hubung. Penggunaan kata *awan* yang membawa maksud *dengan* dalam bahasa Banjar dalam dilihat dalam ujaran berikut. S1 ingin mengetahui S2 ke Klang dengan siapa dan langsung bertanyakan perihal tersebut kepada S2 iaitu "Ikam ka Klang *awan* sapak?"(kau ke Klang *dengan* siapa?) dan S2 menjawab bahawa dia ke Klang seorang diri, iaitu "Aku sorangan jak (Aku seorang je). Makna *awan* dalam ujaran tersebut jelas merujuk kepada *dengan* iaitu kata hubung dalam bahasa Banjar. Merujuk Teori Analisis Wacana (1983) berdasarkan perbualan bahasa Banjar tersebut wujud implikatur seperti S1 akan beranggapan yang S2 tidak mahu ditemani sesiapa di atas maklum balas yang diberikan oleh S2 sekadar ingin berintegrasi sosial dengannya atau S2 ingin

menemaninya dan berharap ada perlawaan dari pihaknya. Implikatur menurut Grice (1975) yang disokong oleh Brown & Yule (1983) merujuk kepada 'apa yang penutur mampu bayangkan, atau mempunyai makna, dan berbeza daripada apa yang penutur literal tuturkan".

Data 6: Kacak

Makna kacak dalam ujaran bahasa Banjar:

- S1: Akuk kacak guluk ikam baru ikam tahu.(Aku *cekik* leher kau baru kau tahu)
- S2: *Kacak*lah kalau ikam wanik. (Cekiklah kalau kau berani)

Makna kacak dalam ujaran bahasa Melayu Standard:

S1: *Kacak* sungguh abang yang pakai baju biru tu.

S2: Kacak..macam kacukan orang putih.

Makna kacak dalam Kamus Dewan Edisi Keempat (2007:650) ialah kelihatan gagah, segak dan tampan yang merujuk kepada kata sifat seseorang. Manakala dalam bahasa Banjar, makna kacak ialah cekik iaitu perbuatan mencekik atau mencengkam leher sehingga tidak dapat bernafas. Makna kacak dalam bahasa Banjar akan lebih jelas difahami apabila dilihat dalam konteks situasi sebenar iaitu melalui ujaran. Berdasarkan ujaran bahasa Banjar di atas yang menggunakan kata kacak, S1 mengatakan "Akuk kacak guluk ikam baru ikam tahu"(Aku cekik leher kau baru kau tahu) kepada S2 dengan nada kemarahan dan S2 membalas dengan mengatakan "Kacaklah kalau ikam wanik. (Cekiklah kalau kau berani)" dengan gaya mencabar. Berdasarkan ujaran Banjar tersebut, menurut Teori Analisis Wacana (1983) terdapat inferens iaitu hadir ketika penganalisis wacana yang merangkap pendengar tidak dapat memahami perkara yang dimaksudkan oleh penutur ketika menyampaikan sesebuah ujaran sehingga menyebabkan penganalisis wacana akan berusaha untuk mengandaikannya. Inferens pendengar bagi ujaran tersebut ialah pendengar tidak memahami situasi sebenar yang terjadi antara S1 dan S2 sehingga kelihatan seperti ingin bergaduh. Pendengar membuat inferens bahawa S1 dan S2 hanya sekadar bergurau dan S1 hanya menggertak S2 sahaja. Oleh yang demikian, makna kacak yang ingin dijelaskan dalam ujaran tersebut sampai kepada subjek dan pendengar walaupun wujud infrens terhadap pendengar mengenai situasi sebenar yang terjadi.

Data 7: Mamak

Makna *mamak* dalam ujaran bahasa Banjar: S1: Jerang daging tuh sampai *mamak*. (Rebus daging kerbau tu sampai *empuk*) S2: Ayuhak mak (Yalah mak)

Makna mamak dalam ujaran bahasa Melayu Standard:

S1: Mamak mee goreng basah satu.

S2: Siap.

Makna mamak menurut Kamus Dewan Edisi Keempat (2007:989) mempunyai tiga makna iaitu yang pertama merujuk kepada saudara ibu yang laki-laki yang berasal dari Minangkabau, makna kedua adalah daripada sastera lama yang merupakan sebutan oleh raja kepada pembesar-pembesar negeri seperti menteri dan makna *mamak* yang ketiga merupakan bahasa percakapan yang merujuk panggilan kepada lelaki India yang beragama Islam. Berdasarkan ketiga-tiga makna tersebut, dalam konteks percakapan makna mamak sebagai panggilan kepada lelaki India yang beragama Islam telah digunakan secara meluas dalam masyarakat di Malaysia. Namun, makna *mamak* dalam bahasa Banjar adalah berbeza dan mamak dalam bahasa Banjar bermakna empuk dalam konteks memasak makanan seperti *daging* dan sebagainya. Kata mamak yang bermakna empuk ini hanya merujuk makna *empuk* dalam konteks makanan atau sesuatu yang empuk dan lembut, bukan yang merujuk makna empuk yang memukul sesuatu. Makna mamak yang merujuk empuk dalam ujaran bahasa Banjar adalah seperti perbualan berikut iaitu S1 yang merupakan ibu kepada S2. S1 telah menyuruh anaknya merebus daging sehingga empuk atau lembut dengan mengatakan "Jerang daging tuh sampai mamak"(Rebus daging tu sampai empuk) kepada S2 dan S2 mengikuti arahan ibunya dengan berkata "Ayuhak mak" (Yalah mak) sambil berlalu ke dapur untuk merebus daging. Berdasarkan Teori Analisis Wacana (Brown & Yule, 1983), wujud implikatur oleh penuntur iaitu S1 yang mengandaikan bahawa S2 memahami kerana tidak bertanyakan soalan atau S2 sememngnya tahu akan arahan ibunya.

KESIMPULAN

Secara keselurahannya, Brown & Yule (1983:35) telah menyatakan bahawa istilah-istilah rujukan, praandaian, implikatur dan inferens harus dijadikan sebagai konsep-konsep pragmatik dalam analisis wacana. Penggunaan konsep pragmatik dalam istilah-istilah ini mempunyai hubungan yang kuat dengan konteks tempat terhasilnya wacana tersebut. Kajian ini dijalankan berpandukan Teori Analisis Wacana bagi menghurai ujaran yang dihasilkan bagi menerangkan penggunaan makna leksikal dari sudut situasi sebenar. Dapat dirumuskan bahawa kajian mengenai makna kata bagi dialek atau bahasa yang sama ejaan dan bunyi tetapi berbeza dari segi makna ini perlu bagi tidak timbul salah faham antara masyarakat penutur (Mary Fatimah Subet, Dayang Sariah Abang Suhai, Nur Ardini Jian Abdullah @ Elmie Jian & Salbia Hassan, 2011). Penggunaan kata dalam ujaran dapat memperlihatkan makna sebenar sesuatu kata itu dalam konteks dan situasi yang sebenar. Kajian mengenai bahasa Banjar perlu dipelbagaikan lagi dalam pelbagai aspek bahasa dan bidang supaya bahasa Banjar ini berada dalam pengetahuan semua lapisan masyarakat.

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Recruiting The Public Relations Officer During British Colonial Malaysia

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ABSTRACT

This is a study on the growth of public relations in Malaysia based on the advertisements placed in the newspapers during the colonial period. Tracing the historical development serves to make a better understanding about the nature of public relations practice. This paper therefore aims at exploring the development of the public relations profession by studying the advertisements placed in the nationwide newspapers, the *Straits Times* and the *Singapore Free Press & Mercantile Advertiser* from 1939 which included the early advertisement that contained the phrase "public relations" to 1956 a year before the independence of the Federation of Malaysia. An analysis of the advertisements was made to fully understand the historical development of public relations in Malaya or then Malaysia.

