Pertanika Journal of

SOCIAL SCIENCES
& HUMANITIES

JSSH

PERTANIKA
J O U R N A L S

Journal of Social Sciences & Humanities

About the Journal

Overview

Pertanika Journal of Social Sciences & Humanities (JSSH) is the official journal of Universiti Putra Malaysia published by UPM Press. It is an open-access online scientific journal which is free of charge. It publishes the scientific outputs. It neither accepts nor commissions third party content.

Recognized internationally as the leading peer-reviewed interdisciplinary journal devoted to the publication of original papers, it serves as a forum for practical approaches to improving quality in issues pertaining to social and behavioural sciences as well as the humanities.

JSSH is a **quarterly** (*March, June, September* and *December*) periodical that considers for publication original articles as per its scope. The journal publishes in **English** and it is open to authors around the world regardless of the nationality.

The Journal is available world-wide.

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Pertanika Journal of Social Sciences & Humanities aims to develop as a pioneer journal for the social sciences with a focus on emerging issues pertaining to the social and behavioural sciences as well as the humanities.

Areas relevant to the scope of the journal include Social Sciences—Accounting, anthropology, Archaeology and history, Architecture and habitat, Consumer and family economics, Economics, Education, Finance, Geography, Law, Management studies, Media and communication studies, Political sciences and public policy, Population studies, Psychology, Sociology, Technology management, Tourism; Humanities—Arts and culture, Dance, Historical and civilisation studies, Language and Linguistics, Literature, Music, Philosophy, Religious studies, Sports.

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Pertanika was founded in 1978. A decision was made in 1992 to streamline Pertanika into three journals as Journal of Tropical Agricultural Science, Journal of Science & Technology, and **Journal of Social Sciences & Humanities** to meet the need for specialised journals in areas of study aligned with the interdisciplinary strengths of the university.

After almost 25 years, as an interdisciplinary Journal of Social Sciences & Humanities, the revamped journal focuses on research in social and behavioural sciences as well as the humanities, particularly in the Asia Pacific region.

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We aim for excellence, sustained by a responsible and professional approach to journal publishing. Submissions are guaranteed to receive a decision within 14 weeks. The elapsed time from submission to publication for the articles averages 5-6 months.

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Pertanika is almost **40 years old**; this accumulated knowledge has resulted in Pertanika JSSH being abstracted and indexed in **SCOPUS** (Elsevier), Thomson (ISI) **Web of Science™ Core Collection** Emerging Sources Citation Index (ESCI). Web of Knowledge [BIOSIS & CAB Abstracts], **EBSCO** and EBSCOhost, **DOAJ**, **Google Scholar**, **TIB**, **MyCite**, **ISC**, **Cabell's Directories** & Journal Guide.

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The abbreviation for *Pertanika* Journal of Social Sciences & Humanities is *Pertanika J. Soc. Sci. Hum.*

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Pertanika policy prohibits an author from submitting the same manuscript for concurrent consideration by two or more publications. It prohibits as well publication of any manuscript that has already been published either in whole or substantial part elsewhere. It also does not permit publication of manuscript that has been published in full in Proceedings.

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The Pertanika Journals and Universiti Putra Malaysia takes seriously the responsibility of all of its journal publications to reflect the highest in publication ethics. Thus all journals and journal editors are expected to abide by the Journal's codes of ethics. Refer to Pertanika's **Code of Ethics** for full details, or visit the Journal's web link at http://www.pertanika.upm.edu.my/code_of_ethics.php

International Standard Serial Number (ISSN)

An ISSN is an 8-digit code used to identify periodicals such as journals of all kinds and on all media–print and electronic. All Pertanika journals have ISSN as well as an e-ISSN.

Journal of Social Sciences & Humanities: ISSN 0128-7702 *(Print)*; ISSN 2231-8534 *(Online)*.

Lag time

A decision on acceptance or rejection of a manuscript is reached in 3 to 4 months (average 14 weeks). The elapsed time from submission to publication for the articles averages 5-6 months.

Authorship

Authors are not permitted to add or remove any names from the authorship provided at the time of initial submission without the consent of the Journal's Chief Executive Editor.

Manuscript preparation

Refer to Pertanika's **INSTRUCTIONS TO AUTHORS** at the back of this journal.

Most scientific papers are prepared according to a format called IMRAD. The term represents the first letters of the words **I**ntroduction, **M**aterials and Methods, **R**esults, **A**nd, **D**iscussion. IMRAD is simply a more 'defined' version of the "IBC" [Introduction, Body, Conclusion] format used for all academic writing. IMRAD indicates a pattern or format rather than a complete list of headings or components of research papers; the missing parts of a paper are: *Title, Authors, Keywords, Abstract, Conclusions*, and *References*. Additionally, some papers include Acknowledgments and Appendices.

The *Introduction* explains the scope and objective of the study in the light of current knowledge on the subject; the *Materials and Methods* describes how the study was conducted; the *Results* section reports what was found in the study; and the *Discussion* section explains meaning and significance of the results and provides suggestions for future directions of research. The manuscript must be prepared according to the Journal's **INSTRUCTIONS TO AUTHORS**.

Editorial process

Authors are notified with an acknowledgement containing a *Manuscript ID* on receipt of a manuscript, and upon the editorial decision regarding publication.

Pertanika follows a **double-blind peer-review** process. Manuscripts deemed suitable for publication are usually sent to reviewers. Authors are encouraged to suggest names of at least three potential reviewers at the time of submission of their manuscript to Pertanika, but the editors will make the final choice. The editors are not, however, bound by these suggestions.

Notification of the editorial decision is usually provided within ten to fourteen weeks from the receipt of manuscript. Publication of solicited manuscripts is not guaranteed. In most cases, manuscripts are accepted conditionally, pending an author's revision of the material.

As articles are double-blind reviewed, material that might identify authorship of the paper should be placed only on page 2 as described in the first-4 page format in Pertanika's **Instructions to Authors** given at the back of this journal.

The Journal's peer-review

In the peer-review process, three referees independently evaluate the scientific quality of the submitted manuscripts.

Peer reviewers are experts chosen by journal editors to provide written assessment of the **strengths** and **weaknesses** of written research, with the aim of improving the reporting of research and identifying the most appropriate and highest quality material for the journal.

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What happens to a manuscript once it is submitted to *Pertanika*? Typically, there are seven steps to the editorial review process:

1. The Journal's chief executive editor and the editorial board examine the paper to determine whether it is appropriate for the journal and should be reviewed. If not appropriate, the manuscript is rejected outright and the author is informed.

2. The chief executive editor sends the article-identifying information having been removed, to three reviewers. Typically, one of these is from the Journal's editorial board. Others are specialists in the subject matter represented by the article. The chief executive editor asks them to complete the review in three weeks.

    Comments to authors are about the appropriateness and adequacy of the theoretical or conceptual framework, literature review, method, results and discussion, and conclusions. Reviewers often include suggestions for strengthening of the manuscript. Comments to the editor are in the nature of the significance of the work and its potential contribution to the literature.

3. The chief executive editor, in consultation with the editor-in-chief, examines the reviews and decides whether to reject the manuscript, invite the author(s) to revise and resubmit the manuscript, or seek additional reviews. Final acceptance or rejection rests with the Edito-in-Chief, who reserves the right to refuse any material for publication. In rare instances, the manuscript is accepted with almost no revision. Almost without exception, reviewers' comments (to the author) are forwarded to the author. If a revision is indicated, the editor provides guidelines for attending to the reviewers' suggestions and perhaps additional advice about revising the manuscript.

4. The authors decide whether and how to address the reviewers' comments and criticisms and the editor's concerns. The authors return a revised version of the paper to the chief executive editor along with specific information describing how they have answered' the concerns of the reviewers and the editor, usually in a tabular form. The author(s) may also submit a rebuttal if there is a need especially when the author disagrees with certain comments provided by reviewer(s).

5. The chief executive editor sends the revised paper out for re-review. Typically, at least one of the original reviewers will be asked to examine the article.

6. When the reviewers have completed their work, the chief executive editor in consultation with the editorial board and the editor-in-chief examine their comments and decide whether the paper is ready to be published, needs another round of revisions, or should be rejected.

7. If the decision is to accept, an acceptance letter is sent to all the author(s), the paper is sent to the Press. The article should appear in print in approximately three months.

The Publisher ensures that the paper adheres to the correct style (in-text citations, the reference list, and tables are typical areas of concern, clarity, and grammar). The authors are asked to respond to any minor queries by the Publisher. Following these corrections, page proofs are mailed to the corresponding authors for their final approval. At this point, **only essential changes are accepted**. Finally, the article appears in the pages of the Journal and is posted on-line.

Preface

It is a an honour to publish 38 selected papers from the 3rd International Conference on Science and Social Science (6ᵗʰ - 7ᵗʰ December 2016), hosted by Institute of Research Management and Innovation (IRMI), Universiti Teknologi MARA (UiTM) Shah Alam, Malaysia. This special issue is called *Advances in Social Science Research.*

The papers in this JSSH special edition unravel the complexity of social life and human behaviour. The papers are divided into; (1) Education; (2) Economics, Management and Business Studies; (3) Environmental Behaviour, Human Geography, and Built Environment; and (4) Law and Social Policy. These empirical studies are peculiar to the Malaysian context.

The papers focused on Education provide insights on innovative educational methods and strategies; while those focused on Economics, Management, and Business examined key topical concerns on management strategies and technology.

The papers on Environmental Behaviour, Human geography and Built Environment discuss issues ranging from environmental planning to indoor environmental consequences.

The topics covered under Law and Social Policy discussed mainly societal problems such as community rehabilitation, money laundering and Islamic marriage law.

Many individuals had offered support to make this publication a reality. We are grateful to Dr. Nayan Kanwal, Chief Executive Editor of the Journal Division, and his editorial team at Pertanika, Universiti Putra Malaysia. The Chief Executive Editor offered his expertise and guidance throughout the publication process. Our deepest appreciation goes to the Institute of Research Management and Innovation (IRMI), Universiti Teknologi MARA (UiTM), led by Professor Ir. Dr. Abdul Rahman Omar, the Deputy Vice-Chancellor (Research and Innovation), Professor Hadariah Bahron, the Asst. Vice Chancellor (Research and Innovation). We are indebted to the IRMI community as a whole, the conference secretariat and all the researchers who contributed to this publication.

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SOCIAL SCIENCES & HUMANITIES

Sustainable Post-Disaster Recovery Plan for Flood Victims in Gua Musang and Kuala Krai, Kelantan

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ABSTRACT

The massive flood in Kelantan in 2014 had a devastating effect on the rural community in particular, their quality of life. In order to assist the community recover from the disaster quickly and effectively, a comprehensive relief plan is vital. This recovery plan would also benefit the local authority as well as government agencies. This article discusses a framework that has been developed for sustainable post-disaster recovery plan through income generating activities.

Keywords: Economic recovery plan, flood victims, income generating activities, socio-economic well-being

INTRODUCTION

The massive flood in Kelantan in 2014 was had severely affected the quality of life of the rural community. It is important to analyse and evaluate their losses to come up with a long term and effective relief plan.

The aid provided by relief organisations may only be useful for short period. Therefore, the purpose of this research is to develop a framework for an economic recovery plan through income generating activities. The research questions are: (1) What is the quality of life of the flood victims?; and 2) How does a socio-economic recovery plan can best be executed?.

Earlier studies have focused on short term recovery plan by government and non-profit organisations. This study offers a framework for long term recovery plan which includes the relevant economic activities.

LITERATURE REVIEW

There are two categories of studies on this topic: 1) The type of disasters and its impact on the quality of life of the victims; 2) The recovery strategies which can be further divided into temporary strategies, sustainable livelihood strategies and success strategies. This study has focused on a long-term disaster recovery plan.

Lindell (2013) defines disaster recovery as per below:

> First, it is a goal that involves the restoration of normal community activities that were disrupted by disaster impacts – in most people's minds, exactly as they were before the disaster struck. Second, it is a phase in the emergency management cycle that begins with stabilization of the disaster conditions (the end of the emergency response phase) and ends when the community has returned to its normal routines. Third, it is a process by which the community achieves the goal of returning to normal routines. The recovery process involves both activities that were planned before disaster impact and those that were improvised after disaster impact. (p. 812)

Based on the above, recovery plan can be described as a process of managing and stabilising the disaster situation. Literature has suggested that disaster recovery plans consists of few phases starting with the emergency management although there has been little agreement on the number and definitions of recovery stages (Alexander, 1993; Kates & Pijawka, 1977; Sullivan, 2003; UNDRO, 1984; Schwab, Topping, Eadie, Deyle & Smith, 1998). It is now generally accepted that disaster recovery plan encompasses an array of activities, some implemented sequentially and others implemented simultaneously.

At any one time, some households and businesses may be engaged in one set of recovery activities while others are engaged in other recovery activities. Indeed, some households and businesses may be fully recovered months or years after others and there might be others that never recover at all. For this reason, Lindell (2013) classified disaster recovery into four functions/process: disaster assessment, short-term recovery, long-term reconstruction, and recovery management. Lindell believed that the recovery phase's disaster assessment should be integrated with the emergency assessment function in identifying the physical impacts of the disaster. This is because the emergency response phase's assessment function is part of the recovery phase's disaster assessment which is short term in nature. Short-term recovery focuses on the immediate tasks of securing the impact area, housing victims, and establishing conditions under which households and businesses can begin the process of recovery. Long-term reconstruction relates to rebuilding of the disaster impact area and manages the disaster's psychological, demographic,

economic, and political impacts. Finally, recovery management monitors disaster assessment, short-term recovery, and long-term reconstruction functions. It also ensures they are coordinated and provides the resources needed to accomplish them. This paper focuses on the assessment of the need-aid provided and reconstruction of the disaster economic impacts. The following is findings of literature on economic recovery.

If a disaster stricken community does not have assets, they can invest in four fundamental components of economic development – locality development, business development, human resources development, and community development. Locality development enhances a community's existing physical assets by improving roads or establishing parks and lakefronts. Business development involves efforts to retain existing businesses or attract new ones. Although it is not easy, this can be accomplished by working with businesses to identify their critical needs. In some cases, this might involve establishing a business incubator that allows start-up companies to obtain low cost space and share meetings rooms. Human resources development aims at expanding skilled workforce, possibly through customised worker training. Finally, community development utilises NGOs, CBOs, and local firms that will hire current residents of the community whose household incomes are below the poverty level. For example, a comprehensive programme for developing small businesses, affordable housing, community health clinics, and inexpensive child care can help to eliminate

some of what new businesses might consider to be one of the risks of relocating.

RESEARCH METHODOLOGY

This research is qualitative in nature, assessing the needs and aid provided. Data was collected from 180 flood victims, 150 from Kuala Krai and 30 from Gua Musang, using convenient sampling methods.

The victims were asked 17 questions on their perception of the types of aid that were impactful and still needed after the flood. Rasch analysis was employed because the different levels of perceptions on the impact of aid provided can be plotted to determine which aid was more impactful. The normal inferential statistical test used for analysing effectiveness of a programme or aid were independent t-test, where the means of quality of life before and after the aid were identified and compared. However, since the samples were conveniently selected, it fails to meet certain assumptions. This limitation was resolved using Rasch analysis as normality is never an issue because it simulates at least 100 datasets using the measures estimated from data. The distributions of the crucial statistics in the 100 datasets can be retrieved. In addition, it employs the properties of test items which enabled the placing of respondents and test items on a common scale. Thus, a comparison can be made between respondents and items (questions) before and after the provision of aid.

Apart from needs assessment, analysis on the Strength Weaknesses Opportunity and Threat (SWOT) of the place was also

conducted to develop relevant economic recovery coping strategies.

DATA ANALYSIS AND RESULTS

Since the purpose of this paper is to provide a comprehensive recovery plan for flood victims, two questions needed to be answered: a) What type of aid the flood victims require from the Malaysian government and NGOs b) how to improve the quality of life of flood victims in the short term? There are two stages of data analysis. The first stage involves ascertaining quality of data (see Table 1) while the second stage is data analysis.

The First Phase of Analysis: Reliability Item and Person Test

The first phase of analysis was conducted mainly to determine the quality of data. This involved the test of item and person reliability and uni-dimensionality test.

Table 1

The summary statistics of data for Kuala Krai and Gua Musang

	Kuala Krai		Gua Musang	
	Person	Item	Person	Item
Reliability	0.83	0.97	0.84	0.75
Separation	2.19	5.42	0.27	1.75
Mean	0.35	0.00	0.28	0.00
Standard Deviation	0.26	0.46	0.33	0.26
Max	1.29	1.32	0.89	0.37
Min	-0.32	-0.67	-0.20	-0.73
Standard Error	0.20		0.06	
Cronbach α	0.99		0.86	

Table 1 shows the summary statistics for data gathered in Kuala Krai and Gua Musang. For both places, person reliability score was above 0.8 indicating that there were enough items to measure different levels of a person's ability (perceptions). The item reliability score for two places were above 0.7 indicating there were enough persons (respondents) to measure the different levels of item difficulty (impact). The item reliability score for Kuala Krai was higher which indicate a good sample size. The Cronbach Alpha score for both places were more than .8 indicating high inter item consistency. In addition, the small value of standard error indicates precision of data.

Unidimensionality Test

For this test, Rasch analysis applies the principal component analysis (PCA) of the residuals; i.e. how much variance is the instrument in measuring the items. The raw

variance explained by measure was 40.3%. It met the unidimensionality requirement of 40% (Conrad, Conrad, Dennis, Riley, & Funk, 2011).

Nevertheless, the unexplained variance in the first contrast of 9% as tabulated in Table 3 showed that the instrument was considered to be very good (Bond & Fox, 2015). This indicated that the 17 item-instrument used for the study met

the unidimensionality trait and was able to measure what it intended to measure (effectiveness of the aid). It also indicated that data for all 17 items had a very good fit to the Rasch Measurement Model. Thus, it can be concluded this were good quality data based on the test scores of reliability and unidimensionality (within acceptable range).

Table 2
The determination of unidimensionality of the items

	Empirical	Modelled
Total raw variance in observations	62.0 (100%)	100.0%
Raw variance explained by measures	21.0 (40.3%)	40.0%
Unexplained variance in 1st contrast	6.1 (9.9%)	14.9%

Second Phase of Analysis: Rasch Ruler

In order to answer the first research question, the needs-aid assessment was conducted, so that area of improvement can be identified and strategies can be developed. For this reason, the main output of Rasch analysis i.e., a ruler measuring the need-aids impact level, was produced. Figure 1 shows the impact of each aid provided to the victims and its importance. The ruler is meant to identify the importance of each aid provided and its impact on the victim's quality of life. The need-aid analysis shown in Figure 1 was summarised in Table 3. This is to show a miss-match between what was needed with what was provided.

With reference to Figure 1, a ruler divides persons and items side by side. On

the left side, the persons (respondents) refers to the symbol of #, while items (needs and aid) were placed on the right side. Items located above persons (#) were those they found to be disagreeable. The higher the item located against person(s), the higher the disagreement. On the opposite, items located below # were agreed or accepted by persons (respondents). Therefore, the lower the items located below #, the higher the level of agreement or acceptance. Items located at par with # indicating the decision was indecisive. The B4 refers to the respondents' need for the aid, while B2 refers to the type of aid provided to them. The B3 refers to the victims' perception on the impact of each aid. The interpretation of the results is tabulated in Table 3.

```
Person - MAP - Item
         <more>|<rare>
                                  B4c
3                +
                 |T
2                +
                 |
           .     |S
           .     |
1          #   + 
           .  T |
          .## S |
        .###### 
     .########### M   B3f
      .######### S|
0        .### +M
          .  T |
          .    |   B3a
               |
-1             +
               |S  B3e
               |   B3c
               |   B3b
-2             +
               |
               |T
               |   B3d
-3             +
<less>|<frequ>
EACH "#" IS 4. EACH "." IS 1 TO 3
```
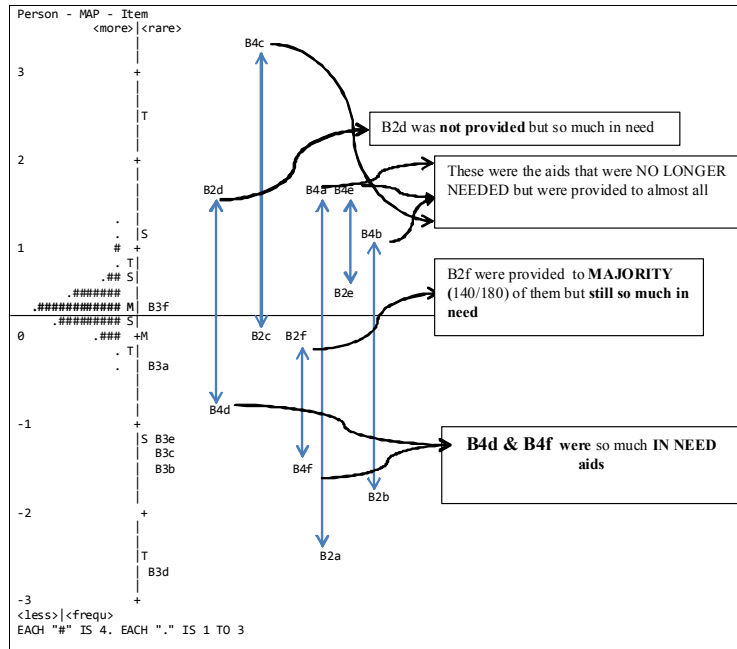
Figure 1. Person item map (a ruler of effective distribution of aids)

Table 3
Item/need-aids analysis: Types of aids provided, its impact and its degree of importance

Types of aids	Impact perceived	Degree of importance	The coverage of aid provided
a refers to basic needs & *f* refers to financial aids	Perceived short term impact	*a* was Not more needed but *f* is still needed	Given to all
e refers to school aids, *c* refers to temporary homes *b* refers to kitchen utensils and stove	Perceived moderate impact	not more needed	*b* was given to all but *c* & *e* to some of them depending on their requirement
d refers to permanent home	Perceived long term impact	So much in need	Was not given to all of them

DISCUSSION AND IMPLICATION

From the need-aid analysis shown in Table 3, their quality of life was perceived to be improved temporarily mainly due to educational aid, temporary housing, and provision of kitchen utensils. These items were perceived as having a moderate impact, and were provided to all but they were no longer needed. Thus, these items were important and effective but they were poorly allocated and distributed, thus requiring a good coordination between the

head of villagers who monitor the villagers and the agencies that were involved in providing and distributing the aid.

Item *f* refers to financial aid and it will always be perceived as important though it was less effective because it was used unwisely to satisfy their short term needs. This aid was much needed after the disaster to help the victims to start a new life. Since the impact of this aid is short term in nature, the government should provide financial aids with some conditions so they create a long term impact. For this reason, the money should be provided for a small start-up business. To whom and how much the aid is to be provided should depend on types of available resources (their skills, knowledge and property).

In general, the aid provided is considered effective as it improved the quality of life all victims post disaster. For educational aid and temporary housing, the aid was given to those who suffered total loss. These types of assistance were given only to some families who have: 1) no school going children; 2) homes which were still in good condition (not badly damaged).

However, the distribution of aid is not efficient. From the observation and interview, more aid was given some families due to poor system of distribution (no coordination). Kitchen utensils for example were distributed randomly with no supervision. Because of poor coordination, a family received more than what they needed. Thus, it is important to identify the number of families in a village, and the list of names together with the names of the family head should be given to the distributor and coordinator.

The SWOT and TOWs analysis were conducted to identify types of sustainable business activities that could generate income within a short period. The below attempts to answer the following research question:

RQ: How can the quality of life of flood victims be improved?

Previous studies (DFID, 1999; Twigg, 2001) suggested few strategies to improve quality of life of disaster victims such as impact minimising strategies and sustainable livelihood framework. The sustainable livelihood (SL) approach appeared to be the most useful among the options for disaster risk reduction. The SL approach centres on ways of understanding the practical realities and priorities of poor men and women – what they actually do to make a living, the assets that they are able to draw on and the problems that they face in doing this and various strategies they employ to recover or keep themselves away from shocks and stresses (Farrington, Ramasut & Walker, 2002). The success of strategies employed by households manifested in more income, reduction in vulnerability, improved food security and sustainable use of resources. However, the impact is short term in nature. Research in the past discussed more on how to cope with the disaster rather than how to improve quality of life after the disaster in the long run. Thus, the strategies are more on the technical aspects of improving food security, and

Table 4
SWOT Analysis for a proposed closely-monitored business

Strength	Weakness
• Strategic location – Gua Musang is located between Kota Bharu and Kuala Lumpur • There is only one R&R for travellers to stop and rest in GM. Therefore, it is the best place for travellers to stop and rest. • It has natural attractions and is rich with historical values.	• Majority of the victims are considered poor even before the flood. • There are victims who expect donations even after a year has passed since the disaster. • Majority of these victims are still depending on external fund/aids (i.e.: no house and depend on the aid provided at PLKN camp) • They have no capital to start a business • They have no idea where and how to start a business
Opportunity	Threat
• There is a new housing development in the town of Gua Musang which may accommodate about 100 families. This can be a target market for any business, especially food stall, car workshops, restaurant, cleaner (monthly, weekly or daily services), • Based on the strategic location of Gua Musang, the business opportunity is not restricted to locals, but also toe travellers. • With the natural beauty and the historical values, Gua Musang has the potential to be commercialised	• The place may be exposed to flood if there is no step taken to solve the problem of illegal logging • Illegal immigrants are more hard working and opportunist • The victims have no direction to start a new life • They don't foresee any business opportunity • Poor attitude of the locals. Always expect aid without putting any effort to improve. • No entrepreneurial orientation
Weakness / threat	Strategy
• Majority of the victims are considered poor. • There are victims who have no idea how to survive. • No direction to start new life • Poor attitude. Always expect aid without putting any effort to improve • These victims depend on external fund/aids (i.e.: no house and depend on the aids at PLKN camp) • Many illegal immigrants. • The illegal and poor system of logging, exposed to flooding	Inspirational Strategy • Providing them awareness to start a business • Expose them to business opportunities by sharing ideas from those who are successful in business after the training provided by government agencies such as KESEDAR, MARA, TEKUN and TERAJU or AIMS
• No place to start a business • Lack of business knowledge • No capital to start a business • No entrepreneurial orientation	Transformational Strategy • To provide a place for the victims to start their business • To provide business training • To provide capital to start a business • Introducing an umbrella business so that those with negative attitude would have no opportunity to resell what has already been provided to them for a business start-up.

sustainable use of resources. These are also done by Malaysian government and NGOs to improve their quality life. However, the analyses show the impact to be low and short term.

Thus, the plan involves getting them to venture into small businesses. However, in order to know the type of business and where the business should be located, the SWOT and TOWS analysis were conducted. Below is the SWOT and TOWS analysis.

RECOMMENDATION: STRATEGIC RECOVERY PLAN

Based on these analyses, an *umbrella business concept* is proposed based on the SWOT analysis taking into consideration the negative attitudes of the villagers, the commitment required to run the businesses and the coordination activity. This is called an umbrella business because of its protective nature: protecting the villagers from business failure and protecting the fund provider from lazy attitude of the villagers.

Gua Musang is known for its strategic location along the main road that connects Kota Bharu and Kuala Lumpur and thus it commercial opportunities are good. The new housing areas in the town is also good market opportunity.

As shown in Figure 2, the type of business can be gauged from community interest during the first meeting with them at the first Phase (*inspirational strategy*).
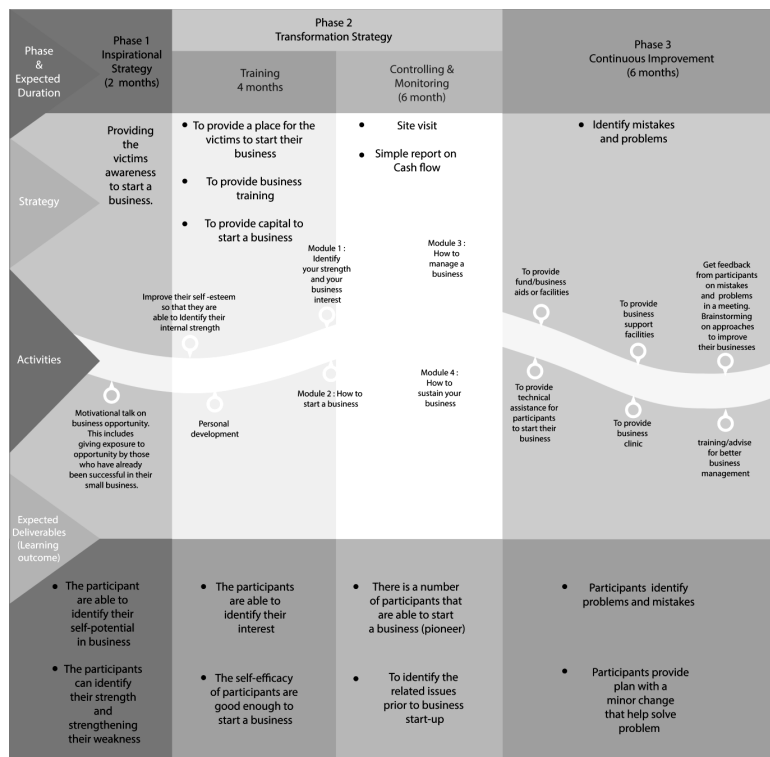
Figure 2. A framework for economic recovery plan through income generating activities

A business with the start-up capital of between RM2000 to RM4000 depending on type of business (following the scale of loans provided by Amanah Ikhtiar Malaysia (AIM)) would have the potential to be approved. In phase 2, those selected will be trained accordingly by a specially appointed tasks team (from government agencies such KESEDAR and MARA and NGOs). In the third phase, problems and solutions are identified.

The Umbrella Business Concept

All micro businesses will be registered under Gua Musang/Kuala Krai Cooperation and Each family members of the cooperation. They must manage a micro business funded by the Malaysian government and NGOs. Deserving families are identified through an interview after an inspirational program. The business will be monitored by special task teams from government agencies such as KESEDAR, TERAJU, PUNB and MARA.

CONCLUSION

The victims came from poor socio-economic backgrounds and the disaster had worsened their quality of life even worst. Therefore, these victims needed assistance to rebuild their lives. Though they depended on government for their shelter and basic needs, it did not improve their lot and thus, a good strategic planning is vital to ensure their quick recovery. Hence, this study proposed a framework to develop their internal capabilities and ensure their survival.

Long term reconstruction plan is vital to achieve this goal namely via business and community development activity.

Therefore, needs assessments of the victims was conducted while SWOT analysis helped identify the nature of business suitable to be initiated and developed. The analysis aid in planning for recovery before disaster strikes and thus, resources can be allocated more effectively and efficiently, increasing the probability of a rapid and full recovery. This framework would also help the local authority as well as the government agencies to execute their disaster recovery plan effectively.

ACKNOWLEDGEMENT

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Continued Professional Development and Organisational Performance: A Structural Equation Modelling (SEM)

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ABSTRACT

Literature on Continued Professional Development (CPD) suggests that learning could take place in three dimensions, namely formal learning (FL), non-formal learning (NFL) and informal learning (IL). However, there is a big gap in the literature as much of the discussions on CPD focus on FL and NFL, while studies on the IL component are still vague, under-researched and often overlooked. The effects of CPD and professional competency have been extensively studied but those focusing on the relationship between CPD and organisational performance (OP) are somewhat limited. This papers examines the correlation between CPD components and OP. Data was collected via structured questionnaire from 1120 executives from four different sectors of the service-based industry in Malaysia, namely Multi-National Corporations (MNCs), Malaysian Government Linked Corporations (GLCs), Small and Medium Enterprises (SMEs), and Malaysian Government Agencies (MGAs) that are located in the Klang Valley. The SEM-PLS was used to show the hypothetical relationships. The model tested in this study shows that CPD components account for 34.7% of the variance in OP. Furthermore, 24.6% explains the prediction effect of CPD components on OP. Overall, the proposed model of CPD has relatively good predictive power on OP. The findings provide invaluable insights with regards to developing a new strategic HRD model for excellent OP via CPD activities. This study also fulfils the demand for more empirical research on CPD, knowledge management, competency and OP.

INTRODUCTION

A review of studies on Human Resource Management (HRM) showed a positive link between good HRM practices and Organisational Performance (OP) in the area of employee skills, employee commitment, absenteeism and turnover, which consequently led to higher productivity, enhanced quality and efficiency (Maimunah, 2011; Snell & Bohlander, 2013). In order to remain competitive, organisations must learn continuously (Whee, et al., 2012), and this refers to learning at the workplace or workplace learning (Andy, 2011). Thus, Continued Professional Development (CPD) which emphasises on continuous lifelong learning (Adanu, 2007; Udin, et al., 2012) has helped to develop and to ensure up-to-date knowledge, skills and abilities among professionals. The CPD requires organisations to encourage, support, and provide a favourable environment for employees to engage in continuous learning in order to avoid the 'professional obsolete syndrome' (López-Cabrales et al., 2011).

Literature on CPD suggests that learning could take place in three dimensions, namely (1) formal learning (FL), (2) non-formal learning (NFL) and (3) informal learning (IL) (Andy, 2011; Tomé, 2011). There are critical outcomes of CPD which include competency development and professional enhancement (Adanu, 2007). However, according to Mugisha (2009), there is very little empirical evidence of the impact of CPD on OP.

The OP is a key yardstick to measure the effectiveness of organisations in various aspects, such as their financial and non-financial performance. It reflects the survival and success of an organisation (Asree et al., 2010). Sarif and Ismail (2012) defined OP as an organisation's competitive advantage. Noorazah and Juhana (2012) viewed OP as the achievement of an organisation against its business objectives. With regards to OP measurement, most studies merely focused on tangible aspects, namely profitability, productivity, sale performance, and returns on investment (Jabar et al., 2010). However, OP could also be measured by looking into its intangible aspects, such as employee motivation, engagement and commitment (Lockhart, 2013; Marchington, 2015; Ulrich & Dulebohn, 2015).

This paper examines the relationship between CPD components and OP. It is organised as follows. Section 1 outlines the purpose of the study while section 2 describes theoretical background and research model, followed by methodology. The next section discusses the results obtained from the study. Section 5 points out the limitations of the study and makes suggestions for future research. Lastly, section 5 concludes the paper.

THEORETICAL BACKGROUND AND THE RESEARCH MODEL

The literature on CPD has mostly focused on FL and NFL (Chuang et al., 2013; Cunningham & Hillier, 2013), which are

referred to as traditional CPD activities (Briggs & Sommefeldt, 2002). Hence, most organisations allocate funds for OP through FL and NFL (López-Cabrales et al., 2011; Udin et al., 2012). Nonetheless, according to Chuang et al. (2013) and Nägele and Hasler (2010), FL and NFL are clearly insufficient to meet the growing demand for skills required at work. Fuller et al. (2003) argued that relying on FL and NFL to determine performance is unlikely to capture their unique relationship . Furthermore, the CPD programme which was mainly delivered via NFL is no longer perceived as the main source of knowledge enhancement. The NFL, which is mainly characterised by learning interventions, identifying training needs and sending people for courses (Sambrook, 2004), has also created a serious gap between knowledge and practice(Ong, 2005) and it is not learner driven (Briggs et al., 2002).

Despite the recognition of FL, NFL and IL for improving employee competency, there are limited studies on the third learning component, IL, (Hooi, 2010; Andy, 2011). Studies show that IL helps to fill in the knowledge and skills gaps that are not covered by FL and NFL (Klink, Van Der, Boon, & Schlusmans, 2012). Hence, IL is equally important as FL and NFL (Marsick, 2009), while Caniëls and Kirschner (2010) and Klink et al. (2012) maintain that IL is more significant than FL and NFL. Boud and Middleton (2003) opine that IL is a more dominant learning approach. Illeris (2003) on the other hand, viewed IL as partial or full complement to FL and NFL. According to Illeris, IL, FL and NFL must be further examined, with a view to integrating them. Several studies note that learning is mainly through informal ways, both in and outside of the workplace. Udin et al. (2012) reveal that IL activities are the most preferred of the CPD programmes.

The OP could be evaluated in terms of the performance of its HR (Marchington, 2015; Ulrich et al., 2015). Several studies have used HRM practices to measure OP, particularly in the area of strategy and strategic HRM (Nyberg et al., 2014). According to Remo (2012), OP is very much related to employee engagement and commitment. Employees, who are competent, are able to contribute towards OP through their commitment and engagement. This in turn requires organisational commitment and willingness to allow employees to participate actively in terms of ideas, talent, and efforts in determining the future of the organisation (Horibe, 1999).

The research framework proposed in this study is based on the CPD model developed by Kie (2010). However, Kie's model only took into account two CPD dimensions, namely FL and NFL. With that in mind, the present study attempts to improve this model by integrating the third CPD component, IL, and to test the model to examine its relationship with OP. Figure 1 illustrates the model of this study which describes the relationship between CPD components (FL, NFL and IL) and OP.
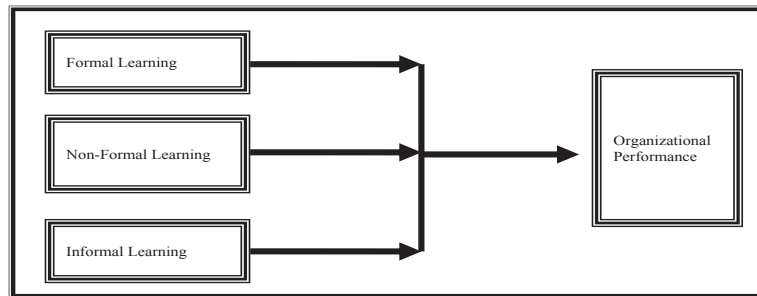
Figure 1. The research model

The following are the hypotheses:

H1:   Formal learning (FL) has a significant relationship with organisational performance (OP).

H2:   Non-Formal learning (NFL) has a significant relationship with organisational performance (OP).

H3:   Informal learning (IL) has a significant relationship with organisational performance (OP)

RESEARCH METHODOLOGY

Data was collected from 1120 executives who represent from 4 different sectors of the Malaysian service-based industry, namely MNCs, GLCs, SMEs, and MGAs, located in the Klang Valley. Structured questionnaires were used for this purpose and measures were adapted from Briggs et al., (2002); Cunningham et al., (2013); Kie (2010); Chuang et al. (2013); Caniëls & Kirschner (2010); Berg & Chyung (2008); Junaidah (2008); Levenson (2005), and Mahmood & Wahid (2012) and several items were self-developed. Table 1 depicts

the demographic profile of the respondents. They were grouped randomly into two data sets, that is, 350 for the exploratory factor analysis (EFA) and the remaining 770 for SEM analysis. The sample size for both data sets was considered adequate, following the minimum sample size as suggested by Hair et al. (2014, 2010).

DATA ANALYSIS

Data were tested for scale reliability and validity, using both EFA and confirmatory factor analysis (CFA), to ensure they were robust. The 350 cases in the first data set were subjected to EFA for validity test and also Cronbach's alpha (CA) for reliability test. The purpose of these tests was to determine the underlying number of factor structures in each type of variable. The factor structure for independent variable (IV) and dependent variable (DV) were constructed separately using EFA. Loadings of less than .40 were suppressed to ensure the extraction item has a high correlation towards the respective factor, thereby securing the validity content (Field, 2011).

Table 1
Respondents' profile

Respondents Profile	EFA (n = 350)	SEM (n = 770)	Respondents' Profile	EFA (n = 350)	SEM (n = 770)
Gender			Educational Level		
Male	174 (49.7)	345 (44.8)	Certificate / Diploma	71 (20.3)	159 (20.6)
Female	176 (50.3)	425 (55.2)	Bachelor's Degree	222 (63.4)	431 (56.0)
Age Categories			Master's Degree	39 (11.1)	134 (17.4)
Below 30 years old	151 (43.1)	279 (36.2)	Doctor of Philosophy (PhD)	5 (1.4)	31 (4.0)
31-40 years old	141 (40.3)	305 (39.6)	Professional Certificate	13 (3.7)	15 (1.9)
41-50 years old	41 (11.7)	143 (18.6)	Organisation		
More than 50 years old	17 (4.9)	43 (5.6)	MNC	83 (23.7)	177 (23.0)
Tenure of Service			GLC	132 (37.7)	296 (38.4)
Less than 10 years	242 (69.1)	493 (64.0)	SME	36 (10.3)	78 (10.1)
11-20 years	71 (20.3)	170 (22.1)	GA	99 (28.3)	219 (28.4)
21-30 years	25 (7.1)	65 (8.4)	Designation		
31-40 years	12 (3.4)	42 (5.5)	Junior Officer / Junior Executive	33 (9.4)	98 (12.7)
Monthly Income			Officer / Executive	200 (57.1)	319 (41.4)
Less than RM2000	27 (7.7)	30 (3.9)	Senior Officer / Senior Executive	79 (22.6)	250 (32.5)
RM2001 – RM3000	107 (30.6)	132 (17.1)	Assistant Manager	10 (2.9)	39 (5.1)
RM3001 – RM4000	98 (28.0)	216 (28.1)	Others	28 (8.0)	64 (8.3)
RM4001 – RM5000	56 (16.0)	145 (18.8)			
Above RM5000	62 (17.7)	247 (32.1)			

The results of EFA for IVs (FL, NFL, IL) and DV (OP) are presented in Table 2 below.

The questionnaire was vetted (1) by several HR professionals and experts in the field, and (2) validated through a pilot study. The goodness of measurement of the questionnaires were tested again for its reliability via a pilot study before the questionnaires were sent out. There were 42 respondents in the pilot study.

Meanwhile, about 770 cases in the second data set were analysed using SEM, based on partial least square (PLS) approach.

The SEM is a statistical technique that combines aspects of multiple regression and FA to estimate simultaneously a series of inter-related dependent relationships (Chin, 1998; Hair et al., 2010). This enables researchers to answer a set of interrelated research questions in a single, systematic and comprehensive analysis, by modelling concurrently the relationships among multiple independent and dependent constructs (Hair et al., 2014). The SEM uses the exogenous variable, which is equivalent to the IV and the endogenous

Table 2
Summary results of EFA

Variable	Factors and Items Included	Factor Loading	Communalities	Variable	Factors and Items Included	Factor Loading	Communalities
	Non-Formal Learning (NFL)				Informal Learning (IL)		
	NFL1	.841	.807		IL1	.732	.597
	NFL2	.907	.835		IL2	.785	.661
	NFL3	.897	.854		IL3	.811	.703
	NFL4	.926	.849		IL4	.904	.762
Independent Variable	NFL5	.958	.904	Independent Variable	IL5	.843	.752
	NFL6	.931	.814		IL6	.858	.741
	NFL7	.919	.844		IL7	.859	.664
	NFL8	.933	.842		IL8	.811	.682
	NFL9	.791	.717		IL9	.802	.702
	Eigenvalue = 14.966, % variance explained = 56.70%, Cronbach's alpha = .977				Eigenvalue = 3.057, % variance explained = 10.83%, Cronbach's alpha = .952		
	FL1	-.819	.728		OP1	.853	.728
	FL2	-.864	.819		OP2	.862	.742
Independent Variable	FL3	-.840	.751	Independent Variable	OP3	.834	.696
	FL4	-.879	.762		OP4	.897	.804
	FL5	-.915	.845		OP5	.877	.769
	FL6	-.852	.763		OP6	.897	.804
	FL7	-.886	.747		OP7	.905	.819
	FL8	-.916	.785		OP8	.892	.796
					OP9	.869	.756
					OP10	.818	.669
	Eigenvalue = 2.596, % variance explained = 9.12%, Cronbach's alpha = .964				Eigenvalue = 7.822, % variance explained = 75.84%, Cronbach's alpha = .968		

variable, referred to as DV, that explain the relationships in the model (Diamantopoulos & Siguaw, 2006). It comprises two interrelated models that could be assessed at the same time (Urbach & Ahlemann, 2010), which are:

1. The measurement model (outer model), which refers to the relationships between empirically observable indicator and the latent variables, and

2. The structural model (inner model), that shows the relationship between latent variables.

Measurement Model

The measurement model for this study, as shown in Figure 2, is tested using the PLS approach. The statistical programme used for this study was Smart-PLS 2.0 M3 (Ringle et al., 2010),which assesses the psychometric properties of the measurement model as well as the parameters of the structural model. Before considering the results from the structural model (parameters estimate), the quality of the measurement model was reviewed. The measurement model was evaluated to determine the validity and reliability of the measurement items, where all the constructs were of a reflective type.

The measurement model was assessed by examining the convergent validity and discriminant validity which is discussed in detail in the next subsection.

Furthermore, the analysis of the measurement model was based on the results of the EFA. The validity of the measurement model was assessed using convergent validity and discriminant validity (Lewis et al., 2004). The summary of validity guidelines to assess a measurement model is depicted in Table 3. The results of convergent validity are presented in Table 4 below.
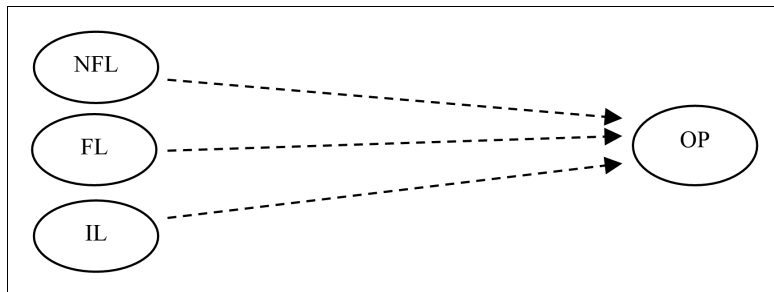
Figure 2. The measurement model of the proposed research model

Table 3
Summary of validity guidelines for assessing measurement model

Validity	Criterion	Guidelines
Convergent Validity	Indicator Loadings	Item's loading > 0.7 and significant at least at the 0.05 confidence level.
	Composite Reliability (CR)	CR > 0.70
	Internal Consistency Reliability (ICR)	ICR > 0.70
	Average Variance Explained (AVE)	AVE > 0.50
Discriminant Validity	Cross Loading	Item's loading of each indicator is highest for its designated construct
	Fornell and Larcker	The square root of the AVE of a construct should be greater than the correlations between the construct and other construct in the model.

Convergent validity measures the extent to which the items of a scale that are theoretically related are correlated. Based on Table 4, it can be concluded that the convergent validity has been established.

Table 4
Result of convergent validity for measurement model

Construct	Items	Convergent Validity				Construct	Items	Convergent Validity			
		ICR	Indicator Loading	CR	AVE			ICR	Indicator Loading	CR	AVE
FL	FL1		0.829			IL	IL1		0.742		
	FL2		0.830				IL2		0.824		
	FL3		0.792				IL3		0.810		
	FL4	0.938	0.832	0.948	0.697		IL4		0.842		
	FL5		0.858				IL5	0.934	0.863	0.944	0.654
	FL6		0.817				IL6		0.843		
	FL7		0.841				IL7		0.798		
	FL8		0.875				IL8		0.761		
OP	OP1		0.837				IL9		0.786		
	OP2		0.853				NFL1		0.882		
	OP3		0.847				NFL2		0.917		
	OP4		0.886				NFL3		0.918		
	OP5	0.958	0.849	0.963	0.724		NFL4		0.918		
	OP6		0.868			NFL	NFL5	0.969	0.919	0.974	0.805
	OP7		0.874				NFL6		0.872		
	OP8		0.869				NFL7		0.913		
	OP9		0.848				NFL8		0.904		
	OP10		0.770				NFL9		0.828		

Next, discriminant validity, which is the degree to which the measures of different concepts are distinct, was assessed. In PLS, two techniques of discriminant validity measures are commonly used, that is, cross loading (Hair et al., 2014; Fornell & Larcker, 1981). Table 5 depicts the discriminant validity of constructs based on the approach adopted by Fornell and Larcker.

Table 5
Summary of discriminant validity of constructs based on Fornell-Larcker's approach

	NFL	FL	IL	OP
NFL	0.897			
FL	0.525	0.835		
IL	0.539	0.334	0.809	
OP	0.476	0.474	0.327	0.851

Structural Model

The following subsections discuss the tests used to assess the validity of the structural model for this study. This is assessed using the coefficient of determination (R^2), predictive relevance (Q^2), and path coefficients. Figure 3 presents the results of the structural model.
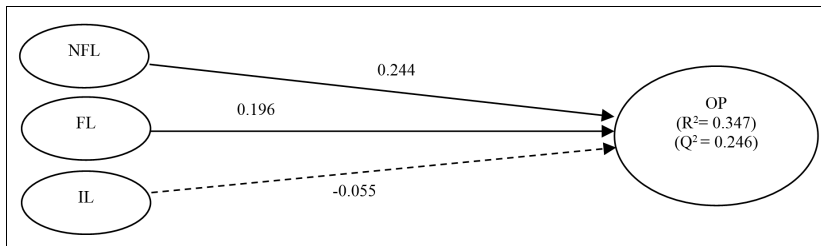
Figure 3. The Proposed research model

The R^2 is presented in Table 5 and the Q^2 results in Table 7, whereas the path coefficient results are shown in Table 8. The R^2 value indicates the amount of variance in each DV that is explained by the IV. In other words, R^2 value explains the variation effect of sets of IVs towards DV. Thus, a larger R^2 value increases the predictive ability of the structural model. According to Hair et al. (2014), a value of R^2 of around 0.67 is considered substantial, whereas values around 0.33 are average and values of 0.19 and lower are considered weak.

Table 6
Summary Result of The Coefficient of Determination (R^2)

Variable	R^2	Remark
OP	0.347	Average

The Stone-Geisser's (Q^2) is the predominant measure utilised to assess the research model's capability to predict (Hair et al., 2014). In other words, Q^2 explains the prediction effect of a set of IVs towards DV. Based on blindfolding procedure, Q^2 evaluates the predictive validity of a model via PLS. If the Q^2 values are larger than zero, it indicates that the exogenous constructs (IV) have predictive relevance for the endogenous construct (DV) (Hair et al., 2014). According to Hair et al. (2014), the values of Q^2 of 0.02, 0.15, and 0.35 indicate that an exogenous variable has a small, medium, or larger predictive relevance for a certain endogenous variable. Table 7 summarises the results of predictive relevance of the possible endogenous variable. It is observed that all the Q^2 values were above zero. Hence, all exogenous constructs in this research have predictive relevance.

Structural model represents the relationship between latent variables hypothesised in the research model (Hair et al., 2014). Based on the analysis conducted on the structural model, the researcher is able to confirm or otherwise each hypothesis

Table 7
Summary Results of the Predictive Relevance (Q²)

Exogenous Variable	Endogenous Variable	Q^2	Remark	Overall Predictive
NFL				
FL	OP	0.246	Medium	Yes
IL				

of the relationship between IV and DV. To test the significance level, t-statistics for all paths were generated using the Smart-PLS bootstrapping function. Table 8 lists the path coefficients, observed t-statistics, and significance level for all hypothesised paths between IV and DV and results of hypothesis testing. Using the results from the path assessment, the acceptance or rejection of the proposed hypotheses is determined. Table 8 shows that FL and NFL paths were significant at the 0.01 level. The FL has the strongest effect on OP (path coefficient = 0.224, t = 4.24) followed by NFL (path coefficient = 0.196, t = 4.00). However, the analysis indicated that IL (path coefficient = -0.055, t = 1.31) was not significantly correlated with OP. Thus, the results of the structural model supported H1 and H2.

Table 8
Summary Results of Path Coefficient and Hypothesis Testing

Hypothesis	Path	Path Coefficient	t- statistics	p-value	Results
H1	NFL → OP	0.196	4.00	.01	Supported
H2	FL → OP	0.224	4.24	.01	Supported
H3	IL → OP	-0.055	1.31	NS	Not Supported

DISCUSSION AND RECOMMENDATIONS

The purpose of this study was to test a research model to examine the relationship between CPD components (FL, NFL and IL) and OP. The sample selected was Malaysian based service organisations representing four sectors. The results of the study found that only FL and NFL were significantly correlated with OP and there was no significant correlation between IL and OP.

The model showed that CPD components account for 34.7% of the variance in OP. Furthermore, 24.6% explains the prediction effect of a set of IVs (FL, NFL, and IL) towards DV (OP). Overall, the proposed model showed a relatively good predictive power on OP.