The very first advertisement that was identified was on 31 January 1948, which was placed by the Department of Public Relations of the federal government. The British colonial government had placed another four advertisements in 1949 and 1950. A British mining Co. was the first corporation to hire an information & public relations officer in 1956. The results showed some differences and similarities through the analyses of advertisements in the job specification, which included qualification, duties, and salaries. The results revealed that those who had higher education and experience obtained a higher salary. The results also showed that some advertisers companies/organizations had substituted academic qualifications for working experience) when advertising for their public relations personnel.

Keywords: Public relations, public relations officer, recruiting, independence, and Malaysia.

INTRODUCTION

The father and pioneer of American public relations, Edward Bernays (1928) mentioned of new activities that called for a new designation of the practitioners. To him, the specialist propagandist in interpreting ideas and enterprises, and in interpreting the public of new ideas and enterprises to the public, has come to be known by the title of "public relations counsel". The growth of a new profession of public relations was because of an increasingly complex nature of modern life thus resulting to make the actions of one part of the public to understand other sectors of the public. The public relations counsel has many duties and responsibilities. He makes his ides known to the general public by working with the media and with groups in society. In the development of the practice, the expert public relations may be known as public relations counsel or director or in big companies he is called director or vice-president or even secretary. Sometimes he is known as commissioner or cabinet officer. However, regardless the title he may be called, the functions performed are clear and the advice given has specific bearing on the conduct of the individuals or groups with whom he is working.

The developments and changes have made the world smaller: changes such as globalization, communication technology, information technology, and other phenomena guarantee that people will be influenced almost everywhere by events anywhere in this world. These developments have created great opportunities and several challenges for public relations practitioners. The current role of public relations with the social crises and present issues was never expected years ago. The role of "public relations practitioners" is complex and sensitive. It is no longer primarily a communicator. The practitioners must know the functions and activities of their organizations, know the happenings inside and outside their organizations, must behave as relationship builder who tries to handle and prevent expected problems, and expected to bring usable facts, objectivity, and awareness into the decision-making process. Practitioners must also have good skills in public speaking and writing; having the necessary experience to play a significant role in the development of their organizations (Ahmad, 2010).

The question uppermost is how public relations has developed over the years. Each country has its own history to record the growth of public relations. some countries have seen public relations developing after the second world war (Bentele & Wehmeier, 2009) while other countries have shown evidence of public relations being practiced as a profession and as an occupation before the war (L'Etang, 2007).

There are many possibilities to study the historical growth of public relations. One is to have an interview with veteran practitioners and asking them to narrate the events of the past. The second course is to peruse the documents in the library or in the archives to have an idea of the practice in the past. One is not been able to discern the growth of public relations skills and expertise unless a historical approach is conducted to understand such a phenomenon. One way, which is seldom done, is to study advertisements placed in the media by organisations that want public relations officers. Public relations practitioners are employed by organisations. And organisations placed advertisements to recruit their public relations practitioners. This study is therefore a study on the advertisements placed by organisations in the newspapers through the years before independence, the first being placed in 1939. By studying various advertisements over the years, one can then be able to have an idea how public relations have developed over the years. The objective of this paper undertakes a study on the historical development of public relations practice by studying advertisements placed in the newspapers over the years before independence.

LITERATURE REVIEW

Scholars have postulated on the consequences that the economic and political systems have on the development of public relations in own countries (Bentele & Wehmeier, 2009). Malaysia is no exception, except that the remark made by Bentele and Wehmeier (2009) did not consider the consequences such social and economic systems have on the colonies. This study on the early period of the growth of public relations in Malaysia was when the country was still under colonial rule. Malaysia's relationship with the British began early in the 17 C but it was later that the British began to gain a foothold in the Malay Peninsula and in the Borneo states of Sabah, Sarawak and in Brunei. Labuan was ceded by the Sultan of Brunei to the British in 1846. Melaka was occupied in 1795 and Captain Francis Light was granted Penang Island by the then Sultan of Kedah in 1786. The Treaty of Pangkor signed in 1874 provided for the stationing of a British Resident in Perak. The Sultan of Selangor accepted British protection in 1874. Gradually three forms of entities existed in Malaya, the Unfederated Malay States (Kedah, Perlis, Kelantan, Terengganu and Johor), the Federated Malay States (Perak, Selangor, Negri Sembilan, and Pahang) and the Straits Settlements (Penang, Melaka and Singapore). Sabah and Sarawak were under different British jurisdiction. The Colony of the Straits Settlements initially placed under the India Office until 1867 was transferred to the Colonial Office. The Colonial Office likewise controls the administration of the Malay States.

From the late eighteenth century Malaysia was under British colonial rule until the Japanese occupation from 1942 to 1945. The British-ruled territories of the Malay Peninsula became the Federation of Malaya after the World War II, and achieved its independence in 1957. The establishment of Malaysia was in 1963 with the addition of Singapore, and Sabah and Sarawak. Singapore left Malaysia in 1965.

Other scholars hold a different view by suggesting that public relations was being practiced in early time. The oldest Malay kingdom has included the northern Malaya greater coalition of kingdoms and Kedah. Thus, the earliest practice of public relations in Malaysia could have originated in these early Malay kingdoms or even from earlier kingdoms that are not been discovered yet (Adnan, 1999). So public relations could have started during the days of the Malacca sultanate given this argument.

Idid postulated the periodization of public relations in Malaysia to be in four phases: (a) the colonial rule period; (b) Independence, to the formation of Malaysia (c) Period of formation of Malaysia till 1986; and (d) the Mahathir Era. The beginning of public relations in Malaysia was before Second World War under British rule when the veteran journalist from Straits Times, George L. Peet, was appointed the first director of the Department of Information in 1939. The outbreak of war in Europe made the British very concerned in maintaining and obtaining the support of their colonies. In 1939 also, the British War Cabinet formed the Ministry of Information to meet the challenges of war in Europe and to beef up its propaganda in other parts of the world. The civil servant Dr. Victor Purcell was appointed

Director-General of the Department of Information and Publicity in 1940, subsuming the functions of the former Department of Information functions.

The establishment of the Department of Public Relations on 1 April 1946 by the Malayan Union government was established one year after the end of Japanese occupation, and when the British had assumed control over the country. Among the functions of the Department of Public Relations was to restore the image and reputation of the British, to restore law and Order and to help in the campaigns to grow paddy and other vegetables. The period from Independence to Formation of Malaysia (1957 to 1963) covered two important stages, namely: the emergency period (1948 to 1960) and the formation of Malaysia; it has also, included the establishment of the Institute of Public Relations Malaysia (Idid, 1998).

In Malaysia, the modern practice of public relations may have started with the introduction of print mass media, particularly the newspaper in the 19th century Straits Settlement. With the establishment of Department of Public Relations on 1st April 1946 in Malaysia by the British following the World War II, the term of public relations probably became increasingly used. The first director of Department of Public Relations M.C. Sheppard admitted of being to some extent ignorance of the public relations practice (Idid, 1992).

A yet different perspective is being taken by other scholars who trace the development of public relations through a historiographical approach. Bentele (2013, 2015), postulated a historical growth of public relations by using a theoretical model, rather than a descriptive narration based on a fact-event public relations historiography. This was in contrast to Hoy (2002) who added periodization as another type but Bentele (2013) disagreed saying that periodizaton can be subsumed under the fact-event historiography. Using this stratification model, Bentele is of the opinion that the first type of PR as a social system and a later type of PR as an occupational field and as a profession, can be better understood. Given this stratification one could then make a study on the advertisements as a study on the early growth of the second public relations layer with public relations developing as a main occupation and the emergence of specialized departments (Bentele, 2013: pg 255). This

argument can then be applied as part of the growth of public relations in Malaysia in consonance with the media system in Malaysia.

The emergence of PR both as a regular vocation and later as a profession, was decisively influenced by the development of mass communication. It can generally be assumed that the expanded activities of the media and their expanded influence had some influence for institutions (e.g. through negative reporting). It has also been shown in the public relations history of U.S that the activities of the muckracking journalism led to the formation of corporate PR and to the establishment of independent PR consultants and PR agencies (Grunig & Hunt, 1984; Hiebert, 1966).(Bentele, 2015: 39). It was Idid (1992) who said that modern public relations ought to be seen with the development of the mass media system. Did the media through its reports lead to the growth of public relations or were there other factors besides the media that lead to the growth of the Malaysian public relations?

It is through the media, then the newspapers, that corporations and government agencies, can address the general public. And through the advertisements companies and government agencies will be able to specify what personnel are part of their organisational requirement. Hence newspapers and advertisements become integral to the growth of public relations in the public sphere.

METHODOLOGY

Newspapers, or specifically the advertisements in the newspapers, became the source through which information was obtained about the personnel required. An analysis was conducted of newspaper advertisements to examine the development of public relations through these advertisements. The advertisements from *The Straits Times* and the Singapore Free Press and Mercantile were drawn from the search engine database of National Library Board-Singapore website, NLB (<u>http://eresources.nlb.gov.sg/index.aspx</u>). Only those advertisements about public relations positions were selected to collect the data. The searching process in the website was by using keywords in the search engine. The term "public relations" was typed in the search icon, the results showed almost (33,909) advertisements, which covered the

whole time period since 1845 so far. After narrowing down the search by selecting the time period from 1939-1957, and chosen the advertisements that includes public relations positions, the results showed six relevant advertisements of all editions of *The Straits Times*. NLB website includes several e-Newspapers that was easy to approach and retrieve information for public and journalists.

FINDINGS AND DISCUSSION

The first mention of "Public Relations" in the Straits Times was actually made on 29 March, 1939 on page 5 as an announcement alluding to a talk in England to be given by Major General, J. H. Beith, Director of Public Relations at the War office. It was then apparent that a Public Relations Unit was already in existence in the United Kingdom. What was significant was that the term "Public Relations" was already introduced in the Malaysian press way back in 1939. There was no mention of the term or any public relations designation until later in 1948 with the establishment of the Department of Public Relations during the Malayan Union Days.

The first person to hold the post of Director General was M.C. ff Sheppard, better known as Tan Sri Haji Mubin Sheppard. He was then a Malayan Civil Service officer with the British government serving in Malaya and when the Department of Public Relations was set up, young Sheppard was assigned to take over the post.

The Department of Public Relations under Mubin Sheppard was a hive of activities, including recruiting officers in every state and also the setting up of Film Unit. The Department was in charge of several campaigns and managing several duties as part of its mission to restore the confidence of the people toward the British Government that was reestablishing itself after the Japanese occupation (Idid, 1992). To carry out its duties the Public Relations Department had placed advertisements in the Straits Times.

A total of six advertisements on public relations were found in *The Straits Times and the Singapore Free Press and Merantile from 1939 to 1957.* These six advertisements were divided in two main categories, the first category was the public sector which included 5 governmental advertisements that were presented by the Department of Public Relations, and the second category was the private sector that included 1 advertisement by the British Mining Co. It can be seen that the dominance of these advertisements was on public sectors advertisements.

It is to be noted that the first advertisement was placed in the Straits Times two years after the formation of the public relations department, indicating the seriousness of the British government in the interest of public relations. It can be noted that the sequence of advertisements from the public sector by the Department of Public Relations, which started by only 1 advertisement in 1948, through 3 advertisements in 1949, and 1 advertisement in 1950. On the other hand, British Mining Co. WAS considered the first private company that hired Information & Public Relations Officer in 1956, which was a year before the Independence.

The results of this study showed that there was a difference in job title, and job specification, which included qualification, duties, and salaries. Regarding the job title, three advertisements by the Department of Public Relations included the title of "Public Relations Officer "which WAS published on 31-Jan-1948, 16-Dec- 1949, and 10 Sep-1949. The other two advertisements by the Department of Public Relations included the title "Publication Officer on 28-Oct-1949, and Senior Public Relations Officer" on 8- May-1950.

Public relations was a highly prized job in the 1940s. The advertisements in 1948 and 1949 listed the candidate to have a diploma from Raffles College, a prestigious college then in Singapore. (Raffles College was later to develop into the University of Malaya in Singapore). It was in the early growth of public relations in Malaya but the management had seen the need for a public relations officer to be well educated and to have a diploma level education.

The advertisements also suggested a well defined hierarchy of organisational position. The post required was a public relations officer and the personnel would then be responsible to the Director of Public Relations. A salary grading meant that the position was career built. There was a period of probation, a time scale and a super sale.

An advertisement placed on 10 September, 1949 mentioned of a probationary public relations officer on a salary scale of RM180 - RM200, and then moving up to the grade of Time sale of \$240 to \$450.

A Publication Officer was also needed in the Public Relations department but the salary scale was much higher than the Public Relations Officer. (28 Oct 1949) But the job required a local born possessing a diploma from Raffle College. Experience in publicity and advertisement was required. The salary was from \$425 -\$750.

The Public relations officer's post was also of certain grade. An advertisement on 31 Jan. 1948 mentioned of a post for a Public Relations officer Grade 1 on a salary scale of \$300x15-\$420. The position required a person with a Raffles College Diploma, and be able to speak Malay and know government routine. The duty required was, among others, to distribute educational films within the country and outside. In the absence of a diploma, a 1 St Class Cambridge School Certificate was required but the salary would be \$200-A-280.

The advertisement on 16 December, 1949 wanted a public relations officer (Chinese) who could be able to read Chinese. The service grade for the officer appointed was from Probationary (\$180x10-\$200); Time Scale (\$240 x 10-300/Bar/315x15400-\$400) and Super scale (\$470x20-500). A cost of living allowance and other allowances would be provided.

One can also infer from the advertisements the existence of departments of public relations in Malaya. The highest ranked officer held the rank of Director, Department of Public Relations. The post advertised was a public relations officer. Within the Department of Public Relations were various public relations officers able to carry out their jobs in Malay and Chinese. There was also a Publications Officer in charge of distributing educational films.

The results showed also, that three of these advertisements did not indicate any "duties and responsibilities" for the practitioners. These advertisements contained two from Department of public relations on 16-Dec-1949 and 10 Sep-1949, and one from the private sector for the British Mining Corporation on 24-Aug-1956. In addition, the advertisement by Department

of Public Relations for Public Relation Officer on 31-Jan-1948, indicated that those who higher education and experience will get higher salary.

However, regarding the educational qualification, two advertisements by Department of Public Relations on 31-Jan-1948, and 28-Oct-1949 required Raffles diploma holders. Another two advertisements the Department of Public Relations on 16-Dec-1949, and 10-Sep- 1949 required Grade I school Certificate. The advertisement by British Mining Corporation on 24-Aug-1956 required Good School Certificate. Finally, regarding the advertisement by Department of Public Relations for Senior Public Relations Officer on 8-May-1950, mentioned only working experience and not specifying any academic qualification.

The advertisement by the Mining Corporation showed that tin mining was a big activity. It should be required that way back in 1919 a company called the Lampeh British Mining Corporation was one of the biggest corporations in then Malaya. The company did not do well and was struck off the Register of Companies in 1934. So true to the findings in later years, public relations positions were established in big companies. The advertisement therefore reflected that the position of a public relations was needed by a big mining company catering for the East Coast. The candidate required was Malay speaking with a good School Certificate, drawing a salary scale between \$700 to \$900 per month.

CONCLUSION

The current study provided a better understanding in the development of public relations positions by tracing the staffing requirements in public relations departments in newspapers advertisements. Tracing the development of public relations is helpful to understand the role of public relations.