The results of the study corroborate with those of previous studies on FL by Lockhart (2013) and Ramayah et al. (2012). The findings of this study also confirm

Johnnie's (1993) who pointed out that FL endows employees with sound judgment concerning their actions and mindset that benefit their organisation. The FL further assists in improving the pace and content of work leads to introduction of new acumens to the management and to the workplace. Meanwhile, for NFL, it was found that the findings of the present are consistent with those of earlier studies. It was found that there is a significant relationship between NFL and OP in terms of achieving the strategic objectives of the organisation (Buckley & Caple, 1995), improved financial standing of the organisation (Chong, 2005) as well as improved firm or business performance (Kim-Soon & Molukin, 2011). With respect to IL, as the findings were not in agreement with those of previous studies, additional literature review was done to provide justification to support the results of the study, which however, showed that it was not the case in the context of the Malaysian service-based organisations. According to the respondents, IL has no significant relationship with OP. This is perhaps due to generation gap. As most of them were considered as Gen X, perhaps their preferred choice was still the traditional types of learning (namely FL and NFL), as suggested by Briggs and Sommefeldt (2002).

Based on the above findings, several recommendations are in order. First, in the context of Malaysian service-based organisations, traditional CPD is still relevant. Organisations should not take traditional CPD (FL and NFL) lightly but find ways to strengthen the mechanism of FL and NFL to improve OP. The traditional CPD activities prove that they have a significant positive relationship with OP. Second, respondents still recognise the importance of FL that helps employees to be more engaged, committed and loyal to the organisation. Hence, organisations must strengthen or revisit their current policies such as sending their staff for training and for further studies. This is because it enhances career development and competency of their staff and improves employee engagement, commitment and loyalty to the organisation, which are some of the key yardsticks for OP. Organisations must view this approach as an investment that would yield greater outcome to the organisation in the long run. Third, organisations should improve their current training and development practices and policies as NFL also leads to better OP outcome. Organisations are encouraged to allocate funds for employee training and development and be willing to continuously invest on NFL.

CONCLUSION

This study developed a research model to empirically test the relationships between CPD components and OP. Despite the useful findings of this study, there are several limitations that need to be acknowledged. Firstly, the design of this study was based on a cross sectional time frame, in which the results might be different in the future if a longitudinal study is carried out. Secondly,

the focus of this study was limited to CPD related factors that yield the intended OP. Nevertheless, many other significant factors are not taken into consideration. Factors such as organisational culture, organisational structure, organisational support, technology, and leadership could also affect how CPD activities are being carried out in the organisation. Lastly, this study only focuses on Malaysian service-based industry. The results might differ if the proposed research model is tested for the manufacturing industry which contributes significantly to the Malaysian economy. Hence, the results obtained in the service-based industry cannot be generalised to the manufacturing-based industry. Perhaps, the differences between service-based and manufacturing-based industry would yield unique outcomes.

Hence, following the limitations derived from this study, future research might wish to explore on how to sustain or improve OP through CPD activities among Gen Y. The type of CPD activity that best suits them or is preferred by Gen Y must be studied further. The contribution of Gen Y on OP is on on-going debate given the complexity of this generation and the challenges they bring to the current practices of HRD. Also, future researchers might wish to explore the research model of CPD for excellent OP under different contexts and settings. This is to test whether the model would work well under different settings, such as in manufacturing-based organisations or between different organisational levels,

or in different sectors, such as in public listed companies or private companies. This model is developed based on intermediate or middle level employees. The same model should be applied and tested at lower levels to observe any differences or similarities.

This research concludes that the traditional CPD methods, that are FL and NFL, still play an important role in enhancing OP in the Malaysian service-based industry. It implies that learning for CPD should be championed or initiated by the organisations. It is important to note that the outcomes of the study are context dependent. In other words, the nature of association of the variables being studied is influenced by the context or organisational settings, leading to different results or outcomes of the research. In this research, there are several different contexts involved in the Malaysian service-based industry (namely MNCs, GLCs, SMEs and GAs). Impliedly, different types of knowledge, skills and abilities individual employees might have different influences under different contexts. This study contributes to the existing body of knowledge with regards to excellent OP through CPD programmes or activities. It further proves that promoting and facilitating CPD activities to enable organisations to achieve competitive advantage is vital. The more prepared the organisation is to facilitate learning at the workplace, the more engaged are the employees with learning and the richer the learning outcomes.

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SOCIAL SCIENCES & HUMANITIES

Evaluating Pictogram-based Patient Information Leaflet among Children Attending Kindergarten

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ABSTRACT

This preliminary research is aimed at evaluating the effectiveness of pictogram-based patient information leaflet leaflets among kindergarten students from the rural and the urban areas. Three pre-schools were selected for each area, whereby the target respondents evaluated the suitability of pictograms. The interview was conducted face-to-face and survey data was assessed using Likert scale (1=agree, 2=not sure, and 3=disagree). Chi-Square test was used to analyse data and the significant difference was set at $p < 0.05$. Three out of 10 questions showed significant differences while six questions presented with no significant differences ($p > 0.05$). It is suggested that the level of understanding between the rural and the urban kindergarten students are quite discriminant towards the pictogram. At the age of six, the major difficulty faced by the students was reading. Findings showed that pictogram pictogram-based patient information leaflets aided the students' understanding of medical instruction.

Keywords: Pictogram, medical leaflet, rural, urban

INTRODUCTION

Medical information leaflet is one of the most important tools in improving patient understanding of their prescribed drugs.

According to Harvey and Plumridge (1991), leaflets and other printed materials such as brochures and pamphlets can increase a patient's knowledge and understanding effectively especially when accompanied with verbal instructions. Several points are considered when designing the leaflets, including the way of information is organised, writing style, font size, the length of sentences, and the design of the prospectus (Secker, 1997).

A pictogram is a visual aid, used as a substitute for written text to convey information more efficiently among the elderly and low-literate population (Dowse & Ehlers, 2001). It is found that the use of pictograms can increase patient understanding of drugs, ensuring their compliance. Additionally, children can easily understand pictogram-based leaflets and may encourage them to adhere to their medication (Hämeen-Anttila, Kemppainen, Enlund, Bush Patricia, & Marja, 2006). Shankar, Krishna, Reddy, Mahendiran, Hussain, and Parthasarathy, (2015) suggested that pictograms play a vital role in educating patients and an effective counselling aid among the low-literacy groups.

The use of symbols in leaflets should be informative. Pictograms which are simply decorative may distract the information being conveyed (Secker, 1997). Therefore, the quality and effectiveness of pictogram should be first assessed so that it is positively accepted by the public or target population. Montagne (2013) suggested that pictograms produce low levels of comprehension, and their impact on improving medical knowledge is inconsistent. Barros, Alcântara, Mesquita, Santos, Paixão, and Lyra, (2014) reported that one of the risk factors that may predispose the patient to their non-adherence of medication is the fact they retain very little related verbal information from their doctors. Hence, use of pictograms in the information leaflet is believed to transmit relevant medical information in a clear, expeditious, and simple manner.

Therefore, this preliminary research is intended to evaluate the effectiveness of pictograms used in patient information leaflets among kindergarten students from the rural and the urban areas.

METHODOLOGY

This preliminary study was conducted among 60 kindergarten students, aged six at selected schools. . There were 10 respondents, both male and female, from each school; in total there were 30 respondents from the urban area and 30 from the rural area. The three preliminary schools that represent the urban areas were from Petaling Jaya, Shah Alam and Gombak districts while the rural schools were from Ijok, Janda Baik and Kluang.

A face-to-face interview was conducted using a modified validated questionnaire (Hämeen-Anttila et.al, 2004). The instrument developed by the researchers in this study was reviewed and validated by an expert panel followed by a pilot study conducted within a select group of 30 kindergarten children in Subang, Selangor. Thirty respondents were chosen because a general rule of thumb is to take 30 or greater as an estimation parameter (Browne, 1995). Results from the pilot study showed Cronbach alpha was satisfactory, demonstrating the validity and reliability of the questionnaire used.

The questionnaire consisted of Part A and Part B. Part A consists of 10 questions on suitability of pictograms used in the leaflet. Part B contained questions on anthropometry and demography (respondent's profile). Data

was assessed and scored using the Likert scale (1=agree, 2=not sure, and 3=disagree).

Statistical Packages for Social Science (SPSS) version 23.0 was used to analyse data. Chi-square test was used to compare the level of understanding of the students. Demographic data was analysed in the form descriptive statistics and the significance level was set at $p < 0.05$.

RESULTS AND DISCUSSION

There were 38.3% of male respondents compared with 61.7% of female respondents. About 63.3% and 60.0% of female respondents were from urban and the rural areas respectively while 36.7% and 40.0% of males came from urban and rural areas respectively.

Malays were the majority followed by Indians, Chinese, and others accounting for 65%, 20%, 10% and 5% respondents respectively. Muslims accounted for 65% of the respondents while Buddhist, Hindus and Christians amounted to 16.7%, 10% and 8.3% respectively. The distribution of respondents according to different category is shown in Table 1.

The Malay respondents accounted for the majority, both in the urban (53.3%) and the rural area (76.7%) followed by the Chinese, 26.7% and 13.3% representing the urban and rural areas respectively. The Indians accounted for 10% of the respondents, both in the urban and the rural areas. The 'others' were the minority, n = 3, where all of them were from the urban area. The Muslims were the majority, both in the urban (53.3%) and the rural area (76.7%)

Table 1
Demographic characteristics of the kindergarten children (n=60)

Variables (n=60)		Frequency (%)
Location	Urban	30 (50)
	Rural	30 (50)
Gender	Male	23 (38.3)
	Female	37 (61.7)
Race	Malay	39 (65)
	Chinese	12 (20)
	Indian	6 (10)
	Others	3 (5)
Religion	Islam	39 (6)
	Buddhism	10 (16)
	Hinduism	6 (10)
	Christianity	5 (8.3)
	Others	0 (0)

followed by the Buddhist, whereby 20.0% were from the urban area and 13.3% from the rural area. The Hindus accounted for 10% both in the urban and the rural area while the Christians accounted for 8.3% of the total respondents.

Chi Square analyses revealed that there were three pictograms used in the medical information sheet and there were significant differences based on the respondent's location. Figure 1 shows that the symbols were not understood by the participants. Question 4, however, was not subjected to any statistical testing because all the respondents from both locations answered 'agree' to the question. Figure 2 further described the pictograms that have been used during the interview session. During the interview session, printed cardboards were displayed and direct scoring were recorded.

(a)

(b)

(c)
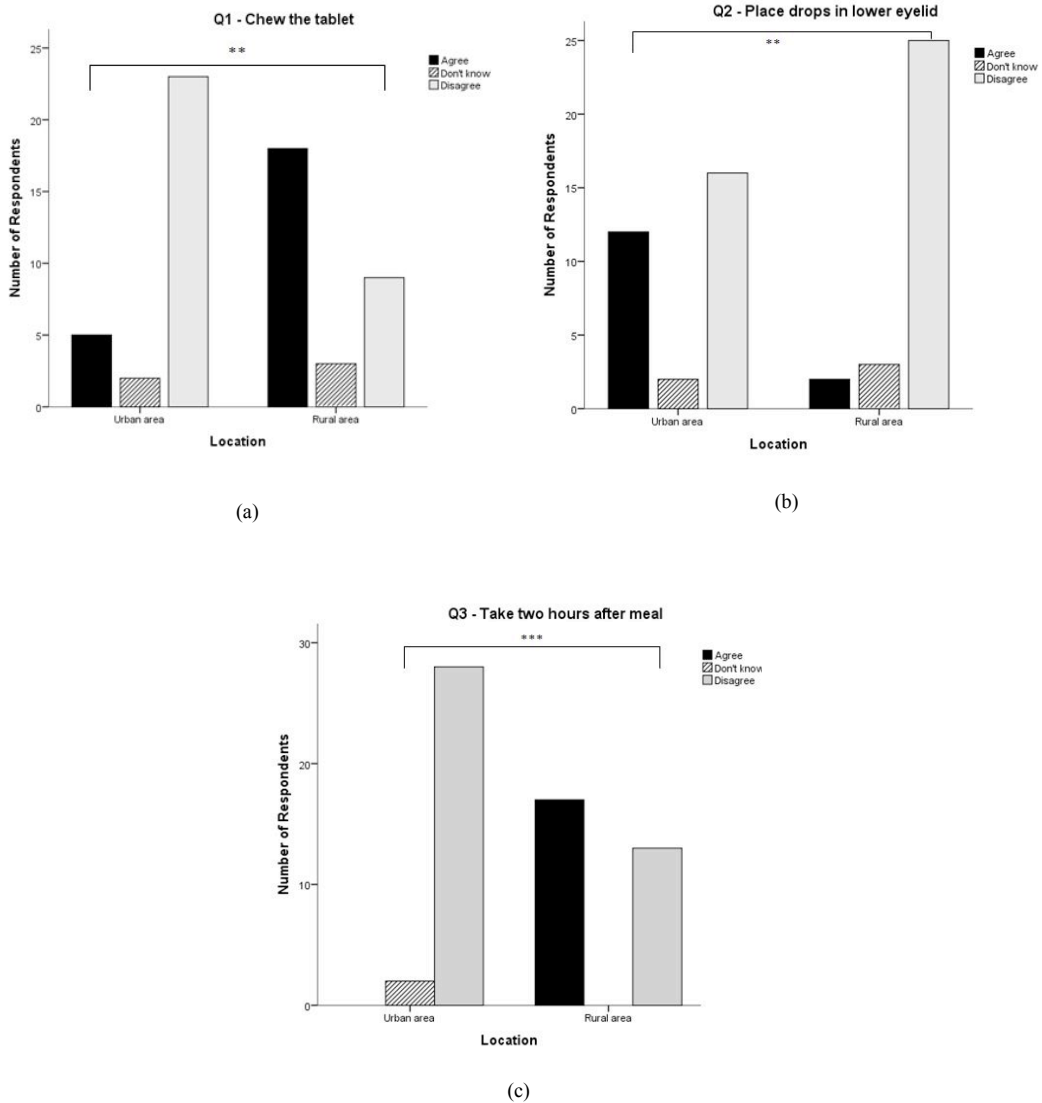
Figure 1. Pearson's Chi Square (χ2) value for (a) Question 1; (b) Question 2; and (c) Question 3

For each parameter, a value with the asterisk signifies *p*<0.05 and vice versa. *P* value less than 0.01 was designated with two (**) asterisks. *P* value less than 0.001 was designated with three (***) asterisks. *P* value less than 0.0001 was designated with four (****) asterisks.

In contrast, Table 2 shows that there were no significant differences for pictograms from Question 5 until Question 10. It indicates that the respondents from both the urban and rural locations could understand and interpret these symbols very well.
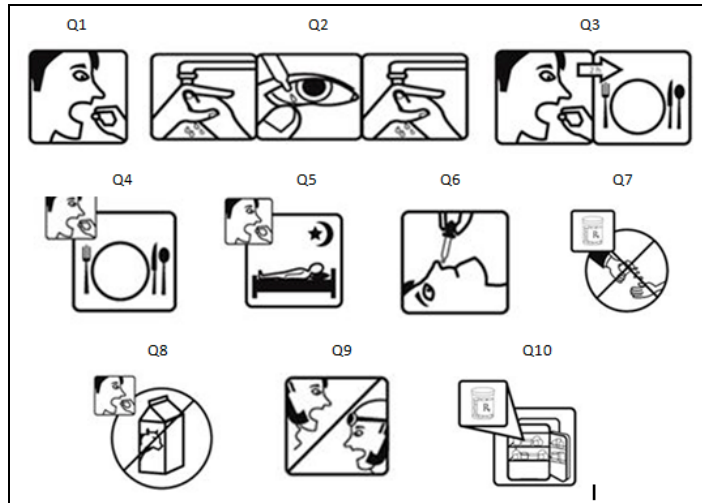
Figure 2. Pictograms that were used according to the modified validated questionnaire (Hameen-Anttila et al., 2004)

Table 2
Demographic characteristics of the kindergarten children (n=60)

Statement	Agree n (%)	Not sure n (%)	Disagree n (%)	Chi Square (χ^2)
Q1 - Chew tablet	23 (38.3)	5 (8.3)	32 (53.3)	0.001**
Q2 – Place drops in lower eyelid	14 (23.3)	5 (8.3)	41 (68.3)	0.009**
Q3 – Take 2 hours after meal	17 (28.3)	2 (3.3)	41 (68.3)	0.000***
Q4 – Take with meal	60 (100)	0 (0)	0 (0)	Not conducted
Q5 – Take in lying position	44 (73.3)	6 (10)	10 (16.7)	0.685
Q6 – Place drops in nose	53 (88.3)	7 (11.7)	0 (0)	0.688
Q7 – Do not give medicine to others	46 (76.7)	3 (5)	11 (18.3)	0.148
Q8 – Do not take with milk or other dairy products	50 (83.3)	3 (5)	7 (11.7)	0.757
Q9 – Call the doctor if symptoms persist	46 (76.7)	2 (3.3)	12 (20)	0.352
Q 10 – Store in the cupboard	38 (63.3)	0 (0)	22 (36.7)	0.284

For each parameter, a value with the asterisk signifies $p < 0.05$ and the absence of asterisk indicates otherwise. *P* value less than 0.01 was designated with two (**) asterisks. *P* value less than 0.001 was designated with three (***) asterisks. *P* value less than 0.0001 was designated with four (****) asterisks.

Empirical studies point to numerous factors that lead to non-compliance. This is common among children with n chronic diseases or serious behaviour problem (Drugli, Larsson, Fossum, & Mørch, 2011; Eyberg, Nelson, & Boggs, 2008; Sukhodolsky, Gorman, Scahill, Findley, & McGuire, 2013). However, among all, child neglect was described as the most prevalent form of maltreatment (Paula & Linda, 1986). An understanding of these factors is essential for health professionals in establishing a proper treatment and intervention programme.

In Malaysia, the doctor and pharmacist prescribe drugs verbally. The medications are also labelled. Somehow, these can be quite intimidation among the low-literate population, the children and the elderly. In addition, evidence suggests that parents and caregivers make frequent errors when administering medication to children. Inaccurate dosage and non-adherence to medication regimens can increase morbidity and mortality risk among children (Henretig, Selbst, Forrest, & Kearney, 1989; Matsui, 1997; Phillips, Beam, Brinker, Holquist, & Honig, 2001; Rivera-Penera, Gugig, Davis, & McDiarmid, 1997; Sawyer & Aroni, 2003).

The issues have created public alarm and call for greater awareness and education among children, and one of the best methods is by using the wordless pictogram. Takasaki and Mori (2007) reported that pictograms are a universal form of communication that breaches language barriers. In fact, a pictogram-based intervention that was used in a randomised controlled trial helped in decreasing errors while improving adherence among the participants (Yin, Dreyer, & Schaick, 2008).

With limited reading capabilities, a simple pictogram can yet be understood by the children that help them to discipline themselves to comply with the routine medication regime. This study has identified six pictograms in which these symbols were found to be not significant between the urban and rural respondents.

The non-significant findings show that basic interpretation of the kindergarten participants was equivalent, and the pictograms can be accepted as it was generally understood. These pictograms were in Question 5 (take in lying position) $p=0.685$, Question 6 (place drops in nose) $p=0.688$, Question 7 (do not give your medicine to others) $p=0.148$, Question 8 (do not take with milk or other dairy product) $p=0.757$, Question 9 (call the doctor if symptoms persist) $p=0.352$ and Question 10 (store in cupboard) $p=0.284$. A study in Japan also confirmed that preschool children have the capabilities in understanding the pictograms very well (Lin, Chang, & Liu, 2015).

However, based on the response, the children in this study might have wrongly interpreted the pictogram for Question 5 as the real instruction is to take the drugs at night. This interpretation might be missed because the symbol also indicated bed and it tallied with the provided instruction that is 'take in lying position'. Therefore, it is recommended that there should be improvisation for that pictogram as it created different meanings. A study by Hanson and Hartzema (1995) also indicated that about 54% of the pictograms were misinterpreted by their elderly respondents.

A refinement to Question 1, 2, and 3 are also suggested based on the Pearson's Chi-Square test that showed significant differences between the tested areas. Based on the analyses, Question 1 (chew the tablet) resulting p=0.001, Question 2 (place drops in lower eyelid) p=0.009, and Question 3 (take 2 hours after a meal) p=0.000. Different understanding among respondents towards pictogram is not advisable as these might create variations. Therefore, further construction on the standard pictograms should be done to improve the message delivery via the pictograms that suit the general public, especially in the Malaysia context.

Pictograms can help in improving communication barrier between the consumers and pharmacist, doctors or other healthcare providers. It is also found that medical leaflets can serve as future references to improve the recall process.

This paper has presented findings from the perspectives of kindergarten children in selected locations and has not considered the perspectives of teachers, parents and the community at large. Hence the findings here may be only the tip of the iceberg and lurking below may be more disturbing facts and figures as to the true picture of how well children understand pictograms in medical information leaflets.

CONCLUSION

Based on the findings, it is recommended that the pictograms should be incorporated and standardised in all of the medical leaflets since it can enhance understanding. Besides, it is believed to increase compliance among patients, in particular among the children, elderly and low literate people. Therefore, we strongly recommend that longitudinal studies in this cohort be carried out on annual basis to confirm whether the pictograms alone, or in combination with written instructions, are more effective and preferable among them.

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Coffee Culture among Generation Y

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ABSTRACT

It is now a trend among the younger generation Malaysians to meet with family and friends over a cup of coffee at cafes. This has led to the mushrooming of many western and local themed cafes in the country. The objective of this research is to measure the frequency of Generation Y patronising cafes in Malaysia. Factors such as the location of the cafe, quality of product, atmosphere, and price are used as variables. Data was analysed using multiple regression to test all relationships in the model. The findings indicate that there is a significant relationship between quality of product and price.

Keywords: Coffee culture, consumer behaviour, generation Y, Malaysia, revisit intention

INTRODUCTION

Studies show that coffee is the second most traded commodity next to oil (Topik, 2003). According to Pongsiri (2013) cafe, coffeehouses, coffee shop serve coffee or other hot beverages; and as the name suggests, coffeehouses focus on serving coffee and tea as well as light snacks. Kim (2014) found the younger generation is inclined towards conspicuous consumption and patronise luxury restaurants and cafes, as a means of self-expression or symbols of their desired lifestyle (Yoong, 2014)

The Generation Y or Millennials refers to those born between the late 1970s and the late 1990s. In Malaysia, Generation Y accounts for 26.9% of the population and they have good spending power and are savvy consumers. In fact, in the food industry targets generation Y as its key market segment due to their eating habits and lifestyle (Kavitha, 2011). Thus, the

purpose of this study is to examine the coffee culture among generation Y in Malaysia. It focuses on factors such as the location of the cafe, quality of product, atmosphere and price towards which influence the frequency of their visits.

LITERATURE REVIEW

Quality of Product (Coffee, Food and Beverages)

Quality of a product has a direct impact on the satisfaction level of customers which in turn influences their decision to purchase a product or services (Beibei, Shiyang & Jiahong, 2013). Today, consumers have become more demanding as they seek better quality products and services (Kang, Tang, & Bosselman, 2011). Goi (2013) found that product quality is an important determinant for customers compared with other product variables such as variety, brands, feature, size and others. A study points out that Generation Y in Sweden seek good quality choosing coffee cafes (Beibei et al. 2013). In Canada, according to Jaw, Leslie, Mattock, and Shahinfar, (2010) some consumers value the coffee's taste more than the price. This results in them willing to pay for higher quality. Meanwhile, coffee companies are well aware about consumers' choice and continuously introduce different types of coffee flavours to meet consumer demands. Today, coffee flavours include raspberry, strawberry and banana. From offering different coffee flavours, colour and serving styles are also made very attractive (Monirul & Han 2012). Findings show people are more and more inclined to drink gourmet coffee (Diaz, 2009). Therefore, based on the literature review, this study proposes the following hypotheses:

H1: There is a significant relationship between product quality and frequency of visits of generation Y to a coffee cafe.

Location

A good store location determines whether a store can draw the crowd (Hung, 2012). Good parking facilities are an additional attraction (Kenttamaa, 2014). In addition, the location has impact on pricing, promotion and merchandising decisions. A study (Allegra Strategies. 2012) shows that after past experience and familiar surroundings, convenience of location is an important factor to lure customers. Convenient locations are sometimes more important than brand. Similarly, it is acknowledged that 51% of coffee consumers would like to have coffee shops closer to where they live (Allegra Strategies, 2012). Based on this, the following hypothesis is proposed:

H2: There is a significant relationship between location and frequency of visits of generation Y to a coffee cafe.

Atmosphere

A good atmosphere influences positively the amount of time the customer spends at the cafe and this also increases their impulse purchases (Sathish, & Venkatesakumar., 2011) The term atmosphere here includes to ambience (temperature, lighting, music,

scent), aesthetic design (layout, comfort, privacy) and social factors (crowd). All these have an influence on store image. Interior decora such as lighting, interesting photos, posters and a cleanliness are important. Good music, free Wi-Fi and air conditioned environment are a must. Today one even finds students conducting their group study in this type of modern cafes (Monirul et al., 2012).

It has now become a trend to see many adults and students working in coffee shops. According to Jaw et al. (2010), offering free Wi-Fi is a way to attract more customers. This is because Generation Y grew up 'smart era' that allows 24/7 access and connectivity. They are exposed to global news and information. Virtual social networking such as Facebook and Twitter, and social media such as YouTube are readily available (Makhitha, 2014). The Western-styled cafes have successfully developed a good image and offer their customers access to an exciting, fashionable and contemporary lifestyle. Social interaction for Generation Y is very important (Morris, 2011). According to Bliss (2014), 61% of Millennial aged between 21 and 24 would rather have dinner at a new restaurant than buy a new pair of shoes. Therefore, the following hypothesis is proposed:

> H3: There is a significant relationship between atmosphere and frequency of visits to a cafe.

Price

According to Kotler, Bowe & Makens (2010) price affects the customer's choice of products or services. Harith, Ting and Zakaria (2014) reported that opinions differ on the concept of price. Some are willing to pay for quality while the rest base their purchasing decision on whatever is the cheapest. Prices play a role among younger consumers looking for an eatery. Malaysia has a young population with a median age of 26.2 years in 2010. So, coffee shops and cafes keep their prices low in order to attract young customers and retain their loyalty. However, according to Jaw et al., (2010), some consumers are willing to pay for higher quality. These customers are willing to pay more because in their opinion, higher prices mean higher quality. Although Generation Y is price-conscious, however, they're value-hungry which means they expect good quality product or services. Customers are also likely to pay the premium cost not only for high quality coffee, but also for value added services the shop provides (Kang et al. 2011). Therefore, the following hypothesis is proposed:

> H4: There is a significant relationship between price and frequency of visits to a cafe.

DATA COLLECTION

In this study, a self-administered questionnaire was designed while the instrument used to measure the constructs is adapted from the literature. Each question item is set with a five-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). The questionnaire is divided into two parts: part one focuses on the respondent's demographic variables,

Table 1 *(continue)*

Race	Malay	135	97.1
	Chinese	1	0.7
	Indian	-	-
	Others	3	2.2
Who accompanies you to cafe	Family	30	21.6
	Friends/colleagues	107	77.0
	Alone	2	1.4
Reasons visiting cafe	Refreshment	27	19.4
	Getting together with friends	73	52.5
	Discussing work/study	22	15.8
	Others	17	12.2
Frequency of visiting cafe	Once in a week	33	23.7
	Once in a month	59	42.4
	Multiple times a week	20	14.4
	Others	27	19.4

Table 1 shows 94 respondents are females (32.4%) while 45 are males (67.6%). Majority are between 16 and35 years old and married (65%). Most of the respondents are Malays (97%) who possess at least a Bachelor's degree.

A total of 107 respondents (77%) patronise the cafe with their friends of colleagues, followed by 30 respondents (21.6%) who visit the cafe with their family, and only 2 (1.4%) respondents visit the cafe alone. A total of 73 respondents (52.5%) patronise the cafe with their friends while 27 respondents (19.4%) visit the cafe for refreshments; 22 respondents (15.8%) patronise the cafe meet with their peers to discuss about work or for group study. Hence, it is clear that most of the respondents visit the cafe with their companions and at least once a month.

Cronbach's Alpha coefficients is used to estimate the reliability and stability of the questionnaires; the values ranged between 0.810 and 0.934 for all the constructs which were considered high and thus, able to provide a sound analysis (Sekaran, 2013). Product quality was highest at 0.888, location at 0.878, price at 0.815 and atmosphere at 0.810.

Correlation analysis was carried out to find out the direction and strength of the relationship between dependent and independent variables. All four factors have a positive relationship with frequency of visits.

Table 2
Pearson correlation analysis

	L	QP	A	P	RI
Location (L)	1			.	
Quality of product (QP)	.305	1			
Atmosphere (A)	.378	.538	1	.	
Price (P)	.371	.668	.476	1	
Revisit Intention (RI)	.386**	.729**	.525**	.725**	1

** Correlation is significant at the 0.01 level (2 – tailed)

The correlation value between location, quality of product, atmosphere, price and frequency of visits are $r = .386$, $r = .729$, $r = .525$ and $r = .725$ respectively. From Table 2, it can be concluded that location, quality of product, atmosphere and price are among the factors that contribute to frequency of visits.

The independent variables of this study are location, quality of products, atmosphere and price, while the dependent variable is frequency of visits. In Table III, the value of R^2 is 0.651, which indicates that 65.1% of variance in dependent variable can be explained by the four independent variables. The model of this study is suitable as indicated by the F value of 62.381 in Table 3.

The quality of products and price affect frequency of visits and are significant at the 0.0001 level. Location and atmosphere were not significant ($p > 0.01$) which indicate that the relationship of both variables is not significant.

Table 3
Multiple regressions analysis

Variable Entered	Generation Y's Revisit Intention				
Model	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-3.818	2.101		-1.818	.071
Location	.147	.096	.086	1.523	.130
Quality of product	.398	.074	.394	5.413	.000
Atmosphere	.167	.108	.098	1.545	.125
Price	.427	.079	.383	5.386	.000
R Square = .651		Adjusted R squared = .640			
F = 62.381		R = 0.807			
*p-value = 0.01					

DISCUSSION AND CONCLUSION

This results show that quality of products and price influence frequency visits of cafe patrons. These results are consistent with those of Goi (2013), who found that quality of the product is the most important factor that influences customers to visit poplar coffee chains. Other factors such a variety, brands, feature and size were less important. Accordingly, Jiahong et al. (2013) found that when Generation Y choose coffee cafes, product quality is the first factor they consider. Location and atmosphere showed no significant relationship to frequency of visit. This is because the respondents are regular or repeat customers to the cafe. Therefore, the respondents are already familiar with the location and atmosphere of the cafe.

The generation Y are presented with a wide range of selection of products and services. Therefore, coffee owners in Malaysia must maintain their quality and ensure that prices of coffee are affordable to cater to this segment. Many studies show generation Y frequent cafes and it is important that cafe owners target this segment for their future business expansion and promotional strategies. The use of social media such as Facebook, Instagram, Twitter and others in promotional activities targeted at generation Y is a must as generation Y are influenced by the Internet.

In addition, superior customer service is important so customers realise that their dining experience is worth the money spent. This may also increase customers' loyalty towards the cafe. One limitation of this study is that data was from only one ethnic group in Malaysia. Future researchers may expand this study to include other ethnic groups throughout Malaysia.

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Digital Display of Car Showroom: Proposing an Emotional-Environmental Conceptual Model

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ABSTRACT

A study conducted by Foresight Research reveals that customers are often at the showroom. However, car showroom is often being underutilized and following the old model of dealership. In contrast with other retail industries, car dealerships may have ignored the importance of digital display or signage in a car showroom. Hence, car dealers should consider re-strategising by embracing technology, especially to cater to the new generation's needs for better digital experience. Therefore, this study analyses how digital display in a car showroom influences customer's decision to purchase. Furthermore, the study proposes an emotional-environmental conceptual model based on Mehrabian-Russell environment psychology model and Donald Norman's concept on emotional design. Literature review suggests a significant role of digital displays, namely message content, placement, size and interactivity, in retail businesses. However, there is lack of empirical evidence to support the role digital displays in a car showroom. In the proposed conceptual model, environmental psychology taxonomies, namely stimulus, organism and response, were combined with three levels of user response namely visceral, behavioural and reflective taken from the emotional design model. The model allows car dealers and marketers to create a customer-centric digital display that may induce and influence the customer to purchase. Future research should explore the stimulus domain since it plays an important role in producing an immediate emotional response from the customer.

INTRODUCTION

The term "atmospherics" was first used and defined by Kotler (1974) which refers to the conscious effort of sellers in designing a space to create certain effects in buyers. In other words, marketers design buying environments with the aim to produce specific emotional response in buyers which will increase their intention/probability to purchase (Kotler, 1974). Kotler (1974) also emphasised the importance of combining the retail environmental characteristics (store atmospherics) in stimulating a consumer to purchase. Meanwhile, Foxall (1997) describes store atmospherics as a medium by which a consumption environment produces emotional responses in customers, thus, prompting them to stay in the setting, browse, evaluate and purchase; or, discourage any of these activities. In short, atmospherics are part of an environmental design (Kotler, 1974).

Mehrabian and Russell (1974) proposed the environment psychology model which classified the environmental psychology into three domains: stimulus, organism and response. They (1974) define stimulus as a stimulus from the environment such as information rate or "load" of an environment, while organism refers to pleasure, arousal and dominance and finally response as an approach or avoidance behaviour. Donovan and Rossiter (1982) later adapted the model to the retail context and studied the effects of atmosphere and store design on shopping behaviour. Furthermore, Donovan and Rossiter (1982) translated the response domain into four responses: store patronage

intentions, in-store search and exposure to a broad or narrow range of retail offerings, interactions with sales personnel and floor staff and lastly, repeat-shopping frequency, reinforcement of time and money spent in the store. These became the basis for the model development.

Store Atmospherics in a Car Showroom

At present, there is very few empirical evidence on the role of store atmospherics in showroom context, particularly those related to car showroom. Industry experts have noted that automotive original equipment manufacturers (OEMs) and dealers use traditional way of marketing due to proven sales and practice. Therefore, it appears that OEMs and dealerships are unwilling to employ new technology in the car showroom like interactive touch display due to many challenges including low returns on investments (ROI).

There is no doubt that the impact of digital customer is, disrupting the traditional car-buying experience and the competitive landscape (Car Buyers Want Better, 2015). According to Soon (2015), in the past, cars were mostly sold inside a showroom. But in recent years, dealers cannot rely solely on showroom sales. For instance, dealers nowadays display their cars inside shopping malls and public places to attract prospective buyers. Thus, the old method of selling cars is under risk if the businesses do not adapt to changing circumstances (Robertson as cited in Gallo, 2014).

A study by Accenture reveals that customers want better digital experience.

More than half of the respondents in the study said that they would be interested to have interactive touch display that provides information on the available models during a visit to a showroom while the rest stated their desire to take a virtual test drive at the dealership (Car Buyers Want Better, 2015). Hence, it can be said the car showroom is often being underutilised.

Digital Display as an Atmospheric Stimulus

Digital display is part of visual merchandising elements (Marketing Essentials, 2012). It is associated with digital signage in retail. The most basic definition of digital signage is refers to it as a remotely managed digital display, typically tied in with sales, marketing and advertising. In automotive scene, digital signage is defined as a system through which content is portrayed on a digital flat-panel display-usually a plasma screen or liquid crystal display (LCD) (Kircher, 2007). In the industry, there are generally three components to digital signage: hardware which consists of the display and a player device of some sort, software which manages the system and feeds the content to the display; and content, the material that appears on the display (Kircher, 2007). Surprisingly, the industry analysts generally agree that content plays the most important role (Kircher, 2007).

Most of the studies on digital display and retail look into the role of digital display in settings such as shopping mall, public places and hypermarkets. They focus on the (1) impacts of digital display onto retailers in general and (2) the components of digital display which evoke customers' emotions. According to Newman, Dennis and Zaman (2006), digital display provides helpful information, creates a modern image, and increases shopping enjoyment. Next, digital display results in greater sales receipts, more items purchased, and more time spent at the hypermarkets, but they have minimal impacts in the supermarkets (Roggeveen, Nordfält, & Grewal, 2016). However, according to Roggeveen et al. (2016), in supermarkets and in smaller stores, digital displays do not affect sales and in fact, have reverse effect.

Huang, Koster and Borchers, (2008) found that the attractiveness of a digital display depends on several criteria such as positioning of the display (eye-level, regardless of content or format), display size (small display encourages prolonged viewing due to intimacy and comfort), content format (video) and content dynamics (control over screen-saver style information displays). Furthermore, with regard to content, Burke (2009) found that advertising effectiveness depends on both the content of the message (appeal type and product category) and the context and quality of exposure (audience need state, traffic speed and direction, message frequency and duration). Dennis, Newman, Michon, Brakus, and Wright (2010) found that the impacts of digital display on shopping mall's images and atmosphere are influenced by audio and video contents and location of screens. Whereas Roggeveen, Nordfält and Grewal (2016) state that content that

highlights price promotional elements increase sales, number of items purchased, and the time spent in the store.

Dennis, Brakus and Alamanos (2013) found that digital display advertisement with high hedonic information evoked affective experience and strengthened experiential processing. According to Dennis, Brakus, Gupta, and Alamanos (2014), content with high sensory cues evoke affective experience and strengthens customers' experience whereas messages high on 'feature and benefits' information evoke intellectual experience and strengthen customers' deliberative processing route. Besides, past studies have shown that digital display in retail context did have positive effect on customer behaviours with some mediating factors. Dennis et al. (2010) and Dennis, Michon, Brakus, Newman, and Alamanos (2012) showed that digital display did have positive effect on approach behaviours, mediated by positive affect and perception of retail environment.

The abovementioned studies unfortunately, did not use showroom context. According to Kircher (2007), the contents of digital display in car dealership should focus on dealership and customer's objectives. This digital display is supposed to be installed at the showroom and the service department (Kircher, 2007). He also suggested that an interactive kiosk could be installed for the purpose of providing useful information, instructions manual and some applications (Kircher, 2007). Through this, n, the digital display should be able to attract potential buyers and stimulate purchase.

The Elements of Digital Display

Four components of digital display are commonly discussed in their studies. The first is *message content* (Burke, 2009; Dennis et al., 2013; Dennis et al., 2014; Roggeveen et al., 2016; Huang, Koster, & Borchers, 2008; Newman et al.,2010). The second is *placement* (Newman et al.,2010), Huang et al., 2008; Kircher,2007). The third, according to Huang et al. (2008) is size and the fourth is *interactivity* (Kircher, 2007).

Overview of Digital Display in Malaysian Car Showroom

There is lack of studies on digital display in car showroom. However, prestigious car brands such as Audi and BMW have embarked on the digital car showroom technology a few years ago. For instance, Audi installed its power walls consisting of LED display screen where customers can configure their own cars (Gibbs, 2014). On the other hand, car manufacturers like Hyundai installed interactive screens where customers can see the list of potential cars and adjust its specifications in their shopping centre showroom (Charlton, 2014). According to industry experts, these changes were cautiously observed by Malaysian automotive dealers but not implemented due to many reasons.

Based on observations, in Malaysian automotive dealership, there are three areas where digital display is usually installed. First, showroom exterior (LED signage), inside the showroom (near car display) and third, in service department (customer lounge). However, most digital displays

(/signage) were installed for the purpose of displaying advertising, promotions and some information. In the service department (customer lounge), it merely displays local television programmes. Unfortunately, the interactive screens are yet to be adapted by any Malaysian car dealers.

Emotional Design Model

The concept was introduced by Donald Norman and has been vastly applied or studied from the product and web design perspective. It has never been tested in the retail context nor combined with other marketing theories. Based on this concept, Norman (2004) listed three levels of information processing comprising three levels (1) visceral (2) behavioural and (3) reflective. Visceral level refers to spontaneous and immediate user's response towards appearance of a product (Norman, 2004). This takes places through five human senses which are sight, hearing, taste, touch and smell (Norman, 2004) and done subconsciously (Norman & Ortony, 2003). According to Norman and Ortony (2003), at this level, this is known as perceivable features and it is biological based. The second level, behavioural relates to the function and use of an object (Norman & Ortony, 2003). Norman and Ortony (2003) added that the reactions at this level are "expectation-induced". This is derived from the user's experience obtained through daily behaviour and learning process (Norman, 2004). Since it is obtained through experience and learning, it differs from one person to another and

based on ones' culture (Norman & Ortony, 2003). Furthermore, at this level a user is concerned with usability of a product (Norman, 2004). Tranctinsky, Katz and Ikar (2000) confirmed that perceived usability is related to emotional design concept because of emotional-induced element in product attributes. Lastly, at the top of emotional design model is reflective level. It comes from the reflection of reasoning process and likely to dispense value and meaning toward products (Norman, 2004). Moreover, responses at this level are consciously done using intellectual processing. In sum, these three levels of user's response interact with one another and form a customer's action towards a product.

An Emotional-environmental Conceptual Model for Digital Display of Car Showroom

This study has proposed a conceptual model for digital display in a car showroom. This model combines Norman's emotional design model with environment psychology model proposed by Mehrabian and Russell. In this study's model, digital display stimulate emotional states, thus, influencing customers' response. The components of digital display satisfy the emotional design of customers to meet their aesthetic, functional, socio-political and economic requirements in car showroom. Thus, the model helps car dealers and marketers to generate guiding principles in designing a specific digital display.

In Stimulus-Organism-Response (S-O-R), any stimulus that stimulates

positive emotional states/affects is relevant since customers' affective responses may determine their final decision. Sherman, Mathur and Smith (1997) confirmed that the environment in the store and the emotional state of the consumer may be important determinants of purchase behaviour, though cognitive factors may largely account for store selection and for most planned purchases within the store. Greenland and McGoldrick (1994) found that both the emotional and cognitive factors are hard to separate and will influence one another. In addition, Lam (2001) indicates emotion as an important factor that encourages a customer to make a quick decision to purchase. Lam (2001) emphasised that emotion will elicit more direct response from customers with very little impact on their thinking, feeling or body comfort. This has become a basis for connecting environmental psychology theory with emotional design model. Both model aims to capture customers' interest at the first sight which is crucial, at least to enable a showroom to be considered as a potential place to purchase. The connections between two models are presented in Figure 1.

Figure 1. Emotional-environmental conceptual model for digital display in car showroom

On the first level, *stimulus* and *visceral* level are connected whereby the former from an environment or an object form spontaneous and immediate reaction towards the appearance of an environment. Visceral refers to customer's immediate reaction and are based on five human senses (Norman, 2004). In this study, the elements of digital

display act as stimulus to the customer. Four components of digital display (stimuli) which are content, placement, size and interactivity should be designed accordingly for customers to feel good about their purchase behaviour (Norman, 2004). Therefore, in the process of designing digital display, marketers should manipulate five human senses that affect customer's visceral response by emphasising on aesthetics value of each digital display's elements. At this level, immediate decision will be made by customers whether it is good or bad without prior experience (Norman & Ortony, 2003).

At the second level in S-O-R, *emotional affects* consisting of pleasure and arousal takes place. However, based on the emotional design model, emotional responses are developed immediately at the first level. Hence, the model in Figure 1 connected organism with visceral and behavioural level simultaneously. Since visceral level is "perceptually-induced", therefore a person will form emotional affects based on their perceptions (Norman & Ortony, 2003). Secondly, in behavioural level, our past experience and expectations will trigger our emotional responses (Norman & Ortony, 2003). Therefore, these have become the basis for the improvement of the original model by Mehrabian and Russell.

Besides, in *behavioural level*, customers respond towards the function of an object. Therefore, marketers should be aware of consumer's perception of functionality and usability of the digital display in specific and the showroom in general. If the consumer perceives that the digital display is functional, they will find it usable thus, leading to the perceived usability of the showroom. However, both should have aesthetic values. Even though the display in the car showroom is functional and usable, without visceral designs, it may lead to negative responses.

Based on the interaction of previous two levels, *responses* will form. Customers will generally respond in two ways i.e. approach or avoidance behaviour. However, from the emotional design perspective, these refer to *reflective level*. It relates to customers' personal reflection to rationalise their decision by using the highest level of intellectual capability (Norman, 2004). This process is derived from visceral affective response and behavioural perception process and customers will base their decision based on their reasoning process. Therefore, by implementing visceral and behavioural design in a digital display, a car showroom will likely attract prospects to approach a showroom.

The first level refers to how customer respond towards the digital display specifically and the showroom environment in general, while the second level refers to how a customer responds towards the function of the digital display and showroom. At the final level, customers rationalise their approach behaviour in a particular car dealership which in turn may lead to a deal being concluded. In this study context, the approach behaviour reflects patronage intentions and purchase intention. This level is derived from the visceral and behavioural design according to digital

display elements. The abovementioned discussions on both concepts are used in designing a customer-centric digital display that are utilised in a car showroom.

CONCLUSION

The OEMs, dealers and marketers should identify and implement digital display technology to enhance the showroom environment in efforts to stimulate customer's to purchase by appealing to the latter's emotion and on store atmospherics. The proposed conceptual model can be used to enhance customer purchasing behaviour. The conceptual model is a product of the environmental psychology model and emotional design model that allows the creation of an attractive showroom. Both models are focused on capturing customers' interest at the first sight. This enables a showroom at least to be considered as a potential place to make purchase decision. It is suggested future research l refine the stimulus domain consisting of content, placement, size and interactivity since the latter play an important role in stimulating customer's immediate emotional response using digital display technology.

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"Doing Good" for the Parolees: Some Evidence from Malaysia on the Predicament in Community Rehabilitation

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ABSTRACT

The main objective of a parole system is to rehabilitate and reintegrate parolees into society. In Malaysia, lack of such community rehabilitation programmes in addition to problems faced by parole officers are a concern. This paper examines the legal and operational predicament faced by the community officers. This paper adopts a qualitative methodology, and data is obtained from five case studies of regional prisons in Malaysia as well as from the Prison Act 1995 and library-based sources. Findings show that rehabilitating parolees is demanding on the parole officers especially so when the rehabilitation purpose and specific duties of such officers are not covered by the Prison Act 1995. Additionally, operational difficulties such as lack of sharing of information on the parolees' rehabilitation assessment and report from the prisons, the officers' lack of expertise and heavy workloads hamper their work.

Keywords: Challenges, community rehabilitation, parole, parole officers, parolees

INTRODUCTION

The rehabilitation of parolees involves transforming a parolee's behaviour under

specific intervention programmes aimed at successfully reintegrating them into the community. The community parole officers who are the rehabilitating agents may encounter many challenges in ensuring smooth rehabilitation of the parolee. This paper will focus on legal and operational predicament facing such officers in their parole supervision duties. The first part of the article examines the legal position

of the parole system and rehabilitation as provided under the Prison Act 1995. The second part reviews literature on community rehabilitation of parolees and its challenges while the third part explains the methodology of this research. The fourth part, which is the crux of this paper, highlights main findings, the processes involved and discusses the success of the prison rehabilitation programmes. It suggests that the problems for the said officers stem not only from their lack of expertise and heavy workloads but also from lack of specific provisions in the 1995 Act relating to their rehabilitation duties, The final part summarises and concludes the paper.

THE LEGAL POSITION ON PAROLE RELEASE

What is Parole?

The parole system in Malaysia was introduced in 2007 via the amendment of the Prison Act 1995. It was enforced on 30th June 2008. In July 2008, the pioneer batch of 64 parolees was released under the system (Malaysian Prison Department, 2008). The parole system is also an alternative mode of sentencing and a non-custodial measure taken by Malaysia as a member state party to the United Nations Standard Minimum Rules for Non-Custodial Measures (The Tokyo Rules, Rule 2.1).

Section 46A of the Prison Act 1995 defines "parole" as the release of a convicted offender to serve any part of his incarceration sentence outside the prison, under a parole order. A "parolees" means parolees who are released on a parole order made by a Parole Board. Section 46I provides that;

> *a* parolee is deemed to continue serving his sentence of imprisonment during the period of parole that begins on the date of release on parole as specified in the parole order and ends upon the expiration of his sentence of imprisonment taking into account so much of his conviction as shall remain after deducting from it such part of remission of sentence granted, or when the parole order is suspended or revoked.

Thus, the parole system in Malaysia is as an extension of the custodial period, as the parolees will be placed in the community under the correctional authority and supervision of parole officers (Hamin & Hassan, 2012).

Eligibility of Parole Release

Once the parolees have served at least half of his/her term of incarceration, without taking into account the remission of sentence granted to him, he is deemed to be considered eligible for parole. Such is the case provided that his offence does not fall under any of the offences prescribed in the Fourth Schedule of the 1995 Act (Section 46E, Prison Act 1995). Such crimes in this schedule include murder, rape, incest and offences related to kidnapping and possession of firearms. In deciding whether or not to release convicted offenders on parole, the

1995 Act stipulates that the Parole Board as the releasing authority must examine and evaluate the parole dossiers received from institutional parole officer and any other report prepared by any prison officer (Section 46E, Prison Act 1995). Section 46F on the other hand provides that in releasing the parolees, the Parole Board is under an obligation to protect public safety and at the same time, to maintain public confidence in the administration of justice. In this regard, the nature and circumstances of the offence that are related to the parolee's sentence and the latter's criminal records must be taken into account (Section 46F, Prison Act 1995). The 1995 Act highlights the significance of assessing the rehabilitation of the parolees while in prison (Section 46F, Prison Act 1995). This includes assessing the risk of the parolee's re-offending if he or she is released on parole and likelihood of adaptation to normal community life (Section 46F, Prison Act 1995).

Rehabilitation under the Prison Act 1995

The legislative intention of introducing the parole system was not only to alleviate prison overcrowding and cutting down on operating costs but also to reduce recidivism and rehabilitate the parolees. These will ensure successful re-entry and reintegration of the parolee into society through the role of family, employers or community members (Parliamentary Hansard No 85, 19 December, 2007). According to the mission statement of the Parole Division of the Malaysian Prison Department, the objectives of the parole system are to ensure a continuity of effective rehabilitation programmes and to give the parolees a second chance to go through the process of reintegration of their lives into the community (Malaysian Prison Department, 2008). They are also to ensure the welfare of society and to reduce recidivism by assisting and guiding the parolees to live as normal individuals who respect the law and regulations of the country. (Malaysian Prison Department, 2008).

The Malaysian parole system adopts a combined model of rehabilitation and surveillance in its approach to parole supervision (Malaysian Prison Department, 2008). Hence, the legislative context for the rehabilitation programs in Malaysia is evidenced from the provisions of section 46J and 46K of the Prison Act 1995, in which the roles of the parole officers are integrated into the rehabilitation and the surveillance of the parolees. The rehabilitation of parolees is delivered in both the custodial settings in the prison and in the community. In this respect, the focus of the Malaysian Prison Department is to rehabilitate the parolees by developing positive attitudes among them and assist in their re-integration into the society. Such rehabilitation is done through the Prison Human Development Programme, which contains four distinct phases namely, discipline development, personality enhancement, skills/trade development and pre-release program (Malaysian Prison Department, 2014). The role of the community parole officers includes managing the intervention case plan

and programmes to help the parolees and co-operating with other government agencies and the non-governmental organisations to facilitate their rehabilitation (Malaysian Prison Department, 2008).

LITERATURE REVIEW ON COMMUNITY REHABILITATION

There are many definitions of parolees' rehabilitation in the literature. Rotman (1990) defines that rehabilitation involves providing minimum services necessary for the parolees to 'reintegrate into society as a valuable human being'. Similarly, Maruna and Lebel (2002) indicate that rehabilitation is a process whereby the parolees are afforded the opportunity to harness their strengths to make a positive contribution to the community, thereby making amends for their wrongdoing and earning their redemption. Lewis (2005) views rehabilitation as restoring the parolees' relationship with society (Lewis, 2005). McGee (1969) argues that the classic collateral theme in rehabilitation has "done good" for the parolees.

Studies show that rehabilitation revolves around changing the parolees' acts or behaviours through intervention programmes that help them to reintegrate successfully into the community. For instance, Raynor (2004) argues that rehabilitation targets changes to the parolees' attitude, personality, skills, employment and social relationship. Mackenzie (2000) further reflects that rehabilitation strategies should focus on changing the individual parolees so that he or she will not continue with criminal activities. In the same vein, Crow (2001) defines rehabilitation as the practical steps necessary to achieve social integration and in particular, the provision of interventions or programmes focusing on helping the parolees to gain access to accommodation, education, training and employment.