It can be noted that many factors have contributed to the development of public relations in Malaysia such as: (1) the development in qualifications and requirements of public relations positions through the years prior independence has contributed to the development of public relations as a profession; (2) the change of both political and economical situation in Malaysia has brought an influence on the development and practice of public relations.

Studying advertisements on public relations has given an insight into the organisations that had placed such requirements. They gave an indication of the salary structure, some job specifications and suggested a career path for the practitioners who occupied the positions. Public relations was emerged as an occupation way back in 1939 but was really acknowledged in 1946.

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APPENDIX

31- Jan-1948	16-Dec-1949
APPLICATIONS are invited from locally born Raffles Graduates for the post of Public Relations Officer. Grade I. Department of Public Relations Candidate must have a good personality, a "ood knowledge of Malay and preferably a knowledge of Government routine The successful candidate will be	NOTICE APPLICATIONS from Federal Citizens or persons eligible for Federal Citizenship between the ages of 20 to 30 are invited for the appointment of probationary Public Relations Officer (Chin- ese) on the salary scale:
on three years contract on the salary scale of \$300-A15-\$420 sub- ject to a probationary period of three months in the first instance. His duties will include the Super- vision of Distribution of Educa- tional Films and he will be responsible for correspondence with groups connected with the Production and Distribution of Educational Films both within Malaya and in other countries.	Probationer-\$180x10-200; Timescale -\$240x10-300/Bar/315x 15-450; Superscale-\$470x20-550. In addition C.O.L.A. and other allowances at current rates are payable. Candidates must hold the Grade I Cambridge School Certificate with credit in English, but pre- ference will be given to holders of the Diploma of Raffles College in Arts. Candidates should also bave a knowledge of Chinese
who do not possess Railles Dip- lomas but who hold class I school certificates will be considered but in case of such appointments the salary scale will be \$200-A-\$230 Apply with copies of recent testimonials to PO Box 1037. Kuala Lumpar	script up to the standard required for a pass in the Junior Middle School together with a good know- ledge of two Chinese dialects. Application in writing should reach the Director, Department of Public Relations, P.O. Box No. 1037, Kuala Lumpur not later than the 23rd December, 1949.

28-Oct-1949	10- Sep-1949
APPLICATIONS are invited from Federal Citizens or persons eligible for citizenship for ap- pointment as Publications Officer to supervise the publishing and distribution sections of the De- partment of Public Relations, on the salary scale of \$425x25-750 p.m. plus C.O.L.A. Candidates must possess Raffies Diploma or equivalent or higher oualifications. Executive experi- ence in publicity and advertising work is essential. Applications in writing should reach the Director, Department of Public Relations, P.O. Box 1037, Kuala Lumpur, not later	NOTICE APPLICATIONS. from Malays between the ages of 20 to 30 are invited for the appointment of probationary Public Relations Officer on the salary scale: Pro- bationer-\$180/10-200; Timescale- \$240x10-300/315x15-450. Candidates must possess Grade 1 School Certificate with credit in English, but preference will be given to holders of Raffles Col- lege Diploma. Application in writing should reach the Director, Department of Public Relations, P.O. Box 1037, Kuala Lumpur, not later than
8-May-1950 PUBLIC APPOINTMENTS DEPARTMENT OF PUBLIC	24-Aug-1956 BRITISH MINING CO. Requires
RELATIONS, Federation of Malaya. Applications are invited from populations are invited from populations are invited from populations of invited from populations of invited from populations of the Press Section of the Department on a salary scale of \$435x25-750 p.m. plantate Pay (if eligible and cost of living and rent allow- ances at current rates. Applicants must have had not populations for the press state of which not less than be applicated as a Sub-Editor. The Apple and rent is initially on a system constract with prospect of emplacement on the pension of emplacement on the pension of entropy. Apples of testimonials should part the Director, Dept. of public Relations, P.O. Box No. 1037, Runale Lumpur not later	Relations Officer for East Coast Mine. Applicants must possess good School Certificate with Credit in English, be of good personality and appearance; capable of trans- lating fluently from English into Malay verbally and in writing (Jawi). Some journalistic ex- perience would be an asset. Age not over 35. Three year initial contract: free quarters, light, water: Salary dependent on qualifications and experience in the range of \$700 to \$900 per month. Apply Box A4593 S.T.

The Grammatical Relationship Between Vietnamese And English Language Among Vietnamese Efl Students

Phan Thi Kim Thao

ABSTRACT

The relationship between the first language (L1) and second (L2) grammar influences learning L2 among language students. In Vietnam, English is used as a Foreign Language (EFL). There are not any grammatical correlation studies between Vietnamese and English language that have been conducted in the Vietnam context up to the present. Hence, the current study aims to investigate the grammatical relationship between Vietnamese and English in the Vietnam context. The subjects chosen for the convenient sampling method are 94 Vietnamese non-English major students from University of Labour and Social Affairs Brand 2 and Hochiminh City (HCMC) University of Technology and Education in Vietnam. The study found there is a moderate, positive, and significant relationship between Vietnamese and English grammar proficiency among Vietnamese EFL students. The study also provides some pedagogical implications for EFL teachers, educational policy decision makers, and textbook writers in Vietnam.

Keywords: English as a Foreign Language (EFL), First language grammar (L1), common underlying proficiency (CUP), contrastive analysis hypothesis (CAH), Universal Grammar (UG)

INTRODUCTION

English language plays an important role. To be proficient in English requires English students to learn all of skills such as listening, speaking, reading, writing, vocabulary, and grammar skills. According to Kumar, Kumar, and Sagar (2015), grammar is "the sum of rules and regulations of the language" and without the use of correct grammar rules, learners

cannot speak English accurately. Thus, the role of English grammar cannot be neglected in the second language acquisition (SLA) and English grammar is an important component in language learning.

In Vietnam, there is a high demand for studying EFL. This is due to Vietnam opening its door to the global market. The English language today has become the most demanded foreign language in the country. It is considered as a main foreign language (EFL) among French, Chinese, and Japanese which is taught mandatorily from elementary to higher education. The Vietnamese educational policy has adopted the Communicative Language Approach (CLT) to language teaching since 2006. However, in reality, the grammar translation method has been widely practiced in teaching EFL in Vietnam (Canh, 2011). Hence, grammar skill is considered as a necessary skill of foreign language curriculum in Vietnam.

There have been some studies which have been conducted on the influence of L1 grammars on English grammar learning (Tran,2010; Pham, 2011; Hajimirzayee & Abdai, 2012; Dorosti, Behjat & Zadeh, 2014; Nooshin, Behjat, & Rostampour, 2014). The findings of studies reveal that there is a transfer from the L1 grammar to the L2 grammar (Pham, 2011; Hajimirzayee and Abdai, 2012; Dorosti, Behjat and Zadeh, 2014; Nooshin, Behjat, & Rostampour, 2014). These finding suggests that those who are competent in L1 grammar also seem to be competent in L2 grammar. There seem to be a grammatical transfer from L1 to the L2 among language learners. Among these studies, there are two studies were conducted on Vietnamese language (Tran,2010; Pham, 2011). However, these studies were carried out in the US context. And there are not any grammar correlation studies that has been conducted in Vietnamese context up to now. Hence, to address this gap, it is important for this study to be conducted on the linguistics relationship between Vietnamese and English grammar among Vietnamese EFL students in Vietnam context.

Limitations of the study

The current study only focuses on several grammar aspects such as subjunctive forms, whquestions, relative clauses, passive voice, prepositions, word forms, and tenses and aspects. Hence, future study can add more grammar aspects such as comparison, If clause, and plural nouns. Besides, there are 94 participants who are non- English major students in this study. Hence, future study can choose more participants who may come from English Major students or participants who are different age such as high school or children age.

RESEARCH QUESTIONS AND HYPOTHESIS

To fulfil the aim of this study, there is one research question of this study below:

Question 1: Is there a significant relationship between Vietnamese grammar and English grammar proficiency scores among Vietnamese EFL students?

Ho1: There is no significant relationship between Vietnamese grammar and English grammar proficiency scores among Vietnamese EFL students.

LITERATURE REVIEW

1. Language transfer

According to Telebi (2014), there are explanations of language transfer. Weinreich (1953) proposes that interference is "the language deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language." Lado (1957) assumes that L1 may have positive influences on learning L2 and the term language transfer is employed instead of interference which implies both negative and positive transfer in SLA.

2. The behaviourist perspective toward language transfer

According to Yi (2012) and Telebi (2014), language transfer in the 1950s and 1960s was influenced by the behaviourism as a first stage. It means language learning are a process of habit-formation and habits are formed through stimulus-response associations repeatedly (Lighbrown & Spada, 2006). Contrastive analysis hypothesis (Lado, 1957) focuses on the comparison between the first language and the second language. If there are similar features

between two languages, positive transfer can occur. If there are different features between them, the negative transfer can occur.

According to Wardhaugh (1970), there were two versions of this contrastive analysis hypothesis (CAH); the strong version and the weak version. The strong version focuses on predicting L2 errors due to negative transfer or L1 interference. The weak version aims to explain errors after learners make errors and it becomes a part of errors analysis. The weak version obtains credence due to the failure of prediction of the strong version.

However, there are criticisms of contrastive analysis hypothesis. Odlin (1989) proposes that differences between languages may both impede and facilitate learning L2. Besides, some L2 errors are not also predicted by CAH. Instead, they are considered as developmental errors or intralingual errors which were a result of the hypothesis testing among language learners (Dulay & Burt, 1974).

2.1 The Comparison between Vietnamese and English grammar

There is a summary of comparisons between Vietnamese and English grammar that is based on Tang (2007) and Tran (2010) in the Table 1 below:

No	Grammar aspects	English Grammar	Vietnamese Grammar
1	Word order	Subject Verb Object (SVO)	SVO
2	Passive voice	S + to be + V + by + O	S + to be + V + by + O
		(agent)	(agent)
3	Modal verb	Auxiliary + main V	Auxiliary + main V
4	The verb Find	Find $+$ O $+$ Adjective Find $+$ O $+$ Adjective	
5	Causative verb	Let/make/have/get+ Let/make + someon	
		someone + Verb	Verb
6	Classifier	Almost unavailable	Determiner/article +
		If any,	Classifier + Noun
		determiner + classifiers +	
		preposition + noun	E.g : Một con gà (Articles
		E.g: a sheet of paper	+ Classifier + chicken)

Table 1: The Comparison of Vietnamese and English Grammar (Tang, 2007 & Tran, 2010)

7	Plural nouns	N + markers (s/es)	Determiner + nouns
			(without plural makers)
8	Tense & Aspect		Marker + V
	_	Past: V +	Past: đã + V
		ed/V2	Present continuous:
		Present continuous:	đang+ V
		be +	Future tense: sẽ + V
		Ving	
		Future tense: will/shall	
		+ V	
9	Negation	S + aux V + not + V?	S+no+V?
		Aux V + not + V?	
10	WH- question	WH + aux V + S + V?	S+V+WH?
	_		

3. The Cognitive Perspective Towards Language Transfer

According to Yi (2012), the influence of Universal grammar (UG) (Chomsky,1976) as the second stage of language transfer. Chomsky (1978) also proposes that all humans do not need to learn the all the structures among languages. Instead, there are basis structures that govern among languages make learning another language easier.

Linguistic Interdependence Hypothesis (Cummins, 1979) assumes that the L2 proficiency of is dependent partially on L1 proficiency. This theory proposes that there is positive transfer of L1 knowledge to L2 development. In other words, when L2 learners are competent in L1 grammar, they may also be competent in learning L2 grammar and vice versa. Cummins (2000) also asserts that "conceptual knowledge developed in one language helps to make input in the other language comprehensible." Additionally, Cummins (2001, p.75) proposes that "the initial high level of L1 development makes possible the development of similar levels of competence in L2."

Likewise, Cummins (1980) proposed the common underlying proficiency (CUP) model of bilingualism in which the phonological awareness, reading strategies, grammar, and vocabulary of L1 are together with multilingual comprehension among people. The CUP model

experience and language which can develop the proficiency underlying between both languages are received enough encouragements and exposures to both languages regardless of in school or another environment. This theory aims to ease cross linguistic program among learners.

4. Prior studies on the grammatical relationship between L1 and L2

Al-Zahrani (2011) conducted a study on the relationship of L1 and L2 in the use of English articles among 34 EFL Arabic students at Umm Al-Qura University in Saudi Arabia. The instruments were one Demographic Questionnaire, one English Proficiency Test, and one forced-choice elicitation task. The result reveals that there is a strong, positive, and significant transfer from L1 Arabic to L2 in the use of English articles among upper intermediate and low intermediate EFL learners.

Pham (2011) conducted a study on first and second language trajectories and interactions among bilingual school-age children. The participants were 19 Vietnamese girls and 15 Vietnamese boys in the US. The instruments comprised 4 sets of picture-word verification (dependent measures of accuracy and response time), timed picture naming (accuracy, response time), sentence repetition (accuracy), and story-telling (mean length of utterance, story quality score). The result indicated that there is a positive growth across all language subsystems for the Vietnamese (L1) and English (L2) with relatively more rapid gains in the L2. Moreover, there is moderate to strong and positive relationship between L1 and L2. The nature of L1 and L2 relationships (strong and positive relationship) changed according to the age groups of the children.

Hajimirzayee and Abadi (2012) conducted a study on the relationship between Farsi and English grammar among 35 English literature major Iranian students of University of Qom in Iran. The instruments used were one demographic questionnaire, one 22-item MCQ Farsi grammar test, one 22-item MCQ English grammar test, one 50-item test which comprised cloze passages, vocabulary, structure, and pronunciation. The result revealed that there is a moderate, positive, and significant relationship between Persian and English grammar.

Dorosti, Behjat, Zadeh (2014) conducted a study on the grammatical relationship of either Persian L1 or Turkish L1 and English among 60 Iranian high school students. Participants were divided into 2 groups. Group A consisted of 30 Turkish high school female students and group B consisted of 30 female Persian high school female students. There instruments comprised one Persian Grammar Test for Group A, one Turkish Grammar Test for Group B, and one English grammar test for both groups. The result indicated that there is moderate, positive, and significant relationship between Persian and English as well as Turkish and English. The Turkish grammar was found to be more related to English grammar compared to Persian.

Nooshin, Behjat and Rostampour (2014) conducted a study on the relationship between Persian grammar and English writing among 80 male students. The instruments used were one 30- item Persian Grammar Test and students' paragraph writings. The result reveals that there is a strong, positive, and significant relationship between Persian and English.

METHODOLOGY

The Population and Sample

The participants of this study is 94 EFL Vietnamese adult students who were undergoing their studies at two universities in Vietnam, namely University of Labour and Social Affairs Brand 2 and HCMC University of Technology and Education. They are 69 females (73.40%) and 25 males (26.60%). Their age ranged between 18 and 36.

Instruments

There were a total of three instruments. One is the Demographic Questionnaire (Appendix 1) to obtain personal information of the respondents. One is the 8 - item English Grammar Test (Appendix 2) and one is the 8- item Vietnamese -Grammar Test (Appendix 3). The both of Vietnamese and English grammar test mainly focus on different grammar aspects such as subjunctive forms, wh-questions, relative clauses, passive voice, prepositions, word forms,

and tenses and aspects. All instruments were based on the format of University of California in 2007 and were modified and employed by Tran (2010).