Literature also suggests the significance of establishing a clear policy and legislative frameworks on the rehabilitation goals. For instance, Raphael and Stoll (2014) believes that the parole agency's objectives and policies could make a huge difference in the rehabilitation of the parolees and hence, ensure public safety. They added that without a clear direction, a parole agency may adopt tools that are incongruent with their jurisdiction's values, philosophy, or capacity. Vision, goals, and internal support will form the framework for the system, and transparent policy will explain how it is to be implemented (Carter, 2012). Along similar lines, Solomon eta al. (2008) assert the importance of the parole agency leadership in defining its mission and objectives, the criteria for success and setting the benchmarks for its performance before engaging with the procedures and the instruments in implementing the parole policy. Also, Petersilia (2000) contends that the lack of adequate legislative framework will lead to complications in the rehabilitation and surveillance duties of the community parole officers.

Literature also indicates the necessity of developing a case plan for the parolees as an immediate task of the community parole officers in their parole supervision. Such

plan would assist them in identifying needs of the parolees, risks the latter posed to the community and problems the parolees might encounter. Mc Garry et al. (2013) contend that one of the primary tasks in community rehabilitation is to develop a continuum case plan approach. Ball, Weisberg and Dansky, (2008) observe that it is crucial that the parolees be assessed within the first 72 hours of their release to identify their needs and problems in the community. Burke (2011) asserts that such case plan could be used to chart the parolees' progress, identify the gaps in reducing the parolees' risk in the community and meeting their needs outside the prison wall. Similarly, Osher, D'Amora, Plotkin, Jarrett, and Eggleston (2012) contend that the case plan would be useful for the parole officers to deal with parolees who have drug issues and a history of mental illness. Travis (2005) opines that preparation for the case plan would lead to further collaboration and coordination with the prison and other law enforcement agencies and community-based organisations. With such strategic partnership, the parole community officers could eventually establish good working relationships and communication with such institutions.

The importance of proper assessments that are based on scientific tools has also been documented in the literature. For example, Miller and Maloney (2013) assert that the parole officers could focus and implement a suitable supervision case plan using such tools as well as setting expectations and intervention programmes to reduce the risks of parolees' re-offending while under supervision. Thus, this increases the chances that the parolees will be matched with the rehabilitation treatment and services and appropriate intervention programmes that will reduce the risk of recidivism (Andrews, Bonta, & Wormith, 2006).

Literature review shows there are manifold the benefits if community parole officers are experienced and knowledgeable in dealing with the prisoners. In this regard, Rockett (2006) stresses that it is crucial for the community parole officers to have the necessary knowledge and skills to guide, coordinate and provide for personal development and treatment programmes to rehabilitate and reintegrate parolees into the society. Accordingly, Bourgon, Hanson and Bonta (2008) contend that it is also imperative that the community parole officers have the expertise in translating the application of scientific evidence-based principles into everyday rehabilitation practices.

The challenges in the supervision process, in particular, on rehabilitating the parolees in the community, are well documented. In this context, Mc Garry et al. (2013) affirm that it is a challenge to prepare an appropriate case plan for the parolees, with an appropriate intervention programme that could be delivered by an adequately trained staff. Also, parole officers might find it difficult in understanding the characteristics and the needs of each parolee. This drawback leads to the predicament in planning an appropriate rehabilitation and intervention programme (Gunnison &

Helfgott, 2011). Also, Astbury (2008) argues that each of the parolees exhibits a unique profile, and these characteristics have an influence on the intervention programmes. As such, it is problematic for the community parole officers to examine whether or not the intended rehabilitation programmes could be successfully linked to the risk, need and responsivity of the parolees (Ward, Melser, & Yates, 2007).

The fact that the community parole officers continually face difficulties in managing their caseloads is also well documented. In this regard, Quinn and Gould (2003) show that with heavy workloads, such officers have limited time to focus on the individual parolees and to provide them with individualised rehabilitation treatment. Within the time constraint, such officers are often required to engage in surveillance-based supervision approach. Similarly, Paparozzi and Gendreau (2005) suggest that the parolees who have been intensively supervised by their parole officers, who possessed exclusively law-enforcement professional orientations, had higher recidivism rates than those supervised by parole officers with a combined role of social work and law enforcement. Wodahl, Garland, Culhane, and McCarty, (2011) argue that in practice, the emphasis on surveillance in the community often resulted in a an increase in minor violations leading to the revocation of parole, as the prison administrators and the Parole Boards would not want to risk keeping parolees in the community.

METHODS

This study has focused on the rehabilitation of the parolees in the community under the parole system in Malaysia. It was a qualitative research to provide a deeper understanding of this social phenomena (Silverman, 2013).

Data was collected in two phases. The first phase was library-based search and literature review where all of the relevant literature on the rehabilitation of parolees under the parole system were reviewed. The primary sources include the Prison Act 1995 and the secondary sources were textbooks, academic journal articles, government reports, newspaper articles, and online sources were reviewed.

The second phase of data collection is the fieldwork, in which the primary data was generated by adopting a case study research design. Such design involved five units of analysis representing the prisons in West and East Malaysia as well as the Parole Board members and the parolees. The instrument for the case study was face-to-face semi-structured interviews with the respondents from each prison, parole officers at the institutional level, and field parole officers at the state and district levels. Purposive sampling technique was used, which according to Silverman (2013), allows a researcher in selecting a case based on certain characteristics significant to the study. Qualitative data analysis was conducted through thematic and content analyses, in which the observations and the interview transcripts from the semi-

structured interviews were examined. The process consisted of creating codes and categories, considering the themes and then creating hypotheses about the respondents' experiences, along with the literature review. Primary data was triangulated with the semi-structured interview data obtained from seven members of the Parole Board and six parolees. The interviews were digitally recorded and their contents transcribed and analysed using the ATLAS.ti qualitative research software.

RESULTS

Rehabilitation of Parolees in the Community

The findings revealed that once a Parole Order has been issued, the parolees will be taken to the district parole office where they serve their parole and be placed into the charge of the community parole officer. Thus, within 72 hours after the officer receives the parolees for supervision, an initial assessment of the parolees which entails behavioural and psychological tests, identifying the parolees' basic needs, practical aid and support will be made. They will be responsible for looking for signs of potential dangers or barriers to the parolees' successful rehabilitation or reintegration into society. Additionally, they must also develop a case rehabilitation plan for the parolees, which encompasses their rehabilitation activities for the duration of their parole.

The study revealed that the parolees were obliged to attend any rehabilitation programmes organised or directed by the community parole officers. The findings showed that the officers recognised the goals of the rehabilitation programs and the interventions were in the form of means, training, and counselling to overcome their recidivism probabilities. It was normal for such officers to conduct such programmes by having group sessions and activities rather than individually with the parolees. They also co-operated with other agencies such as the National Anti-Drugs Agency, the National Population and Family Development Board, the Social Welfare Department, the religious authorities and the non-governmental organisations to conduct the appropriate rehabilitation programmes for the parolees.

Challenges in Rehabilitating Parolees in the Community

This study has shown the community rehabilitation officers faced several legal and operational predicaments in carrying out their duties. The evidence indicated that the primary legal impediment was the lack of express legal sanction provided by Section 46K (e) of the 1995 Act. The Act does not explicitly state the duties of the parole officers to plan and arrange rehabilitation programmes for the parolees. In fact, the 1995 Act states expressly that parolees are under the statutory obligation to follow any rehabilitation programme as conducted and directed by their parole officers. Hence, by this provision the parole officers are indirectly responsible for rehabilitating the parolees.

In this respect, it is observed that section 46K(e) of the Prison Act 1995 implicitly provides for the discretionary power of the community parole officers to regulate and implement any suitable rehabilitation programmes that will help the parolees' re-integration into the community. Furthermore, the administrative guidelines from the Commissioner General and the Parole Division require the community parole officers to organise rehabilitation programmes for the parolees. Alternatively, they have an obligation to arrange for the parolees to undergo rehabilitation programmes with another party including other government agencies, non-governmental organisations and through the informal social support such as family and the surrounding community. Despite the absence of any express legal authority to conduct their tasks, findings revealed that such officers were aware of and acknowledged their role in the parolees' rehabilitation and in preventing the latter from re-offending.

Another legal impediment is that the 1995 Act does not provide, either explicitly or implicitly, the purpose and function of the parole system. The purpose of parole can only be found in the parliamentary Hansard and in the mission statement of the parole system on the website of the Malaysian Prison Department. A clear legislative statement of the purpose of parole would significantly provide focus and clarity for the Malaysian Parole Division and the parole officers.

The findings indicated that there were several operational challenges for the officers when the parolees were placed under their supervision. One of these was the absence of any rehabilitation reports from the prison that the community parole officers could rely upon to assist them in rehabilitating the parolees in the community. Absence of such documentation and information on the parolees has resulted in the difficulty in preparing their case plans, which would determine what type of rehabilitation programmes the parolees would have to undergo.

Another operational impediment related to preparing the case rehabilitation plans for the parolees is the lack of understanding of the community parole officers on parolees' behaviours due to their lack of qualification in performing the necessary psychological and behavioural tests for the parolees. Such problems are aggravated by the lack of application and availability of scientific assessment tools to conduct the parolees' rehabilitation assessments. Consequently, given the lack of expertise and tools, officers faced difficulty in understanding the parolees' emotions, behaviours and stability factors, which are crucial in preparing the case plans. Also, given the absence of any empirically-based assessment of the parolees' criminogenic needs and their risks of reoffending, the officers had to rely heavily on their individual experiences in interviewing the parolees and also on the directions of their parole office managers.

Finally, findings indicated that the officers were unable to concentrate fully

on their rehabilitation programmes and counselling for the parolees as they also have to allocate their time for surveillance of the latter. Furthermore, such officers were also involved in the day-to-day administrative work and other specialised tasks. Thus, heavy workload had compromises their time supervising the parolees.

DISCUSSION

This study has highlighted the crucial role of community parole officers in the rehabilitation of parolees to result in their successful reintegration into the community. The findings confirm those of Ball et al. (2008) that the community parole officers play a vital role in the assessment of the parolees' weaknesses, needs, and barriers within the first 72 hours of their release, to determine the appropriate rehabilitation programmes in the parolees' case plan. As a rehabilitating agent, such officers not only conduct rehabilitation programmes for the parolees but also established networking with other parties to support the parolees' needs and adaptation to the community. These are also in line with Travis' view (2005) who stresses on the importance of co-operating with other parties in the community to facilitate the rehabilitation of the parolees.

Findings of this study also revealed that the community parole officers faced legal predicament as a result of the lack of provisions in the 1995 Act on parole supervision duties and the lack of any explicit focus and direction of such rehabilitation. Evidence suggested that due

to such deficiency, the community parole officers relied on the soft laws such as the departmental guidelines and memos to guide their supervision. This is consistent with the findings of Petersilia (2001) who opined that the lack of legal rules will lead to unwanted disparity in the implementation of the rehabilitation programmes.

Findings of this study also confirmed those in the literature that community rehabilitation officers continually face numerous operational challenges in the discharge of their duties. Mc Garry et al. (2013) remarked that such problems are connected to the officers' lack of expertise in their assessment and preparation of the appropriate case plans for the parolees. Additionally, there was a gap in sharing the relevant information and rehabilitation reports from the prison and the lack of application and availability of scientific assessment tools to assist them in developing their case plans. This finding nevertheless, seems to disprove Miller and Maloney's (2013) contention that such report and tools are significant in understanding the parolees' rehabilitative progress and whether the parolees' offending behaviour are being appropriately addressed.

Thus, the operational problems were compounded by the officers' dual role of rehabilitation and surveillance of the parolees and also by their other administrative duties. Furthermore, with the increasing caseloads and limited resources, the tendency of the officers was to focus on the surveillance and enforcement aspect rather than on rehabilitation. This inclination

towards surveillance confirmed the view of Quinn and Gould (2003) who stressed that with heavy caseloads, the community parole officers have limited time for their rehabilitation duties.

CONCLUSIONS

Undoubtedly, community rehabilitation officers play a significant role in the rehabilitation of parolees. Nevertheless, the findings of this study revealed that the officers faced legal and operational predicament in exercising their duties. Thus, it is recommended that the duties of such officers and the objectives of the rehabilitation are explicitly laid down in the Prison Act 1995. A clear legislative framework will assist such officers in providing them with a clear direction of their rehabilitation duties. It is also a challenge for such officers in understanding the complexity of the parolees' profiles, the assessment of their needs, developing the case plan and networking in the community successfully to implement the rehabilitation programme. Hence, the tasks of community parole officers as the rehabilitative agent are challenging. Given their unique positions, the parole officers should be able to maintain the delicate balance between assisting the parolees' rehabilitation and surveillance to preserve community safety.

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The Ramifications of Forfeiting Property in Money Laundering Cases: Some Evidence from Malaysia

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ABSTRACT

This paper aims at examining the implications of the asset forfeiture system in Malaysia on the property owners and third party in relation to its 2001 anti-money-laundering legislation. This is a qualitative research in which primary data is obtained from the semi-structured interviews with law enforcement personnel, which is triangulated with the data from Bank Negara. The source of secondary data is the 2001 Anti-Money Laundering Act and relevant literature. Preliminary findings showed the asset forfeiture system not only led to legal ramifications but also economic and financial ones for the law enforcement and property owners and the third party.

Keywords: Forfeiture, human rights, implications, money laundering, third party

INTRODUCTION

The Anti Money Laundering (AML) regime in Malaysia is regulated by the Anti-Money Laundering Anti-Terrorism Financing and Proceeds of Unlawful Activities Act (AMLATFPUAA) 2001 (henceforth referred

to as the 2001 Act). This Act prevents money launderers from profiting (Hamin, Omar, & Abdul Hakim, 2015). It is also known as the asset recovery process which includes the identification, tracing, freezing and seizing, confiscating (also known as forfeiture in some countries including Malaysia) and returning the assets to the victim (ICAR, 2011). This paper highlights the implications of the application of the 2001 Act in relation to asset forfeiture. The first part of this paper examines the legal position of asset forfeiture in Malaysia as provided under the 2001 Act while the second part reviews the literature on the forfeiture system and its ramifications. The third part describes

the research methodology and the fourth part, which is the crux of the research, discusses preliminary findings. The fifth section discusses the relationship between the findings and those from the literature while the last section concludes the paper.

The Legal Position on Asset Forfeiture under the AML Regime

In 2001, the Anti-Money Laundering Act (AMLA) 2001, which was later amended to the Anti-Money Laundering and Anti-Terrorism Financing Act (AMLATFA) in 2003 was the law governing freezing, seizure and confiscation of property in Malaysia. Hamin, Omar, Rosli, and Razak (2015) noted that recently, AMLATFA was again modified and overhauled and is now known as the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act (AMLATFPUAA) 2001. Rahman (2008) observed that Part VI of the old 2001 Act provides for the standardised mechanisms applicable to all law enforcement agencies for freezing, seizure and also forfeiture of property purchased through money laundering activities.

Hamin et al. (2015) reported that the Malaysian legal position on the asset forfeiture is in line with the United Nations Convention and the FATF Recommendations. Furthermore, literature suggested that under the 2001 Act, there are two types of forfeiture namely criminal and civil forfeiture. For instance, Mohd Yasin (2007) explained that under the old 2001 Act, while the confiscation of property upon

prosecution (criminal forfeiture) came under section 55, confiscation of property of which there is no prosecution initiated against the accused (civil forfeiture) came under section 56. These provisions for criminal and civil forfeiture remain the same under the amended 2001 Act.

On the procedures for granting the Forfeiture Order, Mohd Yasin (2007) indicated that this happens after the court is satisfied that the property is the subject matter of the offence of money laundering as prescribed in both subsections 55 and 56 of the old 2001 Act. Subject to section 61 of the same Act, the court would require any *bona fide* third party to prove their claims against the property and also to show cause why the property should not be forfeited by the government. The onus is on the third-party claimant to prove that: (a) he has a legitimate interest in the property; and (b) he did not participate, collude or involve with the anti-money laundering in question; and (c) he lacked knowledge and was not intentionally ignorant of the illegal use of the property, or if he had knowledge, did not freely consent to its illegal use; (d) and he did not acquire any right in the property from a person proceeded against under circumstances that give rise to a reasonable inference that any right was transferred for the purpose of avoiding the eventual subsequent forfeiture of the property; and (e) he did all that could reasonably be expected to prevent the illegal use of the property.

The court would make issue Forfeiture Order as soon as the proceeding under section 61 of the old 2001 Act ends whether

the said property was to be returned to the *bona fide* third party or to be forfeited to the government (Mohd Yasin, 2007). After this, there are further procedures to be followed by the enforcement agencies. Justice Bant Singh remarked that when an Order for Forfeiture has been issued, the law enforcement agency could take the necessary action to forfeit such property. This process would take some time as they need to liaise with financial institutions, car dealers, and others for the auction and the disposal purposes. The money derived from it would be forfeited to the government. (Bant Singh, 2012). Likewise, the provisions that involve the process of granting Forfeiture Order and rights of the *bona fide* third party under the new 2001 Act remain the same based on the old law.

LITERATURE REVIEW

What is Asset Forfeiture?

Forfeiture has long been a useful law enforcement tool. The history of property forfeiture began in England. Doyle (2015) contended that the early English law is the precursor of the existing forfeiture law. It is reminiscent of three first English procedures i.e. *deodands*, forfeiture of estate or common law forfeiture, and statutory or commercial forfeiture (Doyle, 2015).

According to Dery (2012), forfeiture is commonly understood to be the divestiture without compensation of property used in a manner contrary to the laws of the sovereign. Likewise, Hamin et al. (2014) also highlighted that forfeiture is a divestiture of particular property without compensation, which imposes a loss by taking away some pre-existing valid rights, without compensation.

There are various types of forfeiture. For example, Doyle (2015) remarked that modern forfeiture follows one of two procedural routes, namely criminal or civil depending on the nature of the judicial procedure which ends in confiscation. For criminal forfeiture, Byrnes and Munro (2011) argued that criminal forfeiture is *in personam* proceeding, and it is tied to the criminal conviction of an individual. Welling and Hord (2012) opined that criminal forfeiture is a sanction that can be imposed on defendants only after they are convicted of an authorising substantive crime. On the other hand, Vincent, Levin, Sallah, and Reid, (2011) suggested that civil forfeiture is an *in rem* proceeding in which the property that was derived from or used to commit a crime is treated as the offender. Carpenter and Salzman (2015) also observed that civil forfeiture is the government's power to take property implicated in a crime, and this type of forfeiture is based on the fiction that the property itself is "guilty."

Implications of the Asset Forfeiture System

Encroachment on Human Rights and Rights to Property

Human rights relate to fundamental rights and freedoms that belong to every person in the world regardless of his or her circumstances. Such rights cannot be given away or taken away by anybody although some rights can be limited or restricted in

certain circumstances (Equality and Human Rights Commission, 2015). According to Transparency International (2013), the human rights include the right to an effective remedy and a fair trial, communicating the freezing order to the affected person as soon as possible after its execution, and immediate return of the frozen property which is not subsequently confiscated or forfeited.

In Malaysia, human rights have been incorporated in Part II of the Federal Constitution, namely Articles 5 to 13. The right of the person in forfeiture cases is provided on grounds of equality. Article 8(1) stated that all individuals are equal before the law and entitled to the equal protection of the law. On the other hand, Article 13 provides the rights to property, which states that no person shall be deprived of his property, save under the law. Zakaria (2012) contended that Article 13(2) implies the government should provide for adequate compensation if it acquires the property of an individual on compulsory grounds. Additionally, Seng (2015) opined that the equality principles and the right of ownership under the Federal Constitution emphasised that such rights and protection must not be directly abused.

Third Party Rights in the Asset Forfeiture System

Kennedy (2005) noted that third party right in the asset forfeiture system is one of the essential features of the *in rem* proceeding. If such right were not well preserved by the law, it might be prejudiced, jeopardised or abused by such proceeding. The case of *PP v Lau Kwai Thong* (2009) illustrated such prejudice to *bona fide* third parties. This particular case indicates that it is quite difficult for the third party who claims to have any interest in the property to show that he acted in good faith since all the requirements provided under subsection 61(4) (a) -(e) of the AMALTFA 2001 must be conjunctively fulfilled.

Rahman (2008) observed that the forfeiture provisions under the AMLATFA 2001 are subject to the notice being given to the third parties so that such people who have an interest in the property could make their claims in the Courts under section 61. This particular section is unchanged under the new 2001 Act. In exercising their rights under section 61 of AMLATFA, the burden of proof is on the third party to show that the latter is lawfully entitled to the property. Additionally, Rahman (2008) suggested that Section 61 places a heavy and unjust burden on the third party. Rahman (2008) further argued that all the requirements of Section 61 of the said Act must be reviewed to ensure that the claims by *bona fide* third parties are not prejudiced.

Management Agency on Seized and Forfeited Property

Mohd Yasin (2007) contended that the old 2001 Act is silent on the need for an agency to manage the seized and forfeited property. She further argued that in the absence of such agency, the moveable property such as motor vehicles are often left outside and exposed to the elements, so that when the

property is finally forfeited, it will fetch a very low price at the auction. Consequently, the government gains little monetary benefit and most likely such asset would not be in a fit state to be utilised by the enforcement agency either (Mohd Yasin, 2007). Hamin et al. (2015) also observed that such a storage mechanism is absent from the old or the new 2001 Act. Mohd Yasin noted that in the UK, Asset Recovery Agency (ARA) was responsible for such storage task. The ARA was merged with the Serious Organised Crime Agency (SOCA) and since 2013, it was renamed the National Crime Agency (NCA).

METHODS

This is a qualitative research and it provides a deeper and holistic understanding of the social phenomena (Silverman, 2013). Such method in this research enables the researcher to explore the views of the respondents about the implications of asset forfeiture system under the Anti-Money Laundering (AML) regime in Malaysia.

The first phase of data collection was the literature review in which all relevant studies on the implications of asset forfeiture involved money laundering activities were examined. These are considered secondary sources. The primary sources include the AMLATFPUAA 2001.

The second phase of data collection is the fieldwork, namely the semi-structured interviews with the respondents involved in asset forfeiture system. The total number of 16 respondents represent the regulatory body as well as judges, prosecutors and officers from related law enforcement agencies as well as academicians. The face-to-face semi-structured interview method is chosen as it gives the researcher the opportunity to explore the participant's opinion of an issue in depth, rather than to test knowledge or only categorise it (Matt, 2000).

The sampling method in this research is purposive sampling which means that the respondents were selected because they are likely to generate useful data for the research. Also, qualitative data analysis was conducted through thematic and content analyses, in which observations and the interview transcripts from the semi-structured interviews were examined. The process consisted of creating codes and categories, considering the themes and then creating hypotheses about the respondents' experiences. The primary data was triangulated with the semi-structured interview data obtained from all the respondents. The interviews were digitally recorded, and their contents transcribed and analysed using the Atlas qualitative research software.

RESULTS

Some preliminary findings are as below:

Infringement of the Right to Property

The findings suggested that rights of the property owners s involved in the forfeiture cases were being infringed whereby the actual owner was not involved in such crimes. Such forfeitures led to injustice and unfairness to those property owners in which

their rights and enjoyment over the said property had been deprived. Additionally, majority of the respondents from the law enforcement believed that despite the concern about the infringement of human rights, they had no choice but to enforce the anti-money laundering law. The minority respondents from the judiciary, however, contended that despite the nature of the anti-money laundering law being a subversive law to the Federal Constitution, such law was imperative to maintain law and order in the country. They also opined that there must be a check and balance in implementing an effective forfeiture process.

Third Party Rights to Property Affected

The findings revealed that the majority of the respondents believed that the asset forfeiture process in money laundering cases adversely affected the rights of the third party such as investors in gold investment schemes or financial institutions and banks, which provide financial loans to the individuals or companies which were later investigated by the Bank Negara and the police for money laundering. The respondents agreed that the *bona fide* third party has an interest over the property and should be entitled to claim it under the 2001 Act. In other words, the respondent agreed that the law did not diminish the rights of the third party to apply for the property. However, findings revealed that third parties have encountered some difficulties in satisfying the Courts during the forfeiture hearing namely fulfilling all the five requirements under Section 61(4) the said Act. As a result of such failure, the Courts have rejected their claims, and they had lost their properties, which were then forfeited by the Government.

Absence of Central Asset Management Agency and Costs Implications

The findings indicated that there was a lack of a central government agency to manage the seized and forfeited property by the law enforcement. The findings showed that law enforcement had to provide for their storage space for such property, which in most cases were already full or limited. As a result, they had to hire private companies for bigger storage spaces and had to incur high costs. The majority of the respondents were agreeable that there was a need for a central storage space for them to send the forfeited property.

DISCUSSION

On the infringement of human rights and the right to property, the findings confirmed Zakaria (2012) and Seng (2015) that the equality principles under Article 8 and the rights to property under Article 13 of the Federal Constitution must not be abused or deprived. Such was the position of the property owners who were not involved in money laundering activities but their property which was deemed to be used to commit such crime was forfeited. In other words, if the application of the 2001 Act on asset forfeiture regime were not correctly observed and in line with the Federal Constitution, such failure may encroach on the human rights of an individual and also his rights to property.

With regards to third party rights that may be affected by the asset forfeiture system, the findings confirmed Kennedy's (2005) who contended that third party rights may be jeopardised particularly *in rem* proceeding in which the property is guilty until it is proven innocent. Furthermore, the findings are in line with the decision of *PP v Lau Kwai Thong* (2009) that all five strict requirements under Section 61(4) of the 2001 Act will cause the failure of the third parties to claim their interests over the property even when they had acted in good faith. Also, the findings confirmed Rahman (2008) that the 2001 Act may cause an unfair burden on third parties who acted in good faith and had right to claim over the guilty property. The findings also supported those of earlier studies that all the requirements of Section 61 of the said Act must be reviewed to ensure that claims by *bona fide* third parties are not prejudiced and abused by this forfeiture law (Rahman, 2008).

The findings of the asset management agency confirmed the views of Mohd Yasin (2007) and Hamin et al. (2014) that until today, there is no agency to manage properly the properties that were seized and later forfeited. In fact, the findings are in line with the old and the amended 2001 Act that was still silent on this particular issue. The results also indicated that it is imperative for Malaysia to create an asset management agency such as that in the UK to ensure the proper storage of the seized and forfeited property and to maintain as well as preserve the conditions of such properties. Significantly, such agency would, in the long run, save the costs of hiring private companies by various law enforcements to deal with such properties.

CONCLUSION

The AML regime provides for the full procedures for the forfeiture of property involved in money laundering activities. Nevertheless, findings of this study which are consistent with literature revealed that there are several legal and financial implications concerning such asset forfeiture system, which did not change under the old and also the new 2001 Act. Hence, the consequences of the forfeiture system involving the infringement of the human rights of the property owners, the problems of claiming their property by *bona fide* third parties and also the absence of the asset management agency to manage seized and forfeited property must be taken into consideration by the government to improve the forfeiture laws in Malaysia. This should be in line with those in advanced jurisdictions such as the UK and the USA. It is also crucial that the criminal justice players involved in the asset forfeiture system enforce and implement the forfeiture procedures and exercise their duties in good faith and in a transparent manner to ensure the effectiveness of the law and to prevent abuses in the system.

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The Use of Rasch Wright Map in Assessing Conceptual Understanding of Electricity

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ABSTRACT

This article examines the usage of Rasch Wright map in evaluating students' conceptual understanding of electricity. A questionnaire, Parallel Circuit Conceptual Understanding Test (PCCUT), was developed for this purpose. The 34 items PCCUT was administered to 102 local engineering, university students. The item reliability is very good at +0.97. Findings showed the students experienced difficulties in diagnosing current, voltage and resistance when presented with a circuit involving the removal of a resistance or the addition of a battery. Additionally, they had problems in identifying parallel circuits in a combined arrangement. On the other hand, majority of them had no difficulty in recognising individual series and parallel circuit as well as circuit connections. Thus, it can be said that the Wright map was very useful in assessing the students' conceptual understanding of electricity.

Keywords: Conceptual understanding, electricity, Rasch Model, Wright map

INTRODUCTION

Electricity involves understanding of current, voltage, resistance and other important electrical concepts. It also deals with complex and highly abstract concepts which are quite impossible to visualise (Mulhall, McKittrick, & Gunstone, 2001). Students are required to learn concepts such as closed loop, current attenuation, role of bulb (resistance), direction of current and sequential inference model (Chiu & Lin, 2005). The key to understanding circuits is creating and interpreting circuit diagrams (Marshall, 2008). According to Marshall, the pre-requisite skills that one must have

in solving any electrical tasks are the capability in recognising electrical symbols representing the devices, reading and encoding the circuits. These enable them to acquire good circuit identification skills and to be able to connect the circuit correctly. Students find topics related to parallel circuitry combined with the concepts of current, voltage and resistance to be the most challenging (Ipek & Calik, 2008).

BACKGROUND OF STUDY

In the field of science, a diagnostic instrument is a common tool in assessing the student's understanding of various topics (Bain, Moon, Mack, & Towns, 2014; Streveler, Miller, Santiago-Román, Nelson, Geist, & Olds, 2011; Shi, Wood, Martin, Guild, Vicens, & Knight, 2010). Important information could be gathered from these diagnostic instruments. Thus, Rasch Measurement Model has been chosen over other approaches since it is capable of assessing the functions of items in the questionnaire and the student's ability simultaneously (Chang & Engelhard, 2016). In addition, very few studies have utilised the Wright map to identify the student's conceptual understanding in relation to item difficulty level. Hence, this research will discuss the outcomes via the Wright map before discussing the findings. A few suggestions will be included in helping the students to gain better insights into the topic of electricity.

Objective of the Study

The objective of this research is to assess the students' conceptual understanding of electricity by means of the Wright map.

METHODS

The Parallel Circuit Conceptual Understanding Test (PCCUT) questionnaire of 34 items was administered to 102 engineering students to measure their conceptual understanding of electricity. Data was analysed using Rasch Analysis Software (WINSTEPS 3.71.0.1).

Respondents

Random sampling technique was used to conduct this survey. Respondents were engineering students at a local Malaysian university selected based on their knowledge of the survey topic.

The instrument

The 34-items PCCUT has six (6) sections:

Section 1 – Meaning of parallel: items 1 to 9.

Section 2- Practical Knowledge of Current: items 10 to 16.

Section 3 – Practical Knowledge of voltage in parallel circuit: items 17 to 22.

Section 4- Practical Knowledge of Resistance: items 23 to 27.

Section 5- Practical Knowledge of circuit connection: items 28 to 30. Section 6- Mental Model: items 31 to 34.

Rasch Measurement Model

The Rasch Measurement Model shows the relationship between a person and an item based on a mutual latent trait. It can predict the likelihood of a person of a given capability to correctly respond to an item of a certain level of difficulty. The probability of success depends on the difference between the ability of the person and the difficulty of the item (Bond & Fox, 2015). The Rasch Measurement Model is based on two fundamental theorems:

- A person who is more capable has a greater likelihood of correctly answering all the items given.

- An easier item is more likely to be answered correctly by all persons.

In other words, the Rasch Model assumes that the item difficulty is the attribute that influences the person's responses while the person's ability is the attribute that influences the item difficulty estimates (Linacre, 1999). The relationship of a person and an item could be predicted based on a common scale (logit). The software used in Rasch Model, WINSTEPS version 3.71.0.1, is able to chart both the person and item position. Rasch modelling assembles a linear measure from the ordinal scores obtained (Sick, 2009). The measure of goodness of fit can be seen from the arrangement of both items and persons along a continuum (range). This Wright map depicts the items arranged according to the levels of difficulty on one side of the band and the persons positioned according to the level of competency on the other side (Kay, Bundy, & Clemson, 2008; Jacobs, Mhakure, Fray, Holtman, & Julie, 2014). In a Wright map (look at Figure 1), the vertical dashed line represents the ordering of the persons and items from less to best (bottom to top). The items are situated on the right and arranged from the easiest (bottom) to the most difficult (top). As for the persons, the ordering goes from the less smart (bottom) to the smartest (top of the vertical line). At the centre of the vertical line is the letter "M" which denotes the mean for the item and the persons. The letter "S" reflects one standard deviation away from the mean value while "T" indicates two standard deviations away from the mean value. In Rasch model, the scale has been set to zero for the item mean when a person has a 50:50 likelihood of answering successfully (Saidfudin, Ghulman, Razimah, & Rozeha, 2008). The person is more likely to respond correctly to an item lower on the scale than his ability and less likely to correctly answer an item higher on the scale.

RESULTS

An appraisal of data fit to PCCUT was conducted as a way of observing the extent that the students' responses to each item are consistent with responses to other items on the assessment (Smith, 2005).

Item and Person Reliability

Table 1 presents the overall statistics of the instrument with 34 items.

Table 1
Summary statistics for 34 items

	Total score	Count	Measure	Model Error	Infit		Outfit	
					MnSq	Zstd	MnSq	Zstd
Mean	47.4	102.0	0.00	0.30	1.00	0.0	0.95	-0.1
SD	26.6	0.0	1.87	0.15	0.15	1.4	0.31	1.5
Max	99.0	102.0	5.06	1.02	1.35	3.8	1.83	5.0
Min	1.0	102.0	-4.18	0.22	0.75	-2.8	0.42	-2.6
Real RMSE .34 True SD 1.84 Separation 5.37 Item								
Reliability.97 S.E. OF Item MEAN = .33								

The results showed that PCCUT produced 'excellent' item reliability (Fisher, 2007) of +0.97.

Table 2 shows the summary statistics of respondents.

Table 2
Summary statistics of respondents

	Total score	Count	Measure	Model Error	Infit		Outfit	
					MnSq	Zstd	MnSq	Zstd
Mean	15.8	34.0	-0.20	0.45	1.00	0.0	0.95	0.1
SD	5.5	0.0	1.08	0.05	0.21	1.0	0.35	0.5
Max	31.0	34.0	3.40	0.72	1.50	2.0	1.99	1.4
Min	5.0	34.0	-2.67	0.42	0.54	-2.0	0.33	-0.8
Real RMSE .47 True SD .97 Separation 2.06 Person								
Reliability.81 S.E. of Person Mean = .11								
CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .82								

The Person reliability is identified as 'good' at +0.81 by Fisher (2007). In addition, the Cronbach Alpha (KR-20) Person Raw score test reliability is slightly higher at +0.82. With the reliability at +0.82, if a similar set of instrument measuring the conceptual understanding of electricity was given to these groups, the likelihood of obtaining a similar pattern of ability in the person measure order table and the location of these engineering students on the Wright distribution map would be similar (Azrilah, 2009). This also indicates that this instrument is capable of categorising

and distinguishing the level of conceptual understanding of the respondents.

Student performance in PCCUT according to the Wright Map

The mean obtained is μ_{Person} = -0.20 logit. Since this value is negative, it can be confidently said that the 34 items in PCCUT were quite challenging for these respondents since the mean value for item, μ_{item} = +0.00 logit is slightly higher than μ_{Person} = -0.20 logit.

By observing the items on the right of the map and taking note that the items above the mean value (the red line) are the more difficult ones, it can be said that the 34 items can be categorised as easy and difficult, based on their location on the map.

Easy items

- Items 1 to 8, which are located below the mean value, are the easiest items for the students to endorse. This is an indication that majority of the students had no difficulty in identifying the circuits drawn in parallel form.

- Items 28, 29 and 30, which are items dealing with series and parallel circuit connections, are also located below the mean value. Hence, this shows that the students had no problem in recognising circuits connected in series or parallel.

- Item 23 appears to be the second lowest item on the map. This means that the item is also easily endorsed by the students. This is not surprising because item 23 deals with the Ohm's Law which requires them to perform calculation using the equation $V=IR$.

Difficult items

- Item 9 was located high at +1.51 logit above the mean value. It was considered difficult for the students because the circuit had series resistors connected in parallel to another resistor. The students were not able to identify the parallel junction within the combined circuit.

- Items 10 to 16 were situated on the top part of the map, indicating that majority of the students were unable to endorse these items. This was especially true for item 13 which happened to be at the top part of the map. Item 13 dealt with the reading of the existing ammeter when one of the parallel resistors was removed from the circuit.

- Items 18, 20, 21, 22 related to the concept of voltage were also considered difficult. They measured the student's ability to estimate the reading of the voltmeter when one of the parallel resistors was removed. Similar to the concept of current, the students were not able to conceptualise the concept of voltage.

- Items 24 was considered challenging because the students did not have enough knowledge in predicting the change of current when a similar resistor was added parallel to the existing one.

This shows that the students have good conceptual understanding of these topics.

Items related to the concept of current, voltage and resistance were situated above the +0.0-logit mark. In addition, quite a few are situated high above this mean value, with very high logit measures. This means that these items are very challenging to the students. They experienced difficulties in solving these types of items. Item 13 of Section 2 has the highest logit measure among the items, which means it is the most difficult item to endorse by the student. A check on the student responses to item 13 showed that only 2 out of 102 students answered correctly.

CONCLUSION

In this study, the Wright map is the key source of data. The map is indeed the heart of the analysis since it is able to display the location of the easily endorsed items and the least likely to be endorsed items on the same map. Thus, the level of conceptual understanding of each student in electricity can be identified by comparing the location of each student's logit measure to the location of each item.

It can be deduced that the respondents had a sound conceptual understanding of the concept of parallel circuits, circuit connections and mental models. However, their conceptual understanding of the concepts of current, voltage and resistance is not so encouraging. Further investigation on the items revealed that the students faced difficulty in interpreting the values of

current and voltage involving the removal of a resistor and the addition of a battery in the circuit.

One way to address this is to provide continuous 'hands-on' activities in the electricity lab whenever these electricity concepts are taught. The exposure to the real live circuit during the removal of a resistor from a parallel circuit and the addition of a battery in a whole circuit will enable the student to observe the situation themselves and therefore enhance their level of conceptual understanding.

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SOCIAL SCIENCES & HUMANITIES

BASO Model-Based Strategic Planning Training Impact on Rural Mosque Effectiveness

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ABSTRACT

The objective of this study is to examine the impact of BASO Model-Based Strategic Planning Training (as an independent variable) and Training Follow up Sessions (as a mediating variable) on organisational performance of Rural Community Mosque. This research also examined the effect of transformational leadership as a moderating factor on mosque organisational effectiveness. This study found that mosque leaders were able to produce a comprehensive BASO model-based documented strategic intentions for all four sample mosques. The present study also evaluated s post test results six months later of the selected mosques' short term action plans. Empirical data showed technical consultancy, peer review meetings and management support are mediating factors of mosque organisational effectiveness. Therefore, this BASO model-based strategic planning training supported by training follow up sessions is reliable and can be applied to other rural mosques within and without Malaysia.

Keywords: Organisational effectiveness, strategic planning training, training follow up, transformational leadership

INTRODUCTION

In order to be an effective and excellent institution, the mosque, a non-profit organisation (NPO) needs to strengthen their strategic planning, organisational structure, organisational system, leadership and organisational development (Cunningham, 1977; Cunningham, 2009; Cumming & Worley, 2008). It must also

continuously transform itself and review its state of affairs in order to meet new challenges, particularly in response to expectations of the community, the public, and stakeholders (Brown & Harvey, 2006). Within the context of Malaysia, mosques function as a place for prayers and celebrating Muslim festivals (Ahmad Zaki, 2007). Weekly congregations, such as the Friday prayer and Quran recital and remembrance also take place in the mosque (Sheikh Ismail, 2008). In short, the mosque functions as a community development centre. Yusuf Al Qardhawi (2007) opined that the mosque is not merely a place of worship but also ensures the well-being of each and every Muslim, irrespective of their cultural background or place of origin. The management of the mosque deals with zakat collection and distribution, marriage, family disputes, welfare, propagation, education, Islamic culture centre, community centre and funeral service.

There is a dearth of studies from an institutional perspective that provides empirical evidence to the argument that strategic planning training is indeed a prerequisite to improving the capability and capacity of the stakeholders and policy-makers which ultimately enhances the organisational effectiveness of the rural community mosque (RCM). It is argued that the development of R is hampered by: (i) non-existence of strategic planning; (ii) weak and ineffective leadership; (iii) poor managerial ability among the leaders; (iv) poor organisational systems; (v) poor organisational structure; and (vi) poor

organisational developments. This state of affairs is mainly due to the poor educational background of the committee members of the mosques who have possess only secondary school certificate. Therefore, BASO Model-based strategic planning process is rather challenging especially with regard to the appropriate modules that commensurate with their capacity to absorb the new knowledge, and more importantly, their ability to apply the theories towards improving the management of the mosque.

BASO Model-based strategic planning training has the following sub-modules: (i) basic planning; (ii) alignment planning; (iii) scenario planning; and (iv) organic planning. The BASO model is rated as a more comprehensive strategic planning compared with other models which are mostly limited to basic goal-setting juncture. This basic BASO model-based strategic planning is said to have a consequential effect, particularly in transforming mosque leaders to be more dynamic, democratic, and effective in particular in terms of decision making based on consensus. The second perspective of the strategic planning is the so-called alignment planning which consists of: (i) planned strategy; (ii) emergent strategy; (iii) improved work process; and (iv) improved organisational systems and tactical adjustment for execution plans.

This study adopts BASO Model-based strategic planning training (BMSPT) programme, and follow-up sessions based on Patrick's finding that such training is a pre-requisite to organisational effectiveness (1959). Furthermore, Martin (2010)

argued that training can be improved through effective follow-up techniques and applications which therefore justifies the researcher's adoption of follow-up sessions in order to ensure that the training programme benefits the mosque. The present study applies an integrated adoption of four theories as the basis for its theoretical framework. The first theory relates to the four levels of training assessment which was developed by Kirk Patrick (1959a, 1959b, 1960a, 1960b, 1961, 1976) to evaluate BMSPT intervention. The variables used in this present study consist of: (i) reaction; (ii) knowledge; (iii) behaviour; and (iv) results. The second theory pertains to training follow-up theory which was developed by Martin (2010), consisting of variables as follows: (i) peer review meetings; (ii) technical consultancy; and (iii) management support. The third theory is drawn from organisational effectiveness model which was postulated by Cunningham (2009), and this justifies the integration of the following variables for the present study: (i) documented strategic intention; (ii) structure; (iii) systems; (iv) managerial ability; and (v) organisational development. The fourth theory used in this present study is related to the influence of transformational leadership as the moderating factor. The concept of transformational leadership was initially introduced by leadership expert and presidential biographer, Burns (1978).

METHODS

This study adopts a quasi-experimental approach. One hundred sixty participants were selected representing four mosques recommended by FELDA and JAKIM managements. They were required to attend BASO Model-based strategic planning training programme. The same participants also attended a series of follow-up sessions where pre-test and post-test set of data were collected. The effects of treatments can be measured by measuring the difference between post-test and pre-test (O2 – O1). Quasi-experimental pre-test and post-test are both useful means of guarding against threats to reliability and validity (Cook & Campbell, 1979; Burrell & Morgan, 1979; Cunningham, 1997; Smith & Glass, 1987). This pre-test and post-test quasi-experimental study takes measurement (O1) as the history of the sample before introducing the experimentation manipulation known as (X), and followed by the manipulation measurement O2 which is the change that the manipulation has caused. The experimental effect is measured by the difference between O2 and O1. If 'E' is change effect, then the equation is $E = O2 – O1$ (Cooper & Shindler, 2011).

There are four time-lines or entries for data collection processes within the six-month period. The first time-line (T1) is before the experimentation. Prior to the BASO Model-based strategic planning training (BMSPT), pre-test measurement is taken by using a self-report instrument with both open and closed ended questionnaire referred to as Set A.

The second time-line (T2), the post-test data, is collected from all 160 respondents at the end of the strategic planning training

programme. This strategy is to mitigate training inputs biasness, and to ensure that all respondents experience the same training inputs from one consultant at the same period of time. After the completion of the strategic planning training modules, post-test data on the strategic planning training impact was collected. The criteria for this T2 stage assessments consist of: (i) reaction; (ii) knowledge; and (iii) behaviour (Kirkpatrick, 1959, 1961) using questionnaire Set A.

The third time-line (T3) takes place two months after the participants had completed their strategic planning training programme. Then the same set of participants attended follow-up sessions (FUS) in order to enable the consultant to evaluate the respondents' knowledge and behaviour, and guide them towards developing strategic planning for the mosque. At the end of the assessment, the second set of questionnaires were administered.

The fourth time-line (T4) required that every respondent work on their own within the three-month period (Bumpas & Wade, 1990) in order to develop the documented mosque strategic planning and executed short-term change for mosque effectiveness initiatives. The T4 takes place at the end of the six-month period which is the duration of this study experiment. This assessment used questionnaire Set C which is open-ended and close-ended, comprising pre-test and post-test criteria which are adapted from Kirkpatrick's four-level training evaluation on results (1963).

This present study adopted purposive sampling deemed to systematically create samples for quantitatively testing the scale items. The option for judgement sampling were introduced by Sekaran (2013). Also known as purpose sampling it is a type of sampling in which a research represents certain subject characteristic that are considered relevant to the investigation. Purposive sampling is a way to implement to the known group or groups and used when the researcher's primary concern is generating variation with respect to a key characteristic rather than obtaining samples that are representative of large target group populations. Purposive sampling fulfils an important and useful research function. Purposive sampling units are community leaders, experts and professionals (Rubin & Babbie, 2009) and it is used to justify the inclusion of rich source of data that can be obtained to generate or test out the explanatory frameworks (Patton, 2002). Examples of purposive sampling include sampling extreme cases, intensity sampling, sampling typical cases, sampling maximum variation cases, homogeneous sampling, sampling critical cases, criterion sampling cases, confirming or disconfirming sampling, theory-based sampling, and sampling politically important or sensitive cases (Gerrish, & Lathlean, 2015). Questionnaires were administered personally and face to face interviews were conducted with the 160 respondents resulting in 100% questionnaires returned on time.

The respondents' official positions as mosque leaders are a reasonable basis for the assumption that they are reliable for organisational effectiveness, issues

and problems of the RCM. Furthermore, the judgement or purposive sampling has to consider not only the feasibility, and the resource-intensiveness of alternative sampling techniques but more importantly, the overall goal of the study (Parcell, Stommel, & Hubbard 1999). The SPSS and SEM version 21.0 were used to statistically analyse data. This longitudinal study duration was six months, with 160 respondents which fall beyond the range of 100 and 150 as the minimum number of respondents for structural equation modelling (SEM) as posited by Anderson and Gerbing (1988). The SEM is the main statistical technique to analyse the dataset and to test the hypotheses for this present study. Its adoption as a research tool is popular especially in testing the relationships in theoretical models (Mayer, 1999; Mayer et al., 2003).
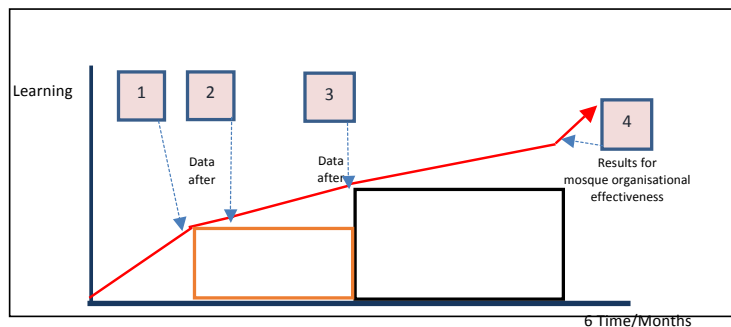
Figure 1. BMSPT and FUS impact of learning curve in six months

RESULTS AND DISCUSSION

The results of the structural modelling revealed that for the direct relationships, 17 out of 24 hypotheses tested were supported whereas the remaining 7 were rejected. There were nine hypotheses on the mediating variable which were supported while 6 out of 15 sub-hypotheses on the transformational leadership as moderator were supported.

Table 1
Summary of measurements for the hypothesised model¬

No	Structural Paths	Standardised Coefficient	Critical Ratio	P	Results
H_1	rea → beh	0.233	1.989	0.047	Supported
H_2	kno → beh	0.603	4.378	0.001	Supported
H_3	beh → tco	0.254	2.575	0.001	Supported
H_4	rea → tco	0.612	5.730	0.001	Supported
H_5	tco → msu	0.403	3.358	0.001	Supported
H_6	kno→ msu	0.211	1.782	0.075	Supported

Table 1 *(continue)*

H_7	rea → prm	0.391	3.332	0.001	Supported
H_8	beh → prm	0.515	3.710	0.001	Supported
H_9	tco → prm	0.302	2.602	0.009	Supported
H_{10}	kno → prm (I)	-0.253	-1.839	0.066	Supported
H_{11}	msu → prm	0.036	0.522	0.601	Rejected
H_{12}	tco→ dsi	0.297	1.708	0.082	Supported
H_{13}	msu → dsi	0.166	1.806	0.073	Supported
H_{14}	prm → dsi	-0.582	-1.853	0.064	Supported
H_{15}	kno → dsi	0.062	0.272	0.786	Rejected
H_{16}	rea → dsi	0.401	1.857	0.063	Supported
H_{17}	beh → dsi	0.262	0.942	0.346	Rejected
H_{18}	prm → mpe	-0.027	-0.111	0.911	Rejected
H_{19}	rea → mpe	0.083	0.501	0.616	Rejected
H_{20}	kno → mpe	0.389	2.206	0.027	Supported
H_{21}	beh → mpe	0.270	1.790	0.204	Supported
H_{22}	tco → mpe	0.017	0.111	0.912	Rejected
H_{23}	dsi → mpe	0.191	2.115	0.034	Supported
H_{24}	msu → mpe	-0.042	-0.501	0.616	Rejected

Note: 1.rea: Reaction, 2.kno: Knowledge, 3. beh: Behaviour, 4. tco: Technical Consultancy, 5. msu: Management Support, 6. prm: Peer 7. Review Meeting, dsi:8. Documented Strategic Intention, and 9.mpe: Mosque Performance¬¬

Antecedent to Behaviour

There is a significant relationship between reaction (rea) and behaviour (beh), which is supported as its critical ratio is 1.989 at p < 0.001 which is well above ±1.96. Its path coefficient is 0.233.

Results showed a significant relationship between knowledge (kno) and behaviour (beh) which is supported as its critical ratio is 4.378 at p < 0.001 Kirkpatrick defines the learning or knowledge level of evaluation as the evaluation of principles, facts, and techniques understood and absorbed by the trainees (1959b).

Underlying Dimensions of BASO Model-based Strategic Planning Training Significantly Related to Technical Consultancy

H_3: Results showed a significant relationship between behaviour (beh) and technical consultancy (tco) which is supported as its critical ratio is 2.575 at p < 0.001 which is well above ±1.96. Its path coefficient is 0.254.

H_4: Result showed there is a significant relationship between reaction (rea) and technical support (tco) which is supported as its critical ratio is 5.730 which is greater than ±1.96 at p < 0.001 and its standardised coefficient is 0.612.

Underlying Dimensions of BASO Model-based Strategic Planning Training Significantly Related to Management Support

H_5: Result showed that there is a significant relationship between technical consultancy (tco) and management support (msu) which is supported as its critical ratio is 3.358, which is more than ±1.96 at $p < 0.001$. Its path coefficient is 0.403.

H6 : Result showed that that there is a significant relationship between knowledge (kno) and management support (msu) which is supported as its critical ratio is 1.782 which is more than ±1.96 at $p < 0.001$. Its path coefficient is 0.211.

Underlying Dimensions of BASO Model-based Strategic Planning Training Significantly Related to Peer Review Meeting

H_7: Results showed a significant relationship between reaction (rea) and peer review meeting (prm) which is supported as its critical ratio is 3.332, which is more than ±1.96 at $p < 0.001$. Its path coefficient is 0.391.

H_8:Result indicated a significant relationship between behaviour (beh) and peer review meeting (prm) which is supported as its critical ratio is 3.710, which is more than ±1.96 at $p < 0.001$. Its path coefficient is 0.515.

H_9: Result found that there is a significant relationship between technical consultancy (tco) and peer review meeting (prm) which is supported as its critical ratio is 2.602,

which is more than ±1.96 at $p < 0.001$. Its path coefficient is 0.302.

H_{10}: Result found that there is a significant inverse relationship between knowledge (kno) and peer review meeting (prm) which is supported as its critical ratio is -1.839, which is above ±1.65 at $p < 0.01$. Its path coefficient is -0.253, which is above ±1.65 at $p < 0.01$. Its path coefficient is -0.253.

H_{11}: Result found that there is a significant relationship between management support (msu) and peer review meeting (prm) which is rejected as its critical ratio is 0.521, which is below ±1.96 at $p < 0.001$. Its path coefficient is 0.036.

Antecedents to Documented Strategic Intention [dsi]

H_{12}: There is a significant relationship between technical consultancy (tco) and documented strategic intention (dsi) which is supported as its critical ratio is 1.708 which is below ±1.65 at $p < 0.01$. Its standardised loading is 0.297.

H_{13}: There is a significant relationship between management support (msu) and documented strategic intention (dsi)) which is supported as its critical ratio is 1.806 which is greater than ±1.65 at $p < 0.01$. Its standardised loading is 0.166.

H_{14}: There is a significant inverse relationship between peer review meeting (prm) and Mosque documented strategic intention (dsi) which is supported as its critical ratio is -1.853 which is greater than ±1.65 at $p < 0.01$. The study showed

that having too many peer review meeting sessions, too many people present in the meeting and long winded sessions of peer review meetings will erode quality and productivity.

H_{15}: There is a significant relationship between knowledge (kno) and documented strategic intention (dsi) was rejected as its critical ratio is 0.272 which is less than ±1.65 at p < 0.01. Its standardised loading is 0.062. Respondents referred to knowledge (kno) as what they received during training as 'tacit or cognitive knowledge to motivate and encourage attitude developments, understanding overall concept of strategic planning, mosque functions during prophet Muhammad's era, issues and challenges, leaders' values and behaviour, and concept of transformational leadership.

H_{16}: There is a significant relationship between reaction (rea) and documented strategic intention (dsi) which is supported as its critical ratio 1.857 which is more than ±1.65 at p < 0.01. Its standardised loading is 0.401.

H_{17}: There is a significant relationship between behaviour (beh) and documented strategic intention (dsi) which is rejected as its critical ratio is 0.942 which is less than ±1.65 at p < 0.01. Its standardised loading is 0.262. The study found no relationship between behaviour (beh) and documented strategic intention (dsi) because respondents understood behaviour as skills set obtained from BMSPT training towards motivation, developing teamwork culture and concept of transformational leadership, not the technical know how about BASO Model

Strategic Planning process and procedures. The formative behaviour or technical skills of BASO Model work process were obtained through technical consultations during follow up sessions (fus) which was one month after completed the BMSPT session.

Antecedents to Mosque Performance [mpe]

H_{18}: There is a significant relationship between peer review meeting (prm) and Mosque performance (mpe) is rejected as its critical ratio is -0.111 which is below ±1.65 at p < 0.01. Its standardised loading is -0.027. This present study showed that there is no significant relationship between peer review meetings (prm) and mosque performance (mpe). This situation happened because peer review meetings (prm) significantly impacted on the process of preparation the documented strategic intention (dsi) but not the mosque performance. Justification here, there are two different process 1. Peer review meetings evaluation is collected during the stage of developing the documents of strategic planning or in other words at the end of the follow up sessions (fus). 2. Execution of the short-term action plan started one month after completed the documented strategic intention (dsi). It is recommended that peer review meetings evaluation should continually be upheld during the process of execution for mosque performance in the future study.

H_{19}: There is a significant relationship between reaction (rea) and Mosque performance (mpe) is rejected as its critical

ratio is 0.501 which is less than ±1.65 at p < 0.01. Its standardised loading is 0.083. This finding is consistent with those of earlier studies that there is no significant relationship between reaction and mosque performance.

H_{20}: There is a significant relationship between knowledge (kno) and Mosque performance (mpe) which is supported as its critical ratio is 2.206 which is greater than ±1.96 at p < 0.001. Its standardised loading is 0.389.

H_{21}: There is a significant relationship between behaviour (beh) and Mosque performance (mpe) which is supported as its critical ratio is 1.790, which is greater than ±1.65 at p < 0.01. Its standardised loading is 0.270.

H_{22}: There is a significant relationship between technical consultancy (tco) and Mosque performance (mpe) which is rejected as its critical ratio is 0.111 which is below ±1.65 at p < 0.01. Its standardised loading is 0.017.

H_{23}: There is a significant relationship between documented strategic intention (dsi) and Mosque performance (mpe) which is supported as its critical ratio is 2.115 which is more than ±1.96 at p < 0.001. Its standardised loading is 0.191.

H^{24}: Hypothesises that there is a significant relationship between management support (msu) and Mosque performance (mpe) which is rejected as its critical ratio is -0.501 which is below ±1.65 at p < 0.01. Its standardised loading is -0.042. The mosque leaders as respondents explained that there is weak or less involvement of the Felda Management at the Settlement level. Mosque leaders expected that the Felda Settlement management to play a more active better role and continued engagement to build e teamwork through participation in the (i) training sessions; (ii) follow up sessions; (iii) peer review meetings; (iv) documentation strategic planning process; and (v) managerial drive and motivation for execution of the action plans.

Table 2
Summary of statistics for all constructs

No		Mean	SD	Items	A	Skewness	Kurtosis
A	Documented Strategic Intention			5	0.798		
dsi1	Complete characteristics	5.670	1.136			-0.846	-0.846
dsi2	Information dissemination	5.840	1.043			-1.196	-1.196
dsi3	Adhere to planning	5.960	1.107			-1.125	-1.125
dsi4	BASO model	5.840	1.136			-1.410	-1.410
dsi5	Planning documentation	6.280	0.855			-1.249	-1.249

Table 2 *(continue)*

B	Mosque Performance (mpe)			4	0.887		
Ost	Organisational structure (ost)	5.945	0.783			-1.302	2.665
Osy	Organisational system (osy)	5.891	0.920			-0.947	0.190
Mab	Managerial ability (mab)	5.846	0.798			-2.193	9.331
Ode	Organisational development (ode)	5.951	0.651			-0.777	-0.129
C	Reaction (rea)	8	0.937				
Gre	General reaction	5.853	0.648			-0.527	0.192
Oac	Objectives achievement	5.669	0.701			-0.749	0,.969
Tme	Training management evaluation	5.686	0.727			-0.715	0.693
Tpe	Trainers performance	5.920	0.715			-0.545	-0.242
Met	Methodology	5.744	0.717			-0.477	0.138
Pch	Programme characteristics	5.846	0.689			-0.427	0.011
Tto	Training topics	5.766	0.639			-0.346	0.112
Att	Attitudes	5.951	0.651			0.415	-0.129
D	Knowledge			5	0.796		
kno1	ICT enhancement	5.590	0.899			-1.047	3.743
kno2	5S Culture	5.820	0.784			-0.382	0.306
kno3	Dakwah development	5.770	0.810			-0.485	-0.068
kno4	Strategic planning	5.900	0.762			-0.002	-0.884
kno6	Management excellence	5.880	0.780			-0.433	-0.033
E	Behaviour (beh)			5	0.784		
beh1	Interpersonal skills	5.610	0.825			-0.379	-0.013
beh2	Public speaking	5.760	0.828			-0.339	-0.334
beh3	Meeting technique	5.780	0.782			-0.391	-0.079
beh5	Transformational leadership	5.860	0.800			-0.631	1.017
F	Technical Consultancy (tco)			7	0.859		
tco1	Appreciate technical support	5.850	0.885			-0.253	-0.767
tco2	Useful technical guidelines	5.830	0.899			-0.344	-0.411
tco3	Understand BASO model	5.730	0.951			-0.399	-0.327
tco4	Mosque strategic planning						
tco5	Mosque effective planning	5.640	0.928			-0.266	-0.534

Table 2 *(continue)*

tco6	Plan of action	5.870	1.026			-0.877	0.802
tco7	Development of guidelines	6.010	0.978			-0.925	0.307
G	Management Support (msu)			5	0.863		
msu1	Working group meeting	5.650	1.083			-1.553	4.895
msu2	Meeting venue and facilities	5.770	1.087			-1.385	3.935
msu3	Working team evaluation	5.860	0.983			-1.034	1.396
msu4	Resources	5.630	0.963			-1.109	3.234
msu5	Complete documentation	5.862	0.948			-0.751	0.742
H	Peer Meeting Review (prm)						
prm1	Strategic planning skills	5.590	1.118	6	0.862	-1.114	1.511
prm2	Facilities and techniques	5.650	1.023			-0.752	0.689
prm3	Steering committee	5.820	0.924			-0.696	0.630
prm4	Charts for planning	5.750	0.991			-0.777	1.179
prm5	Check A and B charts	5.920	0.915			-0.549	-0.022
prm6	BASO model planning	5.280	0.905			-0.022	-0.502

In Table 2, all eight constructs in the theoretical framework were found to be highly significant. Reaction was found to be highly significant and its Cronbach Alpha was α 0.937, followed by mosque performance α 0.887, management support α 0.863, peer review meeting α 0.862, technical consultancy α 0.853, documented strategic intention α 0.798, knowledge α 0.796, and behaviour α 0.784.

Training reaction items mean score was based on Likert scale 1 to 7 points. Score 1 means "Strongly Disagree" and scale 7 means "Strongly Agree". Mean score data

Table 3
Summary of results for mediating variables

No	Relationships	Mediators	Sobel Test	Results
H_{25a}:	rea → Prm	Technical Consultancy [tco]	3.481	Supported
H_{25b}:	Rea → Tco	Behaviour [beh]	2.536	Supported
H_{25c}::	rea → prm	Behaviour [beh]	3.692	Supported
H_{25d}:	Rea → dsi	Technical Consultancy [tco]	1.680	Supported
H_{25e}:	Beh → prm	Technical Consultancy [tco]	3.634	Supported
H_{25f}:	Tco → dsi	Management Support [msu]	0.807	Rejected

Note: 1. rea: Reaction, 2. prm: Peer Review Meeting, 3. tco: Technical Consultancy, 4. prm: Peer Review Meeting 5. dsi: Documented Strategic Intention, and 6. beh: Behaviour

revealed that the highest score is participants attitude change ,5.951, followed by trainers' performance at 5.920, general reaction at 5.853, programme characteristics at 5.846, training topics at5.766, methodology at 5.744, training management at 5.686, and objectives achievement at 5.669.

Training intervention does not solve or bring full positive developments towards organisational developments. Martin, (2007) stated that training follow up is the important mediator to support learning transfer. Table 3 showed that technical consultancy (tco) is a highly significant mediator between behaviour (beh) and peer review meeting (prm) as Sobel Test score was 3.634 which was higher than critical ratio ± 1.653. Table 3 also indicated that technical consultancy (tco) is a highly significant mediator between reaction (rea)

and peer review meeting (prm) as its Sobel Test score at 3.481 is more than critical ratio ± 1.653. Technical consultancy was also a significant mediator between reaction (rea) and documented strategic intention (dsi) as the Sobel Test score at 1.680 which is beyond a critical ratio ± 1.653. However, management support as mediator between technical consultation and documented strategic intention (dsi) was rejected as its Sobel Test score was 0.807 as less than critical ratio ± 1.653. This happened because respondents expected the Manager, Assistant Manager, Social Development Officers, Religious Development Officers at the FELDA Settlements Level to play a vital role, actively participate and involve in the peer review meeting sessions and decision making process.

Table 4
Summary of results for mediating variables

No	Constructs	Constrained		Unconstrained		Difference		Results
		χ^2_c	dfc	χ^2_u	dfu	$\Delta\chi^2$	Δdf	
H_{26c}:	Beh → tco	3322.360	1673	3319.613	1672	2.747	1	Supported
H_{26m}:	Prm → dsi	3324.057	1673	3319.613	1672	4.444	1	Supported
H_{26n}:	Rea → dsi	3326.370	1673	3319.613	1672	6.757	1	Supported
H_{26o}:	Kno → mpe	3323.018	1673	3319.613	1672	3.338	1	Supported
H_{26p}:	Beh → mpe	3322.336	1673	3319.613	1672	2.723	1	Supported

In Table 4, the first hypothesis is supported whereby Transformational leadership (tle) moderates the relationship between behaviour (beh) and technical consultancy (tco) as Constrained CMIN (χ^2)3322.360 and degree of freedom at 1673. Unconstrained CMIN (χ^2)3319.613 and degree of freedom

at 1672.Whereas, $\Delta\chi^2$ = 2.747 and Δdf = 1.

The second hypothesis is also supported whereby transformational leadership (tle) moderates the relationship between peer review meeting (prm) and documented strategic intention (dsi). Status for the Constrained CMIN (χ^2) at 3324.057,

degree of freedom (df) score at 673. Unconstrained CMIN (χ^2) at 3319.613, degree of freedom (df) score at 672. Whereas $\Delta\chi^2 = 4.444$ and $\Delta df = 1$.

The third hypothesis is also supported whereby transformational leadership (tle) moderates the relationship between reaction (rea) and documented strategic intention (dsi). Status CMIN (χ^2) for constrained value at 3326.370, Degree of Freedom (df) at 1973. CMIN (fχ^2) for Unconstrained at 3319.613, degree of freedom 1972. Status for $\Delta\chi^2 = 6.757$ and $\Delta df = 1$.

The fourth hypothesis which is supported is transformational leadership (tle) moderates the relationship between knowledge (kno) and mosque performance (mpe). Calculated status for Constrained CMIN (χ^2) at 3323.018, Degree of Freedom (df) at 1673. Unconstrained CMIN (χ^2), 3319.613, degree of freedom at 1672. Whereas, $\Delta\chi^2 = 3.338$ and $\Delta df = 1$

CONCLUSION

The results showed that BASO Model-Based Strategic Planning Training, Training Follow up sessions, and Transformational Leadership are important in developing good mosque organisational performance. This study intervention through BASO Model-Based Strategic Planning Training and supported by Follow up Sessions showed that mosque leaders were able to produce a comprehensive BASO model-based documented strategic intentions for all four sample mosques. This present study also evaluated six-month post-test results on the execution of sample mosques short term

action plans. Technical consultancy, peer review meetings and management support are mediating factors towards mosque organisational effectiveness. Therefore, this BASO model-based strategic planning training supported by training follow up sessions is reliable and can applied to other rural mosques in particular within the context of FELDA and Malaysia.

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Demographic Background, Gender and Race: Their Impacts on Students' Academic Success

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ABSTRACT

This study explores factors contributing to academic success of 382 full time diploma students at Faculty of Business Management in a public university in Sarawak. The study lasted eight semesters (four years) from June 2012 until April 2016. The instruments comprised questionnaire, analysis of final examination results and detailed information from student registration database. Pearson bivariate correlational analysis showed that there was a significant relationship between students' CGPA and their fathers' monthly salary ($p<0.01$) and their mothers' monthly salary ($p<0.05$). However, there was no significant relationship between students' CGPA and number of siblings in the family. Findings indicated females outperformed their male counterparts in studies. Additionally, there was a significant difference in the mean CGPA among different races of students ($p<0.01$).

Keywords: Academic success, demographic, races, gender, socioeconomic

INTRODUCTION

Mann (1985) investigated the role of demographic factors in the 17th century such as age, gender, place of origin, ethnicity, marital status, socioeconomic status (SES), parents' education level, parental profession, language, income and religious affiliations. Using Mann, this study looks at the demographic factors that contributed to the academic success of university students. Farooq, Chaudhry, Shafiq and Berhanu (2011) define the context of demography variables as a way to explore the nature and effects of these factors in the biological and social context.

According to Mann (1985), socioeconomic status is the most important

factor affecting the student's academic performance. Adams (1996) revealed that students' unfulfilled basic needs due to their parents' poor socioeconomic status contributed to their low academic performance.

Additionally, there are many variables (Crosnoe, Johnson, & Elder, 2004) such as student, family, school and peers. However, very few studies have examined the link between academic performance and the complexity and diversity of Malaysian social environment. Hence, this study shows various crucial factors that indirectly affect students' academic performance. Additionally, the changing values of attributes associated with the different stakeholders have contributed to the complexity of defining and measuring the quality of education (Blevins, 2009; Parri, 2006). Significantly, socioeconomic status has been one of the most debated among educational professionals which would be examined further in this study. Thus, the study aims to achieve the following main objectives:

1) To explore the factors of academic success of university students in Malaysia

2) To examine the extent to which the factors are related to academic success of university students.

The respondents' age, gender, family background and demographic data were examined. This is to determine the relationship between these variables and the student's academic success, based on the cumulative grade point average (CGPA). Below are the hypotheses of this study:

H1: There is a significant relationship between the student's academic success and family background (family income and number of siblings).

H2: There is a significant difference in the students' academic success between male and female.

H6: There is a significant difference in the students' academic success among races.

Based on the objectives, the study attempted to answer the following research questions:

Research Question 1:

Is there a significant relationship between the academic success of the university students and family background?

Research Question 2:

Does the university students' academic success differ between male and female students?

Research Question 3:

What effect has race on the academic success of the student?

Ahmad and Khan (2012), and Ngorosho (2011) have studied the association between socioeconomic status and students' academic success. Ahmad and Khan

found a significant relationship between parents' socioeconomic status and academic achievements of their children in secondary school examination. They concluded that majority of the students from higher socioeconomic status performed better in secondary school examinations compared with those from lower SES. Similarly, Ngorosho (2011) found five key variables such as the parents' level of education, house wall material, light source and the number of books for school subjects in the homes.

Additionally, Eitle (2005) noted a significant relationship between gender and academic achievement of the student while Chambers and Schreiber (2004) showed that girls performed better academically compared with boys. McCoy (2005) listed gender, ethnicity and father's occupation as significant contributors to the student's achievement. Parents' involvement in their children's education also contributes positively to their children's academic success (Furstenberg & Hughes, 1995). Capraro and Wiggins (2000) noted the effects of SES on the student's academic achievement.

Hence, it is crucial to investigate the effects of SES in Malaysian education system particularly by exploring the variable of parental income. Mitchell and Collom (2001) revealed positive correlations between the SES and the student's achievement. Parents with high income can provide an effective environment for their children to excel academically.

METHODS

This is a quantitative study that examined the responses of a large group of students on the factors that influenced their academic successes. Demographic data and examination results were examined using a survey method.

This study employed stratified random sampling. The sample consisted of 382 full time diploma students from Faculty of Business Management of a public university in Sarawak, over eight semesters from June 2012 until April 2016.

RESULTS AND DISCUSSION

Table 1 shows the demographic profiles of respondents according to gender and race. There were 104 male students and 278 female students. In terms of ethnicity, there were 164 Malays, 53 Melanaus, 101 Ibans, 31 Bidayuhs, 8 Kayans, 9 Muruts, 4 Dusuns and 12 from Kenyah, Suluk, Bisaya, Kedayan, Jawa, Kelabit and Lun Bawang tribal groups

Table 1
Demographic profiles for gender and race

Demographic Profiles	Group	Frequency	Percent
Gender	Male	104	27.2
	Female	278	72.8
Race	Melayu	164	42.9
	Melanau	53	13.9
	Iban	101	26.4
	Bidayuh	31	8.1
	Kayan	8	2.1
	Murut	9	2.4
	Dusun	4	1.0
	Others	12	3.1

Academic Success of University Students and Family Background

The descriptive statistics are presented in Table 2. Mean CGPA score is 2.77; monthly salary of the father and mother is RM2564.60 and RM1564.00 respectively. The mean number of siblings is 4.26.

Table 2

Descriptive statistics for academic success and family background

	Mean	Std. Deviation
CGPA	2.77	.54
Father's monthly salary	2564.6	2598.24
Mother's monthly salary	1564.0	2443.78
Siblings	4.26	1.69

Table 3

Correlations between CGPA and family background

CGPA	Father's monthly salary	Mother's monthly salary	Siblings
Pearson Correlation	.167**	.187*	-.052
Sig. (2-tailed)	.006	.019	.447

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Table 3 displays the results of the Pearson bivariate correlational reports. There was a significant relationship between the student's CGPA and his/her father's monthly salary ($p<0.01$). In addition, there was a significant relationship between the student's CGPA and his/her mother's monthly salary ($p<0.05$). These findings were consistent with those of Enu, Agyman and Nkum (2015) who argued that an individual's academic success depends largely on the socioeconomic status of their parents. According to Ahawo (2009), parents from low socioeconomic status fail to provide their children with basic requirements for schools. On the other hand, the relationship between the student's CGPA and number of siblings in the family was not statistically significant.

Academic Success between Male and Female Students

Table 4 displays CGPA between male and female students. Mean of CGPA for female students (2.84) is higher than that of male students (2.59).

Table 4

Statistics of CGPA between male and female students

	gender1	N	Mean	Std. Deviation	Std. Error Mean
CGPA	Male	104	2.5904	.45781	.04489
	Female	278	2.8350	.55639	.03337

Table 5
Independent samples test between male and female students

		Levene's Test		t-test for Equality of Means					95% Confidence Interval	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CGPA	Equal variances assumed	2.428	.120	-4.004	380	.000	-.24462	.06109	-.36473	-.12450
	Equal variances not assumed			-4.373	222.96	.000	-.24462	.05594	-.35485	-.13438

According to Table 5, there was a significant difference in the mean CGPA between male and female students (p<0.01). Therefore, findings indicate female students outperformed their male counterparts. Eitle (2005) and McCoy (2005) also reported that there was significant relationship between gender and academic achievement. In relation to this, Chambers and Schreiber (2004) proved that girls recorded better academic performance compared with boys.

Academic Success Across Races

Table 6 displays the statistics of CGPA among different races of students. Mean CGPA for Malays is 2.84, mean CGPA for Melanaus is 2.77, mean CGPA for Ibans is 2.65, mean CGPA for Bidayuhs is 2.89, mean CGPA for Kayans is 3.10, mean CGPA for Muruts is 2.45, mean CGPA for Dusuns is 3.40, and mean CGPA for others is 2.28.

Table 6
Descriptive statistics of CGPA among different races of students

	N	Mean	Std. Deviation	95% Confidence Interval			Minimum	Maximum
				Std. Error	Lower	Upper		
Melayu	164	2.84	.48	.03769	2.77	2.91	1.86	4.00
Melanau	53	2.77	.58	.07992	2.61	2.93	1.57	3.86
Iban	101	2.65	.47	.04720	2.55	2.74	1.92	4.00
Bidayuh	31	2.89	.56	.09997	2.69	3.10	2.00	3.88
Kayan	8	3.10	.70	.24912	2.51	3.69	1.94	3.94
Murut	9	2.45	.50	.16819	2.06	2.84	1.88	3.57
Dusun	4	3.40	.57	.28590	2.49	4.30	2.82	3.94
Others	12	2.28	.90	.26104	1.71	2.86	.00	3.39
Total	382	2.77	.54	.02772	2.71	2.82	.00	4.00

From Table 7, there was a significant difference in the mean CGPA among different races (p<0.01). This finding was confirmed by a study conducted by National Commission on Children (1991) that reported poverty, race, living in a single-parent family and low family income are among the factors that contribute to a high failure rate among children in the United States.

Table 7
ANOVA of CGPA and races of students

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.015	7	1.288	4.683	.000
Within Groups	102.853	374	.275		
Total	111.868	381			

Table 8
Tukey HSD Multiple Comparison of CGPA and Races of Students

(I)	(J)	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Melayu	Melanau	.06810	.08286	.992	-.1845	.3207
	Iban	.19344	.06633	.072	-.0088	.3956
	Bidayuh	-.05157	.10270	1.000	-.3646	.2615
	Kayan	-.25838	.18988	.874	-.8372	.3204
	Murut	.39259	.17954	.362	-.1547	.9398
	Dusun	-.55463	.26538	.423	-1.3636	.2543
	Others	.55787*	.15683	.010	.0798	1.0359
Melanau	Melayu	-.06810	.08286	.992	-.3207	.1845
	Iban	.12533	.08895	.853	-.1458	.3965
	Bidayuh	-.11967	.11857	.973	-.4811	.2418
	Kayan	-.32649	.19891	.725	-.9328	.2798
	Murut	.32449	.18906	.677	-.2518	.9008
	Dusun	-.62274	.27192	.302	-1.4516	.2061
	Others	.48976	.16765	.071	-.0213	1.0008
Iban	Melayu	-.19344	.06633	.072	-.3956	.0088
	Melanau	-.12533	.08895	.853	-.3965	.1458
	Bidayuh	-.24500	.10768	.310	-.5732	.0832
	Kayan	-.45182	.19261	.272	-1.0389	.1353
	Murut	.19915	.18243	.958	-.3569	.7552
	Dusun	-.74807	.26735	.099	-1.5630	.0669
	Others	.36443	.16013	.310	-.1237	.8525

Table 8 *(continue)*

Bidayuh	Melayu	.05157	.10270	1.000	-.2615	.3646
	Melanau	.11967	.11857	.973	-.2418	.4811
	Iban	.24500	.10768	.310	-.0832	.5732
	Kayan	-.20681	.20796	.975	-.8407	.4271
	Murut	.44416	.19856	.332	-.1611	1.0494
	Dusun	-.50306	.27861	.617	-1.3523	.3462
	Others	.60944*	.17829	.016	.0660	1.1529
Kayan	Melayu	.25838	.18988	.874	-.3204	.8372
	Melanau	.32649	.19891	.725	-.2798	.9328
	Iban	.45182	.19261	.272	-.1353	1.0389
	Bidayuh	.20681	.20796	.975	-.4271	.8407
	Murut	.65097	.25482	.176	-.1258	1.4277
	Dusun	-.29625	.32113	.984	-1.2751	.6826
	Others	.81625*	.23936	.016	.0866	1.5459
Murut	Melayu	-.39259	.17954	.362	-.9398	.1547
	Melanau	-.32449	.18906	.677	-.9008	.2518
	Iban	-.19915	.18243	.958	-.7552	.3569
	Bidayuh	-.44416	.19856	.332	-1.0494	.1611
	Kayan	-.65097	.25482	.176	-1.4277	.1258
	Dusun	-.94722	.31513	.056	-1.9078	.0134
	Others	.16528	.23124	.997	-.5396	.8701
Dusun	Melayu	.55463	.26538	.423	-.2543	1.3636
	Melanau	.62274	.27192	.302	-.2061	1.4516
	Iban	.74807	.26735	.099	-.0669	1.5630
	Bidayuh	.50306	.27861	.617	-.3462	1.3523
	Kayan	.29625	.32113	.984	-.6826	1.2751
	Murut	.94722	.31513	.056	-.0134	1.9078
	Others	1.11250*	.30277	.007	.1896	2.0354
Others	Melayu	-.55787*	.15683	.010	-1.0359	-.0798
	Melanau	-.48976	.16765	.071	-1.0008	.0213
	Iban	-.36443	.16013	.310	-.8525	.1237
	Bidayuh	-.60944*	.17829	.016	-1.1529	-.0660
	Kayan	-.81625*	.23936	.016	-1.5459	-.0866
	Murut	-.16528	.23124	.997	-.8701	.5396
	Dusun	-1.11250*	.30277	.007	-2.0354	-.1896

*. The mean difference is significant at the 0.05 level

From Table 8 (Tukey HSD), there was significant difference in mean CGPA between Malays and others ($p<0.05$). In addition, there was significant difference in mean CGPA between Bidayuhs and others ($p<0.05$). There was a significant difference in mean CGPA between Kayans and others ($p<0.05$). There was significant difference in mean CGPA between the Dusuns and others ($p<0.05$). On the other hand, there was no significant difference in mean CGPA for the other races.

CONCLUSION

The findings demonstrated that academic success in university was found to be correlated with the student's father's monthly salary and mother's monthly salary. Higher salary was significantly related to higher CGPA score in university. However, the number of siblings in the family did not influence the CGPA score in university. Besides, female students tend to outperform their male counterparts in their academic achievement. This study showed the mean of CGPA for female students was significantly higher than that of their male counterparts. The ANOVA showed a significant difference in the mean CGPA among students of different races ($p<0.01$).

Due to time and resource constraints, the variables in this study were limited to students' CGPA, family background and gender. There is a need to look into other factors that may explain the academic success of university students from the psychological, educational and environmental perspectives. Future study should include an investigation of students' personality traits, intelligence, awareness and motivation for success. Integrating these variables with other variables to further explain and predict the academic success of university students is suggested.

The study contributed to the literature by presenting new information since it takes into consideration relevant variables: students' gender, family background, and past academic results. Hence, this study provides significant insights into university students' academic success. Along with that, inexperienced or new established faculty can also benefit from the study. Additionally, the study also examined the often overlooked factors that contribute to the student's academic success. The study provided empirical evidence about the relationship between the factors and the academic success of university students, specifically in Malaysia. Finally, the study also put forward some suggestions, implications, and recommendations that may be useful for future studies related to this topic.

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Energy Efficiency Criteria for Green Highway

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ABSTRACT

Construction of highways has had negative environmental impacts. Thus, the concept of green highway was introduced in Europe as a part of sustainable development efforts. It has been long known that construction of regular highways leads to greenhouse gas emission from logging activities, cut and fill, excavation and road premix laying. Literature review shows there are several rating systems for energy efficiency; the latter constituting important criteria in the development of green highways. Energy efficiency refers to reduced usage of energy, , renewable energy as well as alternative energy as well as the and policies related to energy saving and renewable energy. This paper aims to identify the criteria and sub-criteria of energy efficiency for green highway development in Malaysia. These criteria are obtained from available rating systems and from literature. Data was obtained through survey questionnaire method. The LATAR Highway, one of the main concession company for highway development in Malaysia, was the respondent. This study reported five criteria of energy efficiency: technology and design, renewal energy, policy and plan, utilising solar energy, and reduce usage.

Keywords:Criteria and sub-criteria, energy efficiency, green highway, rating systems

INTRODUCTION

Transportation is one of the key factors for growth and development of Malaysia's economy (Al-Mofleh, Taib, & Salah, 2010). The concept of green highway

first emerged in the West to improve their environment, transportation system, ecosystem, urban growth, public health and also the communities (Mohd Affendi et al., 2013; Zakaria et al., 2013). Green highway refers to a particular design of highways that improves the quality of the country infrastructure (Bryce, 2008).

According to Sharrard, Asce, Matthews, Asce, and Roth, (2007), the construction sector relies on four energy sources, namely diesel, fossil fuel, electricity and natural gas. Diesel fuel and electricity have been found to be the largest contributor of air pollution. Acquiring materials and equipment for the construction, maintenance and rehabilitation of highways (Cass & Mukherjee, 2010) have contributed to massive air pollution. In order to reduce emissions, careful planning is needed from the design, construction, operation and maintenance, use and decommissioning phase (Moir, Grenfell, Johnson, & Jowitt, 2012). This paper focuses on identifying the criteria for energy efficiency of green highways.

Overview of Green Highway

Green highway is a roadway design based on relatively new concept that incorporates transportation functionality and ecological requirements (LLM & UTM, 2014). Zakaria et al. (2012) described green highway as a roadway planned and designed to integrate transportation functionality and ecology. Green highway is also synonymous with transportation corridors which use low impact development tools, recycled

materials, and locally sourced resources in transit right of ways to meet regulatory requirements for stormwater management and highway design (Weinstein, Pawlish, English, Bitting, Lukes, & Kloss, 2008). It is also a system of roads that mitigate negative impact on the environment to a level past minimum standards (Bryce, 2008).

Criteria of Energy Efficiency

Based on the guideline and rating systems available, the criteria of energy efficiency is listed in Table 1.

Greenroads is the first green road rating system established in United States in 2007. It is used to measure the responsive rate of green highway and it is a voluntary third party rating system for road project which seeks to recognise and reward roadway projects. Greenroad rating system focuses light pollution and lighting efficiency. The purpose is to reduce the energy used for lighting. According to University of Washington (2011), the greenroad rating system was proposed for installing lighting system with luminaires that meet or exceed the 2009 energy star standard for roadway lighting. It was aimed to reduce or eliminate lighting pollution and ensure energy efficiency.

New York State Department of Transportation's (NYSDOT'S) has established Green Leadership in Transportation and Environmental Sustainability program (GreenLITES). It functions as a tool to advance the Department's efforts to better align sustainability in planning, design,

Table 1
Criteria and sub-criteria of energy efficiency

Reference	Criteria	Sub-criteria
Greenroad Rating System (2007)	Energy and Environment Control	Light Pollution
GreenLites (2008)	Energy and atmosphere	Light Efficiency
		Reduce electrical consumption
		Stray light reduction
WISE (2008)	Life cycle energy and emission reduction	Reduced life cycle energy consumption
		Reduced emission
		Replace original material to consume less energy
Greenroad manual (2010)	Energy efficiency	Improve energy efficiency of operational system
BE2ST (2010)	Energy Use	Reduce energy consumption
Envision (2012)	Energy	Reduce energy consumption
		Use renewable energy
		Commission and monitor energy system
I-Last (2012)	Lighting	Reduced electrical consumption in 7 elements
		Stray light reduction
MyGHI (2014)	Energy Efficiency	Management policy
		Rest and service area
		Toll Plaza
		Compound and carpark
		Interchange

construction, and maintenance operations with long term needs. GreenLites also has sub criteria related to energy to reduce electrical consumption and stray light. Several measures can be adopted to minimise usage of electricity. This can be achieved for example, by using solar or battery power for street lighting and warning signs; replacing overhead sign lighting with higher type retro-reflective sign panels; and using Light Emitting Diode for street lighting and bus stop.

Washington Internship for Students Engineering (WISE) was introduced by University of Missouri in 2008. The WISE focused on life cycle energy and emission reduction (Bryce, 2008) to provide better air quality and save the energy. It also proposed to use alternative material and replace the original material with others that consume less energy but provide the same function.

Greenroads manual was published on 2011 by University of Washington. It was an improvement of the earlier version of the

2007 Greenroads. It serves as a guideline during design and construction phases in addition to quantifying sustainable attributes of a roadway project (Muench, Anderson, Hatfield, Koester, & Söderlund, 2011). The purpose is to improve energy efficiency of operational system, reduce the lifetime energy consumption of lighting system for roadway by using alternative materials. It also sets a standard requirement for installation of lighting system by using luminaires that meet or exceed 2009 energy star.

Another rating system is Building Environmentally and Economically Sustainable Transportation (BE2ST) which is a manual initiated by University Wisconsin in 2010. This is a data based program linked to open sources. It provides six main elements of green highway and targets reduction of energy consumption by 10% (Recycled Materials Resource Centre, 2010). The target is to reduce energy from the material, construction, operation and maintenance work.

ENVISION aims for reduced energy consumption; use of renewable energy, commissions and monitors energy systems. The purpose of energy reduction is achieved by controlling energy conservation through reducing overall operation and maintenance throughout the project's life cycle. Commission and monitor system would ensure efficient functioning and extend life by specifying the commissioning and monitoring of performance of energy systems.

I-Last only focuses on lighting. The sub-criteria of lighting relate to reduced electrical consumption and stray light reduction (Illinois Department of Transportation, 2010). It proposes seven ways to reduce electrical consumption: using alternative energy sources to power street lighting, warning signs and remote intelligent system (ITS) component; retrofitting the existing street lighting with high efficiency types; replace regular signs with retro-reflective ones to eliminate sign lighting; retrofit existing sign lighting with high efficiency types; use of high efficiency street lighting on new installation; use of alternative energy sources for bus stops; and use of high efficiency traffic signal which is Light Emitting Diode (LED).

In 2014, Malaysia introduced Malaysia Green Highway Index (MyGHI) as an assessment on green highway. The MyGHI is a manual on the sustainability of roadway design and implementation of green construction practices. The MyGHI has several sub criteria for ensuring energy efficiency in the areas of management policy; rest and service; toll plaza; compound and carpark; and interchange (LLM & UTM, 2014). Ratings are based on specific locations. The aim is to reduce electrical consumption by installing and using energy efficient electrical devices.

According to the "Preliminary Guide to Nurture Green Highway in Malaysia", there are five sub-criteria for energy efficiency: solar energy; Light Emitting Diodes (LED) for street lighting; Rest and Service area; Interchange; and Electrical Toll Collection

(ETC) (Salleh, 2010). Solar energy is an alternative energy that can be used to generate electricity (Zakaria et al., 2013). The sunlight absorbed by the solar panel is converted into electricity to light the streets and other facilities in rest and service area, toll plaza and interchange. Light Emitting Diode (LED) is an alternative material that can be used to reduce electrical consumption and it can be installed Rest and service area and interchange because it is economically viable and reliable. The advantages of using the LED for street lighting are its reliability, low maintenance cost, energy saving, save environment and new lighting possibilities. The Electrical Toll Collection system (ETC) was later introduced to be installed at toll booths to prevent long queues that contribute to environmental pollution (Salleh, 2010).

Thus, it is clear energy efficiency is one of the key factors of the rating system. According to Zakaria et al. (2012), energy efficiency is an important factor for the construction of the green highway and to produce low carbon emission (Gambatese & Rajendran, 2005).

METHODS

The questionnaires were distributed to concession companies such as LATAR and LKSA highway and authorities such as Jabatan Kerja Raya, Lembaga Lebuhraya Malaysia and Kementerian Kerja Raya Malaysia. A total of 142 respondents participated in this study to show energy efficiency criteria for green highway development.

Once the criteria had been finalised through questionnaires, data was analysed using factor analysis to produce mean index and factor loading. A factor analysis was conducted on 32 items. The Cronbach's alpha value was 0.953 with 32 variables, indicating high internal consistency for the data set (Rooshdi et al., 2014).

Data was analysed using Kaiser-Meyer-Olkin (KMO) and Bartlett's test. This test was aimed at identifying whether the criteria is sufficient to conduct factor analysis (De Vaus, 2002). The KMO ranges from 0 to1 with higher values indicating greater suitability, and amount greater than 0.750 is considered good (Rooshdi et al., 2014). The KMO value for this study was 0.867 and Bartlett's test was significantly large for [x2 (496) = 6062.392, p<0.001]. Therefore, the correlation between the items were sufficiently large for factor analysis. Chua (2009) recommended accepting values greater than 0.5.

Process extraction factor shows communality values are more than 0.5 for all items. Five factors had eigenvalues greater than 1, contributing about 82% of the variance in this study. The scree plot supported the criterion in retaining five factors. The result component matrix is less meaningful without rotation. Varimax rotation was performed and the component matrix shows factor 1 contains 11 items, while factor 2 contains 6 items, factor 3 contains 5 items, factor 4 have 7 items, factor 5 have 3 items. Table 2 shows rotated component matrix.

Table 2
Rotated component matrix for energy efficiency

Rotated Component Matrix[a]					
	Component				
	1	2	3	4	5
Saving energy using Sensor Motion	.858				
Saving energy using Electrical Sub-metering	.812				
Saving energy using Unit Air conditioner	.801				
Saving energy using Individual Switch	.782				
Saving energy using Light Emitting Diode (LED)	.753				
Saving energy using Natural Lighting	.698				
Saving energy using Lighting with efficiency system	.680				
Saving energy using Electrical toll collection system	.664				
Saving energy using Building energy system	.635				
Saving energy using Natural Ventilation	.632				
Stray light reduction	.539				
Wind Energy Plan		.972			
Ocean Energy Plan		.965			
Alternative energy using wind turbine		.958			
Alternative energy using ocean energy		.945			
Biodiesel Energy Plan		.878			
Alternative energy using biodiesel		.845			
Renewable energy policy			.867		
Building energy system plan			.856		
Solar Energy Plan			.841		
Energy plan for maintenance			.836		
Life cycle energy policy			.758		
Alternative solar energy for lighting Rest and Service area				.780	
Alternative solar energy for Street Lighting				.770	
Alternative solar energy for Lay-Bys				.766	
Alternative solar energy for lighting Carpark & Compound				.754	
Alternative solar energy for signage lighting Signage				.752	
Alternative solar energy for lighting Interchange				.724	
Alternative solar energy for Landscape lighting				.721	
Reduce Equipment and Machineries GHG Emission					.796
Reduce Fossil Fuel					.752
Reduce Electrical Consumption					.648
Extraction Method: Principal Component Analysis.					
Rotation Method: Varimax with Kaiser Normalization.					

In sum, there are five main factors for energy efficiency criteria for green highway development. Factor 1 represents technology and design while factors 2, 3, 4 and 5 represent renewal energy, policy and plan, utilising solar energy and reducing

Table 3
Framework of energy efficiency for tropical climate

Element	Criteria	Sub-criteria
Energy Efficiency	Technology & Design	Saving the energy using Sensor Motion
		Saving energy using Electrical Sub-metering
		Saving energy using Unit Air conditioner
		Saving energy using Individual Switch
		Saving energy using Light Emitting Diode (LED)
		Saving energy using Natural Lighting
		Saving energy using Lighting with efficiency system
		Saving energy using Electrical toll collection system
		Saving energy using Building energy system
		Saving energy using Natural Ventilation
		Stray light reduction
	Renewable Energy	Wind Energy Plan
		Ocean Energy Plan
		Alternative energy using wind turbine
		Alternative energy using ocean energy
		Biodiesel Energy Plan
		Alternative energy using biodiesel
	Policy & Plan	Renewable energy policy
		Building energy system plan
		Solar Energy Plan
		Energy plan for maintenance
		Life cycle energy policy
	Utilising Solar Energy	Alternative solar energy for lighting Rest and Service area
		Alternative solar energy for Street Lighting
		Alternative energy for lighting using Solar to Lay-Bys
		Alternative solar energy for Carpark & Compound lighting
		Alternative solar energy for Signage lighting
		Alternative solar energy for lighting the Interchange
		Alternative solar energy for Landscape lighting
	Reduce Usage	Reduce Equipment and Machineries GHG Emission
		Reduce Fossil Fuel
		Reduce Electrical Consumption

usage respectively. Each factor has its own criteria. All the criteria and grouping are based on the respondents' feedback.

RESULTS

Table 3 shows the framework of energy efficiency used in this study. Factor 1 is technology and design. The technology saves energy by using sensor motion, sub-metering, unit air conditioning, individual switch, light emitting diode, natural lighting, lighting efficiency system, building energy system and stray light reduction.

Factor 2 is renewal energy. It is based on the respondent's' perspective that renewal energy such wind, ocean, and biodiesel energy have good potential. The 8th and 9th Malaysia Plan targets renewable energy to reduce the nation's dependency on fossil fuels (Darus, Hashim, Nurhidayah, Manan, Azhar, Rahman, Abdul Maulud, & Karim, 2008). However, further research is required to study the use of renewable energy such as the ocean, wind and biodiesel in tropical climate. Additionally, the technology is costly and demanding; for example, to utilise wind energy, availability of strong wind is needed.

Factor 3 is policy and plan. Policies related to renewable energy are a must in addition to policies on energy system, maintenance and life cycle. These lead to effective energy saving.

Factor 4 is utilising solar energy. The energy from the sun can be used to light highways and buildings to reduce the usage of electricity. It is ideal for a tropical climate. By installing solar panels, sunlight is converted into electricity.

CONCLUSION

This study has attempted to establish a framework of energy efficiency for green highway by highlighted the relevant criteria and sub-criteria related to it. The criteria were technology and design, renewal energy, policy and plan, utilising solar energy, and reduce usage while each of this had its own sub-criteria.

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Stormwater as a Criterion for Green Highway

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ABSTRACT

Rapid development and illegal logging activities resulting in landslides and flash floods have brought the issue of sustainable stormwater management to the fore. Stormwater management is a process of managing stormwater, reducing the runoff water from the highway, treating and diverting it. This is an important aspect of green highway development. This study aims to identify the sub-criteria of stormwater management towards developing green highway. Survey method was adopted to determine the significance of stormwater for developing green highway. Data obtained from 142 respondents representing concessionaires and relevant authorities was analysed. Results showed that all the sub-criteria are important to be included in the assessment of green highway.

Keywords: Assessment, green highway, sub-criteria, stormwater management

INTRODUCTION

Development of green highway includes designing a highway in such a manner that improves the quality of nation's infrastructure and boosts its growth (Brown, 2003). LLM and UTM (2014) defined green highway as a roadway design based on relatively new concept that incorporates transportation functionality and ecological requirements. Green highway is also synonymous with transportation corridors which use low impact development tools, recycled materials, and locally sourced resources in transit right-of-way to meet

regulatory requirements for stormwater management and highway design (Weinstein et al., 2008).

Dhakal and Oh (2011), and Gambatese and Rajendran (2005) stated a highway system would have adverse environmental impacts. It would also result in financial inefficiency, natural resource exploitation, and negative social repercussions. The major contributor to environmental problems in the construction sector is stormwater management, demolition debris, and energy consumption (Sharrard et al., 2007). Thus, environmental questions feature prominently in decisions pertaining to in the construction of a highway.

Takaijudin et al., (2010) traced the history of flash floods in Malaysia happen to 1920. In 2014, the worst flood in the nation's history happened in Kelantan, Terengganu and Pahang. Almost 200 thousand people were affected, 21 casualties and 10 missing (Mohamad, 2014). About 500 people lost their homes. MStar online (2015) reported almost RM105 billion losses including property, crops and infrastructure.

In recent years, floods have been caused by illegal logging, drainage system, rivers, topography and erosion (Bernama, 2015). In addition, rapid development creates impervious areas especially in towns such as Kuala Lumpur. Increase in impervious areas reduce green areas that function as natural stormwater. The transition from green to commercial and industrial area has directly affected the ecosystem (Takaijudin et al., 2010).

Thus, stormwater has become critical in the green highway development. It needs to be considered from the planning, construction, maintenance as well as operation phase. So, this study aims to identify the sub-criteria related to stormwater management for green highway development.

Overview of Stormwater

Basically, stormwater is rain or snow that falls on surfaces such as paved street, parking lots, rooftops, sport fields or any developed area. These surfaces are known as impervious areas which means they do not allow water to seep through the surface that will adversely impact on the environment due to the changes in quality and quantity of water flows. These impacts can change the hydrological cycles, natural habitats, geological condition and will pollute water bodies (Soderlund, 2007).

Nowadays, green areas have been redesignated for the purpose of construction and surfaces have been paved (Zakaria et al., 2004). For example, Subang Jaya will see an increase in impervious area from 0 to 40% which will increase the magnitude of runoff discharge about 190% (Zakaria et al., 2004). Increase in paved area will increase the likelihood of floods.

Besides this, roadway construction and maintenance, vehicle travel, and vehicle maintenance, can have an impact on water quality and quantity. It can lead to flooding and erosion, increased concentrations of heavy metals, salts, oil and grease, nutrients

and suspended solids (Green Highway Partnership, 2008).

The Department of Irrigation and Drainage Malaysia reported that the number of rivers capable of catering to the surface runoff has decreased (Zakaria et al., 2004). Managing the surface runoff using the drainage system, will increase discharges to the nearest river system. This problem happens frequently, especially in urban area such as Klang Valley, Penang, Johor Bharu and newly developing areas.

The Importance of Stormwater

The implementation of sustainable stormwater is expected to enhance the environmental quality of life. Water bodies and their greenery act as a natural filter to dust and atmospheric pollution. In a hot climate like Malaysia, the heat from thousands of vehicle engines and air condition make areas even more oppressive and unbearable. Natural water bodies that blend with the surrounding can provide a welcome relief.

Irrigation by far is the largest water consumer using about 69% of water available for human used, followed by industry at 23% of available water. Thus, only 8% remain for all other domestic uses (Zakaria et al., 2004). In line with growing population in Malaysia, drinking water demand is growing quickly and taken increasing part of total water resources. Since the existing water resources would not increase, therefore, there will be a competition between irrigation and domestic

usage in the future. Therefore, stormwater runoff from impermeable surfaces in city should be considered as a valuable resource and used after treatment for less demanding cases. In general, new methods for multiple water reuse, harvesting and safe storage of rainwater should be explored.

Malaysia cannot avoid water shortage problem. After 1998 crisis, when Kuala Lumpur and Selangor faced water scarcity, the government realised the importance of sustainable water management (Abdullah, 2000). Unpredictable weather will cause climate change and global warming. Signs of climate change due to global warming could be seen through some disasters and also symptoms that hit several areas in in the country such as rising sea levels, haze, floods and lack of water resources. Reuse of water should take place.

Sub-criteria of Stormwater from Current Rating System

Based on the guideline and rating system available, the sub-criteria related to stormwater has been studied and listed in Table 1. Table 1 shows the sub-criteria from several green highway rating systems that are related to stormwater.

Greenroad rating system has sub-criteria of stormwater which are stormwater management, runoff treatment, permeable area, and innovative stormwater technology (Weinstein et al., 2008). Stormwater management aims to increase the impact of stormwater management solutions. For runoff treatment, it needs to meet enhanced

runoff treatment criteria. By preserving and enlarging the permeable area, it helps in providing natural infiltration of runoff.

GreenLites also have sub-criteria related to stormwater. There are stormwater management, runoff treatment and reduce runoff. For stormwater management, it monitors the volume of runoff and maintains water quality. Reducing the runoff will prevent pollution according to guideline given by the authority.

WISE have four sub-criteria related to stormwater in order to develop green highway: reducing the stormwater runoff; treating the runoff; divert the runoff; and improve the water quality (Bryce, 2008). Treating the runoff includes the attempt to reuse the water for different purpose. The water can be used for watering plant, washing cars and others. The other way is by diverting the runoff water to areas that can infiltrate through ground water table. To improve water quality, WISE prevents the runoff water from being polluted.

The greenroad manual has three sub-criteria related to water management. There is runoff flow control, runoff quality and stormwater cost analysis (Muench, et al., 2011). For runoff flow control, it aims to reduce the runoff quantity and minimise off site stormwater control. For runoff quality, the stormwater runoff is treated to a higher level of quality and for other uses. According to the greenroad manual, stormwater cost analysis must be conducted for every element of stormwater to uncover all related costs involved in the management

of stormwater and to serve as a guideline in the future.

The BE2ST provides the cycle of green highway development based on water consumption. Its target is to reduce at least 10% of water consumption (Recycle Material & Resource Centre, 2010) from the construction, maintenance right up to operation of the highway. However,, BE2ST only focuses on water consumption. It does not look at stormwater.

I-Last focuses on impervious area, stormwater treatment and protects water quality (Illinois Department of Transportation, 2010). In order to allow the stormwater runoff infiltrate naturally, reducing impervious areas is important. In addition, I-Last also treat the stormwater runoff to be used for other purposes. It protects water quality of stormwater.

MyGHI have two criteria for stormwater, stormwater runoff quantity and stormwater runoff quality (LLM & UTM, 2014). Stormwater runoff quantity has several sub criteria which consists of runoff flow control; disaster cost analysis; and network drainage system. Runoff flow is controlled by water flow dissipation management, reduction of runoff quantity, detention or retention, critical volume of water and reduction of impervious area. Life cycle cost analysis was conducted. While stormwater runoff quality consists of water pollution reduction and runoff treatment, water pollution reduction by detection and elimination of non-stormwater discharge, ensures proper discharge of non stormwater discharge and

which follows the local authority standards for prevention of water pollution. Runoff treatment will minimise pollutants, erosion and sedimentation.

Table 1
Sub-criteria of stormwater

Sub-criteria	Greenroad Rating (2007)	GreenLites (2008)	WISE (2008)	Greenroad manual (2010)	BE2ST (2010)	I-Last (2012)	MyGHI (2014)
Stormwater management	/	/	/			/	
Runoff treatment	/	/					/
Permeable area	/					/	
Innovative stormwater technology	/						
Reduce runoff		/	/				
Divert runoff water			/				
Improve water quality			/			/	
Runoff flow control				/			
Runoff quality				/			
Stormwater cost analysis				/			/
Reduce water consumption					/		
Runoff flow control							/
Disaster cost analysis							/
Network drainage system							/
Water pollution reduction							/

METHODS

Through literature review and comparing current green highway rating systems, the study managed to identify the appropriate stormwater sub-criteria for green highway development in Malaysia. The questionnaire survey was distributed to Concession Companies and authorities. Concession companies included LATAR and LKSA highway. Whereas the authorities included Jabatan Kerja Raya, Lembaga Lebuhraya Malaysia and Kementerian Kerja Raya Malaysia. A total of 142 respondents participated in this study to justify the sub-criteria of stormwater for green highway. The proposed sub-criteria of stormwater is outlined in Table 2.