Pilot Study

The pilot study was conducted among another 68 EFL students of University of Labour and Social Affairs Brand 2 and HCMC University of Technology and Education in Vietnam. Statistical Package for Social Science (SPSS) version 20 was employed to analyse the data. Participants completed three instruments which are the Demographic questionnaire first. The English grammatical test and the Vietnamese grammatical Test are completed later. The total time was 25 minutes.

To carry out the internal consistency test, there are several options of the statistical tests that need to be considered. They are Split-Half, Cronbach's Alpha, and Kuder-Richardson 20 (KR20). KR 20 is used for dichotomous variables. According to Fred, Perry and Nichols (2014, p. 40), KR 20 is employed when discrete items are scored as "correct /incorrect, true/false, yes/no, and so forth". Hence, KR 20 is the most suitable reliability test to be used for this study. The results of the KR20 reliability test indicate that the reliability level of the Vietnamese Grammar Test was r=0.73 and the English Grammar Test reliability was r=0.70. According to Nunnally (1978), the reliability coefficients of a basic research should be 0.7 or higher. Hence, both of these instruments used were reliable.

Procedure of The Main Data Collection

The main data was also collected at University of Labour and Social Affairs Brand 2 and HCMC University of Technology and Education in Vietnam. The procedure used in the main data collection was as similar as the pilot study. However, the participants are different from participants of pilot study. After getting permission, there were 55 students of class CK2013 at HCMC University of Technology and Education and 39 students of class BHB2015 of University of Labour and Social Affairs Brand 2 took part in this study.

Initially, the participants were informed of the purpose of the study. An explanation on how to complete the Demographic Questionnaire was also given. All of information of participants are confidential. It took 10 minutes for participants to complete the Demographic Questionnaire. Then, both the Vietnamese Grammar and the English Grammar tests were distributed to the participants. They completed both sets of grammar tests in approximately 20 minutes. The researchers coded all instruments during the data collection process to differentiate the participants. For example, Number 1 was coded for participants for all the instruments.

Data Analysis

The English and Vietnamese Grammar Tests

After collecting the data, the researcher marked the Vietnamese and English Grammar Test. Each correct answer was coded as number 1. In contrast, each incorrect answer was coded as number 0. The total score of each grammar test was calculated and keyed in SPSS. The total scores of each grammar test was calculated.

Person correlation was used to correlate the total score of English Grammar test and the total score of the Vietnamese Grammar test. According to Lodico, Spaulding, and Veogtle (2006), Pearson correlation coefficient is used to test the strength, direction, and significance of two interval or ratio variables. The data for this study is ratio. Hence, Pearson correlation is a suitable test to answer RQ 1.

FINDINGS AND DISCUSSIONS

The result of the descriptive statistics indicates that the range of scores for the Vietnamese grammar test was between 5 and 8. The range for the English grammar test was between 0 and 8. This suggests that the respondents performed better in the Vietnamese compared to the English grammar test.

The results of the 2-tailed Pearson Product Moment Correlation between Vietnamese grammar and English grammar proficiency scores is positive, and significant (r=0.407, p

<.001) as shown in Table 2 below. According to Spaulding, Lodico, and Voegtle (2006), the strength for r=0.407 is moderate. This suggests that the respondents who scored higher in the Vietnamese grammar test, also scored significantly higher in their English grammar test. Hence, the hypothesis Ho10. is rejected.

Table 2: Correlation between L1 Vietnamese grammar test scores and L2 English grammar test scores

	L2 English	L1 Vietnamese
Pearson Correlation	1	0.407**
Sig. (2-tailed)		.000
Ν	94	94

** Correlation is significant at the 0.01 level (2-tailed).

This result is in line with the results of Pham (2011), Hajimirzayee and Abadi (2012), Dorosti, Behjat, and Zadeh (2014), and Nooshin, Behjat, & Rostampour, 2014. Pham (2011) who found that there is moderate to strong and positive, significant relationship between from Vietnamese to English grammar. Hajimirzayee and Abadi (2012) found that there is a moderate, positive, and significant relationship between Persian and English among 35 EFL Iranian learners of University of Qom in Iran. Dorosti, Behjat, Zadeh (2014) found that there are moderate, positive, and significant relationships between L1 Persian with English, and Turkish with English among 60 high school students. Nooshin, Behjat and Rostampour (2014) found that there is a strong, positive, and significant relationship between Persian and English.

Grammar is also a challenge for language learners. However, the finding indicates there is a moderate positive relationship between Vietnamese and English grammar among Vietnamese EFL students. Hence, the existence of L1 grammar rules may facilitate English learning among Vietnamese EFL students.

In the respect of teaching grammar, using L1 in learning English can be a helpful tool for EFL teachers. By comparing and contrasting Vietnamese and English grammar, teachers can highlight the similarities and differences between two languages, give clear explanations, and provide specific examples of each rule for Vietnamese students.

EFL teachers also should stimulate Vietnamese EFL students to make the comparison between two languages and give their own examples in order to check their L2 comprehension. Such bilingual teaching and learning can ease learning English grammar among language students (Cummins, 2001 & 2005). Besides, Gass and Selinker (2008) also propose that the fundamental reason of comparison between languages is to predict both the ease as well as the potential difficulties that learners face in SLA.

The result of the comparison between the languages allows educators to know and prepare topics or grammar points need to be needs to be emphasize in the curriculum. Furthermore, Vietnamese educational policy makers and EFL textbook writers can refer the result and enrich the sources of materials for the EFL curriculum in Vietnam. In other words, this will help policy makers and EFL textbook to equip EFL students and practitioners for better learning.

In the respect of learning autonomy, L1 grammar knowledge may be a useful tool for language learners to build up their autonomy. This is because due to the time constrain at language classes, students should be "independent analysts of the target language which they are studying (Odlin,1994, p. 12). Vygotsky's (1998, p. 159) also proposes that "Success in learning a foreign language depends on the attainment of a certain level of maturity in the mother tongue. The child is able to transfer the system of meanings he or she has already acquired in his or her own language to the new language". When transferring L1 knowledge to L2 learning to overcome the L2 complexity, students' metalanguage as well as metacognition of L1 knowledge may be evoked for comparisons and explanations of L2 learning (Cunningham, 2000). In case of new L2 challenges, they also can contribute their L1 to L2 learning. According to Sesinden & Şimşek (2014), using the L1 grammar in learning L2 can easy students' anxiety and build up confidence in language learning. Thus, L1 may be an essential tool for Vietnamese EFL students to be active in their language learning and elaborate learning autonomy in and out of classrooms.

CONCLUSION

The correlation test of this study reveals that there is a moderate, positive, and significant relationship between Vietnamese and English grammar among 94 EFL Vietnamese students. That means EFL Vietnamese students who are competent in L1 grammar can be competence in L2 grammar. The study also addresses the gap of the grammar correlation studies that have not been conducted in Vietnam context up to now. In addition, study also provide pedagogical implications. First, L1 is a useful tool for EFL teachers through comparing and contrast the similarities and differences between L1 and L2 rules. Second, policy makers and EFL textbook to equip EFL students and practitioners. Second, this study is beneficial for Vietnamese EFL students to build up their confidence and elaborate their learning autonomy. However, the limited of number of participants of the study do not allow the researcher from generalisation of the findings into the whole Vietnamese EFL students. Hence, it is suggested that the further research should be conducted to replicate the study in to a wider population. In addition, next study can be carried out among another groups of participants such as children, high school level, and English major students.

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Appendix 1

Demographic Questionnaire

Dear respondents,

I am a Masters student at Infrastructure University Kuala Lumpur (IUKL), Malaysia who is doing the Final Year Project Paper on "The Grammatical Relationship between Vietnamese and English language among Vietnamese EFL Learners". I need your cooperation to complete this questionnaire set. Kindly take time to answer the following questions as honestly as possible. Be rest assured that all your answers will be kept confidential. It takes a little of your time. However, your responses are very important to me. Your cooperation is highly appreciated. Thank you very much for your cooperation!