Data was analysed using correlation. Correlation analysis is used to prove the strength of the correlation or relationship between variables. For this study, a test was carried out between 11 sub-criteria regarding stormwater as listed in Table 1. Before the correlation analysis was done, normality test had been carried out using Kolmogorov-Smirnov and Shapiro-Wilks test. Kolmogorov-Smirnov and Shapiro-Wilks test are the set of normality tests to

Table 2
Propose sub-criteria of stormwater

Criteria	Sub- criteria	Indicator
Stormwater	Stormwater management	A
	Innovative stormwater technology	B
	Runoff flow control	C
	Runoff quality	D
	Runoff quantity	E
	Runoff treatment	F
	Water bodies protection	G
	Stormwater cost analysis	H
	Infiltration	I
	Water conservation	J
	Network drainage	K

identify the distribution of normal data (as cited in Chua, 2006b). Determination of normality distribution data will indicate the appropriate correlation test. The result of the normality test shows all the variables have significance value $p<0.05$. It shows, the distribution of data is not normal. According to Chua (2006a) normal distribution data is when both Kolmogorov-Smirnov and Shapiro-Wilks test is not significant at $p>0.05$. Chua (2006a) suggested Spearman's Rho test for correlation in the event data is not normal.

Spearman Rho test was conducted to examine the correlation between the variables. The strength of the relationship is identified in Table 3. Strength of the correlation tests can be done within all the variables listed in Table 1. Table 3 shows the correlation analysis between variables of stormwater.

Table 3
Strength of the correlation coefficient (Chua, 2006a)

Correlation Coefficient	Strength of relationship
0.91 to 1.00 or -0.91 to -1.00	Very High
0.71 to 0.90 or -0.71 to -0.91	High
0.51 to 0.70 or -0.51 to -0.70	Moderate
0.31 to 0.50 or -0.31 to -0.50	Low
0.01 to 0.30 or -0.01 to -0.30	Very Low
0.00	No Correlation

From the correlation using Spearman's Rho test, the results in Table 4 shows significant among the variables ($r > 0.50$, $p < 0.10$). Correlations between variables A with B ($r = 0.758$), A with C ($r = 0.725$), B with E ($r = 0.714$), C with D ($r = 0.835$), C with E ($r = 0.883$), C with F ($r = 0.866$), C with H ($r = 0.719$), C with I ($r = 0.753$), D with E ($r = 0.843$), D with F ($r = 0.791$), D with G ($r = 0.732$), D with H ($r = 0.746$), D with

I (r = 0.782), E with F (r = 0.860), E with H (r = 0.750), E with I (r = 0.770), F with G (r = 0.718), F with H (r = 0.757), F with I (r = 0.786), G with H (r = 0.739), G with I (r = 0.715) and H with I (r = 0.814) are high strength. Whereas the others are moderate strength of relationship correlation. Overall, all the variables have high and moderate significant correlation. This explains all the factors are important and need each other in order to be included in the criteria of stormwater.

Table 4
Correlation analysis between variable of stormwater

Variables	Correlation coefficient	Strength of relationship	P Value	Variables	Correlation coefficient	Strength of relationship	P Value
A – B	0.758**	High	0.000	D – F	0.791**	High	0.000
A – C	0.725**	High	0.000	D – G	0.732**	High	0.000
A – D	0.678**	Moderate	0.000	D – H	0.746**	High	0.000
A – E	0.685**	Moderate	0.000	D – I	0.782**	High	0.000
A – F	0.700**	Moderate	0.000	D – J	0.567**	Moderate	0.000
A – G	0.540**	Moderate	0.000	D – K	0.533**	Moderate	0.000
A – H	0.627**	Moderate	0.000	E – F	0.860**	High	0.000
A – I	0.658**	Moderate	0.000	E – G	0.698**	Moderate	0.000
A – J	0.517**	Moderate	0.000	E – H	0.750**	High	0.000
A – K	0.580**	Moderate	0.000	E – I	0.770**	High	0.000
B – C	0.663**	Moderate	0.000	E – J	0.554**	Moderate	0.000
B – D	0.594**	Moderate	0.000	E – K	0.580**	Moderate	0.000
B – E	0.714**	High	0.000	F – G	0.718**	High	0.000
B – F	0.677**	Moderate	0.000	F – H	0.757**	High	0.000
B – G	0.587**	Moderate	0.000	F – I	0.786**	High	0.000
B – H	0.700**	Moderate	0.000	F – J	0.588**	Moderate	0.000
B – I	0.652**	Moderate	0.000	F – K	0.620**	Moderate	0.000
B – J	0.553**	Moderate	0.000	G – H	0.739**	High	0.000
B – K	0.591**	Moderate	0.000	G – I	0.715**	High	0.000
C – D	0.835**	High	0.000	G – J	0.638**	Moderate	0.000
C – E	0.883**	High	0.000	G – K	0.509**	Moderate	0.000
C – F	0.866**	High	0.000	H – I	0.814**	High	0.000
C – G	0.648**	Moderate	0.000	H – J	0.607**	Moderate	0.000
C – H	0.719**	High	0.000	H – K	0.648**	Moderate	0.000
C – I	0.753**	High	0.000	I – J	0.549**	Moderate	0.000
C – J	0.518**	Moderate	0.000	I – K	0.596**	Moderate	0.000
C – K	0.592**	Moderate	0.000	**. Correlation is significant at the 0.01 level			
D – E	0.843**	High	0.000	(2-tailed)			

RESULTS

Table 5 shows the sub-criteria of stormwater according to mean. The highest is stormwater management with a mean of 3.94. This is followed by network drainage (3.92), water conservation (3.88), water bodies protection (3.87), runoff flow control (3.84), runoff quality and runoff treatment (3.82), innovative stormwater technology (3.80), runoff quantity and infiltration (3.75) and last stormwater cost analysis (3.70). This study only discussed the 3 highest ranking.

Stormwater management has the highest rank. It prevents and reduces pollutants by treating the source (Soderlund, et al., 2008). The management of stormwater has to be carefully planned from the planning phase. Good management will minimise or eliminate natural disaster happen that will adversely affect the environment. Besides that, it also can reduce the likelihood of floods.

Network drainage is an important criterion because a good drainage system will avoid or eliminate floods happen. Before developing a new area, a well-planned idea of drainage system (LLM & UTM, 2014) has to be clearly gazetted. In addition, the authorities also need to ensure the drainage system must be in good condition all the time. They need to ensure there is no illegal discharge into drainage ditch that will result to poor water flow. Flooding is the worst consequence if water quantity increases especially during heavy rain.

Water conservation is in ranked number 3. The function of water conservation is to minimise the shortage of water supply and the cost as well as saving the environment (CWCB, 2005; Zakaria et al., 2004). The stormwater must be well treated and conserved to prevent water pollution. The water also can be used for other purpose.

Table 5
Ranking of the sub-criteria of stormwater

Sub-criteria	Mean	Std. Deviation	N	Ranking
Stormwater Management	3.94	.874	142	1
Network Drainage	3.92	.794	142	2
Water Conservation	3.88	.803	142	3
Water Bodies Protection	3.87	.789	142	4
Runoff Flow Control	3.84	.769	142	5
Runoff Quality	3.82	.727	142	6
Runoff Treatment	3.82	.813	142	6
Innovative Stormwater Technology	3.80	.765	142	8
Runoff Quantity	3.75	.764	142	9
Infiltration	3.75	.827	142	9
Stormwater Cost Analysis	3.70	.832	142	11

CONCLUSION

Stormwater is an important criterion for environmental protection. The sub-criteria identified in this study are stormwater management, innovative stormwater technology, runoff flow control, runoff quantity, runoff quality, runoff treatment, water bodies protection, stormwater cost analysis, infiltration, water conservation, and network drainage. These sub-criteria have moderate and high strength of correlation between each other. The three important sub-criteria are stormwater management, network drainage, and water conservation. This study only highlighted the sub-criteria of stormwater as one of the important criteria in green highway. These sub-criteria of green highway will contribute to the main research in development of green highway assessment system.

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Mapping Risk Areas of Tuberculosis Using Knowledge-Driven GIS Model in Shah Alam, Malaysia

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ABSTRACT

Developing a model to map tuberculosis (TB) cases in Malaysia for boosting early detection is vital. A knowledge-driven geographical information system (GIS) modelling is an alternative approach developed for assessing potential risk areas of TB at Section 17, Shah Alam, Selangor. It is a weight-rating score model and spatial multi-criteria decision making (MCDM) method for producing a ranked map based on the index values and risk indicators with a five-score scale. Results showed 34.85% of the study areas are potential TB high risk zones, ranging from medium to very high risk. This is consistent with the findings obtained from overlay comparison with the current cases in 2015.The TB risk map and validation indicated a reasonable match with areas considered as potential TB risk areas, particularly in urban and crowded environments. Thus, a GIS-based MCDM technique can be applied in the national TB screening and monitoring programme.

Keywords: Disease mapping, knowledge-driven GIS model, spatial MCDM, risk area, tuberculosis

INTRODUCTION

In 2015, Malaysia had a medium burden of tuberculosis (TB) incidence according to the World Health Organization (WHO) with Selangor ranked among top tree in terms of number of cases. The Ministry of Health reported that Selangor had more than 4000 cases in 2015, where 31 percent of the cases occurred in the district of Petaling

where Shah Alam is located. Although there have been numerous attempts to control the disease comprehensively, the development of a suitable model is still challenging, especially for determining disease risk factors, spatial resolution, and modelling methodology.

In Malaysia, a spatial based predictive model for disease occurrences is not widely used. Therefore, a knowledge-driven GIS model is recommended for understanding and predicting disease incidence. This study was aimed at producing a spatial based MCDM technique for identifying potential risk areas of local TB occurrences. It posed

two main research questions: i) where are potential high risk areas of tuberculosis in the study area?; and ii) why are particular potential areas been affected by the disease?

Spatial Risk Management and Assessment of Tuberculosis using Knowledge-Driven GIS Model

Previous studies have focused on practical capabilities of geospatial technologies for disease risk assessment and management in three key functions, namely disease pattern analysis, spatial correlation and spatial prediction. Table 1 shows the integration

Table 1

Knowledge-driven GIS Model and MCDM techniques in health and disease study

Author (s)	Objective (s)	GIS-MCDM technique (s)
Lin et al., 2016 (Taiwan)	A novel approach for identifying sites of soil contamination. It can consider spatial uncertainty for any monitoring and or remediation initiative.	A decision-making approach with a MCDA, multivariate and geostatistical simulation techniques.
Lahue et al., 2016 (Spain)	To develop a spatially explicit modelling of animal tuberculosis at the wildlife-livestock interface for identifying trigger areas.	Using a spatially explicit, ecological niche models and factors such as wildlife demographics, hunting management, land use, climatic, and environmental variables.
Shen et al., 2016 (China)	An urban ecosystem vulnerability assessment method for decision makers and environmental manager's applications.	Combining spatial context of GIS tool, MCDA method, ordered weighted averaging (OWA) operators, and socio-economic elements.
Fuller et al., 2014 (Colombia)	To develop a participatory risk mapping of malaria vector exposure for providing an accurate spatial representation of risk of potential vector exposure.	Conducting a participatory GIS multi-criteria decision analysis with expert opinion, different fuzzy functions, environmental and population factor weights.
Alcorn et al., 2013 (Mexico)	To develop a GIS-based volcanic hazard and risk assessment of eruptions sourced for evaluating a possible future eruption.	Using a GIS-based volcanic hazard tool to simulate pyroclastic fallout and density currents
Torre et al., 2012 (Europe)	An approach for mapping the vulnerability of European Union soils to antibiotic contamination.	Performing a spatial assessment or GIS based MCDA techniques (Getis-Ord Gi statistic)

of knowledge-driven GIS and MCDM techniques can assist health related agencies to make a better decision for risk pollution and contamination (Torre et al., 2012; Liu, et al., 2012), healthcare services (Diaby et al., 2013), hazard assessment (Alcorn et al., 2013; Satta et al., 2016) and epidemiology (Fuller et al., 2014).

Although there have been attempts to develop a generic spatial MCDM framework for epidemiology, the original procedures in the older framework are still being used (Fuller et al., 2014; Lahue et al., 2016) with appropriate local modifications. In Malaysia, this technique has been used in studies on natural disaster and ecology, but its applicability in the context of disease or health, especially for TB and lung diseases, is still limited.

Malczewski (2006) discusses the benefit of integrating MCDA technique into GIS procedures by inserting value judgments with regard to assessment criteria in the spatial decision-making processes. However, experts have suggested ways to enhance the capabilities of the technique by utilising a public GIS participatory, big data and multidisciplinary methodologies (Comes et al., 2011; Stevens & Pfeiffer, 2011; Pfeiffer & Stevens, 2015). In technical aspect, the GIS based MCDM technique uses an index model that computes the index value for each unit area and produces a rank based on the selected environmental risk factors and local standard guidelines.

Weighted linear combination (WLC) is a common method for calculating the index value of the model in MCDA (Chang, 2011), in particular for incorporation factors and constraints (Malczewski, 2006). The model involves multi-criteria evaluation and depends on overlay operations for data processing as shown in Figure 1.
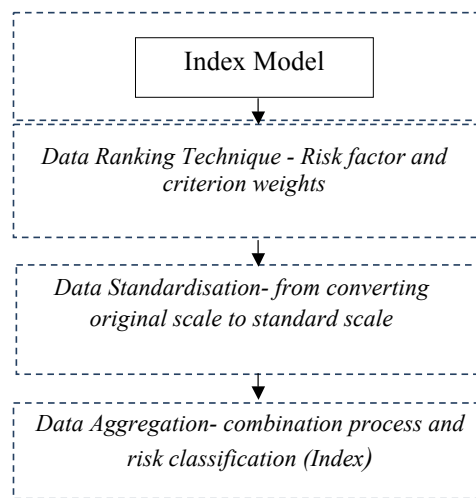
Figure 1. Three levels of steps to build an index using the WLC method for risk criteria selection (modified from Chang, 2011)

METHODS

The knowledge-driven GIS modelling approach is developed using weighted linear combination (WLC) in the GIS index model and MCDM technique. These techniques, adapted from Malczewski (2000) and Chang (2011), are data acquisition, data processing and model development.

Data Acquisition and Risk Factor Selection

Data collection was between 2013 and 2014. The primary source of data was local experts' opinion regarding the risk factors for TB transmission. Secondary data was obtained from several agencies according to environmental risk factors and maps needed. Earlier studies on global TB factors were reviewed to identify the risk factors in Shah Alam, mainly biophysical environment, demography and population, and socio-economic status of the residents (Table2). Base map and geographical information of Shah Alam were collected from the Department of Town and Planning Selangor, Google EarthTM, and related organisations. The information related to healthcare facilities and high risk groups were extracted from TB database of the official My TB system.

Table 2

Selected indicators and risk factors of TB in Shah Alam, Selangor

Indicators	Variables/Factors	Description/References
Biophysical environment	Urbanisation (land use)	Urban and crowded situation facilitates TB infection. (Liu et al., 2012; Harling & Castro, 2014; Wardani, Lazuardi, Mahendradhata, & Kusnanto, 2014)
	Types of house	The lower the cost of houses, the higher the risk of TB will be due to small spaces and limited ventilation
	Distance to healthcare facilities	If healthcare facilities are located far away from residential areas, the potential of people to contract the Tb is higher due to limited accessibility (Tudor et al., 2014)
	Distance to factory locations	Factory is a source of air pollution and can pose great health risks
Human and population	Number of Population	Spread of TB will be more rapid in a small and crowded environment. (Zaragoza Bastida et al., 2012; Erazo et al., 2014; Harling & Castro, 2014)
	High risk groups	High risk groups relate to low immune people and poor lifestyles such as diabetes, no BCG vaccine, non-citizen, young and senior citizen. (WHO, 2015)
Socio economic status (SES)	Household income	TB is linked to poverty, particularly among low-medium income households.(Wang et al., 2012; Yakam et al., 2014)

Data Processing and Model Development

Data is processed by (i) evaluating and ranking the criteria weights proposed by experts rank sum technique in MCDM; ii) calculating the score or weights of all the sub-criteria used based on guideline and reviews using the WLC method in GIS index model; (iii) model development; and (iv) generating TB risk maps using the

developed model (Figure 2). All datasets were processed and analysed using ArcGIS ESRI software, Google EarthTM and M. Excel platform. Each criterion or risk factor was ranked in a standardised value of 5 score scale from very low risk to very high risk. This score or weight was evaluated using rank sum techniques (1), expert opinion, and weighted linear combination (WLC) methods. Four experts from the Petaling District Health Office were interviewed to rank for each criterion used. This ranking technique is the simplest and most popular method employed to quantify the importance of weights by positioning it in rank order. Meanwhile, the local experts are chosen based on their actual work experience.

The lowest rank is 1 and the highest 7. In terms of socio economic status, the lowest criteria id rank 7 and the lowest weight is 1. Table 3 contains the list of risk factors, the weighted calculation and score standardisation. For example, type of house, which is ranked as 3 in the straight rank column, the weight value is calculated as 5 (i.e. 7–3+1). The weight value is divided by the total values of weight, which is 28 (and multiply with 1) to get the normalised weight value of types of house of 0.18. To classify the threshold value of the potential risk level of TB endemic into five scale rank, related guidelines from local agencies and statistical calculation were examined. The score and the weight of each criterion were multiplied and then summed up using an overlay process in ArcGIS to get the total score or the overall index (aggregate) value for each unit area of the risk map. This total score is standardised and classified to show

their risk level of the map. Score 1 and score 5 indicate the lowest and the highest risk level of the TB endemic respectively. The risk maps are validated using the current TB cases.
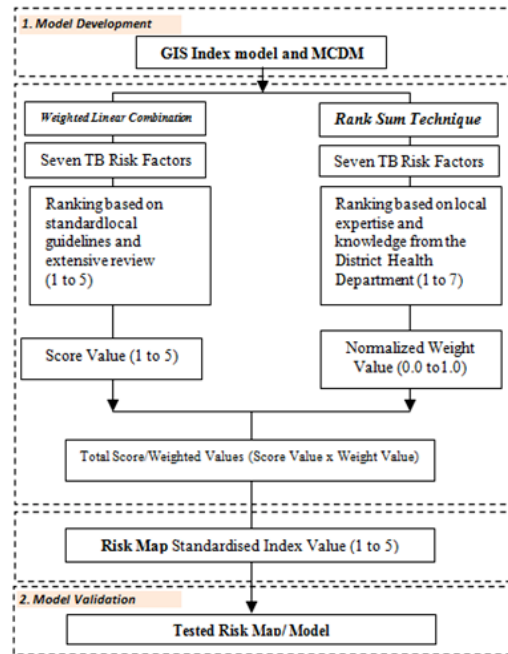
Figure 2. To build a GIS index model with the selection criteria of risk factors of TB risk map in Shah Alam

$$W_j = \frac{n - r_j + 1}{\sum (n - r_k + 1)} \qquad (1)$$

Formula (1) of rank sum weight:

W_j = the normalised weight for the jth criterion

n = the number of criteria under consideration ($k = 1, 2, 3 \ldots n$) and

r_j = the rank position of the criterion each of the criterion is weighted $(n - r_k + 1)$ and then normalised by the sum of all weights and that is $\sum - r_k + 1)$.

Table 3
The score standardisation of the TB risk factors derived from the experts' opinion

No	Risk Factor/Criteria	S_Weight (0 to 1)	S_Weight (%)
1	No_Population	0.25	25%
2	Concentration_High Risk Group	0.21	21%
3	Type_House	0.18	18%
4	Distance_Built Up (Factory)	0.14	14%
5	Type_Landuse	0.11	11%
6	Distance_Healthcare Facilities	0.07	7%
7	Status _Socio-Economic, SES	0.04	4%
	Total	1	100%

RESULTS AND DISCUSSION

The risk factors of Tuberculosis

The ranking of TB risk factors is important in this procedure. Seven risk factors were identified in this study (Table 3). Figure 3 displays the overall result of risk level (from 0 to 100). Results showed population (25%) and concentration of high risk group (21%) are the most important risk factors. It is followed by biophysical environment and socio-economic status that consists of type of house (18%), distance of factory from the house (14%), land use (11%), distance of healthcare facilities from housing location (7%) and household income or SES (4%).

Population is the main indicator of TB endemic in Shah Alam. The pattern of local TB dynamics in Peninsular Malaysia is also likely driven by human risk factors than by ecological risk factors (Abdul Rasam et al., 2016). Population-based factors is a common risk variable of TB. This is similar to TB-prone areas such as Latin America, Asia, and Africa because overcrowding
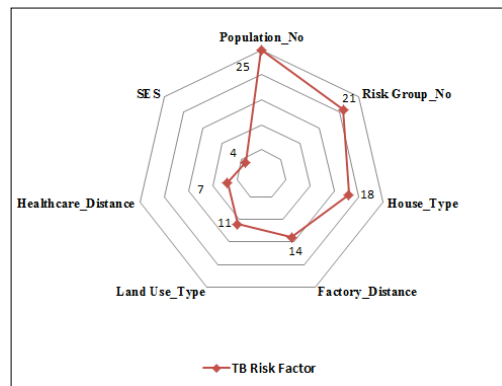
Figure 3. Risk level (percent) of the TB factors according to the selected experts' opinion in Shah Alam

can trigger such diseases (Zaragoza Bastida et al., 2012; Erazo et al., 2014; Harling & Castro, 2014; WHO, 2015). The WHO (2015) explains the characteristics of a person who is most at risk of TB: young adult, located in developing countries, HIV infected people with impaired immune system, and smoking. Human mobility is connected with the population factor which triggers TB (Lynn Feske, 2011; Nava-Aguilera et al., 2011).
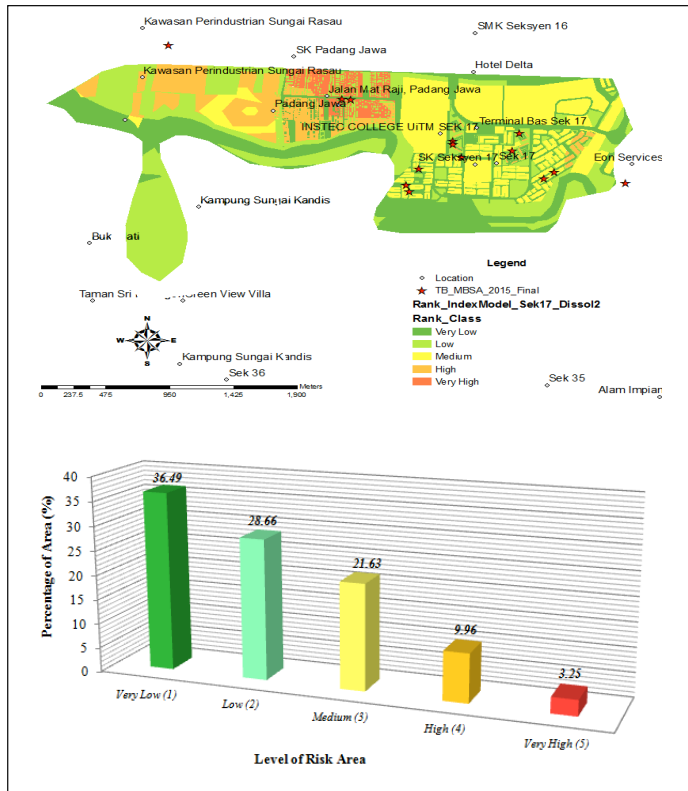
Figure 4. Spatial visualisation and percentages of potential TB risk areas in Section 17 Shah Alam, Selangor

The Risk Areas of Tuberculosis

Determining the potential areas of the TB endemics in Section 17, Shah Alam is important identifying future endemics in a spatially explicit way. Figure 4 shows the potential high risk areas, 34.85%. The overall situation of TB in Section 17 is still considered as medium risk and under control. In terms of geographical characteristics, the risk areas are more populated, urbanised and crowded due to rapid human concentration and mobility between Shah Alam and crowded cities such Klang. The combination of population and ecological risk factors are indicators of high risk areas as shown in Figure 5.

Most of the locations at risk in Section 17 share similar risk factors such as being located in a crowded urban area (Liu et al., 2012; Wardani et al., 2014; Harling & Castro, 2014; Zaragoza Bastida et al., 2012; Erazo et al., 2014; Harling & Castro, 2014) and their proximity to factories and commercial areas. They could also come from low and medium income levels (Wang et al., 2012; Yakam et al., 2014; WHO, 2015). Interestingly, the study found the distance of facilities and type of house are

(a)

(b)

Figure 5. The effect of ecological indicator is more influential than population based indicator on the potential risk areas of TB

likely not linked with to greater likelihood of TB incidents although these factors are the main contributors of spread of TB worldwide.

In terms of map validation, the model accuracy for Section 17 is relevant as most of the current cases are located in the potential risk areas. However, there are pockets of high risk areas within low risk areas due to spatial uncertainty. This study does not only show environmental landscapes in high risk areas, it has also demonstrated the capacities of a GIS-based MCDM technique to develop a predictive model for identifying TB prone areas as well as prevention programme in the study area.

CONCLUSION

A multidisciplinary approach to control and prevent TB comprehensively is needed. Apart from bio-medical approaches, a GIS-MCDM based model can be also used as a surveillance tool in order to assist the health staff to establish an intervention programme on the sites. The findings from the risk map showed the level of potential risk in Section 17 is a medium rate. The spread of TB in the urban and populous environments are mainly

due to human risk factors than by ecological risk factors. The mapping model derived from this GIS context could be used for targeting specific TB risk areas and having a screening programme. It is also suggested that other risk factors and GIS based MCDM techniques need to be explored for more dynamic result and prediction of localised disease risk transmission.

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When Money is the Reason: Preliminary Evidence of Legal Business Compliance with Anti-Money Laundering (AML) Obligations

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ABSTRACT

Since 2004, legal practitioners in Malaysia are regarded as reporting institutions under the Anti-Money Laundering (AML) regime, with several statutory obligations imposed upon them involving record-keeping, customer due diligence, reporting suspicious transactions and implementing the compliance programme within their legal firms. However, official reports indicate that since then, the lawyers' compliance with such duties is rather dismal. It is within this context that this paper seeks to examine their rationale not conforming to their statutory obligations. This paper adopts a qualitative approach. Primary data is obtained from seven case studies of legal firms in the country, which is triangulated with t data from the Central Bank and the Bar Council. Preliminary findings suggest that apart from legal professional privilege and assurance of client confidentiality, business rationality, and the cost-benefit analysis significantly contribute to the unwillingness of lawyers to comply with their AML obligations.

INTRODUCTION

The inclusion of businesses under the Anti-Money Laundering regime can be traced to 1990 when the financial institutions were first included as gatekeepers under the AML regime. Soon after the Financial Action Task Force (FATF) in 2003 extended its gatekeeping mandate to other businesses such as the legal profession,

accountants, money services business, casinos, and precious metal dealers and stones. The inclusion of firms under the AML regime comes with several mandatory obligations, which require their compliance. However, concerns have been raised by the authorities about the level of compliance of such gatekeepers, in particular, the legal business, as being rather dismal. The primary objective of this paper is to examine the justifications for the lack of compliance by Malaysian businesses, particularly the legal practitioners, in complying with their obligations under the AML regime. The first part of the paper examines the legislative setting of the anti-money laundering law. The second part discusses the legal obligations under the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act (AMLTFPUAA) 2001. The third section reviews the literature on the lack of compliance by lawyers in adhering to their AML obligations. The fourth part explains the methodology adopted in this research. The fifth section, which is the crux of this paper, highlights preliminary findings of the research focusing on the factors hindering the legal business and legal practitioners' compliance with the AML law such as the legal professional privilege and the assurance of client confidentiality, business rationality, and the cost-benefit analysis. The following section examines the relationship between the findings and the literature on such compliance. The final section concludes the paper.

Legislative Setting of the Anti-money Laundering Law in Malaysia

The development of anti-money laundering law in Malaysia is influenced by the international and regional instruments on money laundering, namely the Vienna Convention, the Palermo Convention and the Asia Pacific Group on Money Laundering (Castle, 1999). The anti-money laundering law in Malaysia has been in existence since 2001. Before 2001, such crime was governed by the Drugs Dangerous (Forfeiture of Property) Act 1988, section 18 of the Prevention of Corruption Act, 1997, Section 411 to Section 414 of the Penal Code (Hamin, Othman & Kamaruddin, 2014).

In May 2001, the anti-money laundering law was passed in the Malaysian parliament, which adopted the FATF 40 Recommendations and subsequently came into force in January 2002, known as Anti-Money Laundering Act 2001 (AMLA) (Singh, 2002). Hamin, Omar and Kamaruddin. (2015) found that in 2004, Malaysia amended its anti-money laundering law so as to keep pace with the FATF 2003 Recommendations. With this amendment, the designated non-financial businesses and professions (DNFBPs) including the legal profession were made as one of the gatekeepers or reporting institutions under the AML regime and the beginning of the criminalisation of terrorism funding. Also, such amendment led to a name change from AMLA to the Anti-Money Laundering Anti-Terrorism

Financing Act 2001 (AMLATFA 2001). Dhillon, Ahmad, Rahman, and Miin, (2013) assert that the AMLATFA is very much a big leap in the history of Malaysian legislation a as its coverage is wider compared with other previous statutes.

In 2014, the Malaysian government had overhauled the AMLATFA to be in accord with the FATF 2012 40+9 Recommendations. The recent amendment led to a name change, now known as the Anti-Money Laundering, Anti-Terrorism Financing and Proceeds of Unlawful Activities Act (AMLATFPUAA) 2001 (or the 2001 Act). Other changes involve the creation of new offences for money laundering such as smurfing and cross-border cash transfers; clarification on the duty to report by the reporting institutions under Section 14. A new Section 14A was created to prohibit the disclosure of reports and related information that have been provided to the competent authority (Hamin et. al., 2014).

Statutory Obligation of Legal Professionals

The term gatekeeper means an independent watchdog or someone who screens flaws or defects or who verifies compliance with standards or procedures (Coffee, 2006). In the context of money laundering, the term gatekeeper is known as someone who screens out any wrongdoings of their clients or persons associated with their business concerning AML/CFT wrongdoings (Sullivan, 2011). As one of the gatekeepers under the AML regime, legal practitioners are required by law to comply with their legal obligations stated in Sections 13 to Section 19 of the AMLTFPUAA 2001. Such duties of the gatekeepers are in pari materia or similar to the FATF Recommendations. For instance, Section 16 of the 2001 Act provides that legal professionals must establish customer due diligence when dealing with their clients. Such duties include taking and maintaining a proper customer identity as well as restriction on dealing or maintaining anonymous accounts when establishing any business relationship with the clients.

In addition to building a client profile, Section 13 and Section 17 of the 2001 Act also required legal practitioners to exercise their record keeping and record retention measures obtained from due diligence process. The records should be kept for six years from the date the relationship was established. Section 13 (3) stated the types of information that should be held by reporting institutions. For example, the identity and address of the person in whose name the transaction is conducted, the identity and address of the beneficiary or the person on whose behalf the transaction is conducted and the identity of the accounts affected by the transaction. Other information includes the type of operation involved, such as deposit, withdrawal, exchange of currency, cheque cashing, purchase of cashier's cheques or money orders or other payment or transfer by or through, or to such reporting institution and finally, the date, time, and amount of the transaction.

Section 14 of the 2001 Act provides for the duty to report on any suspicious

transactions to the Central Bank of Malaysia or the Bank Negara. Such reporting obligation under the law arises when any transaction of which the identity of the person involved, the transaction itself or any other circumstances concerning that transaction gives any officer or employee of the reporting institution any reason to suspect that the transaction involves the proceeds of an unlawful activity or instrumentalities of an offence (Section 14 (1) (b) of the 2001 Act). The reporting institutions are required to create a proper system of notification for the submission of the Suspicious Transaction Reports (STRs), which would provide the guidelines for the identification of the red flags within the reporting institution (Hamin, Omar, Rosli & Kamaruddin, 2015; Omar, Johari, Azam, & Hakim, 2015).

Finally, Section 19 of the 2001 Act deals with the obligation of the reporting institutions to implement a proper internal control process within their businesses for AML/CFT monitoring purposes (Hamin et.al, 2015). Yasin (2015) remarks that the duties under Section 19 are known as the four-fold functions. These obligations include the creation of specific policies and procedures for anti-money laundering measures, training and awareness programme for the employees, the appointment of an independent audit and the appointment of the compliance officer within the legal firms or reporting institutions.

LITERATURE REVIEW ON THE LAWYERS' AML COMPLIANCE

The extensive literature on money laundering suggests that such crime is a financially-related crime involving the essential act of conversion and concealment of the illegal source of funds into legitimate ones. For instance, the Financial Action Task Force (FATF), an inter-governmental body that oversees the policies to counter money laundering and terrorist financing, defines money laundering as the processing of a vast number of criminal acts to generate profit for individual or group that carries out the act with the intention to disguise their illegal origin, in order to legitimize the ill-gotten gains of crime (FATF, 2002). Similarly, Houpton (2009) has defined money laundering as a process in which criminals attempt to hide the origins and ownership of the proceeds of their illegal activities. Also, Shehu (2004) defines money laundering as an effort to disguise the true origin, source, ownership and sources of wealth derived from crimes and legitimize the income.

Studies show that there was a shift of platform in the commission of such crime from the financial institutions to the professionals including the legal practitioners. This is due to the strict implementation of anti-money laundering regulation within the financial industry (FATF Typology Report 2002). Choo (2014) asserts that the shifting of the platform to

launder money by criminals are due to the services provided by the professionals and businesses that the criminals can utilise to perform series of transactions. Such services include transferring the money through offshore companies and purchasing goods for resale, before channelling the proceeds into the legitimate financial system. Legal and financial professionals have become unwitting accomplices in this complex money laundering schemes, particularly those involving significant financial fraud and organised crime (Global Money Laundering and Terrorist Financing Threat Assessment, FATF 2010: Benson, 2014).

It has been argued that the imposition of AML statutory obligations upon the legal practitioners are impacting on client privilege and thus, affecting the legal profession. For instance, the FATF indicates that the ethics of the legal profession and the traditions of client secrecy are hindering the duties imposed upon the legal practitioners (FATF Typology Report 2003-2004). Similarly, Gregory (2003) notes the implication of the legal profession as gatekeepers under the AML regime has led to a debate on the attorney-client legal privilege. Shepherd (2013) on the other hand, speculates that the imposition of duties on lawyers would dissuade the clients with potential legal issues from seeking advice from lawyers and thus making the former more likely to break the law.

Yasin (2004) opines this obligation will impact on Malaysian lawyers while Hamin et al. (2015) argue that the AML duties on the lawyers would, to a certain extent, be inconsistent with their legal professional privilege and thus impacting on their legal profession. Additionally, the APG report 2007, the APG Report 2015 and the Bank Negara Compliance Report 2011 state that the low level of compliance by the legal practitioners in Malaysia can be partially attributed to the client-attorney privilege.

Literature has also examined the financial implication or the cost benefit analysis of the AML compliance. For instance, Koh (2013) speculates that the economic impact is the primary concern of the legal professionals in fulfilling their obligations. He argues that lawyers are concerned about breaching their professional ethics as they consider their roles as legal advisors to their their clients rather than policing them (Koh, 2013). Satar (2013) highlights that money laundering has led to legal firms losing 10 percent of their revenue in addition to incurring extra costs (25%) to install a proper system to reduce such crime.

According to Antonius (2013), there are numerous budgetary and administrative constraints facing businesses in putting an appropriate AML system in place. External challenges include geographical boundaries, market penetrations, sophisticated crime typologies, and increased regulatory expectations. It is, therefore, imperative that businesses carry out the cost-benefit analysis on a periodic basis so as to ensure that the proper system is in place to monitor the AML activities (Antonius, 2013). In the

context of the financial services industry, Gruppetta (2015) asserts that the efforts to tackle money laundering and comply with the financial sanctions are costly and time-consuming. The same limitations could apply to the legal firms operating in Malaysia, which are mostly small and mediums-sized firms.

There are very few studies focusing on the topic of business rationality in the context AML compliance by the legal profession. For example, the International Monetary Fund Report (2006) highlighted the reluctance of non-financial businesses and profession (DNFBPs) such as the legal profession and the money services business to expend their resources in ensuring compliance with their AML obligations as it would defeat the purpose of establishing their business. The APG Report on Malaysia in 2007 and 2015 have consistently reported on the low level of compliance by the legal profession. Lack of conformity was also due to limited resources within the legal firms. As a result of such lack of compliance, the internal control measure has not been satisfactorily achieved (APG Report 2007; APG Report 2015).

METHODS

This study adopted is a qualitative research aimed at providing a deeper understanding of the AML regime in Malaysia and the compliance of the legal profession with it (Silverman, 2005). Preliminary findings of this research are based on the analysis of primary and secondary data: The first stage of the data collection stage was literature review in which all of the relevant studies on money laundering and the compliance of legal professional to the anti-money laundering regime were evaluated. The primary source was the Anti-Money Laundering Anti-Terrorism Financing Proceeds of Unlawful Activities Act 2001 (AMLATFPUAA 2001), and the secondary sources were textbooks, academic journal articles, government reports, newspaper articles, and online sources.

The second phase of data collection involved fieldwork, and adopting a case study research design. Such design involved six units of analysis representing two large, two medium sized and two small sized legal firms within the Klang Valley. The instrument for the case study was face-to-face semi-structured interviews, using purposive sampling technique, with 20 respondents who are lawyers, office managers and the compliance officers Primary data obtained from the interviews was triangulated with the those obtained from two representatives of the Malaysian Bar Council and the Central Bank of Malaysia respectively, as well data from fieldwork. The interviews were digitally recorded and transcribed and later analysed using Atlas ti qualitative software and content analysis approach.

RESULTS

Preliminary Findings

This research is currently at data analysis stage and for the purpose of this paper, some preliminary findings are highlighted.

Legal professional privilege. Results revealed that regardless of the size of the legal firm, the existence of legal privilege and assurance of confidentiality among the Malaysian lawyers under the Section 126(1) of the Evidence Act 1950 had, to some extent, impeded their compliance with the AML regime. Despite the fact that professional secrecy has been overridden by Section 20 of the 2001 Act, the majority of the respondents were unaware or ignorant of such provision and its implications. Indeed, they believed that their responsibilities were to uphold their clients' secrets. As a result of such adherence to these duties, they have never reported or were reluctant to report to the Financial Intelligence Unit (FIU) at Bank Negara of any suspicious transactions involving their clients.

Cost benefit analysis. The imposition of the legal duties on lawyers to prevent money laundering occurring within their legal firms had financial implications for the respondents. . Except for large legal firms, the majority of the respondents believed that the economic effect of the AML statutory obligation, in particular, the requirement of Section 19 concerning the internal control measures, were burdensome on them. They opined that such demands were rather costly and challenging for them and suggested appointing a compliance officer as well as an independent auditor to check the internal control measures, specific AML training for their employees and finally specific AML policies and procedures in place within their firms. Apart from the financial burden to fulfil the Section 19 requirement, findings also revealed that many respondents were unaware of their specific obligations under this particular section and as such, have failed to carry out such duties.

Business rationality. In the context of business rationality, more than half of the respondents felt that adherence to the AML statutory obligations would defeat their purpose as profit making entities. The respondents also expressed the view that their primary purpose was to solve their clients' problems rather than make them more complicated. When asked about their suspicions of money laundering activities involving their clients, the majority of the respondents stated that rather them taking any action against such clients under the anti-money laundering law, they would politely refuse to act further on behalf of such clients. They believed that such measure would prevent unnecessary confrontations or disputes with such clients, which would be more prudent and less financially risky than reporting the matter to the relevant authorities.

DISCUSSION

This study highlighted some of the rationale that prevent compliance of legal professionals to AML obligation. It is apparent that professional privilege and the duties of confidentiality have remained the main concerns of the Malaysian lawyers. Given that such legal professional ethics guided the respondents' actions, their adherence to their legal duties as the gatekeeper

for anti-money laundering activities has taken a back seat. Such findings confirmed those of Gregory (2003) who noted on the possible conflict between the attorney-client privilege and the AML statutory obligations of the legal professionals. Also, within the Malaysian context, the findings confirmed Hamin et al. (2015), Yasin (2004) and Koh (2013) who suggested that the AML statutory obligations imposed upon the legal practitioners were contrary to the legal professional's privilege under Section 126 (1) of the Evidence Act 1950. Such findings were also in line with the official reports from the FATF 2002, the APG Report 2007 and the APG Report 2015, which have reported on the same issues.

The above findings also showed that the financial implication was significant, in particular, the requirement to implement the four-fold of mitigation measures of the internal control process under section 19 for small and medium scale legal businesses. Such findings verified Koh (2013) who contended on the financial implication of putting a proper AML system in place within the legal firms. Also, the results confirmed those of Satar (2013), Antonius (2013) and Gruppetta (2015) who were similarly concerned about the rising cost of implementing the proper AML measures.

Findings revealed that the existence of business rationality consideration further contributed to the low level of compliance by the legal practitioners to their AML obligations. Such reluctance to comply with their AML duties confirmed the recent views of Hamin et al. (2016) and Koh (2013) who indicated that the primary motivation of the legal business was on profit making rather than assisting the State in policing money laundering activities.

CONCLUSION

The inclusion of lawyers as one of the gatekeepers of the AML regime is controversial. The State one the one hand is attempting to address the vulnerability of lawyers as a conduit to money laundering while at the same time place some responsibility on the legal profession to monitor money laundering activities of their clients. On the other hand, despite such legal obligation, lawyers tend to remain loyal to their clients as part of their privileged relationship requiring them to be professional and practise confidentiality. Findings of this study suggest that the low level of compliance by lawyers were due to both their privileged relationship with their client, the cost-benefit analysis of conformity and business rationality of the legal actors. These preliminary findings confirm official reports and literature findings on the extent of compliance by lawyers and their firms to their AML obligations. As there was no evidence to show that the authorities would come down hard on the lawyers for their lack of compliance to the AML law, the status quo will prevail.

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Strategies to Enhance Assignment and Feedback Practices in the 21st century Classroom: A Case Study

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ABSTRACT

This study was conducted to examine assignment and feedback practices of students in a B. Ed TESL programme. It also identified strategies to enhance the implementation of formative assessment in higher education. Questionnaires and interview questions were used to collect data. The study indicated a moderate level of assignment and utilisation of feedback practices by B. ED TESL students. Three important strategies that have been identified were "giving constructive feedback", "improving the conduct of assignment practices" and "improving the utilisation of feedback". The findings imply that there is a need to further improve assessment strategies which would assist lecturers to plan and conduct assessments to cater to the needs of students.

Keywords: Assignment, feedback, formative assessment, higher education, practices

INTRODUCTION

According to Popham (2008, pp. 7-8), the concept of formative assessment process is a planned process which consists of several tests or assignments in multi-steps. These tests or assignments assess the learners' capabilities and through the teacher's feedback, the materials and assignments can be further refined. In this context, assignments refer to assigning learning tasks during teaching (Black & William, 2009). This is also known as formative assessment which can be in any form as long as the task is meant to close the knowledge gap between learners (Black & William, 2009). The different tasks are effective in obtaining an accurate picture of the student's learning abilities (Regier, 2012). Usually in higher education, the tasks are synonymous with 'assignments'.

Assignments play a significant role in enhancing learning. According to Elliot, Suda, Hamilton, Curry, and Byrd (2014), the elimination of learner-centred assignments has led to a decline in students' academic performance. Decrease in out-of-class assignments has reduced student-centred learning because they have fewer chances of applying the course content outside the classroom. Students also have less opportunities to demonstrate their understanding of course content and received less feedback on their progress in the course (Elliot et al., 2014). The findings of this study point to the importance of assignments in enhancing learning and thus, proper instructions are important.

In formative assessment, assignments practices can be enhanced by making feedback compulsory, and by providing immediate feedback (Fulton, Ivanitskaya, Bastian, Erofeev, & Mendez, 2013; Garner, Gusberg, & Kim, 2013; Mullet, Butler, Verdin, Borris, & Marsh, 2014). Fulton et al (2013) also emphasise the importance of deadlines in assignments. They found that deadlines enhanced learning by allowing students to gain control over their pace of learning with short delayed information retention and near information transfer in their learning processes (Fulton et al., 2013). In making feedback compulsory and immediate, Mullet et al (2014) found that students who received delayed feedback felt disconnected between actual and perceived effectiveness. On the other hand, Garner, Gusberg and Kim (2013) found that immediate feedback encouraged students'

learning in addition to developing positive relationship between the students and their lecturer. Accordingly, assignment practices can be implemented in the program to intricate all of the advantages of immediate feedback by upgrading its' conduct.

The idea of formative assessments still needs to be promoted vastly to the lecturers in general, although some institutions have implemented it effectively. A study on 534 lecturers in 33 public and private higher institutions in Malaysia on assessments on learning suggests that the Malaysian lecturers do implement assessment for learning practices though they are several limitations during the implementation, for instances, in giving feedback, using a diverse method, or employing grading system which promotes the students' effort in finishing the task (Tunku Ahmad et al, 2014). The study also depicts that the lecturers conduct less formative assessment because of their lack of exposure to formative assessment which is different than the traditional assessment practices (Tunku Ahmad et al, 2014). The surfacing of formative assessment in language studies has also been reviewed by Derrick and Ecclestone (2006). In their reviews, most of the studies on formative assessments in language learning discovered the issues of pedagogy, applicable in general to the subjects as well as the contexts. For example, the shortcomings of summative assessment processes on deeper learning and the importance of formative assessments techniques to carry more weightage than summative assessments in instruction and learning. Most of the studies were also more

inclined to the learning of younger learners in which the researches were conducted more in primary schools than in secondary schools or tertiary learning institutions. It seemed that scarce literature has been done on formative assessment in the area of higher education learning, focusing on the demographic factors of the learners. Therefore, this study deems to investigate on the assignment and feedback practices experienced by students as well as strategies to enhance the implementation of formative assessment in a program in higher education.

METHODS

This study was designed to address the key issues of student-driven assessment strategies in the 21st century classroom in higher education in Malaysia. The researchers utilized a set of questionnaire which contained open and closed ended questions. Besides that, a set of semi-structured interview questions was also used to obtain information to answer the research questions. The research questions of this study were identified as follow:

- What are the student-driven assignment practices which have been observed in the classroom?

- What are the best student-driven practices of feedback that have been observed in the classroom?

- What are the strategies to improve the implementation of formative assessment in higher education?

The population identified was the undergraduates from a B. Ed TESL program in a public university in the state of Selangor. A total of 105 undergraduate respondents were selected using random cluster sampling to answer the questionnaire. As for the interview, four students and four lecturers were purposely selected for the interview sessions. The questionnaire was adopted from Chan's earlier study entitled ''Current Practices of Assessment in Higher Education in the United States' (2011). The reliability of the instrument was determined through Cronbach Alpha and it was confirmed to be reliable with the value of .76. The validity of the interview questions and the questionnaire were examined through subject experts. The criteria for student respondents were, they must be the undergraduates of B. Ed TESL program and have experienced formative assessment for at least a semester. While as for the lecturer respondents, they must have at least three years of teaching experience in B. Ed TESL program in higher education.

RESULTS AND DISCUSSION

Student-Driven Assignment Practices

Table 1 shows the mean scores for student-driven assignment practices in the programme. All of the items had the mean scores between the ranges of two to four. It was deduced that the average level of assignment practices was in the range of 'Agree', 'Almost Agree' and 'Disagree'. Items which gained higher mean scores in the assignment practices dimension were

identified as 'When I do small assignments, I learn better' (M=4.10, SD=.76), 'I feel that tackling the assignments really makes me think' (M=4.07, SD=.75) and 'I need to analyse, synthesize and evaluate while completing my assignments' (M=4.00, SD=.77). Meanwhile, the three items of assignment practices with comparative lower mean scores only at almost agree level were 'When I tackle an assignment it is not clear what I would count as successful answer' (M=2.52, SD=.89), and 'I feel

that the assignment are very challenging' (M=2.31, SD=.82).

The findings from the questionnaire were supported through the responses from the open-ended questions and the interview. It was found that when students finished their assignments, they learned more and better. From the open-ended questions, four student respondents stated that when they did small assignments, they learned better in understanding the topics of the course, and improved their interpersonal skills.

Table 1
Student-driven assignment practices in B.Ed TESL programme

Student-Driven Assignment Practices	Mean	SD
When I do small assignments, I learn better	4.16	.76
I feel that tackling the assignments really makes me think	4.07	.75
I need to analyse, synthesize and evaluate while completing my assignments	4.00	.77
My lecturer uses small assignments in the course	3.95	.80
I self-reflect on my own work in finishing the assignments	3.84	.89
The assignments give very clear instructions about what I am expected to do	3.84	.75
Doing assignments are better than exams, because I can get assistance from others	3.81	1.01
I learn more from doing the assignments than from studying the course material	3.48	1.01
In completing the assignments I can get away with not understanding certain concepts but still get high marks	3.20	1.14
When I tackle an assignment it is not clear what I would count as successful answer	2.52	.89
I feel that the assignment are very challenging	2.31	.82
Overall Mean=3.54	Overall SD=.35	

(Scale: 1=Strongly Disagree, 2=Disagree, 3=Almost Agree, 4=Agree, and 5=Strongly Agree)

For example, respondent R1 said that assignments are really helpful since it is an ongoing activity throughout the semester.

"It shows progress of my understanding and ability to apply

it better than final examination."
(Respondent R1)

Meanwhile, respondent R2 also highlighted on the benefits of feedback on his interpersonal skills.

"It would help me to gain a better understanding on a particular topic as well as gaining experience from interacting people which helps on my interpersonal skills." (Respondent R2)

The findings from the interview conducted with the lecturers also supported that the assignments were helping the students to learn better. A lecturer, respondent L2 explained that assignments were given to the students as a means to guide them in a continuous learning process.

"Assignments are given for the purpose of assessment and also as part of their continuous learning process." (Respondent L2)

Overall, the findings obtained from the open-ended questions and interviews supported that the use of assignment had enhanced the learning in higher education. The assignment practices were perceived to be at the moderate level, based from the result in the questionnaire. It is found that assignments can be delivered more effectively if they are given in a focused scope, and should be able to stimulate the learners' thinking. Assignments should also promote brain activities such as analysing skills, synthesizing skills and evaluating skills. As a result of lecturer-student communication through feedback, students should develop their interpersonal skills while working on their assignments. Lastly, assignments must be a form of guidance

in students' learning process for it to be effective as a student-driven assessment in the 21st century education. The result is congruent to the findings in a study done by Elliot et al (2014), in which the elimination of learner-centered assignments in a course has decreased the students' academic performance and their satisfaction on the course. Coherently, Lee (2002) found that learner-centered assignments helped in the students' strategy and self-regulation which aided students in planning and revising their learning. This proves that from doing assignments, students learn better by developing their strategies in self-regulated learning.

Utilization of Feedback Practices in B.Ed TESL Programme

Table 2 depicts the mean score of utilization of feedback practices experienced by the students. From Table 2, most of the respondents strongly agreed that they tried to avoid similar mistakes for revising (M=4.20, SD=.86), read the feedback carefully and tried to understand what it meant (M=4.04, SD=.81), used the feedback to go back over what they had done in the assignment (M=4.03, SD=.73). Conversely, most of the respondents moderately agreed that the feedback did not help them with any subsequent assignments (M=3.99, SD=.77), they tend to only read the marks given without referring to the feedback provided (M=3.94, SD=.90) and the feedback prompted them to go back over material covered earlier in the course (M=3.61, SD=.87). The computed construct

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Table 2
Student-driven feedback practices in B.Ed TESL programme

Utilization of Feedback	Mean	Std. Deviation
I try to avoid similar mistakes for revising	4.20	.859
I read the feedback carefully and try to understand what it means	4.04	.808
I use the feedback to go back over what I have done in the assignment	4.03	.727
The feedback does not help me with any subsequent assignments	3.99	.766
I tend to only read the marks given without referring to the feedback provided	3.94	.960
The feedback prompts me to go back over material covered earlier in the course	3.61	.872

(Scale:1=Strongly Disagree, 2=Disagree, 3=Almost Agree, 4=Agree, and 5=Strongly Agree)

of 'Utilization of Feedback Practices' was done to find the overall mean score on the utilization of feedback practices.

Based from the open-ended questions, the students agreed that they mostly used the feedbacks to avoid doing similar mistakes again. For example, one student, student respondent R16 claimed that the feedback helps him to reflect on his mistakes and he would avoid them in the future. He said:

"The feedback makes me reflect on mistakes that I have done and I am more careful so that I would not do the same mistakes in the future." (Respondent R16)

On the other hand, two of the lecturers felt that students who utilized the most feedback were the students who came to see them to have further consultation to discuss on the feedback which were given to them. For example, lecturer respondent L4 claimed that students who met him for further consultations and asked about the feedback stated in their assignments to improve their mistakes would be the group who would learn much.

"So those who care to actually listen and maybe come face to face and see me are the students whom I believe will learn much. …… Most of the students would, normally won't come back to me to ask me after they receive back their assignments.. Only a few, who are usually the same person would come and these people would usually perform in the class. This is because, they have the positive attitude to come to me. Sadly, majority of the students do not like to come to me." (Respondent L4)

According to another lecturer respondent, L1, students who met her face to face and engaged her with questions would improve further than the others.

"Yes, some students improve more than others especially those who see

me face to face, those who engage me with questions." (Respondent L1)

According to Samah (2013), negotiation of meaning is one of the ways of helping students grasp the understanding on feedback given to avoid mistakes in the future. Students were recommended to have oral and impromptu discussions with the teacher during the class to understand the feedback. Shamsad and Faizah (2009) found students to fully utilize the feedbacks given to improve their draft in writing tasks by reading and carefully understand the feedback. Ene and Upton (2014) supported this finding by positing that feedback could prompt revision to revise the mistakes corrected and improve them in their next draft. Moreover, Kleitman and Costa (2014) found that feedbacks which develop metacognitive skills were effective in making the students realized of their strategies in learning such as revising back the materials in order to know the instruction expectation and to avoid doing silly mistakes in the assignments. Feedbacks were seen to be used most when they revised and reflected (Kleitman & Costa, 2014). Therefore, it is clear that feedback can be used to avoid mistakes by negotiating its meaning with the lecturer, to improve the next draft through revision on the materials and the previous tasks.

Thus, it was inferred that the student respondents do utilize the feedback by trying to avoid similar mistakes for revising, reading the feedback carefully and try to

understand what it meant and used the feedback to reflect on what they had done for the assignment. From the interview, it was found that the students who asked further about the feedback given for their assignments would be the most to learn from the mistakes and developed in their learning.

Strategies to Improve Formative Assessment in the 21st Century Classroom

Analysis of data provided three important assessment strategies: " provide constructive feedback", " ensure utilisation of feedback by the students" and "improve the conduct of giving assignments" in the course. The three important themes are portrayed in Figure 1.
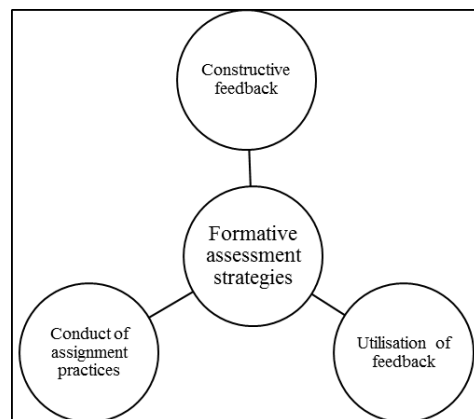

Figure 1. Strategies to improve formative assessment practices in B. Ed TESL programme

Providing constructive feedback. In order to improve formative assessment practices, more than 80% of the respondents suggested constructive feedback from their lecturers

whereby the latter should highlight student mistakes to improve their learning.

"The students should know where the mistakes are and by having feedback, students can actually improve themselves. I also think lecturers should provide feedback for every assignment so that students know their strength and weaknesses." (Respondent R42)

The feedback should also be more specific: "I think every lecturer must give guidance and help regarding on how to complete the assignments and give feedback through written" (Respondent R43). "Feedback should be given personally and it should be honest with the intention of preparing students to face the real-world problems" (Respondent R44). Respondents also prefer written rather than verbal feedback.

Encouraging feedback from their peers could also help reduce the lecturer's burden in providing feedback to every student. "The lecturer should initiate peer evaluation, especially for presentation and group work. Encourage peer to provide immediate feedback, so it'll become more effective" (Respondent R46).

There was suggestion also of feed-forward type of feedback to the students before they began with their assignments. "Give rubrics to students before introducing and giving the assignments so it would make and help the students to get clearer image of the assignments" (Respondent R48).

Thus, respondents also agreed that feedback should be constructive, be it negative or positive.

Wiggins (2012) pointed that quality feedback were those which were constructive, goal referenced, tangible and transparent, actionable, user friendly, timely, ongoing and consistent. Li (2007) suggested that feedback from peers should be constructive which would improve the students' learning experience. Therefore, respondents suggested providing constructive feedback which are focused on their strengths and weaknesses.

Utilisation of feedback to improve learning among the students. In order to enhance formative assessment practices, about 12% of the respondents suggested that students must utilise the feedback given to them. Students should realize their responsibility to review the feedback in order to acknowledge the strengths and weaknesses of their learning. "Maybe ask students to meet with lecturers personally for consultation if they need verbal feedback" (Respondent R50).

Lecturers also played a significant role to ensure the students learn from the feedback. Lecturers were urged to check students' progress on their assignment regularly because this will avoid procrastination and enhance students' understanding.

"Lecturers need to check students' progress with their assignments. This will avoid procrastination. It will help enhance students'

understanding. This will help lecturer to give feedback." (Respondent R51)

Findings indicate that lecturers do provide assistance for the students to complete their assignments.

"Normally I'd say that they would come to see me only when the due date for the submission is near. So, that shows their attitude, like procrastinating. When the due date is near, then would only they be worried about the assignment." (Respondent L4)

Willis (2011) suggested that learners' autonomy emerged when formative assessments are applied. The students acted as a knower and expressed their identities through the explicit and tacit of learning as well as negotiating with the lecturers on their learning. Yan and Cheng (2014) also explained that instructors who had a favourable instrumental attitude, a positive subjective norm and high level of self-efficacy would commit highly to formative assessment. In addition, Ruiz Primo (2011) inferred that dialogues with lecturers would assist students to think conspicuously based on the feedback discussed to construct their learning. Hence, lecturers and students play significant roles in utilisation of feedback. The utilisation of feedback was found to be a step to improve formative assessment in the programme. Utilisation of feedback can be enhanced through student and lecturer awareness of the importance of feedback in learning and instruction.

Improving the conduct of student-driven assignments. Another way to improve formative assessment in the programme was to improve the conduct of assignments. About 8% of the respondents believed to improve the conduct of assignments, feedback must be made compulsory and immediate when giving and returning assignments (R52, R53, R54). They also suggested for the lecturers to fix the deadlines of assignments accurately in order to enhance the conduct of assignments and feedback practices. It was suggested the assignment due dates are scheduled to have adequate interval period to allow the assignments to be returned to the students with feedback. "Assignments should be given fixed due dates and there should be time interval for each assignment given" (Respondent R52).

The conduct of assignment could be improved by giving feedback immediately. Feedback should be provided instantly after giving the assignments to students so that they can response to it as soon as possible and improve. "It depends on different courses. But the lecturers should provide instant feedback so the students can response and improve better" (Respondent R53).

Students also suggested for the feedback to be compulsory and immediate. If feedback was made compulsory, all assignments would be returned back with comments from their lecturer. "By making feedback

compulsory, all assignments would be returned with feedback from the lecturer" (Respondent R54).

The finding are consistent with those in the literature. Mullet et al (2014) agreed with the importance of feedback, in which they found that students who received delayed feedback felt disconnected. Hence, students felt that assignments should be given fixed due dates to encourage immediate feedback. Fulton et al (2013) supported the findings by stating that frequent deadlines boost distribution of practices and improved learning by helping the students to gain control over their pace of learning with short delayed retention and near transfer in their learning processes. Furthermore, Garner et al (2013) found that immediate feedback had helped enhanced learning and eventually contribute to positive relationship between students with the lecturer.

Obviously, the 21st century assessment could be enhanced by fixing their due dates, providing immediate feedback in the assignments and making the practices of giving feedback compulsory when returning the assignments to the students. The conduct of assignments should be immediate with feedback and fixed due dates as compulsory elements Besides, feedback practices could also be enhanced by giving constructive feedback, by ensuring the utilisation of feedback among the students and by improving the conduct of assignments in the programme. Lecturers were advised to give quality feedback which could assist in student learning. Feedback can be enforced when both students and lecturers play their role in learning.

CONCLUSION

The findings of this study pointed to the importance of assignments and feedback practices in enhancing learning. Thus, without formative assessment practices, it would be difficult for the lecturers to gauge the students' current mastery of their learning based on the content syllabus.

Lecturers should also be more sensitive about the quality, quantity and timing of feedback for the students to take advantage.

This study has also shown that students welcome written and constructive feedback and assignments should follow a schedule.

As we move further into the new millennium, it becomes clear that the 21st Century classroom needs are very different from those of the 20th Century (21st Century Skills Assessment, 2008). If students are to be productive members of the 21st century workplace, they must master the skills needed in the 21st Century.

Teachers are facilitators of student learning and creators of productive classroom environments in which students can develop the skills they need in the workplace. The primary instructional method is no longer whole group discussion. Instead, the teacher must draw on a variety of instructional and learning methods to meet the needs of all the students in addition to using a variety of performance-based assessments to evaluate students. Tests that measure a student's ability to memorise

and to recall facts are no longer the sole means of assessing student learning. Instead, teachers use student projects, presentations, and other performance-based assessments to determine students' achievement and their individual needs. These changes are necessary because the goal of the 21st Century classroom is to prepare students to become productive members of the workplace.

The Malaysian Education Blueprint (Higher Education) outlines 10 shifts that will spur continued excellence in the higher education system. The focus is on talent excellence and transforming higher education delivery to boost higher education in the country.

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SOCIAL SCIENCES & HUMANITIES

Thermal Performance of Double Skin Envelope in Full Scale Testing Module in Mexico City

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ABSTRACT

The study aims to understand the thermal performance of a double skin envelope system in a test cell by configuring a module that has thermal stability with little indoor temperature variations. A rooftop observation deck and laboratory was installed at the "J" Building of the Postgraduate Unit, National Autonomous University of Mexico campus, UNAM (19°18'33.59" N, 99°11'5.73" W). This platform was designed to test materials and construction systems under the Mexico City microclimate, which consists of two full-scale testing modules. Each cubic module measures 3m x 3m x 3m. All of its facades have several layers of insulation. Indoor and outdoor parameters such as thermal, lighting, acoustic and air quality were measured during the experiment. The study aimed to achieve indoor thermal stability, benchmarked to be close to zero during the 24-hour thermal gradient. Findings showed that during warmer months, between May 19 and June 21, 2016, the envelope played an important role in decreasing the indoor air temperature by 7°C. The diurnal thermal gradient was 3.87°C.

Keywords: Double skin envelope, Full Scale Testing Module, thermal performance, thermal stability

INTRODUCTION

Mexico City has subtropical highland climate with mild winter and warm summer as well as seasonal variations in temperature. Despite this, efforts to reduce energy consumption and lower the indoor temperature are ongoing. Studies have shown that a good envelope material is an

important to reduce heat gain and heat loss in a building (Garay, Uriarte & Apraiz., 2014; Kopp, Morrison, & Henderson, 2012; Nassif, Yoshitake, & Allam, 2014). Most studies on double skin envelope in the tropics and subtropical areas did not use testing modules. (Asdrubali, D'Alessandro, & Baldinelli, 2014)

A review of post graduate dissertations in UNAM between 1973 and 2015 revealed that majority of them (181 theses) have focused on Environmental and Energy issues, Material Development and ICT (2015-2, 2015). Most of these studies required evidence and verification of their arguments through experiments conducted in an experimental space (testing module) according to the specific needs of their projects. This situation where researchers have to design and build their own experimental space makes it difficult for them to continue their study. Thus, a Full Scale Testing Module is needed, which would meet the needs of thermal, lighting, acoustic and indoor air quality studies.

A full-scale testing module is capable of testing construction materials and building systems under normal conditions of use. There are several examples worldwide, such as the DOE's Flexlab in Berkeley, USA (Flexlab, 2016), and KUBIK a building by Tecnalia at the Technology Park of Bizkaia, Spain (Tecnalia, 2016).

In this study, the aim of the experiment was to reach indoor thermal stability through envelope material, and the testing module was to probe new materials and building

systems in a full-scale space under normal conditions.

Aim

The study aims to measure the physical parameters inside the testing module, and establishes the baseline of the thermal performance of each of the full-scale testing modules. The experiment shows how heat wave passes through the envelope, how it affects the indoor conditions of the test modules and how the heat dissipates during the day. The experiment attempts to achieve thermal stability inside the Testing Modules; the maximum differential tit hopes to achieve is 1° Celsius diurnally. The objective is to configure a module that has little variations of temperature inside.

METHODS

A rooftop observation deck and experimentation laboratory is installed at the "J" Building of the Postgraduate Unit, National Autonomous University of Mexico campus (19°18'33.59" N,
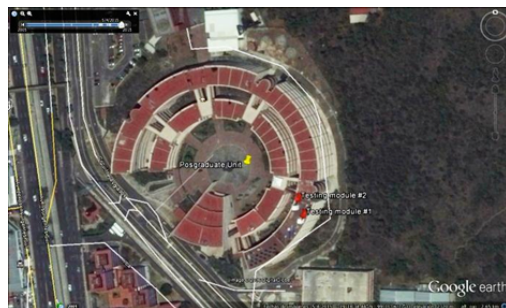
Figure 1. Testing modules' location (Source: Google Earth, date: March 4, 2016)

99°11'5.73'' W) as shown in Figure 2. This platform was designed to test materials and construction systems under the Mexico City microclimate, which consists of two full-scale testing modules. Each cubic module measures 3m x 3m x 3m (Figure 2). All of its facades have several layers of insulation.
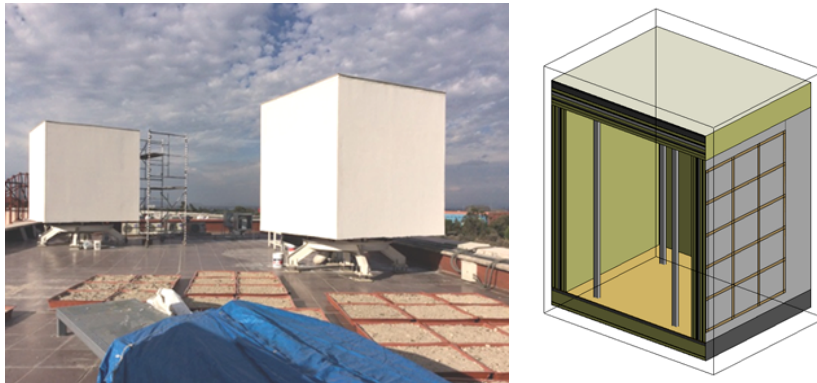
Figure 2. Full scale testing modules

In order to reach temperature stability inside the test module, outdoor meteorological data was compared with those from inside the Full Scale Testing Module. This study evaluated the performance of the double skin envelope.

Each module could rotate 360° and so the "Experimental Façade" can be positioned at different orientations to understand the behaviour of certain facades throughout the year.

These tests were conducted on the "Experimental façade", composed of 15 slots, which can be interchanged with various wall materials in order to analyse their performance. Table 1 shows the different layers of insulation applied in the experiment, where the different "U" values for every façade are tabled.

Instruments that measure meteorological variables on the outside are installed, which are used as a reference for comparison with measurements obtained inside. Table 2 shows a list of equipment installed for this research, according to exterior and interior equipment.

The measurements of the variables were recorded every minute such as where the outdoor air temperature, relative humidity, barometric pressure, wind, rainfall and Global Radiation. . Inside the modules, the air temperature, Relative Humidity, Mean Radiant Temperature and surface temperature of internal panels of the envelope were measured.

Table 1
"U" values of the envelope components for the system

Description		Thickness	Mean Density	"K" value	Thermal Resistance	"U" Value
		(m)	(Kg/m3)	(W/m2 °K)	R = thickness / k	U = 1 /? R
Vertical Double Skin Envelope Area (m²)	10.24	0.3044	662.85	0.19	8.256	0.11916
Experimental Façade Area (m²)	5.56	0.30	661.34	0.25	9.317	0.10578
Bottom Area (m²)	9.00	0.22	444.70	0.13	6.037	0.16328
Cover Area (m²)	10.24	.036	568.12	0.17	10.629	0.09331

Table 2
Installed equipment

	Equipment	Trademark	Model	Parameter	Unit
	Pyranometer	Kipp & Zonnen	CMP-21	Global Radiation	W/m^2
	Photometer	Licor	210-LS	Global Illuminance	Klux
Outside	Weather Station	Vaisala	WXT 520	Air Temperature	°C
				Relative Humidity	%
				Atmospheric Pressure	mbar
	Weather Station	HOBO	U-30	Air Temperature	°C
				Relative Humidity	%
				Atmospheric Pressure	mbar
				Global Radiation	W/m^2
	Data Acquisition System	Campbell Scientific	CR-1000	-	-
	Multisensor	HOBO	U-12	Air Temperature	°C
				Relative Humidity	%
	Temperature Probe	Campbell Scientific	107	Air Temperature	°C
Inside	Surface Mount Thermistor	Campbell Scientific	110 PV	Surface Temperature	°C
	Type "E" Thermistor. Inside Globe Thermometer.	Campbell Scientific	Type E	Mean Radiant Temperature	°C
	Data Acquisition System	Campbell Scientific	CR-1000	-	-
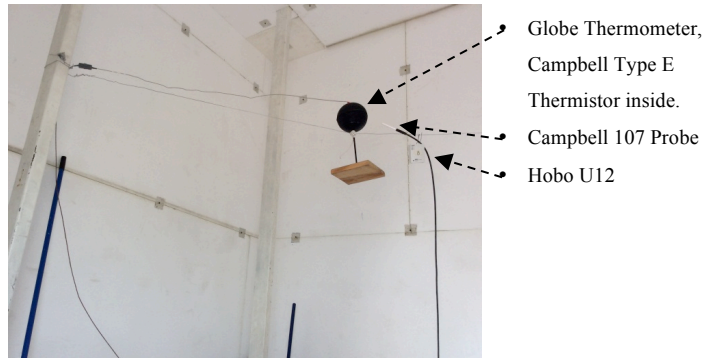
Figure 3. Equipment inside the Testing Module

Figure 3 shows the equipment (Globe Thermometer, Hobo U12, and Campbell 107 Probe) installed inside the testing module. It also shows the inner layer of insulation, where the surfaces are covered by insulation panels to avoid heat gain or losses from infiltration. All the panel joints are filled, in order to prevent heat gain or losses.

RESULTS AND DISCUSSION

The results of field measurements between 20 May and 20 June 2016 are shown in Figure 4. The measurements were conducted during the end of spring, when the outdoor conditions were warming up. Data was recorded every 5 minutes. When the mean average temperatures are plotted every
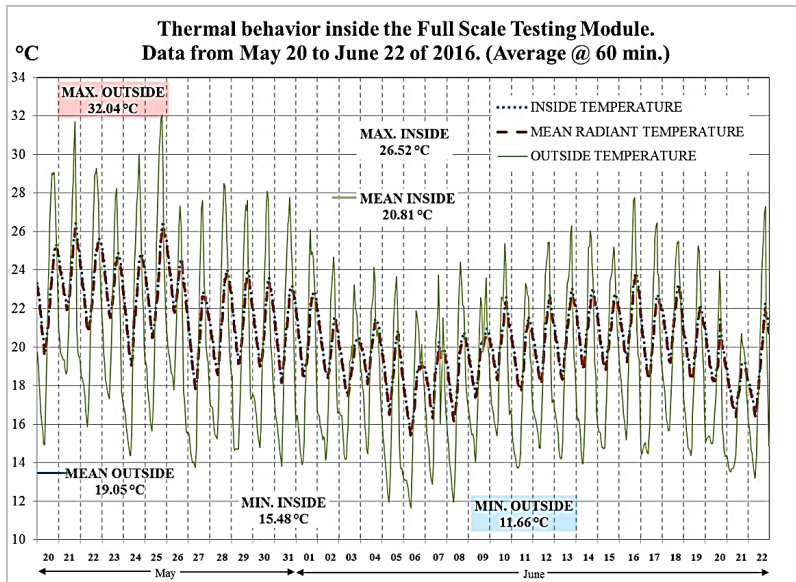
Figure 4. Thermal performance outside and inside the Testing Module

60 minutes, the graphics representing this data are virtually identical. Figure 4 shows the mean data, the broadest temperature ranges are the outdoor air temperatures, and the central ranges show the performance of the air temperature inside the module (temperature probe and mean radiant temperature). The maximum outdoor air temperature was 32.04°C and the average for the period was 19. 05°C.In this graph, the lower recorded internal air temperature was evidently due to insulation material installed on the envelope which slowed the heat gain from outside. Furthermore, it is important to mention that the thermal gradient is reached within the range between 3.87°C and 6.01°C during the warmest day.

Figure 5 shows the thermal performance during the warmest day of the field study on May 25, 2016. The maximum outdoor temperature was 32.73°C, and the average was 22.66°C. Inside the module, the maximum air temperature was 26.55°C, the average was 23.48°C. The indoor temperature gradient during the day was 6.01°C. A small difference between the temperature measured by the probe and that recorded with the globe thermometer was noted. The difference in temperature on average recorded between these two instruments was 0.21°C on average. It was noted that the time lag or the duration between the peaks (for outdoor air temperature to reach a peak indoor air temperature) was about 130 minutes.
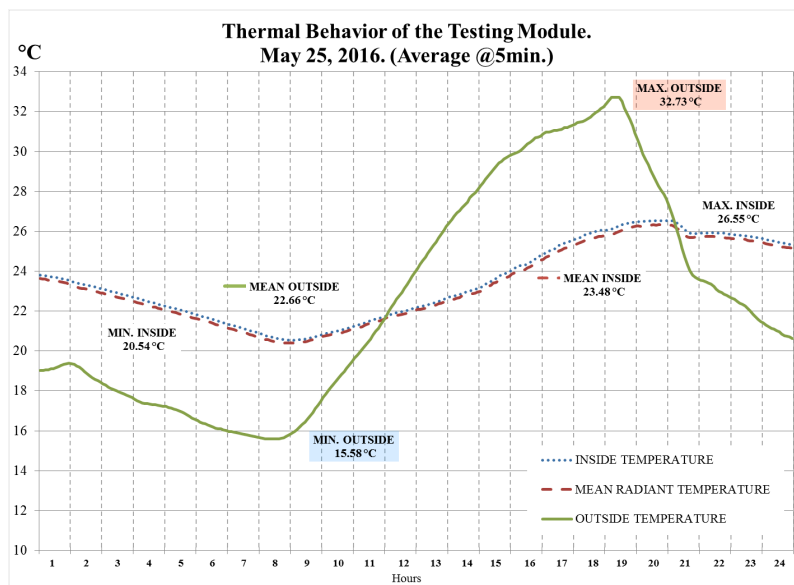
Figure 5. Thermal performance outside and inside the Testing Module, May 25, 2016

Figure 6 shows the thermal performance during a slightly cooler day on June 6th, 2016. The maximum outside temperature was 22.11°C, and the average was 16.71°C. Inside the module, the maximum air temperature reached was 19.25°C, and the average was 17.66°C. Thermal gradient was 3.87°C, which was very close to the target of this research. The time lag was approximately 450 minutes (7.5 hours)
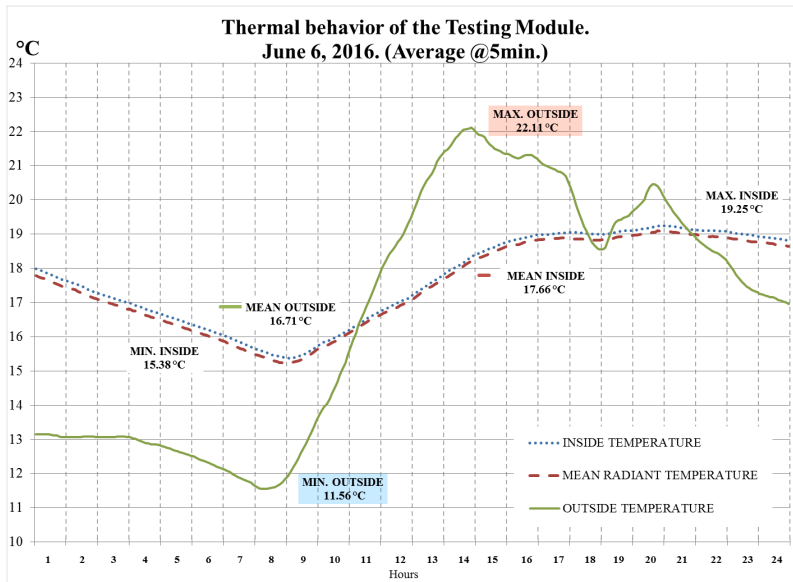
Figure 6. Thermal behaviour outside and inside the Testing Module, June 6, 2016

CONCLUSION

The experiment has shown that air temperature inside the module decreased substantially compared with the outdoor temperature due to the thermal resistance of the double skin material of the module envelope. The lowest differential was reached when the outside temperature did not exceed 22°C. Records obtained from the Globe thermometer and temperature probe were very similar whereby the differential between the two were less than 0.5°C. Building envelope conditions resulted in lower thermal gradient of less than 5°C during the day.

May and June are the warmest months in Mexico, and hence, these findings are important to reduce indoor heat during this period.

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Synthesising Supply Chain Processes based on GSCF Framework

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ABSTRACT

This paper compares and discusses six most important reference models and frameworks (SCOR, GSCF, VRM, CPFR, ISA95, SAP) in the domain of Supply Chain Management (SCM) to support different stages of supply chain information system. The results show that GSCF is a comprehensive SCM framework that facilitates identification of business and process areas as well as key activities in supply chain processes. Moreover, GSCF includes all types of business functions in association with the main supply chain processes, such as finance, marketing and R&D. The GSCF focuses on the relationship between suppliers and customers, addresses the inter- and intra-organisation processes in SCM transparently and efficiently. The purpose of this paper is to synthesise the supply chain processes based on the GSCF framework. A description of essential sub-processes and activities, included in GSCF, is also presented.

Keywords: Global Supply Chain Forum (GSCF), supply chain information system, supply chain process, reference model

INTRODUCTION

According to Lambert and Cooper (2000), supply chain is not a chain of B2B relationships but a network of several businesses. This relationship is referred to as Supply Chain Management (SCM). A supply chain is defined as a chain of organisation which are linked upstream and downstream and their diverse activities and processes that produce value in the form of services and products for the end-customers (Christopher & Martin, 2005). Nowadays, with the development of new patterns for business such as e-business and virtual organisations, many enterprises have resorted to an amalgam of integrated planning and new supply chain process

(Shapiro & Jeremy, 2007) which requires tools, reference models, and methodologies. Dijkman, Vanderfeesten, Irene, and Reijers and Hajo (2011) evaluated different business approaches and found that reference model-based is a more effective approach in process architecture, in terms of 'ease of use', 'usefulness', and 'popularity' in the domain of Business Process Management (BPM). Therefore, reference model is the most appropriate approach, leading to better design,. As a result, several reference models have been developed for modelling and implementing business process in supply chain, which support different stages of information system development (Verdouw, 2010; Verdouw, Beulens, Trienekens, & Van der Vorst, 2011). The next section discusses the different reference models and frameworks in the domain of SCM. Section 3 illustrates GSCF framework and syntheses of supply chain processes based on GSCF framework. The last section concludes the paper.

Supply Chain Reference Models

This section provides an overview of existing SC reference models and frameworks, which have been broadly applied in the past years in the domain of SCM, which support supply chain information systems. The reference models are used for the designing and development of software components while supporting different stages in the development of information systems, including requirement engineering, design, and implementation (Verdouw, Beulens, Trienekens, & Verwaart, 2010). The major

purpose of the requirement engineering (RE) is to elicit and document business requirements. RE comprises three areas, namely requirement elicitation, requirement evaluation, and requirement specification (Kurbel & Karl, 2008). In the development of information systems, process models are the first and essential artefacts that are concerned with the documentation and communication to stakeholders (Dehnert, Juliane, & Van Der Aalst, 2004; Reijers, Hajo, & Mendling, 2011). In the first stage, requirements should be defined via modelling business process (Wolfer et al., 2010). In the domain of supply chain, the reference models and frameworks which support different stages of information system development (Requirement, Design, and Implementation) (Verdouw, 2010; Verdouw et al., 2011) consist of Supply Chain Operation Reference (SCOR) (Council, 2008, 2010), Global Supply Chain Forum (GSCF) (Lambert, García-Dastugue, & Croxton, 2005), Value Reference Model (VRM) (Value-Chain-Group, 2007), Collaborative planning and Forecasting & Replenishment (CPFR) (VICS, 2004), International Society of Automation (ISA-95) (ISA-95, 2005), and System and Application Products reference model (SAP)(Curran, 1999).

Supply Chain Operation Reference (SCOR) model was developed by the Council of Supply Chain Management in 2005 as a cross-industry to represent business activities and processes of the supply chain (Council, 2008, 2010) that can be used in the requirement stage of

IS development (Verdouw et al., 2010). It (SCOR) includes five business processes: Plan, Source, Make, Deliver, and Return that can be implemented at four operational levels: Level 1 defines the number of supply chains and performance metric; Level 2 provides definition for the planning and execution process in material flow; Level 3 is the process element that defines the inputs, outputs, and information flow; and Level 4 provides the implementation details for supply chain processes (Lambert et al., 2005). However, SCOR does not have specification level in details (Chandra & Charu, 2008). As a result, SCOR focuses on production strategy rather than on SCM strategy (Stavrulaki, Euthemia, & Davis, 2010).

The GSCF is a supply chain framework founded on eight key business processes in which each business process is managed by a cross-functional team, including representatives from logistics, production, purchasing, finance, marketing, and R&D (Lambert et al., 2005). The eight key business processes are as follows: (1) Customer Relationship Management; (2) Supplier Relationship Management; (3) Customer Service Management; (4) Order Fulfilment; (5) Demand Management; (6) Manufacturing Flow Management; (7) Product Development; and (8) Commercialization and Returns Management (Lambert, 2008; Lambert et al., 2005). The GSCF framework is cross-firm and cross-functional which deals with production, R&D, logistics, marketing, purchasing and finance(Lambert et al.,

2005; Verdouw et al., 2010). It defines the corporate strategy in SCM and links the strategy to the business processes (Lambert et al., 2005), and supports the requirement stage of IS development (Verdouw, 2010).

The VRM which similar to SCOR, is used to specify supply chain processes in Strategic, Tactical, and Operational levels (Verdouw et al., 2011). It contains process models and metrics, focusing on planning, governing and execution of activities for logistics, product development, and commercial processes (Value-Chain-Group, 2007; Verdouw, 2010). Further, VRM supports requirement stage in IS development based on Federated Enterprise Reference Architecture (FERA) (Verdouw et al., 2010). However, VRM is limited to information flow and the value of the information (Heinzel & Herbert 2005). Moreover, VRM does not support key supply chain processes and activities, for instance, it does not include Return Management Process (Kirikova, Marite, Buchmann, Robert, & Costin, 2012). The CPFR provides a general framework, focusing on Demand & Supply Management, Strategy & Planning, and Execution and Analysis (Verdouw et al., 2010). The framework contains process and data models that can support design stage of IS development (Verdouw, 2010). Nevertheless, the framework does not identify major business processes in SCM; it addresses, in fact, four supply chain processes including supplier-managed inventory, conventional order management, co-managed inventory and retail Vendor Managed Inventory (VMI)(Verdouw, 2010).

Further, the primary focus of CPFR is the relationship between buyer and supplier (Trienekens, Hvolby, Steger-Jensen & Falster, 2008).

The ISA-95 addresses the exchange of data within enterprise systems (planning, and production management systems) (Hvolby, Hans-Henrik, & Trienekens, 2010), including a number of components such as manufacturing operations & control, and business planning & logistics (Verdouw et al., 2010).The ISA-95 standards are based on four functional levels: Level 1 for production process; Level 2 for continuous and discrete control; Level 3 for manufacturing operations management; and finally Level 4 for business planning and logistics (Hvolby et al., 2010). It can be used in the design stage of IS development (Verdouw, 2010), but the scope of ISA standard is limited to describing the function, the domain and control of an enterprise (Hvolby et al., 2010). SAP Production Solution Center developed SAP-ERP to support process and application in SCM (Heidasch & Robert, 2007) that boost implementation stage of IS development (Verdouw et al., 2010). A business process reference model of SAP is SAP/R3 that uses Event-driven Process Chain (EPC) in ARIS toolset (Tscheschner & Willi, 2006). Nonetheless, SAP/R3 cannot address every perspective for supporting entire supply chain processes, for example, the relationship between suppliers (SRM) (Heidasch et al., 2007). Moreover, SAP is primarily focused on implementation of ERP and consolidates every detail in

which the models are focused on one single enterprise (Verdouw, 2010). An overview of the aforementioned reference models is provided in Table 1. This table show the extent to which these reference models meet the IS development and scope of SCM. From the viewpoint of IS development, only reference models, namely SCOR, GSCF, and VRM, which support the requirement stage by prescribing the decomposition level of supply chain processes.

Table 1 states SAP and ISA95 support implementation stage of IS development and CPFR supports IS development in the design stage. Since business process modelling belongs to the requirement stage, none of reference models, support both the coordination and interaction of process models in the lower level (Lambert et al., 2005; Verdouw et al., 2011) nor service-oriented approach in supply chain process modelling. Of the two reference models SCOR and GSCF, which have been widely used in production and SCM, SCOR meets operation strategy while GSCF meets SCM strategy. The SCOR focuses on specific activities in SCM (Grubic et al., 2011), that is, SCOR does not describe supply chain processes from different views while GSCF is more process orientated that contains the key sub-process and activities of main business processes in SCM. In addition, GSCF includes all types of business functions in association with the main supply chain processes while SCOR does not include functions such as finance, marketing and R&D. Moreover, GSCF focuses on the relationship between

Table 1
Overview of SCM reference models

Reference model	Stage of IS development	Scope of SCM
SCOR	Requirement	- Operation strategy
		- Transactional activities related to demand, supply, sourcing, planning, distribution & reverse logistic
GSCF	Requirement	- SCM strategy
VRM	Requirement	- Key activities related to the successful implementation of macro-business process in SCM (Lambert et al., 2005)
		- Activities related to product development, logistic, planning & control, and supplier relations (Value-Chain-Group, 2007)
CPFR	Design	- Activities related to order management, supplier-managed inventory & Vendor Managed Inventory (VMI)
ISA-95	Implementation	- Strategic activities focusing on forecasting and replenishment process(VICS, 2004)
		- Function related to business planning & logistic, and manufacturing operation & control (ISA-95, 2005)
SAP	Implementation	- Process related to logistic, production & manufacturing focusing on 'make-to-order' and 'engineer-to-order' (Curran, 1999; Heidasch, 2007)

Source: (Hvolby & Trienekens, 2010; Lambert et al., 2005; Verdouw et al., 2010)

suppliers and customers, which is not the focus of SCOR (Lambert et al., 2005). Furthermore, SCOR does not address the inter- and intra- organisation processes in SCM transparently as efficiently as GSCF does (Grubic, Veza, & Bilic, 2011).

Supply Chain Processes based on GSCF

In the SCM domain, process architecture requires a reference model as guidance for the identification of landscape model, the boundary of the processes, and key activities. To this end, among SCM reference models, as discussed in earlier section, GSCF is an appropriate process-oriented reference model, which contains the key, sub-processes and activities of chief supply chain processes. Figure 1 shows the ways via which GSCF supports different levels of process architecture.

Figure 1 shows eight macro-business processes for the integration and the management of the relationships across the supply chain. These business processes include: (1) CRM; (2) SRM; (3) Customer Service Management; (4) Order Fulfilment; (5) Demand Management; (6) Manufacturing Flow Management; (7) Product Development and Commercialisation; and (8) Returns Management. However, as stated by Lambert (2008), a supply chain involves a more complicated structure than the row of silos displayed in Figure 1. In the following, a brief account of each of these eight processes is presented.
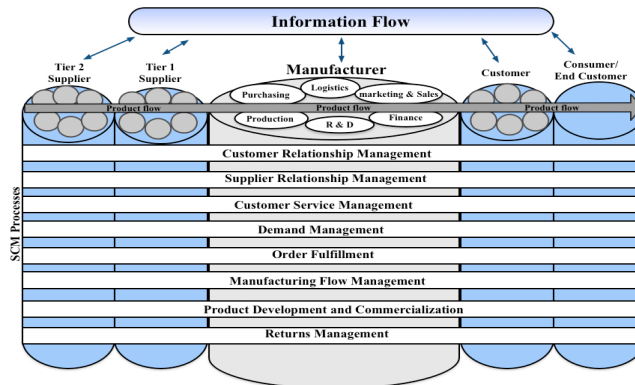
Figure 1. SCM processes in GSCF (Source: (Lambert, 2008)

Customer relationship management (CRM). The manner of developing and maintaining relationships with customers is determined by CRM process. To identify the chief targets and missions of an enterprise, the task of the board is to identify the chief customers or customer groupings. Such decisions and missions are defined at the strategic level. The chief objective is to compartmentalise diverse customers with regard to their value over a period of time and to augment customers' loyalty by providing tailor-made services and products. To satisfy the requirements of different customer groupings, cross-functional customer teams have to customize Product and Service Agreements (PSA). At the strategic level, CRM process team is engaged in the identification of the target businesses and markets, which are crucial for the success of an enterprise in the present and future. At this level, CRM team takes into account the marketing strategy as well as the corporate strategy of an enterprise. At the operational level, CRM process

team classifies the target customers into varied segments and deals with writing and implementing of the Product and Service Agreement (PSA) (Lambert, 2008, 2010).

Supplier relationship management (SRM). SRM determines the nature of relationships between customers and suppliers and how to enhance and maintain it. Similar to CRM, SRM is also concerned with the enhancement of relations between suppliers, their value for an enterprise, and the manner of maintaining relationship with them over a period of time. Product and Service Agreement (PSA) determines the parameters of relationship with suppliers. At the strategic level, the team has to detect those markets, which play a crucial role in the success of a company. To achieve this, SRM process team deals with various tasks including the review of several strategies for corporate, manufacturing and sourcing, and marketing sectors. The team, at the operational level, is concerned with the development and implementation

of the PSAs. (Lambert, 2010; Lambert & Schwieterman, 2012).

Customer service management (CSM). As part of the CRM process, the CSM handles PSAs and their administration. The CSM performs two major tasks: (1) monitor PSAs; and (2) when customers experience problems in terms of service, they intervene on their behalf. The team, at the strategic level, takes responsibility for planning how potential services and products, included in the PSAs, can be managed and delivered. At the operational level, CSM process team performs three major tasks: the identification of the deliverables of the CSM process, the operationalisation of the signals for beginning an action, and the analysis of the staffing needs. It presides over the relationship between manufacturing flow and the supplier management in order to guarantee the fulfilment of promises made to customers (Bolumole, Knemeyer & Lambert, 2003; Lambert, 2010).

Demand management (DM). The Demand Management monitors the process that creates equilibrium between the customer's requirements and the capabilities of the supply chain. In terms of the right process, the management not only matches demands and supplies, it can also manage the business plans with minimal setbacks. The determined process is neither confined to forecasting nor to synchronising demand and supply, but it is focused on the reduction of variability and the enhancement of flexibility. The process also deals with the management of practices within an enterprise including terms of sales, which augments the volume of purchase and the variability of demands. At the strategic level, Demand Management process team is responsible for the development and implementation of the procedures. The team, at the operational level, deals with the execution of forecasting and synchronisation of demands, which have already been addressed at the strategic level. As soon as decision on the forecasting method is made, DM process team deals with information plan, including the determination of data source, the transference of input data, and the communication of the output needs to the appropriate sector (Croxton, Lambert, García-Dastugue, & Rogers, 2002; Lambert, 2010).

Order fulfilment (OF). OF is much broader than mere filling orders. It involves a range of activities, for example, the assessment of customer needs, the design of a proper network, and the improvement of an enterprise's capability to meet customer needs and to reduce the total cost of customer service at the strategic level, it handles the tasks relating to the improvement of the processes, which affect the financial performance of an enterprise, its suppliers and customers. At the operational level, OF is highly transactional, meaning that it is concentrated on the management of the customer cycle and the execution of particular tasks within its logistic function. Whereas the logistics function performs much of the work of the order fulfilment, this task has to be done in coordination between

business function and key customers and suppliers (Croxton, 2003; Lambert, 2010).

Manufacturing flow management (MFM). To achieve and to enhance flexibility in the supply chain as well as to procure products are among the tasks of Manufacturing Flow Management. An enterprise's capability to produce a broad range of products and to minimise the time and cost of customer service reflects its manufacturing flexibility. To attain a desirable degree of manufacturing flexibility, the organisation and execution of plans must extend beyond the walls of a manufacturing enterprise. To review the corporate and marketing strategies and to determine the best manufacturing strategies to meet customer demands are the tasks of MFM process team at the strategic level. The realisation of the processes considered at the strategic level is the concern of the MFM process team at the operational level. At this level, MFM ensures that all the necessary measures are taken for the movement of products through the plants as well as for the achievement and implementation of manufacturing flexibility in SCM (Goldsby & García-Dastugue, 2003; Lambert, 2010).

Product development and commercialization (PDC). The structure, which creates relation between customers and suppliers, includes two chief components: production and commercialisation. These two components together ensure the efficiency of a process in the sense that the management guarantees the flow of new products along the supply chain but it

creates coordination among other functions such as logistics, marketing, and the other measures needed to be implemented for the commercialisation of the products. To determine the extent to which key suppliers and customers are engaged is the task of Product Development and Commercialisation process team at the strategic level. At the operational level, there must be a proper degree of coordination between CRM process teams and product manufacturing and commercialisation teams in order to identify the expressed or unexpressed customer needs, to select suppliers and the required materials, and to ensure the integration of production technology into the main flows in supply chain (Lambert, 2010; Rogers, Lambert, & Knemeyer, 2004).

Returns management (RM). RM process deals with a series of activities including returns, gate keeping, avoidance, and reverse logistics and their management within an enterprise and among key supply chain participants. The proper implementation of returns managements is achieved through the effective management of reverse product, the identification of opportunities for the reduction of unwanted returns, and the monitoring of reusable assets. The construction of a formalized structure via which a given sub-process is executed defines the goal of the strategic sub-process. The task of the operational sub-process begins when a customer's return request is received and its financial issue is well handled. The customer in the strategic

sub-process can be either a consumer or one from supply chain downstream (Lambert, 2010; Rogers, Lambert, Croxton, & García-Dastugue, 2002).

A classified description of essential sub-processes and activities, included in GSCF, is done by drawing upon the works of (Bolumole et al., 2003; Croxton, 2003; Croxton et al., 2002; Goldsby & García-Dastugue, 2003; Lambert, 2008, 2010; Lambert & Schwieterman, 2012; Rogers et al., 2002; Rogers et al., 2004) and by synthesising the supply chain processes illustrated in Table 2. Table 2 illustrates that each process involves both operational and strategic sub-processes. The manner of implementing a process and the direction of its implementation are provided via strategic sub-processes and operational sub-processes consecutively. The strategic process is a crucial step in the integration of an enterprise with supply chain participants, with daily activities continuing at the operational level. At the strategic level, an executive board, consisting of managers from each and every function, supervises each operational sub-process, with business functions ranging from production to logistics, marketing, sales and purchasing, finance, and R & D (Lambert et al., 2005; Lambert & Schwieterman, 2012). The detailed activities that comprise each of the abovementioned main SCM processes at the operational sub-processes are classified in the third column of Table 2.

Table 1
The macro-business processes and activities for SCM based on the GSCF framework

Macro Business process	Strategic Sub-process	Operational Sub-process	Activity
Customer Relationship Management	1. Review Corporate and Marketing Strategy	1. Differentiate Customers	Analysing customer profitability; evaluate potential growth; documenting segments
	2. Identify Criteria for Categorizing Customers	2. Prepare the Account Management Team	Identify sales person to be account/segment manager; select learn member
	3. Provide Guidelines for the Degree of Differentiation n the Product/ Service Agreement	3. Internally Review the Accounts	Review product purchased; review sales growth; review positioning in industry
	4. Develop Framework of Metrics	4. Identify Opportunities with the Accounts	Identify sales opportunities; Identify cost reduction opportunities; Identify service improvement opportunities

Table 1 (*continue*)

	5. Develop Guidelines for Sharing Process Improvement Benefits with Customers	5. Develop the Product/Service Agreement	Outline and draft the PSA; gain commitment of the company's functions; present PSA to account for acceptance; for key customers, report until they agree; Agree on a communication and plan
		6. Implement the Product/Service Agreement	Develop and follow implementation plan; meet regularly with key customers
		7. Measure Performance and Generate Profitability Reports	Measure by customer and for the customer (Revenue, cost, report performance, etc.)
Customer Service Management	1. Develop Customer Service Strategy	1. Recognize Event	Define staffing needs; define deliverables; Operationalize triggers and signals
	2. Develop Response Procedures	2. Evaluate Situation and Alternatives	Determine events that require response; Determine appropriate response; procedure for each type of event; define internal and external coordination
	3. Develop Infrastructure for Implementing Responses Procedures	3. Implement Solution	Determine information system's need; Determine communication needs
	4. Develop Framework for Metrics	4. Monitor and Report	Classify events; identify operational; problem/improvement opportunities
Demand Management	1. Determine Demand Management Goals and Strategy	1. Collect Data/Information	Collect historical demand; collect sales/marketing information; collect customer information-CPFR/VMI
	2. Determine Forecasting Procedures	2. Forecast	Analyse data; develop forecast; track errors and provide feedback
	3. Plan Information Flow	3. Synchronize	Identify and plan within capacity constraints; determine confidence intervals for forecasts; develop aggregate demand execution plan; balance risk with financial constraint; plan capacity for new product

Table 1 (*continue*)

Process		Sub-processes		Activities
	4.	Determine Synchronization Procedures	4. Reduce Variability and Increase Flexibility	Identify root causes of variability; work within the firm and the supply chain to reduce demand variability; determine how much flexibility is required; identify opportunities to increase flexibility; work within the firm and the supply chain to increase flexibility
	5.	Develop Contingency Management System	5. Measure Performance	Calculate process metrics; Link metrics to EVA
	6.	Develop Framework of Metrics	1. Generate and Communicate Order	Generate order; transmit order
	1.	Review Marketing Strategies, Supply Chain Structure and Customer Service Goals	2. Enter Order	Receive order; enter order; edit order
Order Fulfilment	2.	Define Requirements for Order Fulfilment	3. Process Order	Check credit; check inventory; plan order flow transportation
	3.	Evaluate Logistics Network	4. Handle Documentation	Acknowledge order; prepare dill of lading picking instructions and packing slips; generate invoice
	4.	Define Plan for Order Fulfilment	5. Fill Order	Pick product; pack product; stage for loading; prepare load confirmation
	5.	Development Framework of Metrics	6. Deliver Order	Prepare shipping documents; transmit delivery confirmation; audit pay freight bill
			7. Perform Post-delivery activities and measure performance	Receive & post payment; record bad debt expense; measure process performance
	1.	Review Manufacturing, Sourcing, Marketing, and Logistics Strategies	1. Determine Routing and Velocity through Manufacturing	Translate demand management output into resource and production planning; review aggregate production plan; integrate capacity of managed manufacturing facilities; develop master production schedule
	2.	Determine Degree of Manufacturing Flexibility Requirement	2. Manufacturing and Materials Planning	Generate detailed capacity planning, time-phased requirements, and master capacity plans

Table 1 (*continue*)

Process	Strategic sub-process	Operational sub-process	Activities
Manufacturing Flow Management	3. Determine Push/Pull Boundaries	3. Execute Capacity and Demand	Manage inventories (raw material, sub-component, packing, WIP, finished goods, and shop floor management)
	4. Identify Manufacturing Constraints and Determine Capabilities.	4. Measure Performance	Examine and report quality level of product; identify root causes of quality issue; measure performance
	5. Development Framework of Metrics		
Supplier Relationship Management	1. Review Corporate, Marketing, Manufacturing and Sourcing Strategies	1. Differentiate Customers	Perform supplier profitability analysis or total cost analysis; assess potential growth, strategic
	2. Identify Criteria for Categorizing Suppliers.	2. Prepare the Supplier Management Team	Identify account/commodity manager; select team members
	3. Provide Guidelines for the Degree of Customization in the Product/Service Agreement	3. Internally Review the Supplier	Product purchased; sales growth; criticality of supplier
	4. Develop Framework of Metrics	4. Identify Opportunities with Suppliers	Sales opportunities; cost reduction opportunities; service improvement opportunities
	5. Develop Guidelines for Sharing Process Improvement Benefits with Suppliers	5. Develop the Product/Service Agreement and communication plan	Outline and draft the PSA; gain commitment of the company; gain supplier acceptance of PSA; agree on a communication and continuous plan
		6. Implement the Product/Service Agreement	Develop & follow implementation plan; meet regularly with key customer
		7. Measure	Measure by supplier and for the supplier (Cost, revenue, service, quality, report performance)
	1. Review Corporate, Marketing, Manufacturing and Sourcing Strategies	1. Define New Products and Assess Fit	Generate and screen new product ideas; perform market assessment; consult with key customer; assess fit with channels; manufacturing and logistics
	2. Develop Idea Generation and Screening Processes	2. Establish Cross-functional Product Development Team	Determine functional roles; invoke key customers and suppliers;

Table 1 (continue)

Product Development and Commercialization	3.	Establish Guidelines for Cross-functional Product Development Team Membership	3.	Formalize New Product Development	Determine time to market, product profitability, HR requirements
	4.	Identify Product Rollout Issues and Constraints	4.	Design and Build Prototypes	Work with suppliers; conduct value analysis; source prototype materials; test product
	5.	Establish New Product Project Guidelines	5.	Evaluate Make/Buy Decision	Assess supply capabilities; send RFQs; Analyse RFQs
	6.	Develop Framework of Metrics	6.	Determine Channels	Determine market plan; plan inventory deployment
			7.	Product Rollout	Implement market, transportation, promotion plan, and sales force training; Deploy inventory; plan flow; source materials; manufacturing/assemble
			8.	Measure Process Performance	Analyse process & identify opportunities for improvement; calculate process metrics
Return Management	1.	Determine Returns Management Goals and Strategy	1.	Receive Return Request	Initiate customer return request; implement gatekeeping guidelines
	2.	Develop Avoidance, Gatekeeping and Disposition Guidelines	2.	Determine Routing	Review routing guidelines; plan routing, generate return material authorization
	3.	Develop Returns Network and Flow Options	3.	Receive Returns	Receive return material; verify, inspect and process return/gatekeeping; determine return reason
	4.	Develop Credit Rules	4.	Select Disposition	Apply disposition guidelines; transport product to final disposition
	5.	Determine Secondary Markets	5.	Credit customer/supplier	Coordinate credit authorisation across supply chain; negotiate settlement
	6.	Develop Framework of Metrics	6.	Analyse Returns and Measure performance	Analyse returns and identify opportunities for avoidance; calculate process metrics and link to EVA; set goals performance improvement

Source: Synthesised from (Bolumole et al., 2003; Croxton, 2003; Croxton et al., 2002; Goldsby & García-Dastugue, 2003; Lambert, 2008, 2010; Lambert & Schwieterman, 2012; Rogers et al., 2002; Rogers et al., 2004)

CONCLUSION

Seven most important reference models and framework in the domain of SCM were compared and discussed. Of the two reference models SCOR and GSCF, which have been widely used in production and SCM, the former meets operation strategy while the latter meets SCM strategy. The SCOR focuses on specific activities in SCM, that is, it does not describe supply chain processes from different views while GSCF is more process-orientated and contains key sub-process and activities of main business processes in SCM. In addition, GSCF includes all types of business functions in association with the main supply chain processes. It focuses on the relationship between suppliers and customers, which is not the focus of SCOR. Furthermore, SCOR does not address the inter- and intra-organisation processes in SCM transparently as efficiently as GSCF does. Thus, GSCF as a comprehensive SCM framework facilitates the identification of business and process areas as well as key activities in supply chain processes.