Your sincerely,

Phan Thi Kim Thao (143914162) Faculty of Arts, Communication and Education Infrastructure University Kuala Lumpur, Malaysia

STUDENTS' INFORMATION

1. Year (Ple	ase circle one): Fresl	hman	Soph	omore	Year 3	Fi	nal year
2. The plac	e of birth:	•••••						•••••
(Please	mention	the	city	or	province	of	your	birth)
3. Age:								
4. Gender	Please circle of	one):		Femal	e		Male	
5. Which g	rade did you	start to	o learn E	nglish?				
6. How long	g you have you	ı been l	earning E	nglish i	in school up	<i>to now</i> ?	y	years
7. How ofte	n do you use l	English	out of cla	ss?	(Please	circle	one	answer)
Quite ofte	n	ofte	en		sometir	nes		seldom
8. Are you s	tudying Engli	ish out d	of school n	iow? (P	lease circle	one answei	r): Yes	No
If yes, pleas	e write the sch	nool's na	ame /langu	lage cer	nter you are s	studying no	w:	

9. How do you rate your English language for each of the following skills? (Please circle one answer)

Listening:	High	Intermediate	Low
Speaking:	High	Intermediate	Low
Reading:	High	Intermediate	Low
Writing:	High	Intermediate	Low
Grammar:	High	Intermediate	Low

10. How do you rate your Vietnamese language for each of the following skills? (Please circle one answer)

Listening:	High	Intermediate	Low
Speaking:	High	Intermediate	Low
Reading:	High	Intermediate	L
Writing:	High	Intermediate	Low
Grammar:	High	Intermediate	Low

THANK YOU

Appendix 2

English Grammar Proficiency Test

In each of the following sentences, circle the best answer. An example is provided below. Put an X if no word is needed.

Example: Yesterday evening, when I..... eating, the phone

а.	were/ring	С.	was/rang	
b.	were/rang	d.	was/ring	
1.	The manager req immediately.	uests that some	cone the letter to New	York
	a. sends	c. 1	to send	
	b. sent	d.	send	
2.		r among these ex	pensive ones has a sun roof?	
	a. Why	с.	How	
	b. When	d.	Which	
3.	The friends	she bo	ought new books were going to leave for T	'exas.
	a. who	c. 1	for whom	
	b. whom	d.	of whom	
4. Y	ou certainly wouldn	't like	in such a bad situation like that.	
	a. to be seen		c. to see	
	b. to be seeing		d. to have seen	
5. T	This nice picture is v	ery familiar	me.	
	a. to	• •	c. for	
	b. with		d. at	
6. On	ie learns a language	e by making mist	takes and them.	
8	a. correcting		c. correct	
ł	b. to correct		d. corrects	

7. By the end of the year, shewith a degree in computer science.

a. already graduates	c. will have already graduated
b. will graduate	d. has already graduated
8. She felt very happy and excited after she .	a very good essay.

a. write	
b. have written	

c. has written d. had written

THANK YOU

Appendix 3

Vietnamese Grammar Proficiency Test

In each of the following sentences, circle the best answer. An example is provided below. Put an X if no word is needed.

Example:

Mặc dù giá xe bây giờ rẻ, chúr	ng tôi cũng không	g thể mua đư	ợc một
• •	0		

a.	ngôi	©.	chiếc
b.	con	d.	cuốn

1. Chúng tôi......có một buổi nói chuyện với sinh viên trong trường ngày hôm qua.

a.	đã	c.	sắp
b.	đang	d.	sẽ
2.	Tracybắt đầu học tiếng Việt cách	tây hai	năm.
a.	đang	c.	sẽ
b.	sắp	d.	Х

- 3. Câu bị động (passive voice) đúng (correct)
- a. Loại xe mới này được sản xuất do/bởi một công ty Việt Nam
- b. Loại xe mới này do/bởi một công ty Việt Nam được sản xuất.
- c. Loại xe mới này được sản xuất bằng một công ty Việt Nam.
- d. Công ty Việt Nam được sản xuất loại xe mới này.

<i>4</i> .	Từ nào là từ láy (duplicative element)?		
a.	êm dịu	c.	êm ấm
b.	êm đềm	d.	êm ru

a. X	с.	Những
b. Tất cả	d.	Nhiều

6. Chúng tôi không thích mời anh ấy đi ăn nhà hàng và cô ấy cũng.....

a. đã thích	c.	sắp thích
b. không thích	d.	Х
7. Hôm nay anh rất vuilàm anh v	ui thế ?	
a. Điều gì	c. C	ái nào
b. Gì	d. X	
8. Chiếc valy anh mua ở nước ngoài có	?	
a. điều gì	с.	màu nào
b. màu gì	d.	Х

THANK YOU

A Compact Wideband Microstrip Antenna Intergrated with Band-Notched Design

Umair Rahim, Dr Baskaran Kasi

ABSTRACT

This article describes a compact ultra-wideband (UWB) antenna that shows desirable bandnotch and gain characteristics. The proposed antenna consists of a rectangular patch with a truncated ground plane that is fed by a 50 Ω microstrip line. A band-stop function to eliminate the WLAN interfering signals is created by inserting two C-shape slots on the proposed radiator. It is shown that the frequency of the band-notch characteristic can be tuned by varying the parameters of the notching structure. The predicted and measured results show that the antenna achieves good impedance matching and reasonable radiation patterns over a bandwidth of 3 to 8.2 GHz. Furthermore, the fabricated antenna has a compact size of 23 × 24 mm2 while exhibiting the band rejection performance in the frequency band of 4.8 to 5.8 GHz.

Keywords: Ultra Wideband Antenna, Microstrip Antenna, Partial Ground Plane, Frequency Notched.

INTRODUCTION

In 2002, the Federal Communications Commission (FCC) authorized the unlicensed use of a bandwidth of 7.5 GHz (from 3.1 to 10.6 GHz) for ultra wideband (UWB) wireless communications [1]. From that moment, UWB technology has been rapidly advancing as a promising high data rate wireless communication technology for various applications. In spite of having allocated a wide frequency range, UWB devices suffer the consequences of having to share the spectrum with a number of other established narrowband applications such as WiMAX (3.3 - 3.6 GHz) and WLAN (5 - 6 GHz). With the significantly low emitted

power from UWB radios (EIRP –41.3 dBm/MHz), the interference with other applications was partly compensated [2]. While the operation of UWB radios is almost "invisible" for other applications, interference from a strong narrowband signal, within the UWB band could overload the receiver. This narrowband signal is received as interfering noise from the UWB receivers and can affect the overall systems performance of UWB communication systems in terms of increasing pulse distortion and bit error rate. To overcome this unwanted problem, it is desirable to design UWB antennas incorporated with band rejection characteristics in the affected frequency bands.

Several studies have been reported recently on diverse antenna geometries, design methods and structures [3]–[6] to achieve band-rejection characteristics. Among others are by inserting half wavelength slot in the ground plane [7], or embedding a inverted L-shape stub in the radiating patch [2],[8], or utilizing capacitively loaded loops [9]–[10], or inserting strip in the slot [11]. In contrast to the abovementioned works, M. Al-Husseini et al presented two designs of an UWB antenna with reconfigurable band notches [12]. The first design is based on several nested complementary split ring resonators while the second design has two identical split ring resonators. Both design methods are appropriate to be employed in order to produce UWB antenna with narrow frequency notches. Nonetheless, the frequency-notch bands are created at a random frequency band and not targeting any narrow band services. Additional weakness associated with some of the designs is that the antenna's geometry is complex [9] or not suitable for pulse communication systems due to high dispersive behavior [13].