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The Factors Associated with the Behavioural Intention of Eco-labelled Products

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ABSTRACT

The objectives of this research are to examine the: (i) direct effects of perceived critical mass, consumer confidence, and search cost on behavioural intention towards the consumption of eco-labelled products; (ii) direct effects of perceived critical mass and beliefs on consumer confidence towards eco-labelled products; and (iii) examine the indirect effects of perceived critical mass on behavioural intention towards the consumption of eco-labelled products, mediated by consumer confidence. It also studies the determinants of behavioural intention towards the consumption of eco-labelled products and clarifies the role of consumer confidence as a mediating factor influencing behavioural intention towards the consumption of eco-labelled products. This research adopted a cross-sectional survey method of 300 individuals whereby the data was used to test a research model using Partial Least Square-Structural Equation Modelling. Findings indicated that consumer confidence and search cost have a direct effect on behavioural intention towards the consumption of eco-labelled products. In addition, consumer confidence is explained by beliefs and perceived critical mass.

Keywords: Behavioural intention, consumer belief, consumer confidence, eco-labelled product, perceived critical mass, search cost

INTRODUCTION

Eco-labelled goods are used by businesses to distinguish their products from others, to position their products in the minds of consumers, and to deliver eco-friendly information (Bernard, Bertrandias & Elgaaied-Gambier, 2015; Dekhili & Achabou, 2014). Studies have shown the

positive relationship between eco-labelling and environmentally-friendly purchase intentions (Bernard et al., 2015; Rashid, 2009; Wahid, Rahbar, & Shyan, 2011). Although organic foods are expensive and limited in terms of their availability in addition to the existence of competing and overlapping organic standards and certificates (Chinnici, D'Amico, & Pecorino, 2002; Vermeir & Verbeke, 2006), eco-labelling has been shown to positively affect consumer intentions to purchase green products (Azizan & Suki, 2013).

Consumers may be motivated by environmental concerns, but the latter do not always lead to changes in purchasing behaviour (Tsarenko, Ferraro, Sands, & McLeod, 2013). Cost has been identified as a factor and as a predictor of consumer decision (Araral, 2013; Coggan, Whitten, & Bennett, 2010; Ofei-Mensah & Bennett, 2013). Thus, this study examines the effect of consumer perception and cost on behavioural intention of eco-labelled products. Specifically, this research aims to examine the (i) direct effect of perceived critical mass, consumer confidence and search cost on behavioural intention towards the consumption of eco-labelled products; (ii) direct effect of perceived critical mass and consumer beliefs on consumer confidence towards eco-labelled products; and (iii) indirect effect, mediated by consumer confidence, of perceived critical mass on behavioural intention towards the consumption of eco-labelled products.

LITERATURE REVIEW

Consumers' beliefs about eco-labels refer to the act or state of believing eco-labels (Sabbe, Verbeke, and Van Damme, 2008). Confidence refers to a buyer's overall confidence in eco-labelled products(Stanton & Paolo, 2012).

Perceived critical mass refers to the point at which a certain minimum number of users have adopted eco-labelled products so that the rate of adoption is favourable. It is "the point at which a certain minimum number of users have adopted an innovation" (Lee, Tyrell, & Erdem, 2013; Rogers, 1995). Whereas, search cost refers to the expenditure or cost of information searching and processing, as well as getting the eco-labelled products. Search cost is the effort and time involved in the process of finding eco-labelled products (Kim & Li, 2009).

Behavioural intention is a person's subjective likelihood of accomplishing a particular behaviour, and it is the deciding factor in actual behaviour (Abdul Rashid, Jusoff & Kassim, 2009; Yi, Jackson, Park & Probst, 2006). In this paper, behavioural intention towards the consumption of eco-labelled products refers to a consumer's intention to purchase (or intention to continue their current purchasing of, or intention to recommend) eco-labelled products in the future (Dwivedi, Khoumbati, Williams, & Lal, 2007; Venkatesh & Brown, 2001). A research model is proposed for empirical testing (Figure 1).

In previous studies, researchers noted that perceived critical mass was a predictor

of behavioural intention, while social influences were positively linked with an individual's behaviour. Furthermore, perceived critical mass indicated the level to which the user thought influenced people's shopping habits and it had a positive influence on intentions (Cheng et al., 2012). Lou, Luo and Strong (2000) stated that prospective adopters' awareness of whether modern technology has reached a critical mass of users might have a substantial effect on future usage. Studies also stated that perceived critical mass was considered to positively influence innovation usage, approval, intention to use, and behavioural intention (Lou, Chau & Li, 2005; Venkatesh & Morris, 2000). Therefore:

> Hypothesis 1 (H1): perceived critical mass is positively related to consumer's

behavioural intention towards the consumption of eco-labelled products.

Researchers identified that confidence was a predictive factor of consumer behavioural intention or consumer spending (Hosseinikhah Choshaly & Tih, 2015; Ludvigson, 2004; Smith & Sivakumar, 2004). Studies have indicated a positive relationship between confidence, one of psychological factors, and consumer behavioural intention or willingness to buy (Smith & Sivakumar, 2004; Haque, Sadeghzadeh & Khatibi, 2011). Therefore:

> Hypothesis (H2): consumer confidence on eco-labelled products is positively related to his/her behaviour intention towards the consumption of eco-labelled products.
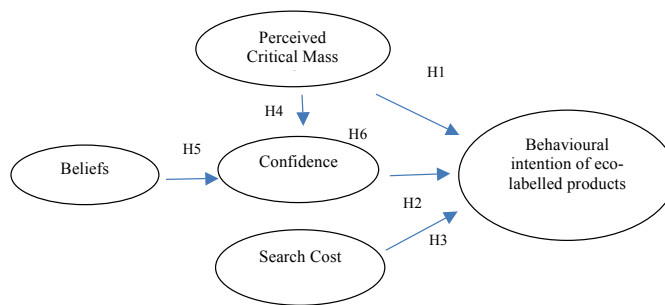
Figure 1. The proposed research models

Information search cost has an influence on consumer repurchase intention. When individuals have more information and knowledge regarding the product, it would lead to the reduction in data asymmetry occurrences, which in turn, results in increased purchase intention (Biswas,

2004). Research also indicated that when the consumers' perceived search cost decreases, their repurchase intention increases (Wu et al., 2014).

However, some studies show that higher search cost may not reduce behavioural intention of organic-labelled products.

Organic products are considered as a credence product (Wang & Tsai, 2014). In fact, a study showed the perceived availability of organic food did not have any effect on buying intentions and search cost was not an issue when considering making a purchase (Tarkiainen & Sundqvist, 2005). For regular consumers, cost involved in searching for organic products is not regarded as a barrier to organic food purchase. Barrena and Sanchez (2010) mentioned that despite the search costs involved in finding organic products, regular organic food buyers made better use of information cues and their purchasing intention was high.

Nevertheless, researchers have not confirmed the link (negative or positive) between search cost and consumer behavioural intention of eco-labelled products. It could be a negative relationship (Biswas, 2004; Wu et al., 2014), or a positive one (Barrena & Sánchez, 2010; Janssen & Hamm, 2012; Tarkiainen & Sundqvist, 2005). Therefore, H3, non-directive hypothesis, was proposed where consumer search cost is related to their behavioural intention towards the consumption of eco-labelled products.

The significant relationship between perceived critical mass and consumer confidence has been supported in the literature. Critical mass was an enabler for consumer trust and confidence in e-commerce (Jones et al., 2000). Besides, perceived critical mass in information technology (IT) communication field also enhanced users' confidence and beliefs in IT

tools, which in turn, improved organisational relationship (Baile, 2006). It was found that a person might use communication technology based on the perception of the critical number of current users. The beliefs can be created throughout a person's relationships with other partners within the group, which may lead to the confidence of the user to adopt the new technology (Lou, Lou & Strong, 2000). Therefore, H4, perceived critical mass is positively related to consumer confidence towards eco-labelled products was proposed.

The relationship between consumer beliefs and confidence has been supported in literature (Flanagan, Johnston, & Talbot, 2005; Hosseinikhah Choshaly & Tih, 2015). In fact, different factors have different impacts on confidence level. Personal beliefs, for example, have an impact on confidence (Flanagan et al., 2005). Besides, Kleitman and Gibson's (2011) argument on metacognitive suggests that beliefs are a key predictor of confidence (i.e. self-confidence). In eco-labelling aspect, for example, the relationship between beliefs and confidence has also been supported (Hosseinikhah et.al, 2015). Therefore, it is likely that consumer beliefs on eco-labels are positively related to their confidence towards eco-labelled products and thus, H5 was proposed.

Perceived critical mass also influences behavioural intention towards the consumption of eco-labelled products indirectly through consumer confidence. First, perceived critical mass has an impact on confidence (Baile, 2006; Jones et al., 2000;

Lou, et.al, 2000). Consequently, consumer confidence has an impact on behavioural intention towards the consumption of eco-labelled products (Haque et al., 2011; Ludvigson, 2004; Smith & Sivakumar, 2004). In fact, perceived critical mass does not only translate into consumer confidence, it enhances the behavioural intention via confidence, a mediating effect. In the literature, there is evidence that perceived critical mass is directly or indirectly related to behavioural intention (Lou, Lou, & Strong, 2000; Rodger, 1995). Thus, it is indeed valuable to test the mediating effect of confidence. Hence, H6 was proposed: consumer confidence positively mediates the path between perceived critical mass and behavioural intention towards the consumption of eco-labelled products.

METHODS

A cross-sectional research design and survey was used in this research. A structured questionnaire consists of five studied variables was developed. The first variable was "beliefs", which consisted of ten measurement items adapted from Sabbe, Verbeke and Van Damme, (2008). The variable, "confidence", contained seven items that were adapted from Stanton and Paolo (2012), whereas, "perceived critical mass", comprised three items and were adapted from Lee, Tyrrell and Erdem, (2013). The variable, "search cost", had three items and were adapted from Kim and Li (2009), and the last variable, "behavioural intention of eco-labelled products", has 3 items that were adapted from Dwivedi

et al. (2007). Demographic profile was also included. In terms of scale, a 7-point Likert scale (with 1, strongly disagree, to 7, strongly agree) was used in this study to measure the variables (Dalziel, Harris, & Laing, 2011).

This research focused on retail shoppers. Literature review suggested female shoppers outnumber their male counterparts (Aertsens et al., 2011; Ahmad & Juhdi, 2010; Tarkiainen & Sundqvist, 2005). Convenience sampling was used in this study and as this study was intended to test a research model without generalising research findings (Feild et al., 2006; Kai et al., 2013). In considering the sample size, the G Power Test was performed indicating that the sample size of 300 is acceptable; a minimum sample size of 129 would be needed for medium (0.15) effect size and the probability of alpha errors at 0.05. This is to calculate the adequate sample size of the study (Stanforth et al., 2011). A total of 300 respondents within or near hypermarkets in the Klang Valley area answered the questionnaire.

RESULTS AND DISCUSSION

Data was screened and examined using descriptive analysis. Based on the descriptive statistical analysis, there were 40% male and 60% female. Most of the respondents in this study were employed (31%), students (21.3%), and business owners (14.7%). The majority of them were between 21 and 40 years old (68.6%). Most of the respondents earned a monthly income of between RM2001 to RM5000 (55.3%). The majority

were degree holders (56%). Table 1 shows the result of correlation analysis. Data analysis indicates the items weigh highly on their own variables in the model, and the average variance shared between each variable and its measures are greater than the variance between the variable and other variables (Cheung & Lee, 2010; Hair et al., 2014). The correlation for each variable is less than the square root of average variance, which indicates satisfactory discriminant validity. Altogether, the measurement model exhibits satisfactory convergent validity and discriminant validity.

Table 1
Pearson correlation analyses

	CR	AVE	Beliefs	Confidence	Perceived Critical Mass	Searching Cost	Behavioural Intention
Beliefs	0.94	0.63	1				
Confidence	0.93	0.67	0.69**	1			
Perceived Critical Mass	0.93	0.81	0.28**	0.29**	1		
Search Cost	0.92	0.81	0.45**	0.42**	0.35**	1	
Behavioural Intention	0.95	0.86	0.56**	0.59**	0.32**	0.72**	1

**. Correlation is significant at the 0.01 level (2-tailed), n=300;
CR=Composite reliability; AVE=Average variance extracted.

In structural model analysis, each variable has variance inflation factor (VIF) values ranging between 1.09 and 1.33. Thus, collinearity among the predictor variables was not a concern in the structural model (Hair et al., 2010, 2014; Teh et al., 2010). The R^2 for confidence was 0.49 and the R^2 for behavioural intention of eco-labelled products was 0.63, indicating that perceived critical mass and beliefs explained 49% of the variance in confidence, whereas perceived critical mass, confidence, and search cost explained 63% of the variance in behavioural intention of eco-labelled products. Both values of the R^2 are regarded as substantial, which shows the strength of variables involved in the model. In order to test the relationships between the variables,

path coefficients should be calculated. Bootstrapping with 500 replications from 300 cases, was used to obtain the path coefficients and their related t-values (Chin, 1998).

Table 2 shows the results of the structural model.

It indicates perceived critical mass ($\beta = 0.02$) was not a significant predictor of behavioural intention of eco-labelled products, thus H1 was not supported. On the other hand, confidence ($\beta = 0.34$, p<0.01) was positively related to behavioural intention of eco-labelled products, thus supporting H2 of this study. Meanwhile, search cost ($\beta = 0.56$, p<0.01) was related to behavioural intention of eco-labelled products, thus supporting H3 of this study. It had been identified that

perceived critical mass (β = 0.09, p<0.05) was a significant predictor of confidence, thus H4 was supported, whereas beliefs (β = 0.66, p<0.01) was positively related to confidence, thus supporting H5. In sum, H2, H3, H4, and H5 are supported in this study.

Table 2
Structural model path coefficients

Hypotheses	Relationship	B	Standard Error (STERR)	T-value	P-value	Decision
H1	Perceived critical mass →Behavioural intention	0.02	0.04	0.49	0.31	Not supported
H2	Confidence →Behavioural intention	0.34	0.04	7.96**	0.00	Supported
H3	Searching cost→Behavioural intention	0.56	0.03	16.30**	0.00	Supported
H4	Perceived critical mass →Confidence	0.09	0.04	2.20*	0.01	Supported
H5	Beliefs →Confidence	0.66	0.03	17.97**	0.00	Supported

Note: *p < 0.05, t-value greater than 1.645
  **p < 0.01, t-value greater than 2.33

The hypothesis that perceived critical mass is positively related to consumer behavioural intention towards the consumption of eco-labelled products is not supported. This unexpected outcome might be due to the stronger indirect effects of perceived critical mass on behavioural intention, through consumer confidence. Earlier studies have indicated that perceived critical mass may indirectly influence behavioural intention towards the consumption of eco-labelled products through consumer confidence (Haque, Sadeghzadeh, & Khatibi, 2011; Jones et al., 2000; Lou, Lou & Strong., 2000; Ludvigson, 2004). Furthermore, the mean score of perceived critical mass in this study was 4.76 on a 7-point scale – not a particularly high score. In hindsight, respondents may have felt that the eco-labelled product community had yet to reach a point of genuine critical mass. The direct effects of perceptions of critical mass might become more obvious when such a point has been reached.

The other plausible explanation are other related factors (extended scope of this study), especially health and safety, which are more prominent in predicting behavioural intention of organic products. For instance, studies indicated that health issues were the main factors that affect consumer intention to buy organic products in Malaysia (Ahmad & Juhdi, 2010; Chong, 2013).

In this study, consumer confidence in eco-labelled products and search cost are positively related to behavioural intentions towards the consumption of

eco-labelled products. These findings are consistent with those of previous studies (Barrena & Sánchez, 2010; Janssen & Hamm, 2012) which point to a positive relationship between consumer search cost and behavioural intentions of eco-labelled products.

Nevertheless, perceived critical mass and consumer belief are positively related to consumer confidence towards eco-labelled products. This is consistent with literature findings, for instance, Jones et al. (2000) described critical mass as the enabler for consumer trust and confidence. Lou, Lou and Strong (2000) found that having a critical number of users can significantly influence the confidence of future users to adopt new technology. Flanagan, Johnston and Talbot (2005) examined the concept of confidence and its dimensions and noted that beliefs positively influence consumer confidence.

As for H6, an analysis of the mediating effects was conducted. Bootstrapping, a nonparametric resampling procedure, has been recognised as one of the methods for testing the mediating effect (Hayes, 2009; Zhao, Lynch, & Chen, 2010). Table 3 points out the results of bootstrapping, based on the structural model. It indicates that the indirect path (a*b) was significant at (β = 0.03, p<0.05), while the direct path was insignificant. Therefore, there was a full mediation; "indirect only mediation" that referred to the "full mediation" (Zhao, Lynch, & Chen, 2010).

Table 3
Results of mediation test

Relationship	B	Standard Error (STERR)	T-value
Indirect effect (indirect path a*b): Perceived critical mass → Confidence → Behavioural intention	0.03	0.01	2.00*
Direct effect: Perceived critical mass → Behavioural intention	0.05	0.04	1.35

Note: *p < 0.05, t-value greater than 1.645
**p < 0.01, t-value greater than 2.33

This mean consumer confidence positively mediates the path between perceived critical mass and behavioural intentions of eco-labelled products. This finding confirms that of previous studies indicating that perceived critical mass has an impact on confidence and, in turn, the latter impacts on behavioural intentions of eco-labelled products (Baile, 2006; Jones et al., 2000; Lou, Lou, & Strong, 2000; Ludvigson, 2004; Smith & Sivakumar, 2004).

CONCLUSION

The findings of this study showed that beliefs and perceived critical mass are significant in determining consumer confidence towards eco-labelled products. Search cost and consumer confidence were significant in determining consumer behavioural intentions of eco-labelled products. Perceived critical mass, on the other hand, had no significant direct effect on such intentions, but rather was shown to influence these indirectly, through consumer confidence. Building on the research findings, marketers could for example create eco-labelled product membership programmes or user clubs to generate greater perceived critical mass. This could also encourage spontaneous word-of-mouth communication among users. Higher levels of communication among eco-labelled product user groups should increase consumer confidence, and with it, consumers' intention towards the consumption of eco-labelled products.

Search cost does not in fact reduce behavioural intentions of eco-labelled products. Instead, this study found that, if anything, higher search cost may lead to a greater motivation towards purchasing eco-labelled products. Nevertheless, marketers should remain alert to the search cost issue. Although serious eco-consumers appear to be willing to invest in eco-labelled products despite the costs involved, in order to increase demand and the market for such products, more marketing efforts may be necessary to make the products, and information about them, easily accessible to consumers.

In conclusion, this study has provided valuable information on the predictors of behavioural intentions, that is, buyer's motivation and willingness to purchase, continue to purchase or recommend eco-labelled products in the future. Knowing these predictors better should help managers and marketers to build strategies to increase consumer interest in and actual purchases of such products. Future studies could consider adopting stratified sampling method to investigate specific target population as well as collaborate with retail outlets such as organic stores. Using the membership databases of such entities could help to enhance the generalisability of the findings.

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Assessing Sharia Compliance Medical Destination Behaviour: A Medical Tourism Perspective

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ABSTRACT

This study, using Sharia Compliance Medical Destination Behaviour (SCoM-DB) model, aims to assess the psychological factors that influence the tourist's selection of sharia compliant medical destination. It further attempts to identify linkages between religiosity towards attitude and destination image towards the subjective norm. A survey questionnaire method using judgmental sampling technique was adopted. Data A total of 105 respondents were recruited for this purpose and data obtained was used to test the relationship using partial least square structural equation modelling (PLS-SEM). Findings revealed that attitude and perceived behavioural control have a significant influence on destination choice whereby the latter (perceived behavioural control) proved to be the strongest contributing factor. Meanwhile, subjective norm is found to have an insignificant effect on destination intention behaviour. The significant relationship between religiosity towards attitude and destination image was also noted.

Keywords: Destination intention behaviour, intention, medical tourism, sharia compliance, Theory of Planned Behaviour (TPB)

INTRODUCTION

Medical tourism has grown into a lucrative industry with significant economic potential

(Bookman & Bookman, 2007). Voigt et al. (2010) define medical tourism as "the process of patients travelling abroad for medical care and procedures as a result of unavailability or unaffordability of certain medical procedures in their respective countries" (p. 8). Crooks, Kingsbury, Snyder, & Johnston (2010) found that international demand for medical services in developed countries has increased due to lower cost of health care services there.

Thus, developing nations such as Malaysia must offer a new product in order to compete with their rivals such as Thailand, Singapore and India. Malaysia's reputation as a medical travel destination grew when the International Medical Travel Journal (IMTJ) named Malaysia as "Medical Travel Destination of the Year". The award recognised Malaysia as the preferred choice of destination for tourists from the Middle East by positioning its *halal* (or permissible) brand. Furthermore, there is an increasing demand from Muslim consumers for quality healthcare products that adhere to sharia principles (Al-Harran & Low, 2008). Thus, sharia compliance medical services would give a better choice for Muslims seeking medical services abroad. In an attempt to promote medical tourism among Muslim countries such as Brunei, UAE, Indonesia and the Middle East, Malaysia needs to consider offering Sharia compliant medical services.

Hence, this study examines factors influencing choice of medical travel destination that provides sharia compliance health care (Prem, 2009) that takes into account halal medical products, availability of Muslim medical doctors and nurses, and sharia compliant related medical services. Putit, Suki, Yusof, and Khan (2014) further postulated that attitude and perceived behavioural control influence tourist destination choice for halal medical care services. In this study, Sharia Compliance Medical Destination Behaviour (or SCoM-DB) refers to tourists' destination choice in seeking sharia compliance medical

treatment abroad. Previous researches have suggested that sharia compliance medical care refers to only halal practices and products (Mahjom, Alias & Zulkifli, 2011). However, the consumption of non-halal elements is permissible by Islam if it involves life and death situation.

Hence, this paper uses the SCoM-DB model to assess tourists' intention to select Malaysia as their preferred destination as a sharia-compliant medical tourism. Additionally, it aims to examine the relationship between religiosity, destination image and the destination intention behaviour in the context of sharia compliance medical care. Specifically, the proposed SCoM-DB model aims to: (1) assess the robustness of Theory of Planned Behaviour (TPB) with attitude, subjective norms and perceived behavioural control towards adopting a destination intention behaviour; and (2) determine linkages between religiosity towards attitude and destination image towards the subjective norm.

LITERATURE REVIEW

Destination choice is influenced by individual and environmental factors (Sirakaya, Sonmez, & Choi, 2001). In the tourism sector, behavioural intention implies a traveller's expectation of his/her future trip to the destination (Chen & Tsai, 2007). The TPB is often used as a robust framework to predict the intention of selecting a destination (Jalilvand, Samiei, Dini, & Manzari, 2012). Suki et al. (2014) and Putit et al. (2014) have also stressed

on the elements of TPB, that is, attitude, subjective norm and perceived behavioural control in affecting the tourist's intention towards the adoption of destination choice behaviour.

Theory of Planned Behaviour (TPB)

The TPB as proposed by (Ajzen, 1991) is widely applied to behavioural studies that can be used to predict the likelihood of intention. In medical tourism, attitude is developed based on the motivational acceptance to travel to obtain medical treatment (Martin, Ramamonjiarivelo, & Martin, 2011). In this study, attitude towards behaviour reflects a consumer's overall evaluation of the aftermaths of selecting a destination for medical treatment.

Several authors have stressed relationships with family, friends, and relatives as a most dominant source of information for choice of destination (Nolan, 1976; Walter & Tong, 1977). Potential tourists who are making a riskier destination selection lean on information from travel professionals (Bieger & Laesser, 2004). However, in the case of medical tourists, word-of-mouth from doctors and insurance companies are more reliable rather than information from other external sources. (Jotikasthira, 2010). Furthermore, while seeking medical treatment, the tourists typically tend to travel along with family, relatives or friends.

Perceived behavioural control (Ajzen, 1985, 1991) indicates the belief of the individual with regards to his or her own ability to undertake the predicted behaviour.

In the medical tourism sector, several factors may present as obstacles which include currency differences, language barriers and cultural barriers among others. Thus, the possibility of failure due to factors that are perceived to be beyond an individual's the control to perform a particular behaviour will impact the likelihood to accomplish the targeted behaviour (Martin et al., 2011).

Destination Image

The importance of destination image is emphasised by both academic researchers and practitioners as a key predictor of successful tourism marketing (Dolnicar & Grun, 2012). Social influences play a significance role in shaping the significant others regarding the image of a travel destination. Furthermore, it will influence a patient's intention to travel abroad to seek medical services. If the said destination has a good image, it will thus influence others to visit the destination. Murphy, Moscardo and Benckendorff (2007a) mentioned that recommendations play a significant role in Word-of-mouth (WOM) for choice destinations where they will seek references from family, friends and other travellers when they are not familiar with the destination.

Religiosity

The significance of religiosity has been discussed in consumer behaviour research (Mokhlis, 2009). Johan and Putit (2016) also acknowledged the role of religion in affecting Islamic sharia financial services'

adoption amongst consumers. Alam, Mohd and Hisham (2011) examined the effect of religiosity on Muslim consumers' purchasing decision behaviour, and found that religious Muslims consider Islam as their source of reference as commanded by God. Religiosity has proven to mediate the relationship between relative and contextual variables, and purchase behaviour of Muslim consumers. Thus, highly religious people tend to follow strict philosophies set forth by God, and these influences their attitude and behaviour (Anuar, Adam, & Omar, 2012). Therefore, it can be assumed that religious people tend to focus on sharia compliance services.

Following the above discussion, the following hypotheses are proposed:

- Hypothesis 1: Religiosity significantly influences attitude

- Hypothesis 2: Attitude has significant influence on destination intention behaviour

- Hypothesis 3: Destination image significantly influences subjective norms

- Hypothesis 4: Subjective norms have a significant influence on destination intention behaviour

- Hypothesis 5: Perceived behavioural control influences destination intention behaviour

Thus, this study developed a model of sharia compliance medical destination intention behaviour. Specifically, the proposed SCoM-DB model aimed to: (1)

assess the robustness of TPB with attitude, subjective norms and perceived behavioural control in affecting tourist selection of destination; and (2) identify linkages between religiosity towards attitude and destination image towards subjective norm. Following this, the SCoM-DB model was generated as shown in Figure 1 below:
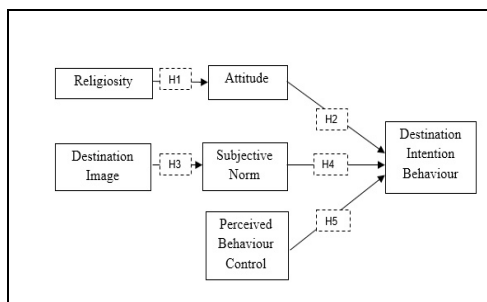

Figure 1. Sharia Compliance Medical Destination Behaviour (SCoM-DB) model

METHODS

This is a quantitative research using structured survey questionnaires. A total of 200 questionnaires was distributed to targeted respondents though only 105 was usable; judgmental sampling has been used to assure representatives. In measuring the item of each construct, 7-point Likert scale was used. In this study, the unit of analysis involved foreign tourists visiting Malaysia to obtain medical services in private hospitals/medical centres registered under Malaysia Health Travel Council (MHTC). Data analysis was carried out using partial least square structural equation modelling (PLS-SEM) technique that provided statistical methods.

RESULTS AND DISCUSSION

The analysis is based on data gathered from 105 respondents who were tourists seeking medical services at selected hospital/medical centres in Malaysia (See Table 1) below:

Table 1
Demographic information

Item	Frequencies (n=105)	Percentages (%)
Gender		
Male	62	59
Female	43	41
Continents		
Asia	82	78.09
Africa	20	19.05
Europe	3	2.86
Age		
< 21 years old	8	7.6
21-30 years old	51	48.6
31-40 years old	26	24.8
41 - 50 years old	14	13.3
51 - 60 years old	4	3.8
61 and above	2	1.9

The male respondents at 59% outnumbered the females.The target respondent's age group was mainly distributed in six intervals: less than 21 years old (7.6%), 21-30 years old (48.6%), 31-40 years old (24.8%), 41-50 years old (13.3%), 51-60 years old (3.8%) and more than 61 years old (1.9%). Most of the tourists were Asians, Africans and Europeans. The largest number of tourists wasfrom Yemen (13.3%), followed by Libya (11.4%) and Indonesia (9.5%). The medical travel information is shown in Table 2 below:

Table 2
Medical travel information

Information	Frequency (n=105)	Percentages (%)
Funding		
Insurance	59	56.2
Self-funded	44	41.9
Sponsored	2	1.9
Reason for medical tourism		
Destination familiarity	31	29.5
Well known procedure specialist	10	9.5
Cost effective	21	20.0
Saves time	6	5.7
Recommendation	16	15.2
Excellent medical facilities	3	2.9
Destination reputation	6	5.7
Tourism purposes	12	11.4
Activities		
Shopping	25	23.8
Touring	46	43.8
Visiting friends or relatives	12	11.4
Nothing	4	3.8
Others	18	17.1

The SmartPLS 3.0 statistical software was used in analysing data using Partial Least Squares Structural Equation Modelling (PLS-SEM) technique (Hair et al., 2016). Validity and reliability of the measures were tested using two-stage analytical procedures followed by an examination

of the structural model in testing the hypothesised relationship (Hair et al., 2016); the latter recommended a bootstrapping method (5000 resamples) to verify the significance of path coefficients and the loadings.

Measurement Model

The result showed loadings above 0.7; Composite Reliability (CR) was higher than 0.7, and the Average Variance Extracted (AVE) was also greater than 0.5 as shown in Table 3 below.

Table 3
Convergent validity

Construct	Item	Loadings	AVE	CR
Attitude	ATT1	0.616	0.542	0.777
	ATT2	0.712		
	ATT5	0.86		
Subjective Norm	SN1	0.899	0.798	0.959
	SN2	0.863		
	SN3	0.924		
	SN4	0.827		
	SN5	0.917		
	SN6	0.925		
Perceived Behaviour Control	PBC2	0.654	0.581	0.846
	PBC3	0.829		
	PBC4	0.833		
	PBC5	0.716		
Religiosity	R1	0.833	0.571	0.902
	R2	0.842		
	R4	0.72		
	R5	0.766		
	R6	0.54		
	R7	0.77		
	R8	0.778		
Destination Image	PDI1	0.897	0.639	0.84
	PDI4	0.689		
	PDI6	0.798		
Intention	INT1	0.877	0.745	0.946
	INT2	0.918		
	INT3	0.845		
	INT4	0.842		
	INT5	0.871		
	INT6	0.822		

Item R3, PDI2, PDI3, PDI5, ATT3, ATT4, ATT6, ATT7, PBC1 and PBC6 deleted due to low loading

Discriminant validity of the measures was used in comparing the correlations between constructs and the average variance extracted from that construct (Fornell & Larcker, 1981). Table 4 below shows that all values of the square root of average were greater indicating that the measures were discriminant.

Table 4
Discriminant validity

Construct	Attitude	Destination Image	Intention	PBC	Religiosity	Subjective Norm
Attitude	0.736					
Destination Image	0.492	0.799				
Intention	0.44	0.453	0.863			
PBC	0.328	0.481	0.486	0.762		
Religiosity	0.505	0.368	0.299	0.287	0.756	
Subjective Norm	0.261	0.554	0.253	0.535	0.079	0.893

Note: Values on the diagonal (bolded) are the square root of the AVE while the off-diagonals are correlations

Bootstrapping procedures were applied to show the relationship between said variables. First, religiosity ($\beta = 0.505$, $p<0.05$) which is the predictor of attitude, was accepted, thus it was positively related to attitude by explaining 41.11% of the variance in attitude. Therefore, H1 were accepted with R^2 values of 0.255. Second, destination image ($\beta = 0.554$, $p<0.05$) was positively influenced on subjective norm explaining 30.7% of the variance in subjective norm. These results supported H3. The R^2 values of 0.307 were above the 0.26 value as suggested by Cohen (1988) indicating a robust model.

Lastly, the overall result of predictors for intention involving attitude, subjective norm and perceived behavioural control was discussed. Attitude ($\beta = 0.319$, $p< 0.05$) and perceived behavioural control ($\beta = 0.407$, $p<0.05$) were both positively related to intention, while subjective norm ($\beta = -0.048$, $p<0.05$) were negatively related to intention, explaining 32.6% of the variance in intention. The R^2 values of 0.326 were above the 0.26 value as suggested by Cohen (1988) indicating a solid model. Thus, H2 and H5 were accepted, and H4 rejected (see Table 5 below).

In this study, the initial testing of TPB revealed that only attitude and perceived behavioural control had an influence on destination intention behaviour. Perceived behaviour control proved to be the strongest indicator of intention, followed by attitude, while subjective norm revealed an adverse

Table 5
Hypothesis testing

Hypothesis	Relationship	Std Beta	t-value*	Decision	R^2	f^2
H1	Religiosity → Attitude	0.505	11.094	Accepted	0.255	0.342
H2	Attitude → Intention	0.319	3.674	Accepted		0.133
H3	Destination image → Subjective Norm	0.554	6.488	Accepted	0.307	0.443
H4	Subjective Norm → intention	-0.048	0.52	Rejected		0.002
H5	PBC → intention	0.407	4.218	Accepted	0.326	0.166

*p<0.05

effect with intention. Lam and Hsu (2006) confirmed that perceived behavioural control and past behaviour significantly correlated with behavioural intention in the chosen destination. Meanwhile, attitude plays an important role as it leads to performing a behaviour as suggested by Ajzen (1991). Several studies showed a positive relationship between attitude and behavioural intention (Lam & Hsu, 2006).

Subjective norm was found to have no effect on destination choice. In subjective norm, the role of social influence such as family and friends has had a lesser impact on destination intention behaviour. Snyder et al. (2013) confirmed this by stating that family physicians need to discuss and advise patients on their decision to seek medical treatment abroad. It stressed on the significant role of physicians towards encouraging patients in choosing service providers abroad.

Second, this study has proven two significant linkages, that is, between religiosity and attitude, and destination image and subjective norm. Religiosity

is a significant predictor as religion does influence a person's attitude in behavioural adoption. It affects consumers' attitude given the individual ethics, beliefs, and consumers' behaviour, which are similar to intuition (Light, Keller, & Calhoun,1989).

Analysis of the influence of destination image and subjective norm showed a positive relationship. These proved that family and friends would recommend the destination that has a good image and reputation. Beerli and Martin (2004) found that word of mouth from friends or family can be influential in the formation of elements in image perceptions of a destination.

CONCLUSION

This study has developed and tested SCoM-DB model and extended the application of TPB by exploring its relationship with religiosity and destination image in the selection of destination. The study has also assessed the robustness for TPB, namely attitude, subjective norm and perceived behaviour control and investigated the

linkages between religiosity attitude and destination image towards the subjective norm.

Several constructs such as attitude, subjective norm, perceived behavioural control, religiosity, destination image and intention have been applied in this study. The results revealed that only attitude and perceived behavioural control significantly influenced destination intention behaviour. Perceived behavioural control proved to be the strongest contributing factor towards intention followed by attitude. Meanwhile, subjective norm shows a negative relationship with destination intention behaviour. This study also showed linkages between religiosity and attitude and destination image towards subjective norm which shows a significant relationship.

The findings of this study however, cannot be generalised as its focus was the central region of Peninsular Malaysia only. Therefore, a large scale study can be generalised by widening the study area, especially in the northern region which attracts more medical tourists. From a practical perspective, this study could lead to an increased awareness of the existence of Islamic sharia compliance procedures among medical tourists and thus, would be given a choice in choosing their destination. Furthermore, relevant government agency could also focus on promoting Malaysia as a sharia compliant destination in medical tourism. Also, collaborative efforts within government agencies can be undertaken and subsequently set a clear benchmark in sharia compliance. Finally, industry service providers such as travel agencies, medical centres and hospitals could greatly benefit from this research by further exploring Malaysia's potential for sharia compliant medical services.

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SOCIAL SCIENCES & HUMANITIES

Does Store Environment Influence People with Disability's (PWD) In-Store Experience and Approach Behaviour? An Empirical Analysis

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ABSTRACT

Drawing upon the Stimulus-Organism-Response (S-O-R-) behavioural model, this paper proposes a theoretical framework that explores how this seminal theory holds across with new constructs, namely hedonic shopping value and emotional attachment. Additionally, it attempts to examine the correlation between store environment, in-store experience and the approach behaviour within the shoppers' context of people with disability (PWD). Using a quota sampling approach, a total of 300 guided self-administered survey questionnaires were distributed to target respondents but only 151 returned questionnaires were usable and subsequently run for data analysis through structural equation modelling technique. The findings revealed that emotional attachment significantly influenced shoppers' approach behaviour followed by in-store experience. Meanwhile, hedonic shopping value indicated insignificant effect on approach behaviour and significant relationship between store environment and in-store experience of PWD consumers.

Keywords: Approach behaviour, emotional attachment, in-store experience, people with disability (PWD) consumers, stimulus-organism-response (S-O-R) model

INTRODUCTION

Competition between shopping malls has prompted the management of shopping malls to explore various ways to attract customers. Psychological theories acknowledge shopping mall environment plays a crucial role in delivering compelling experiences to customers. A number of studies that utilised the three components of S-O-R model (Stimulus-Organism-

Response) has generated substantial findings on the dimensionality, in-store experience and consumer behaviour. However, the significance of shopping value and emotional attachment to consumers, and the role of these two constructs in an approach response within the S-O-R model, remain unexplored. Thus, research efforts on the understanding of consumer responses to shopping mall environment, along with shopping value and emotional attachment are deemed necessary.

Over the past decade, the retail industry in developing nations such as Malaysia, Thailand and Indonesia has witnessed a tremendous continued growth with the increasing number of retail establishments. The sector's rapid growth was attributed to global development, higher disposable income and also an increase in population (Kaliappan, Alavi, Abdullah, & Zakaullah, 2008). Many different retail formats are evident in the retail environment, ranging from traditional retailers to the latest retail formats such as contemporary air-conditioned shopping malls, departmental stores, convenience stores, and online retail business. While the concept of store environment has received much attention in the retail and marketing literature to predict consumer behaviour, a growing market segment, that is, people with disability (PWD) or PWD consumers have been overlooked. Their experience in the shopping mall environment have also not been explored. In fact, Keng, Huang, Zheng, and Hsu (2007) suggest that among the aspects that consumers today are seeking for include a great customer experience.

Store environment is undeniably widely researched in retailing and marketing disciplines such as segmentation (El-Adly, 2007), environmental stimuli as well as behavioural outcomes (Liao et al., 2012). Many attempts have been made to investigate the behavioural consequences of customers. Nevertheless, empirical research on the outcome of PWD experiences about shopping mall environment is still very limited. Besides, no studies to the best of the authors' knowledge, have looked into incorporating a utilitarian and hedonic shopping value, emotional commitment and approach behaviour within the S-O-R model. Therefore, it is essential for shopping mall management to know the extent to which their shopping malls are attractive enough to PWD shoppers in influencing their approach behaviour. Specifically, this study aims to fill this gap by examining how the three constructs are relevant in shopping mall environment and approach behaviour relationship based on the S-O-R theory. The following section discusses main literature findings related to the said model and proposed constructs.

LITERATURE REVIEW

Stimulus Organism Responses (S-O-R) Model

The S-O-R model is a seminal work developed by Mehrabian and Russell (1974) and has been predominantly applied as an underlying theoretical foundation in many academic types of research. As illustrated in Figure 1, the model has three major components namely stimulus, organism and

response. SOR model also proposes that stimuli can influence consumers' attitude, experience and emotional states, hence resulting in a response in terms of consumer's approach behaviour or intention. Within this framework, the stimulus is conceptualised as a variable that influences internal or organismic states of an individual. The organism, on the other hand, is defined as cognitive and affective states of a person that mediate the relationship between stimulus and responses. Meanwhile, response reflects an outcome with two types of variables, approach or avoidance behaviour. Among the earlier studies on store environment, stimulus component has been represented as social, design, and ambient factors (Baker,

Grewal, & Levy, 1992). The social factor is related to variables such as the store's salesperson attitude and behaviour. The ambient factor then relates to the non-visual aspect of the retail store environment. In contrast, design factor is more related to the visual element of a retail outlet. Several examples include colour, cleanliness, layout, display and others. Many firms embrace stimulus environmental cues in their marketing strategy as a source of competitive advantage (Tan & Lau, 2010). Nowadays, retail customers have shown a high degree of their commitment and environmental attitude, resulting in many firms becoming more socially responsible in addressing such an issue.
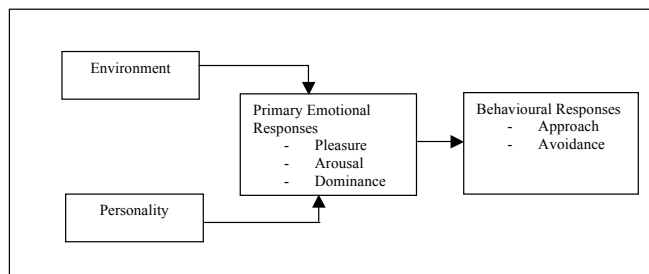

Figure 1. Classic Environment Model by Mehrabian and Russel (1974, p. 8)
Source: Adopted from Mehrabian & Russell, 1974; Sandra Diehl, 2001

Store Environment

The concept of environment is widely studied, in particular, its influence on consumer behaviour. In the retailing context, studies on the environment have focused specifically on store environment. Several authors have conceptualised the concept of environment in many different ways. For example, store environment is characterised by some physical elements, which are

blended to create a distinctive image perceived by the customers. Also, store environment reflects a socially constructed reality, composing both physical and social elements (Lin & Chiang, 2010). In the retail environment, it is usually conveyed through visual merchandising, which involves colour, texture, lighting, mannequins, and signage.

Based on the S-O-R theory, store environment comprises environmental

stimulus cues where customers use to evaluate a retail store. It contains numerous non-product cues that aim to create a buying environment designed to produce specific emotional effects in them to enhance the probability of purchasing. Several other researchers have proposed different categories of all the factors in a physical store environment. Bitner (1992) specifically proposed store environment to comprise (1) ambient condition; (2) spatial layout and functionality; and (3) signs, symbols and artefacts.

Spena, Caridà, Colurcio, and Melia, (2012) stated that understanding and enhancing customers' experience were critical argument in the retail marketing academics and practitioners' agenda. Among others are the seminal work of Kotler (1973), Relph (1976) and Baker et al. (1992) that have emerged regarding the importance of retail environment on customer purchasing behaviour. Studies have also found that physical environment of a store or shopping mall can affect consumer behaviour. These include variety seeking behaviour (Mohan, Sivakumaran, & Sharma, 2013), and purchase intention (Gustafson, Hankins, & Jilcott, 2012). Also, the behaviour is influenced by two types of internal states of a customer: affective and cognitive (Mehrabian & Russell, 1974). The emotional outcome was mainly found to be a significant factor in consumers' approach behaviour.

Utilitarian and Hedonic Shopping Value

Shopping value was derived from consumers' shopping experience and from the product they purchased (Levy, 1959). The author acknowledged that consumers bought a product, not only based on the physical variables, but also based on their meaning. Shopping value of retailers is viewed as having two primary sources: hedonic value and utilitarian value (Sarker, 2011). Hedonic is deriving value from the pleasurable experience, whereas utilitarian indicates obtaining functional value from the efficient experience. Several characteristics of hedonic shopping value include smells, sights, as well as memories evoked by shopping as well as social interactions during their shopping spree. The utilitarian shopping value will be experienced by a consumer when specific goals for a shopping trip are satisfied. One such example is consumers' deliberate search for the particular item.

In retail brand context, Sarker (2011) found that utilitarian and hedonic shopping values have significantly affected satisfaction, loyalty and also WOM. Yusof, Musa, & Rahman, (2011) and Din, Putit & Muhd Najib (2016) further found that shopping values and social cues play equal roles in predicting consumer behavioural outcome such as store loyalty. Past studies have also acknowledged the importance of value on product or store choice and repurchase intention (e.g. Kim, Galliers, Shin, Ryoo, & Kim, 2012).

Emotional Attachment

Emotional attachment is important for businesses or organisations because it forms a tie between a consumer and an object. Patwardhan and Balasubramaniam (2011) highlighted that emotional attachments are integral to customer loyalty. In fact, for a brand to have fostered strong bonds with the consumers, it will be able to have a genuine competitive advantage against the rivals. Research has shown that consumers develop emotional attachment towards consumption of objects throughout their lives. Gemmel and Verleye (2010) stated that there are four dimensions of emotional attachment: confidence (consistency between promises and delivery), integrity (fairness of solutions), pride (positive association and identification with the company) and passion (internationalisation of self-fulfilling prophecy).

Approach Behaviour

According to the S-O-R theory, approach behaviour is an action by customers as a result of their individual states (Mehrabian & Russell, 1974). Approach response includes physical approach, work performance, exploration, and social interaction. They refer to approach action as the willingness or desire to move toward and explore an environment. In this study, approach behaviour reflects PWD shoppers' willingness to patronise shopping malls to shop at the various retail stores within the mall.

The following hypotheses are proposed:

- H1 - Store environment significantly affects in-store experience
- H2 - In-store experience significantly influences approach behaviour
- H3 - Hedonic shopping value significantly affects approach behaviour
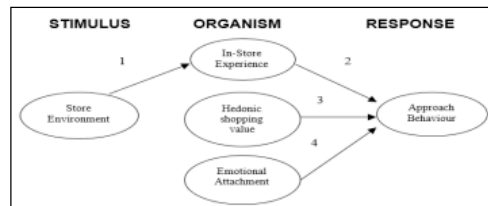- H4 - Emotional attachment greatly influences approach behaviour

Figure 2. Proposed theoretical framework

The research framework is presented in Figure 2 depicting the hypothetical causal model for the study.

METHODS

This study adopts a quantitative research design using quota sampling, in which gender and race are identified as control variables. The research design measures the shopping mall environment, utilitarian and hedonic shopping value, emotional attachment, and approach behaviour. The measurement involves asking target respondents to rate shopping malls' environment according to refined attributes. Using a 7-point Liker

scale measurement, several adopted items from relevant prior studies are used to operationalise constructs for the investigated model. Minor wording changes are observed and amended accordingly. Data collection has been carried out at the respective PWD registered association centres. A total of 300 guided self-administered survey questionnaires were distributed to PWD target respondents who have visited shopping malls at any given time but only 151 completed forms were usable for further data analysis.

RESULTS AND DISCUSSION

The analysis is based on 151 respondents consisting of PWD shoppers as shown in Table 1 below:

Table 1
Demographic information

Item	Frequencies (n=151)	Percentages (%)
Age group		
20 to 24 years old	28	18.5
25 to 29 years old	39	25.8
30 to 34 years old	28	18.5
35 to 40 years old	29	19.2
40 years old and above	27	17.9
Gender		
Male	137	90.7
Female	14	9.3
Race		
Malay	103	68.2
Chinese	21	13.9
Indian	18	11.9
Others	9	6.0

Table 1 *(continue)*

Level of education		
SPM	94	62.3
STPM	33	21.9
Bachelor's Degree	3	2.0
Masters	0	0
PhD	0	0
Others	21	13.9
Occupation		
Manager	1	0.7
Executive	2	1.3
Government staff	2	1.3
Self-Employed	5	3.3
University Student	3	2.0
Others	138	91.4
Income level		
Less than RM 1000	61	40.4
RM1000 to RM3000	80	53.0
RM3000 to RM5000	4	2.6
RM5000 and above	6	4.0

Male and female respondents accounted for 90.7% and 9.3% respectively; the age of the samples were mainly distributed in five groups: less than 20 to 24 years old (18.5%), 25-29 years old (25.8%),30 to 34 years old (18.5%), 35 to 40 years old (19.2%) and more than 40 years old (27%). People with disabilities' (PWDs) are as shown in Table 2. Types of disabilities include Blindness or Low Vision (2%), Learning disabilities (2%), Medical Disabilities (3.3%), Physical Disabilities (88.1%), Psychiatric Disabilities (2%); and Speech and Language (2.6%).

Following both reliability and validity testing, data was analysed to test the relationship between store environment and in-store experience. The result shows

Table 2
People with disabilities' (PWD) shopping experiences in shopping malls

Item	Frequencies (n=151)	Percentages (%)
Shopping malls attendance for the past one year		
Yes	141	93.4
No	10	6.6
Frequencies of shopping mall attendance		
Once a week	65	43.0
Once a fortnight	17	11.3
Once a month	61	40.4
More than once a week	8	5.3
Activities		
Shopping	80	53.0
Recreational activities	14	9.3
Working	4	2.6
Dining	24	15.9
Leisure activities	28	18.5
Others.	1	0.7
Types of disabilities		
Blindness or Low Vision	3	2.0
Learning Disabilities	3	2.0
Medical Disabilities	5	3.3
Physical Disabilities	133	88.1
Psychiatric Disabilities	3	2.0
Speech and Language	4	2.6
Any difficulties while visiting shopping mall		
Yes	76	50.3
No	75	49.7
Types of difficulties experienced		
Difficulty using public transport	21	13.9
Lack of facilities for disabled people	29	19.2
Difficulty entering or getting around premises	8	5.3
Service providers using inappropriate language	3	2.0
Difficulty in getting information	4	2.6
Disabled people facilities used by others	40	26.5
Not Answered	46	30.5
Would still visit shopping malls even have to face such difficulties?		
Yes	117	77.5
No	34	22.5

Table 3
Convergent validity

Construct	Item	Loadings	AVE	CR
Store Environment	BSB21	0.633	0.515	0.932
	BSB22	0.641		
	BSB23	0.756		
	BSB24	0.817		
	BSC7	0.774		
	BSI27	0.821		
	BSI28	0.828		
	BSL10	0.675		
	BSL13	0.733		
	BSL14	0.635		
	BSP18	0.654		
	BSP19	0.66		
	BSP20	0.656		
In-Store Experience	DOE1	0.739	0.64	0.914
	DOE2	0.88		
	DOE3	0.804		
	DOE4	0.803		
	DOE5	0.814		
	DOE6	0.752		
Hedonic Shopping Value	EOV1	0.468	0.641	0.912
	EOV2	0.919		
	EOV3	0.832		
	EOV4	0.885		
	EOV5	0.763		
	EOV6	0.851		
Emotional Attachment	FOE1	0.649	0.625	0.868
	FOE2	0.872		
	FOE3	0.875		
	FOE4	0.742		
Approach Behaviour	GRL1	0.819	0.695	0.919
	GRL2	0.782		
	GRL3	0.844		
	GRL4	0.855		
	GRL5	0.866		

Note: BSM1, BSM2, BSM3, BSS4, BSS5, BSS6, BSC8, BSL9, BSL11, BSL12, BSL15, BSL15, BSL16,BSL17,BSB25,BSI26,BSI29,BSI30 and BSI31 deleted due to low loading

Table 4
Discriminant validity

	Approach Behaviour	Emotional Attachment	Hedonic Shopping Value	In-Store Experience	Store Environment
Approach Behaviour	0.834				
Emotional Attachment	0.683	0.79			
Hedonic Shopping Value	0.595	0.434	0.801		
In-Store Experience	0.649	0.543	0.746	0.8	
Store Environment	0.597	0.42	0.775	0.781	0.718

Note: Values on the diagonal (bolded) are square root of the AVE while the off-diagonals are correlations

($\beta = 0.781$, p< 0.05) indicating a significant relationship. Therefore, H1 was accepted where the R^2 values explains 61% of the variance in in-Store experience.

Next, the result of predictors of approach behaviour, that is, In-Store experience, hedonic shopping value and emotional attachment were further analysed. In-store experience ($\beta = 0.236$, p< 0.05) and emotional attachment ($\beta = 0.459$, p< 0.05) were both positively and significantly related to approach behaviour, while hedonic shopping value ($\beta = 0.219$, p< 0.05) were insignificant explaining 59.7% of the variance in approach behaviour. The R^2 values of 0.597 were above the 0.26 value as suggested by Cohen (1988) indicating a solid model. Thus, H2 and H4 were accepted, and H3 rejected (see Table 5).

Table 5
Discriminant validity

Hypothesis	Relationship	Std Beta(β)	t-value*	Decision	R^2	f2
H1	Store Environment→ In-Store Experience	0.781	26.139	Accepted	0.610	1.567
H2	In-Store Experience → Approach Behaviour	0.236	2.857	Accepted	0.597	0.053
H3	Hedonic Shopping Value → Approach Behaviour	0.219	1.888	Rejected		0.053
H4	Emotional Attachment → Approach Behaviour	0.459	4.295	Accepted		0.368

*p<0.05

From data analysis and findings, an extended contribution to the S-O-R theory was observed specifically on the effects of new constructs in the shopping mall environment and approach behaviour relationship. First, it tested the relationship between In-Store experience, hedonic shopping value and emotional attachment towards approach

behaviour. The results revealed emotional attachment as the strongest predictor towards approach behaviour followed by in-store experience. This indicates that emotional attachment is an important factor of businesses or organisations because it forms a tie between a consumer and an object. Emotional attachment seems to suggest that customers with a stronger emotional attachment are likely to be committed to a brand (Thomson et al., 2005).