In this paper, a rectangular patch microstrip antenna with wideband characteristic from 3 to 8.2 GHz is proposed. Simply by inserting a couple of C-shaped slots in the radiating patch, a frequency band-notched from 4.8 to 5.8 GHz can be achieved. The outline of this paper is as follows. In section 2, the geometry of the proposed antenna is presented. Details of the simulation and experimental results are discussed in Section 3. The conclusions are summarized in Section 4.

Antenna Geometry

The geometry and configuration of the proposed wideband antenna is shown in Figure 1(a). In this design, a rectangular patch is fed by a microstrip line printed on a partial grounded substrate. For this proposed model, the optimization was carried out to achieve the best impedance bandwidth. The microstrip line feed is designed to match a 50 Ω characteristic impedance. The impedance matching of the proposed antenna is enhanced by correctly adjusting the dimension of the feeding structure and the patch size. Consequently, this antenna (will be referred to as antenna 1 in this paper) has a wideband impedance bandwidth with satisfactory radiation pattern.



Figure 1: Geometry of the proposed (a) Antenna 1 (b) Antenna 2.

The geometry and dimensions of the wideband antenna with band-notched design (will be referred to as antenna 2) is depicted in Figure 1(b). Two mirrored C-shaped slots are employed to create a frequency band-notch. These slots are etched onto the radiating patch. No additional retuning work is required for the previously optimized design parameters when the band-notched design is applied to the wideband antenna. Generally, the design concept of the notch function is to adjust the total length of the C-shaped slot to be approximately half-wavelength at the desired notch frequency [14]. As presented in [14], the notch frequency given the dimensions of the band-notched feature can be postulated as

$$f_{notch} = \frac{c}{2L\sqrt{\varepsilon_{eff}}} \tag{1}$$

where *L* is the total length of the C-shaped slot, *\varepsilon eff* is the effective dielectric constant and *c* is the speed of light. At the beginning stage of the design, equation (1) is used to obtain the initial total length of a single C-shaped slot. Unfortunately, the desired frequency notched band cannot be obtained. For that reason, a second mirrored C-shaped slot is chosen to be added onto the radiating patch in order to solve the problem. The analysis of the notched design with different widths and lengths of the slots are performed to obtain the optimized values. The proposed antenna 2 is fabricated on a standard FR4 substrate with a dielectric substance of 4.3, a loss tangent of 0.025 and with thickness of 1.6 mm. Both antennas parameters are as shown in Table 1.

Table 1: Parameters	s of the antennas.
---------------------	--------------------

Variable	Dimension (mm)		
W	23		
L	24		
Lp	14.3		
L _f	9.3		
La	7.35		
Ls	12.2		
Wp	12.7		
Ŵŕ	3.3		
Ws	4.1		
t	1.2		
Lg	3.5		

RESULTS AND DISCUSSIONS

Figure 2 shows the prototype of the proposed wideband antenna with notched frequency band (antenna 2). The antenna is fabricated on a standard FR4 substrate using its optimal parameter values from simulation processes as been presented in Section 2. The antenna is studied both numerically and experimentally.

Simulated Results

The proposed antenna model is simulated through the simulation tool CST Microwave Studio in order to evaluate the overall performance of the antenna. Parametric study for different parameters of the antenna has been performed to find the most optimum values. This analysis is done by varying one parameter while maintaining other parameters constant. The simulated return loss of the proposed antenna with and without the notched band is shown in Figure 2. It is observed that, the calculated return loss curve for antenna 1 is less than –10 dB from 3 to 8.2 GHz indicates that the impedance bandwidth of the antenna is 5.2 GHz. By etching a couple of C-shaped slots onto the radiating plane as in antenna 2, a frequency notch band from 4.8 to 5.8 GHz is achieved. Apart from that, the impedance bandwidth of the antenna 2 is also increase to 5.6 GHz with the calculated return loss is less than –10 dB from 2.85 to 8.45 GHz.

Figure 3 illustrates the comparison of simulated VSWR for the proposed antenna design without and with C-shaped slots. From the figure, it can be clearly seen that by etching a couple of C shape slots onto the radiating patch, the desired filtering property can be obtained. Compared to antenna 1 design, the 4.8 to 5.8 GHz band has been successfully blocks out by the band-notched antenna and still maintains good impedance matching at other frequencies in the UWB band.



Figure 2: Simulated return loss of the proposed antennas



Figure 3: Simulated VSWR of the proposed antennas

Measurement Results

The return loss and VSWR are measured and plotted using Advantest Network Analyzer R3767CG (300 kHz - 8 GHz). Figure 4 shows the simulated and measured return loss of antenna 2. It is noted that a relatively good agreement is achieved between measurement and simulation results. This antenna model has successfully filters out the 4.5 to 5.5 GHz band but still maintains good impedance matching at other frequency. However, a slight distortion at the higher frequency band can be observed in measurement result. This discrepancy from the simulation result might be due to the effect of imperfect soldering or fabrication tolerance.

Performance of the measured and simulated VSWR of antenna 2 is illustrated in Figure 5. From the figure, it can be observed that the fabricated antenna 2 has a notched frequency band in 4.5 to 5.5 GHz as expected with VSWR > 2. Based on this finding, it is evident that the desired filtering characteristic is indeed initiated by the two mirrored C-shaped slots in the radiating patch. A good agreement between the simulated and measured result of antenna 2 can be observed from Figure 5.

Radiation Patterns and Gain

The simulated radiation pattern of antenna 2 in the *E*-plane and the *H*-plane at 4.15 GHz, 5.15 GHz and 7.15 GHz are shown respectively in Figure 6. These frequencies are selected in order to demonstrate any degradation in the radiation pattern of the antenna when the frequency notch occurred (5.15 GHz). The *E*-plane is the *x*-*z* plane while the *H*-plane is the *y*-*z* plane with reference to the antenna orientation. In the *E*-plane, the value of azimuth angle ϕ of 0°, 45° and 90° while for the *H*- plane the value of elevation angle θ of 0°, 45° and 90° are taken into consideration.



Figure 4: Simulated and measured return loss



Figure 5: Simulated and measured VSWR.

It is noticed that the pattern in the *H*-plane for all chosen frequencies is quite omnidirectional as anticipated. Meanwhile, in the *E*-plane, the radiation pattern with the shape of '8' is illustrated for all frequencies. Nevertheless, the radiation pattern at 5.15 GHz is discovered having a slight degradation. It can be stated that the proposed band notched structure have little influence on the radiation patterns of the UWB antenna. Figure 7 shows variation of the antenna gain versus frequency. The graph shows that the gain steadily increases with frequency and reaches a peak of around 2.3 dBi at 8 GHz. However, it can be significantly observed that the gain drastically decreases at the targeted notched band (4.8 to 5.8 GHz). The computed peak gain at 5.15 GHz is -3.4 dBi which is expected based on the return loss simulations. This value confirms the gain reduction over the notched band. It also validates the antenna's ability to provide a satisfactory level of filtering to signal frequencies within the rejection bandwidth.



Figure 6: Simulated E – plane and H – plane radiation patterns for the proposed antenna 2 at (a) 4.15 GHz, (b) 5.15 GHz, and (c) 7.15 GHz.



Figure 7: Simulated gain of the proposed antenna 2.

CONCLUSIONS

This paper proposed a simple rectangular microstrip antenna design for UWB applications. The antenna is capable of achieving an input impedance bandwidth from 3 to 8.2 GHz. A couple of C shaped slots are introduced in the radiating patch to create a notched band from 4.8 to 5.8 GHz in order to minimize the potential interferences from WLAN system. The prototype antenna has been fabricated and measured. The measured results demonstrate a good agreement with the simulated results. The proposed antenna system bandwidth meets the UWB requirements and can be used to avoid interference from WLAN system when they coexist with UWB services.

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