Second, PWD's in-store experience significantly influences their approach behaviour in a shopping mall. This finding supports past studies that have acknowledged the importance of value on product or store choice and repurchase intention (e.g. Kim, Galliers, Shin, Ryoo, & Kim, 2012). Sarker (2011) and Yusof, Musa and Rahman (2011) also found that utilitarian and hedonic shopping values significantly affects satisfaction, loyalty and also word of mouth (WOM) communication.

Third, hedonic shopping value indicates insignificant relationship towards approach behaviour. As stated by Sarker (2011), hedonic shopping values include characteristics such as smells, sights, as well as memories evoked by shopping as well as social interactions incurred while shopping. Since PWD shoppers have permanent forms of disability in such hedonic characteristics, it is thus fair to indicate that hedonic shopping value has lesser impact on their approach behaviour of patronising retail outlets in shopping malls.

Fourth, further findings show a significant relationship between store environment and in-store experience of PWD consumers. This finding confirms that of earlier research (e.g. Sharma & Stafford, 2000) in which store atmosphere plays an important part of the in-store shopping experience as it can influence the consumer's decision to visit the store.

CONCLUSION

This study has contributed to knowledge on this topic First, it suggests a new contribution to the S-O-R theory in relation to the effects of new constructs within the shopping mall environment and approach behaviour relationship. Second, it highlights the distinct role of shopping mall environment for people with disability (PWD) which has so far been overlooked in past research. Moreover, the study showed an element of inclusiveness that is, enabling the PWD communities to benefit from the nation's wealth. Third, the findings could also assist the management of shopping malls or retail store operators in redesigning relevant business strategies that meet the needs of these PWD shoppers. Several limitations were further observed in this study. Among others, it only covered Klang Valley region (e.g. Kuala Lumpur, Putrajaya and the state of Selangor) and thus, future efforts should focus on wider regional coverage in major cities throughout Malaysia in an attempt to generalise the findings. A qualitative study is also recommended.

In essence, literature has shown that shopping malls and store environment comprises dimensions with a functional and aesthetic appeal to the customers. Based on the Stimulus-Organism-Response (S-O-R) framework developed by Mehrabian and Russell (1974), this study proposed a research framework to examine customers' responses, particularly the PWD's approach to the shopping mall environment. By taking into consideration the mediating role of shopping value and emotional attachment, this study showed how these two constructs influenced approach behaviour.

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Ownership Structure and Financial Restatement in Malaysia

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ABSTRACT

This study is on the ownership structure of companies in Kuala Lumpur Stock Exchange (KLSE) aims at strengthening corporate governance. The authors investigate the relationship between ownership structure and financial restatement of listed companies for the period from 2005 to 2013. Using five types of ownership, managerial, government, institutional, family and foreign ownership, findings reveal that financial restatement is negatively and significantly associated with managerial ownership and foreign ownership.

Keywords: : Corporate governance, financial restatement, ownership

INTRODUCTION

The issue of financial restatements continues to received attention as the number of restatement continue to be discovered and made known to public. In Malaysia, cases of financial restatements like CSM Corporation Bhd., OilCorp Bhd., Goh Ban Huat Bhd. and Transmile Group that are

frequently reported in the business section has received considerable attention from the regulators (Abdullah, Yusof, & Nor, 2010). In addition to misstatement of revenue, restatements which due from correction of errors indicate a poor auditing and corporate governance and it has to be addressed as it effects investor's confidence in Malaysian companies (Agrawal & Chadha, 2005). Reasons for financial restatements, especially when frauds are involved, have raised our significant concerns about the adequacy of financial disclosure oversight and corporate governance practices like ownership. Prior Previous research shows the presence of a link between corporate governance and financial restatement. Coffee (2005) argues that differences in the

structure of ownership lead to differences in the nature of corporate scandals and incidents of restatements.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

We focus on material financial restatements, which by definition are defined as a function of significant accounting problems with the firm. These restatements identified by the General Accounting Office (GAO) as resulting from "aggressive" accounting practices, misuse of facts, oversight or misinterpretation of accounting rules, and fraud (U.S. General Accounting Office, 2003, p. 4). A material misstatement has passed undetected by internal control mechanisms as well as the external auditors. Only later is the misstatement discovered, and the revised financial released (Abbott, Parker, & Peters, 2004). In short, the restatements of interest in this study are relatively rare occurrences that signal severe shortcomings in both internal like ownership structure and external governance mechanisms.

There is limited empirical evidence on variable of ownership structure and consequences towards financial restatement and those existing studies provide ambiguous results. The early work by Zhang (2012) described ownership to be managerial ownership, family ownership, government ownership, institutional ownership, CEO ownership. There are various studies assumed that ownership structure types of governance could prevent or restrain financial restatements since they could play

their role on monitoring the preparation of financial statements. Different countries have different corporate ownership structure. In Korea, ownership structure is classified in terms of the role played by the largest shareholder (Jung & Kwon, 2002). In Malaysia Claessens, Djankov and Lang (2000), state that 50% of shares are owned by institutional shareholders or blockholders. Bursa Malaysia Listing Requirement (2013) state that each listed company must ensure that at least 25% of its total listed shares are in the hands of public shareholders or unit holders.

Ownership concentration in determination of ownership structure has been widely used by other researcher since free-riding problem and accounting errors problem could be solved with the existence of large shareholder (Zhizhong et al., 2011). According to Chu and Cheah (2004), they had used the first single largest substantial shareholder as the proxy of ownership concentration to classify ownership structure in Malaysia due to certain parties are controlling Malaysian companies via nominee names to remain anonymous (Chu & Cheah, 2006). On the other hand, some researcher used top ten largest shareholders as the proxy of the ownership to classify ownership structure (Chen et al., 2006). Other studies identified ownership identities to be either family controlled, conglomerate, others institution, state, foreign and dispersed firms. In this study, we focus on the relationship between five types of ownership structure: managerial ownership, government

ownership, institutional ownership, family ownership and foreign ownership and their relationship with financial restatement.

La Porta, Lopez-De-Silanes and Sheilfer, (1999) investigate the ownership of large companies in 27 countries and noted that despite the existence of large shareholders helps to overcome the "free-riding problem" of outside shareholders, they would also expropriate from the company at the cost of small shareholders' interests. This happened while large shareholders act as monitoring managers for all shareholders. Theoretically (Jenses & Meckling, 1976), the higher holding percentage large shareholders have, the weaker the intention, they have to transfer profit form the company. With the high ownership concentration, the company performance is highly associated with large shareholder's interests. Large shareholders intend to set up strong and valid accounting control program to prevent and discover accounting errors. In addition, the interference of large shareholders also strikes the profligacy of management and the board, and the intention of opportunism (Zhizhong et. al., 2011).

Our research is underpinned by the theory of agency and signalling. This research referred the agency theory in relating to the agents who are top managers with the principles who are shareholders. While for the signalling theory, present study referred to the existence of information asymmetry between the two parties which is between owners of the companies and managers. The most frequently referred research, Junrui and Ma (2011) examined the relationship between concentration ownership, managerial ownership, government ownership, corporate ownership, institutional ownership, tradable shares and incidence of financial restatement in China. We argued that even if some of the corporate scandals and failures occurred as a result of the financial market bubbles burst in 1997, the extensive corporate misconduct and misreporting reveals also a failure of the auditing and corporate governance system which one of this is ownership structure (Keune & Johnstone, 2012; Price, Sharp, & Wood, 2011; Romanus, Maher, & Fleming, 2008). Hence, we choose to investigate the type of ownership variables in predicting restatement. We will contribute to the existing literature gap by providing additional evidence on the situation in emerging market like Malaysia which is often thin, riddled with information gaps and weakly supported by enforcement institutions such as courts. It is possible that different ownership structure can influence accounting restatements.

This study expects the incidence of financial restatement to be negatively related to managerial ownership at lower levels. Our first hypothesis is as follows:

> H1: There is significant negative relationship between lower level managerial ownership and financial restatement.

Our second hypothesis is as follows:

> H2: There is significant positive relationship between government ownership and financial restatements.

The third hypothesis is as follows:

H3: There is significant negative relationship between institutional ownership and financial restatements.

The fourth hypothesis is:

H4: There is significant negative relationship between family ownership and financial restatement.

The fifth hypothesis is as follows:

H5: There is significant negative relationship between foreign ownership and financial restatement.

METHODS

Sample

We select all publicly listed companies in Kuala Lumpur Stock Exchange (KLSE) over the entire duration of the estimation time period (2005-2013) as initial samples. Of these initial samples, companies involved in real estate investment trusts industry, finance industry, close-end funds and exchange traded funds were excluded, since their accounting and reporting environments differ from those in other industries. This gives a final sample of 853 firm-year observations from fiscal years 2005 to 2013. We collect the ownership structure and financial data of sample companies in the year of accounting errors, match them with those of the companies in control samples, and examine it by logistic regression.

Variables Measurement

Dependent variable. The proxies we use to measure financial restatement, as the dependent variables is supported by Abdullah, Yusof and Nor (2010). The keywords of "restate", "restatement", "restated", or "prior year adjustment" were identified from each annual report. The year when accounting errors occurred are presented as previous year where we regard the period of occurring accounting errors as the most recent years before restatements. Restatement financial year is dummy variable with a value of 1 if the company restated its statements, 0 otherwise. (Junrui & Ma, 2011).

Independent variables. Five ownership structures were used in this study; management ownership, government ownership, institutional ownership, family ownership and foreign ownership. The measurement for these ownership is taken from the concentration of ownership based on the top ten largest shareholders. The management ownership (ManOWn) is measured as the total percentage of executives who hold shares directly or indirectly. Government ownership (GovOwn) is measured as the total percentage of government held shares. Institutional shareholding (InsOwn) is measured as the total percentage of top five institutional investors in Malaysia. Family ownership (FamOwn) is measured as the aggregate percentage of shares held by family members. Finally, foreign

ownership (ForeOwn) is measured as the total percentage shares held by foreign corporate or individuals.

Control variable. Consistent with prior empirical research on the relationship between corporate governance and financial restatement (Junrui & Ma, 2011), we controlled variables such as : return on assets (ROA), computed as the ratio of earnings before interest and taxes to total assets and leverage (LEV), defined as the total liabilities to total assets.

Regression model. This study uses ordinary logistic regression as the main statistical technique to test the hypothesis. To test the relationship between the ownership structure and financial restatements, the following logistic regression models was used as follow:

$FinRest = \beta_0 + \beta_1 ManOwn(t-1) + \beta_2 GovtOwn(t-1) + \beta_3 InstOwn(t-1) + \beta_4 FamOwn(t-1) + \beta_5 ForeOwn(t-1) + \beta c_1 ROA(t-1) + \beta c_2 LEV(t-1) + \epsilon(t-1)$

where:

Fin Rest = the incidence of financial restatements

ManOwn = percentage of managerial ownership

GovtOwn = percentage of government ownership

InstOwn = percentage of institutional ownership

FamOwn = percentage of family ownership

ForeOwn = percentage of foreign ownership

ROA = the book value of earning before tax and interest divided by total asset

LEV = the book value of total liabilities divided by total assets.

RESULTS

Descriptive Statistics

Table 1
Descriptive statistics of the sample variables (2005-2013)

	Min.	Max.	Mean	Std. Dev	t-value	Min.	Max.	Mean	Std. Dev
	Restate (n=59)					Non-Restate (n=126)			
ManOwn	0	11.450	0.857	2.195	-3.998*	0	51.750	5.112	11.506
GovtOwn	0	46.910	2.550	7.820	0.075	0	72.740	2.435	10.427
InstOwn	0	15.290	2.189	3.972	-0.812	0	31.500	2.801	5.109
FamOwn	0	75.890	4.399	10.873	-1.009	0	60.750	6.266	13.375
ForeOwn	0	23.100	2.332	4.779	-2.977*	0	92.889	6.862	15.587
ROA	-0.209	0.313	0.060	0.079	0.278	-2.750	1.501	0.048	0.324
LEV	0	0.834	0.433	0.224	-0.699	0.006	1.734	0.460	0.252

*Correlation is significant at the 0.05 level (2-tailed)

The descriptive statistics of variables used in the sample are shown in Table 1 for restated companies and Table 2 for non-restate companies. Managerial ownership is found to be significantly lower for the companies that restated their accounts (0.857) than non-restate companies (5.112). One explanation for this finding is managerial ownership could play as internal monitoring device that can align managerial and shareholder interest (Dimmoct, Gerken, & Marietta-Westberg, 2015). Similarly, the mean value for restated (non-restated companies), institutional 2.189(2.801), family 4.399 (6.266) and foreign ownership

2.332 (6.862). Foreign ownership role could resemble institutional and family investors, in monitoring the management from involving in non- maximizing activities and improve the governance structure (Dahlquist & Robertsson, 2011). The percentage of government ownership is higher for companies that restated their accounts, supporting the assumption of Zhang (2012) that government ownership has difficulty in restraining management in the incident of financial restatement.

Regression Results

Table 3
Logistic regression of the variables

	Predicted Sign	Model 1 (without control variable)		Model 2 (with control variable)	
Constant	?	-0.005	0.484		
ManOwn	-	-0.151*		-0.155*	
GovtOwn	+	-0.008		-0.008	
InstOwn	-	-0.031		-0.040	
FamOwn	-	-0.022		-0.026	
ForeOwn	-	-0.064*		-0.065*	
ROA	-		0.405		
LEV	+		0.164		
R^2		0.178	0.199		

Notes: *$p<0.05$, two-tailed tests

Result in Table 3 show that H1 and H5 are supported. Thus, the extension of shares owned by management and foreign investors is associated significant negatively with restatement. The evidence indicates that managerial ownership does mitigate agency costs and is effective in controlling management's opportunistic behaviours,

supporting previous evidence (Dimmoct et. al, 2015).

For H5, the evidence suggests that although foreign ownership is a minority types of shareholders, they are actively involved in monitoring the company's reporting process. This is consistent with the study done by Ben-Nasr, Boubakri and

Cosset (2015), where foreign ownership minimizes abnormal accruals, privileged earnings informativeness and report more stable earnings. Thus, foreign ownership plays an important monitoring role thus preventing financial restatement.

The other 3 hypotheses are not supported. The directions of the associations are as predicted except for foreign ownership. The result of this study is not consistent with the study done Junrui and Ma (2011) and Peng (2007) who found out that government ownership significantly influences the incident of financial restatement due to the absence of absolute controlling shareholders. Our findings reveal that the higher degree of government ownership in companies could create value and is powerful to restrain management in the incidence of financial restatement in Malaysia.

Institutional ownership is also not found to have a significant link with financial restatement. Institutional owners mainly focused on short term financial results and tend to engage in earning management by giving managerial incentives. Apart from that, the reason for the insignificant finding might due to the fact that these block holders are motivated in their personal profit rather than considering the interest of the minority shareholders

Another variable that does not have a significant association with financial restatement is family ownership, which is consistent with the evidence in Malaysia. According to Munir et al. (2013), at lower level of ownership (0% to 15%), the family managers are likely to report high earning

quality. However, at higher level, the objectives of family directors dispersed with company's performance. One explanation for these mixed findings could be due to the existence of entrenchment effects. Higher ownership lead to higher information asymmetry between family ownership and outside shareholders that lead to poor earnings quality.

CONCLUSION

This study highlighted the structure of ownership in public listed companies in Malaysia. Our objective was to examine the relationship between ownership structure and the incidence of financial restatement. From the statistical test, we found out that managerial ownership and foreign ownership significantly influence the occurrence of financial restatement. Both of these ownerships are associated with less likelihood of financial restatement. This indicates that managerial shareholders are effective in monitoring and disciplining managers in order to ensure the accounts prepared are not misstated. These findings support the good job of controlling managers done by managerial shareholders (Junrui & Ma, 2011; Dimmock et. al., 2015). We also found out that foreign ownership is effective in guaranteeing the quality of accounting information. The existence and the supervision of foreign ownership could reduce the opportunism of the management especially from long-term foreign investors. The long-term relationship involved commitment and responsibility to ensure a good company future prospect. Thus,

foreign investors will be stricter to make sure the management did not involve in non-value maximizing activities. We concluded that Hypothesis 1 and Hypothesis 5 are supported by this result.

Meanwhile, institutional ownership, government ownership and family ownership have an insignificant effect on financial restatement. From the result, government ownership found to reduce the likelihood of restatement, adverse from the predicted influence. The reason for this might due to the nature of Malaysia Government Link Companies where government play a good role to maintain companies' performance. Part of the companies' return will be used to generate the country's development and becoming an important source to the country.

This study hopes to assist regulatory bodies, such as Bursa Malaysia, the Malaysian Institute of Corporate Governance, the Securities Commission of Malaysia, in formulating new policies or regulations to deter financial restatements. Besides that, for the internal control, this study hopefully will assist the companies in formulating the best systems to prevent any financial restatement incidence by concerning on ownership structure in their company.

ACKNOWLEDGMENTS

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The Readiness of Small and Medium Enterprises (SME) in Malaysia for implementing Goods and Services Tax (GST)

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ABSTRACT

A new taxation system – Goods and Services Tax (GST) has been introduced by the Malaysian government in order to diversify its revenue base. The Royal Malaysian Custom Department (RMCD) which is appointed to collect this revenue is strengthening its capacity. This paper studies the relationship between competency and governance towards GST readiness among 45 owners of a single brand petrol stations in Malaysia. The Theory of Organisational Readiness for Change along with a regression analysis suggested competency and governance of the petrol station owners had a positive significant relationship towards GST readiness.

Keywords: Awareness, competency, Goods and Services Tax, governance practice, readiness

INTRODUCTION

Malaysia has collected RM51billion since the implementation of the Goods and Services Tax (GST) in April 2015. The reduction in oil prices to AS$30 per barrel, in late 2015 had severely weakened government revenue.

GST is a multi-stage tax, where a tax is added to the price of products or services at each stage of production and distribution (Brederode, 2008; Gupta, 2014; Mansor & Ilias, 2013; Palil & Ibrahim, 2012). A standard rate of 6 percent was applied to all goods and services in the hope that Malaysia would remain competitive in the international market (Gupta, 2014).

The readiness of GST is expected from business people because they act as an entity on behalf of the government to

collect taxes from consumers (Ahmad, 2015). The GST usually relates to the Self-Assessment System (SAS) whereby taxpayers have to calculate taxes due to the RMCD. The purpose of this paper is to identify the effect of governance and competence towards GST readiness among small and medium enterprises (SME) in the petrol retailing industry. According to the definition of the Central Bank of Malaysia (2005) SME in Malaysia are those with less than 150 full time employees or having an annual turnover less than RM25 million. The readiness of GST in terms of competency and governance is important to ensure business owners comply with all the rules and regulation for its implementation. Competency in handling the system and governance in the company itself will help owners to be better equipped and compliant with the GST rules and regulations.

In examining SMEs this study selected a special group of business entrepreneurs, petrol station owners as they are affected by the GST implementation in terms of accounting system and pricing process. Two dimensions will be used to measure readiness for GST implementation: 1) people; and 2) technology, readiness (Abdinnour-Helm et al., 2003).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Employee's Skills and System Readiness for GST

Individual and organizational readiness is important when an organization introduces a new system in its business. There are many issues that would arise following the implementation of a new system. Staff attitude is therefore important in adopting a new system, requiring understanding and knowledge of its importance.

Petrol station owners with more than RM5 million yearly turnover are required to submit their return to the RMC every month while those turnover less than RM5 million will have to submit quarterly. Small medium enterprises were found to be less likely to participate during the earlier stages of GST implementation in Australia due to financial constraints (Ehrich & Billett, 2006). Extra cost and time is required when complying with GST needs.

The company should have a clear structure of the role of each staff and ensure no overlapping occurs (Davenport, 2000). They may appoint a project leader, process owner and a team for the system which is to be implemented. Engagement of top management is important to steer the new system.

The process owner would ensure that the new process fits in with the organization's overall system. They should test the new system before its actual implementation as the implementation team prepares details of the process design, system configuration and training plans. Having employees from diverse backgrounds can provide   ideas in the execution stage (Abdinnour-Helm et al., 2003). Davenport (2000) described that the configurations, interface development, data standardization, testing and performance management should be done in sequence.

Harold (1995) noted that when employees have direct experience and first-hand learning their attitude towards new technology is likely to be positive. Their interest in a new system is likely waned throughout the implementation process. As employees gain more experience, they would end up getting bored of executing the same process. Therefore, it is important to have positive pre-implementation attitudes towards technology. This will become the starting point to shape the employees' behaviours in the later implementation stages. Greater level of involvement during the pre-implementation stage will lead to more positive attitude with regards to expected capabilities, outcome, acceptance level and timing of the new system implementation (Abdinnour-Helm et al., 2003).

The study employed the Theory of Organisational Readiness for Change. Staff in a company need to change and share their belief in order to create changes (Weiner, 2009). The effectiveness of a new system is high if staff cooperate to initiate needed change, provide great effort and show persistent cooperative behaviour. Changes can be defined as the way people talk about an event where an expected occurrence appears to become something else. Something else is seen as a result or outcome of the changes (Choi & Ruona, 2011).

Change is required due to economic variations, globalization of markets, market,

technological, political and social factors. Organization should strive to initiate in developing and implementing change initiative as it improves business activities.

GST Competency

Individual competency is required to understand and run the implementation of GST smoothly. It can be defined as knowledge, attribute, attitude and ability to perform a specific role given. The competency on GST can be discussed from many angles such as staff related matters, knowledge, practices and training aspects. These factors are very important to ensure the success of GST implementation. Issues of GST calculation and accuracy of reports submitted to RMC by the businesses would reflect its self-assessment system (SAS). Insufficient knowledge will cause inaccurate tax return, leading to non-compliance for the businesses concerned.

A study by DiGabriele (2008) on the competency of forensic accountants found that knowledge and staff ability have positive relationship with competency. Staff would transform their theoretical knowledge into effective practical action to improve their performance. Various trainings related schemes can enhance competency among staff.

Competencies can help to provide a good structured model; for   example, organizational values are created when competencies align with recruiting, performance management, training and

development, and a good rewards system. Therefore, it can be hypothesised that: -

> H1– The higher the competency level, the better will be the readiness of petrol station owners towards GST.

GST Governance

Governance in international area always focuses on the regulatory side of implementation and seldom focused on the economy player themselves (Jensen & Wöhlbier, 2012; Morrell & Tuck, 2014; Von Haldenwang & Ivanyna, 2012).

Governance can be defined as a process of interaction and decision making taken by a company that will bring them towards becoming better structured in the future (Bevir, 2013). Governance in taxation aims at ensuring tax evasion and avoidance is reduced (Morrell & Tuck, 2014).

Governance among GST taxpayers can be explained as the process of handling their GST management in terms of their assurance by regularly testing the accuracy of accounting system to ensure that the GST reporting needs are met. The benchmark of the industry can be used as an indicator whether a company actual performance is in the right position. Petrol station owners should ensure that GST documentation and staff are updated on the latest issues concerning GST documentation and payment.

Vendors, on the other hand, should provide accurate, timely and valid tax invoices to petrol station owners for recording and filing purposes. Accurate

disclosure is one of the most important elements of governance best practice (Al-Janadi, Rahman, & Haji Omar, 2013).

Based on the above the following hypothesis is constructed:

> H2 – Better governance in the company will lead to better GST readiness among petrol station owners in Malaysia.

METHODS

Research Design

This study was conducted on operators of a single brand of petrol in Malaysia that is 750 stations. The operators were required to replace, enhance or buy a new accounting software in order to prepare for GST implementation, using the RM1,000 grants provided by the government for the purpose. The research used primary data which was collected through a structured questionnaire. The questionnaire was adopted and modified to suit the Malaysian context.

Survey Administration

A survey questionnaire was used to collect data from petrol station operators. A cover letter was attached to inform the importance of the survey. The letter also informed on the confidential nature of the study by ensuring anonymity.

Sample Selection and Data Collection

The study decided to focus on businessman operating petrol stations. 186 sets of

questionnaire were distributed, 50 were returned with 24% or 45 of them were complete. A sample size which is larger than 30 and smaller than 500 is considered to be appropriate (Sekaran & Bougie, 2011).

Questionnaire Design

Respondents were asked about their knowledge of GST system and the system's execution. The survey was divided into three parts: 1) GST competency; 2) GST governance; and 3) company readiness to implement GST. Two additional sections described the demographic information of respondents and regarding products related to GST. Twenty-six (26) items measured three major parts using a seven-point Likert scale. In addition, a pre-test was carried out with a few doctorate students to ensure the clarity and reliability of the survey items.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 presents the respondents' profile of the research. A majority of the respondents are based in central Malaysia (35.6 percent) consists of Selangor, Kuala Lumpur, and Negeri Sembilan. 33.3 percent of them are based in the Southern Malaysia which covers Johor and Melaka. The rest are based on the East coast, North and North East Malaysia covering the balance 31.1 percent of the respondents. The results reflect the representatives of the sample, as most petrol stations are located in the central and southern part of the Peninsular Malaysia.

About 53% of the respondents were female, and majority aged between 41 to 50 years old (48.9%). 62.2& of them have a college diploma or degree and 17.8 percent had master's degree or professional qualifications. Majority of the petrol stations (82.2 percent) are located in urban areas while only 17.8% is located in the rural areas. 97.8 percent or 44 petrol station operators had installed the accounting software for GST collection.

Table 1
Descriptive statistics

		Frequency	Percentage
A.1. Area	North	3	6.7
	Central	16	35.6
	South	15	33.3
	North East	5	11.1
	East	6	13.3
2. Location	Urban	37	82.2
	Rural	8	17.8
B. Demographic Characteristics			
1.Gender	Male	21	46.7
	Female	24	53.3
2.Age	Below 30	5	11.1
	31 to 40	6	13.3
	41 to 50	22	48.9
	Above 50	12	26.7
3.Education level	SPM/STPM	9	20
	Diploma	13	28.9
	Degree	15	33.3
	Others (Master, ACCA)	8	17.8
C. GST Software ready			
	Yes	44	97.8
	No	1	2.2
Total respondents		45	100

Statistical Analysis

Reliability test. Table 2 shows the value of Cronbach's alpha coefficient for competency was 0.886, indicating an excellent internal consistency and reliability for all 11 items being measured. In addition, the construct of governance yielded a Cronbach's alpha coefficient value of 0.953, also indicating an excellent internal consistency for reliability among the nine scale items. As the values of Cronbach's alpha were satisfactory, the study preceded its data analysis with exploratory factor analysis.

Table 2
Reliability test

Reliability Coefficients	Cronbach's Alpha	Number of Item
Competency	0.886	11
Governance	0.953	9

Factor Analysis. An exploratory factor analysis using the Varimax rotations was performed to understand the structure of correlation per variable. The Kaiser-Meyer-Olkin coefficients for these datasets were valued at 0.619 for readiness, 0.759 for competency and 0.897 for governance. These values indicate that the data was suitable to be tested with exploratory factor analysis (Hair et al., 2010). In addition, the Bartlett test of sphericity for readiness (chi-square=68.4210. df =10, $p<0.01$), competency (chi-square= 305.62, df=55, $p<0.01$) and governance (chi-square=480.50, df= 36 $p<0.01$) shows that the data for these three constructs were statistically significant.

The results from the exploratory factor analysis indicate that the six items used to measure GST readiness were grouped into one factor (all coefficients were above 0.3). Hence, this variable has one construct with six measurements. The result for competency showed that the variable has one factor construct with 11 measurement items. Furthermore, the factor analysis for governance showed this variable to have one factor construct with nine measurement items. No single item was dropped from the analysis.

Correlation Analysis. A Pearson correlation test was used to check for multicollinearity problems that might occur between the variables. If the correlation among variables is higher than 0.7, one of the variables should be omitted due to the occurrence of singularity (Pallant, 2010). Singularity arises when an independent variable is found to be a combination of other variables; hence this condition will cause multicollinearity issues to the analysis.

Table 3 shows a summary of bivariate analysis performed to test the correlation between variables. The result shows a correlation value of 0.687. Given the result was less than 0.7; no multicollinearity problem exists in the datasets. Competency is highly and significantly related to governance. In terms of the correlation between the GST readiness. The results indicate a significant relationship with all the tested variables.

Table 3
Pearson Correlation matrix among variables

	Encouragement	Competency	Governance
Readiness	.186	.707	.710
Competency		1.000	.687*
Governance			1.000

*Correlation is significant at the 0.01 level (one- tailed)

Regression Analysis on the GST Readiness. Table 4 shows results from multiple regression analysis which tested whether the independent variable is significantly associated with the level of GST readiness among petrol station owners in Malaysia. Based on these results, the regression model was statistically significant at five percent confidence level (F = 20.28, p=0.00). The adjusted R^2 was valued at 0.568, which means that the regression model was able to explain 56.8% of the variability in the degree of GST readiness for Malaysian petrol stations (R^2 is 59.7%).

Competency and governance were found to have significant positive relationships with the GST readiness among the petrol station owners. Overall, the results supported all the hypotheses developed for the study, explaining the presence of a positive relationship between competency and governance towards the GST readiness among petrol station owners in Malaysia.

Table 4
Regression analysis

Variables	Standardized Coefficients	Standard Error	*t*-stat	*p*-value
Constant		0.551	1.975	0.055
Competency	0.435	0.141	3.013	0.004*
Governance	0.419	0.122	3.057	0.004*

F-statistic (p-value) =20.28 (0.00) *
*Significant at the 0.01 level
R =0.773
R^2 (Adjusted R2) = 0.597 (0.568)

CONCLUSION

In conclusion, the study found that petrol station owners were ready for GST implementation in Malaysia. The study also showed that competency and governance had a significant effect on GST preparedness. Further studies could seek to examine psychological and economic factors that may influence the readiness of taxpayers towards GST implementation.

ACKNOWLEDGEMENT

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Suitability of Escape Route Design for Elderly Residents of Public Multi-storey Residential Building

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ABSTRACT

The rapid increase in the number of multi-storey residential buildings has raised concerns on the provision of escape route design. Statistics from the Fire and Rescue Department Malaysia showed a high number of casualties involved elderlies when there is a fire. This paper studies expert opinions on the suitability of escape route design for elderlies in public multi-storey residential buildings based on the Uniform Building By-Law (UBBL) 1984 specifications. The result showed enhancing the escape route design suited for the elderly is needed arising from the slow walking speed of the elderlies which can cause delays in the evacuation process. The majority of experts agreed that the escape route design is most important to provide safe evacuation process followed with occupant physiological and psychological characteristics.

Keywords: Elderly, escape route design, evacuation, safety

INTRODUCTION

Population Growth and Safety of the Elderly

The rapid increase in the urban population has led to an expansion in the number of multi-storey residential buildings. The government has provided high-rise low-cost housing to meet the housing needs of the low-income group and to reduce the number of illegal residents and squatter settlements

(Karim, 2012; Muhamad Ariff & Davies, 2009). Malaysia has a specific uniform building by-law and planning guideline for public housing in Malaysia which has been developed by the Malaysian Construction Industry with the aim of ensuring the safety of the building occupant (Husin et al., 2012). Despite this, public safety issues continued to be reported (Husin et al., 2012).

Although building design is considered as the main factor in ensuring safety studies have shown that the response and behaviour of the people are often based on psychological and physiological factors (Hofinger, Zinke, & Künzer, 2014; Tan, Hu, & Lin, 2015; Tancogne-Dejean & Laclémence, 2016). During an emergency human impulsive behaviour and panic attacks are the main causes of casualties. Furthermore, the deterioration of environmental condition triggered new adaptive behaviours and physical responses (Ha & Lykotrafitis, 2012; Kady & Davis, 2009). There are many factors that influence the decision making and age is one of them (Zhan et al., 2013).

The number of those aged above 60 is expected to increase by 56% between 2015 and 2030 (UN Population Division, 2013). The increment of elderly population increases the concern for their safety, especially in the low-cost housing residences. During evacuation, this group of people could reduce or affect evacuation efficiency especially in staircases.

Expert Opinion in Safe Escape Route Design

The involvement of experts from different backgrounds is needed to ensure maximum safety in residential buildings. The basic principles of designing for fire safety in a building remain the same and is set by the Malaysian UBBL guidelines. Examples of the building regulations set for the public multi-storey residential building are maximum travel distance, provision of a fire hydrant and hose reel, alternative exit, and number of staircases.

Although due consideration has been given to aspects related to fire safety in buildings. Regular maintenance is needed to ensure all the fire safety facilities are well equipped and in good working condition and protected from vandalism.

The Fire Department is not only involved in an emergency situation but also during the design process stage to ensure adherence to fire safety regulations. Elevators too have been found suitable for evacuation purposes. Nevertheless, important fire safety factors such as the design and occupancy load of staircases, the maximum distance, and other matters related to staircases need to be prioritised in a multi-storey building.

METHODS

The approach of this study is to discuss expert opinions on the reliability of escape route designs for elderly residents in public multi-storey residential buildings. The

experts consisted of architects, engineers, fire brigade officers and building controllers. A pilot study was conducted to check the reliability of the survey questionnaire. Sixteen respondents were gathered and based on their responses, the Cronbach's Alpha (based on standardizing items) shows a 0.733 which fall under the acceptable internal consistency of range.

One hundred survey forms were distributed via email and only 27 experts responded. A quantitative method using a close-ended questionnaire survey consisting of three sections was used to ascertain the demographic background of the respondents, expert opinion regarding the safety measure, and a five-point Likert scale, ranging from "not important at all" to "very important". Each question is analysed according to the independent means score which ranged from high to low as shown in Table 1.

Table 1
Mean score range

Mean score range	Description
4.1 < Mean < 5.0	High
3.1 < Mean < 4.0	Medium
2.1 < Mean < 3.0	Average
1.1 < Mean < 2.0	Low

RESULTS AND DISCUSSION

Respondents' Profile

There were 27 expert respondents involved in this survey consisting of architects (48%), fire brigade officers (36%), engineers (8%), building controllers (4%) and academics (4%). In terms of fire safety design in buildings, 48% of the participants were found to have more than 10 years' experience; 32% had between one and two years of experience, 3-5 years' experience (16%) and 5-10 years' experience (4%). More than two thirds of the respondents were from the public sector (68%) with experience in designing public multi-storey residential buildings and 32% from the private sector with similar experience.

Safety for the Elderly

The second section of the survey involved a survey on experts view regarding safety measures in public multi-storey residential building. There are six variables in this section. The score of the survey is shown in Table 2 based on the highest to the lowest agreement of the survey.

Almost all (91.7%) experts agreed on the need to enhance building safety regulation enhancement. The majority (87.5%) of experts agreed that due to the slower walking speed of the elderlies compared with the younger groups, the efficiency of the evacuation process will be affected. Although during the emergency situation the usage of lift is prohibited 83.3% of the experts thought that the lift could be beneficial to transport people to safety. Slightly more than half or 56.5% of the experts considered current fire regulation to be adequate to ensure maximum safety while 43.5 % disagreed, raising issues whether existing fire regulation is adequate to ensure maximum safety for the aged.

Table 2
Safety measure of building occupied by elderlies

Variables	Yes	No
		%
With the increment in elderly occupants, the building safety regulation needs to be enhanced	91.7	8.3
Low walking speed delayed and affected the evacuation efficiency	87.5	12.5
Lift usage is advisable for the elderlies as they are more prone to the risk of falling during emergency situation	83.3	16.7
Travel distance plays a very important role in determining the total evacuation process.	78.3	21.7
Elderlies need longer time to evacuate	75	25
The current fire regulation is enough to ensure maximum safety for the elderly	56.5	43.5

Fire Safety Measurement

The third section of the questionnaire was conducted using a Likert scale where comparisons of means were used to determine which variables are more important. Ranking is based on the high and medium score where high priority is when the means score 4 and above, scores below 4 will be considered as a medium priority.

Results of questions in Section 3 is shown in Table 3. Everyone responsible for providing safety measure in the building falls under the high priority. The top three people responsible are the firefighters (4.7778) followed by building maintenance officers (2.6296) and building designers

Table 3
Priority for responsibility, and factors affecting evacuation and causes of fire

Priority	Responsibility		Factor		Cause of fire	
	Variable	Means Ranking	Variable	Means Ranking	Variable	Means Ranking
high	Firefighter	4.7778	Maintenance	4.2963	Short circuit	4.2593
	Building maintenance officer	4.6296	No. of Occupancy	4.1111	Home appliance failure	4.2593
	Building designer	4.4815	Passive & active	4.0370	Explosion	4.0000
	Building owner	4.4444	Design layout	4.0000		
	Regulatory body	4.1852				
medium			State of mind	3.8889	Open flame	4.2593
			Building layout familiarity	3.8519	Glowing fire	4.2593
			Experience	3.5926	Hot surface material	4.0000
			Ages	3.5185		

(4.4815). Firefighters scored the highest followed by building maintenance officers and building designers. As for the factors that affect the evacuation efficiency, regular maintenance, the level of density, fire safety criteria available and also the complexity of the building layout feature as a high priority while panicking, and familiarity with the building layout counted as medium priority. The third question is the cause of fire, where the experts and the statistics from the fire rescue department Malaysia agreed that the short circuit is the main cause of fire breakout in residential area.

Table 4 shows the result of occupants response to an emergency and majority of experts found awareness to be a high priority. On the subject of end-user safety factor it was found that the presence of too many safety locks had a mean value of 4.2593 suggesting that it could delay or block evacuation. Second highest is the lack of emergency training.

Table 4

Occupants' response towards reducing injury and end-user safety factor

Priority	Occupant response		End-user safety factor	
	Variable	Means Ranking	Variable	Means Ranking
high	Aware of the exit passage	4.4074	Too many safety locks	4.2593
	Attended a fire drill training	4.2963	Lack of emergency training	4.0000
	Aware of the location of safe assembly	4.2222		
	Aware of the location of firefighting equipment	4.1852		
	Attempt to put down the fire	3.9259	Concern of valuable item	3.9259
	Evacuate early	3.8519	Too many obstacles in corridors	3.7-27
Medium	Have knowledge in using firefighting equipment	3.5556	Not aware of the safety means and equipment	3.6296
	Have an experience involving fire	3.5185		

Table 5 shows the building element and escape route design that should be incorporated in the public multi-storey residential building to ensure maximum safety during the evacuation process. It is clearly shown that high priorities are the variables that are stated in the UBBL 1984 as part of the regulation for the multi-storey residential. The provision for sufficient exit doors to cater to the elderly in residential building was the highest priority, as the experts deemed that it would contribute positively to the overall evacuation process.

Future research could test design features to check whether they contribute towards improving the evacuation process. The width and depth of the staircases fall under the medium category as it does not contribute much to the evacuation efficiency. Alternative staircases have often

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Table 5
Building element and escape route design

Item	Variable	Means	Overall ranking from respondent	
			Ranking	Priority
1	Sufficient number of exit doors	4.4444	1	
2	Staircase width maintained	4.3704	2	
3	Corridor follows max travel distance	4.1481	3	
4	Provide alternative staircase	4.1111	4	
5	Provide alternative exit			high
6	Uniform tread and riser			
7	Exit width sufficient with building capacity	4.0370	5	
8	Provide both handrails	3.9259	6	medium
9	Bigger passage to cater to the elderly	3.8889	7	
10	Occupant load control	3.7778	8	
11	Width of staircase is less than the depth of staircase	3.5556	9	
12	Protected corridors	2.4444	10	

been provided however proper maintenance is needed to ensure evacuation efficiency. That is why the staircases' width are to be maintained throughout the building and alternative staircases fall under the highest priorities.

CONCLUSION

The increase in the urban and elderly population gives rise to challenges in the time taken to evacuate the public from multi-storey residential buildings. A survey conducted to solicit expert opinions on the matter found the need to enhance evacuation efficiency. There was some disagreement on the issue whether current regulations are sufficient to deal with the matter. Further study is needed to test on the suitability of building regulation towards the occupant density and elderly occupant as there is still a lack of study on the minority of the population.

The results showed the end user or human factor is important in providing safety during emergency human factors such as the presence of excessive numbers of safety locks and absence of emergency training could delay the evacuation process.

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Effects of Board Characteristics on Financial Restatement in Malaysia

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ABSTRACT

This study examines the character of a board (i.e., its size, independence, director's tenure, gender diversity, competence, ethnicity, status, age and position of its founder) on the financial restatement of Malaysian Public Listed Companies (PLCs). The study found board size, multiple directorship, political connections and position of the founder has a significant relationship with financial restatement. The results support the findings of the Resource Dependence Theory and the Agency Theory.

Keywords: Accounting misstatement, board composition, board diversity, board of directors' characteristics, corporate governance, financial restatement

INTRODUCTION

Companies experience massive losses such as deterioration of company reputation (Albring, Huang, Pereira, & Xu, 2013), loss of investor confidence (Kim, Roden, and Cox, 2013), high turnover of management

(Nasr & Mohammadi, 2015); fall of share prices and reduction in market capitalization (GAO, 2006) as a result of financial restatements. The focus of this study is how the character of a board's composition can influence restatements.

In Malaysia, Abdullah, Yusof and Noor (2010) state that the scale of restatement incidents is relatively low compared to some developed countries. From the regulatory perspective, the roles of board of directors has received great concern with regards to financial reporting. In Malaysia the newly revised Malaysian Code on Corporate Governance (MCCG 2012) emphasizes the principle of board composition and

boardroom diversity for Malaysian PLCs. Previous studies suggest the presence of independent directors as "form over substance" (Abdullah et al., 2010; Hasnan and Hussain, 2015). Further, Mahadeo and Soobaroyen (2012) state that the notion of independence is deemed unworkable and seems to be a symbol of "showing off".

Some scholars have drawn a number of theories in attempt to explain the relationship between board characteristics and financial restatements. This study focuses on the Agency Theory and the Resource Dependence Theory. Based on the Agency theory, board of directors should act on behalf of shareholders to oversee management's activities (Hillman & Dalziel, 2003), thus preventing the likelihood of restatement (Wang, Lin, and Chao, 2013). In the Resource Dependence Theory, board of directors are viewed as a resource provider of knowledge, experience and business expertise (Hillman, Canella & Paetzold, 2000). This study constructs 12 hypotheses related to financial restatements to investigate the effect of a board's character on financial restatement in Malaysia.

H_1: There is a significantly negative association between board size and the incidence of financial restatement.

H_2: There is a significantly negative association between board independence and the incidence of financial restatement.

H_3: There is a significantly negative association between board tenure and the incidence of financial restatement.

H_4: There is a significantly negative association between female board presence and the incidence of financial restatement.

H_5: There is a significantly negative association between board competence and the incidence of financial restatement.

H_6: There is a significantly negative association between the proportion of Bumiputera members on the board and the incidence of financial restatement.

H_7: There is a significantly positive association between foreign board and the incidence of financial restatement.

H_8: There is a significantly positive association between duality role and the incidence of financial restatement.

H_9: There is a significantly negative association between multiple directorships and the incidence of financial restatement.

H_{10}: There is a significantly positive association between political connections and the incidence of financial restatement.

H_{11}: There is a significantly negative association between senior board members and the incidence of financial restatement.

H_{12}: There is a significantly positive association between founder on board and the incidence of financial restatement.

METHODS

The initial dataset consists of 814 companies from 11 sectors. 61 firms in the financial services sector were excluded from the list because they are subject to different requirements of corporate governance. Based on the list, companies reporting restatements from 2006 to 2013 were identified. The sample of restatement firms was compiled by searching few primary keywords relating to restatements, such as "restate", "restatement", "restated", "prior adjustment", "reclassified" and "comparative". Consistent with prior research, such restatement firms are selected based on: cost/expense recognition; revenue recognition; securities-related issues; restructuring of assets/inventory; reclassification; acquisitions and mergers; related-party transactions; in-process research and development; and others. This yielded with a final restatement sample of 76 firms. For comparison purposes, each sample of restatement firms is matched with a control firm according to its size and industry. The control sample, thus, consist of 152 non-restatement firms. Consistent with past studies by Hasnan, Rahman, and Mahenthiran, (2013); and Ettredge, Scholz, Smith and Sun (2010), the timeline of restatement incidence is illustrated in Figure 1, where "t" signifies the year of restatement incidents; and "t – 1" denotes the year of data collection which includes all variables. For example, a company announcing in 2013 that it was restating its financial statements for the year 2011 would be matched with a control company based on information for 2010.
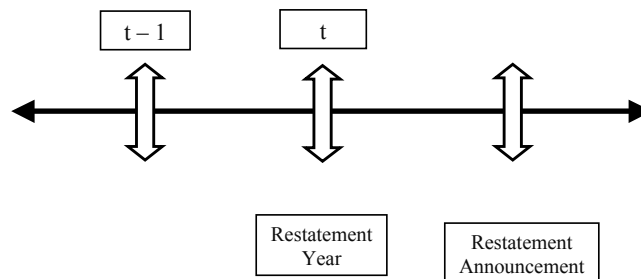
Figure 1. Timeline of financial restatement

Consistent with prior studies this study used a logistic regression technique to test the impact of board characteristics on the financial restatement (Hasnan and Hussain, 2015; Abbott, Parker, & Presley, 2012). The logistic regression technique is most appropriate for this study because it allows us to test model with a dichotomous dependent variable and a match pair sampling. The regression model is as follows:

RESTATEMENT = α + β1 BDSIZE + β2 BDIND + β3 INDTENURE + β4 GENDER + β5 ACQLFD + β6 ECBD + β7 FORBD + β8 DUALITY

+ β9 CROSSDIR + β10 POLITIC + β11 AGE + β12 FOUNDER + β13 LEVERAGE + Ɛ,

Where the dependent, independent and control variables are explained below and summarized in Table 1. RESTATEMENT dependent variable is coded '1' for restating companies and '0' for non-restating companies. Consistent with Abbott et al. (2012), this study include a control variable in the model and expect a positive impact of LEVERAGE on restatement. Information on the financials and board characteristics were hand collected from annual reports.

Table 1
Description of variables

Variables	Operationalisation	Past Studies
RESTATEMENT (The incidence of financial restatement)	Indicator variable with a value of 1 for firms that restated their annual financial statements, 0 for control firms that did not.	(Hasnan & Hussain, 2015)
BDSIZE (Size of the board)	Likert scale of one to five: 1 = < 3 members, 2 = at least 3 members, 3 = 4 to 6 members, 4 = 7 to 9 members and 5 = 10 and more members on board.	(Hussin et al., 2014)
BDIND (Percentage of independent directors)	No of independent non-executive directors/total no of board members	(Zhizhong et al., 2011)
INDTENURE (Average years of service of independent directors on the board)	Average no of years of board service of independent non-executive directors	(Rahman & Ali, 2006)
GENDER (At least one female director on the board)	Indicator variable with the value of 1 if there is at least one woman director on the board, 0 else.	(Abbott et al., 2012)
ACQLFD (At least one member of the board is a qualified accountant)	Indicator variable with the value of "1" if at least one member is a qualified accountant and "0" otherwise	(Rahman & Ali, 2006)
ECBD (The ratio of Bumiputera directors)	Ratio of Bumiputera directors to total number of directors on board	(Rahman and Ali, 2006)
FORBD (The ratio of foreign directors)	Ratio Foreign directors / Total no. of Board of Directors	(Randøy, Thomsen, & Oxelheim, 2006)
DUALITY (The dual position of CEO/Chairman)	Indicator variable with the value of "1" if the roles of chairman and CEO are combined and "0" otherwise	(Abdullah et al., 2010)
CROSSDIR (The percentage of directors having cross-directorships)	Percentage of directors having cross-directorship	(Hasnan & Hussain, 2015)

Table 1 *(continue)*

POLITIC (Directors/firms having political connections)	Indicator variable with the value of "1" if the firm is considered political connections and "0" otherwise	(Hussin et al., 2014)
AGE (The average age of directors on the board)	Average Age Board of Directors	(Bonn, 2004)
FOUNDER (Founder serves on the board)	Indicator variable with the value of "1" if there is founder on board and "0" otherwise	(Donoher, 2009)
LEVERAGE (Total debt/total assets)	Total debt/total assets	(Abbott et al., 2012)

RESULTS AND DISCUSSION

Table 2 presents the descriptive statistics that provide univariate support for this study. Panel A of Table 2 shows that the mean difference of the proportion of independent directors on restatement firms and control firms is 1%. Meanwhile, other variables, such as BDSIZE, INDTENURE,

Table 2
Univariate results

Panel A: Continuous Variables						
	Restatement Firms (N=76)		Control Firms (N=152)			
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean Diff.	t-value
BDSIZE	3.610	0.655	3.770	0.635	0.164	1.824**
BDIND	0.450	0.143	0.437	0.113	-0.013	-0.684
INDTENURE	5.728	3.627	5.660	3.302	-0.068	-0.142
ECBD	0.396	0.277	0.344	0.271	-0.052	-1.348
FORBD	0.052	0.110	0.072	0.157	0.021	1.158
CROSSDIR	0.527	0.279	0.603	0.283	0.077	1.934**
AGE	55.12	5.900	55.07	4.967	-0.048	-0.061
LEVERAGE	0.402	0.234	0.408	0.197	0.006	0.205
Panel B: Dichotomous Variables						
Variable	Frequency of "0"	Frequency of "1"	Mean (restated)	Mean (non-restated)	Mean Diff.	t-value
GENDER	134 (58.8%)	94 (41.2%)	0.360	0.440	0.086	1.249
ACQLFD	8 (3.5%)	220 (96.5%)	0.950	0.970	0.026	0.911
DUALITY	159 (69.7%)	69 (30.3%)	0.390	0.260	-0.138	-2.071*
POLITIC	179 (78.5%)	49 (21.5%)	0.320	0.160	-0.151	-2.458*
FOUNDER	130 (57%)	98 (43%)	0.550	0.370	-0.184	-2.679*

Notes: N=228
* Denote significant at the 0.01 level.   ** Denote significant at the 0.10 level.

ECBD, FORBD, CROSSDIR, AGE and LEVERAGE have small mean differences ranging between 0.006 and 0.16. Consistent with Yunos, Ismail and Smith (2012), the mean proportion of Bumiputera directors is lower than 40%, which signify that more than half of the directors on the board comprise other races, while the mean ratios of foreign directors on the board for restatement and non-restatement firms are 5% and 7%, respectively. In Panel B of Table 2, the average number of GENDER is moderate ranging between 36% and 44%. The mean of ACLFD of restatement firms and control firms is slightly similar at 0.95 and 0.97, respectively. Further, the mean of DUALITY in restatement firms is greater than control firms and the difference of scores is statistically significant (t = -2.071, p<0.05). This result is similar to Abbott et al. (2012), who suggest that restating firms support the dual position whereas control

firms favour a separate leadership role. Also, the mean difference of POLITIC is statistically significant (t = -2.458, p < 0.05). As in Hussin et al. (2014), FOUNDER of restatement firms is significantly higher (t = -2.679. p < 0.05) than its counterparts.

Table 3 shows logistic regression results which provides multivariate support for research hypotheses. As expected, BDSIZE is negatively associated with financial restatements. This result is consistent with the Resource Dependence Theory, which indicates that a number of directors on board can provide extra sources of knowledge and business expertise to improve the quality of managerial oversight (Saleh, Iskandar, & Rahman, 2005). Also, there is a significant negative association between CROSSDIR and financial restatements suggesting that directors who practice multiple directorships can reduce restatement incidence to coincide with the principle of Resource Dependence

Table 3
Multivariate results

	Exp. Sign	B	Sig.			
BDSIZE	-	-0.674	0.015*			
BDIND	-	0.513	0.705	Nagelkerke R^2	0.211	
INDTENURE	-	0.029	0.602	Observation	228	
GENDER	-	-0.333	0.315	Classification	71.9%	
ACQLFD	-	-0.174	0.837	performance		
ECBD	-	1.165	0.082	-	Restatement	39.5%
FORBD	+	-1.161	0.325	firms		
DUALITY	+	0.505	0.133	-	Control firms	88.2%
CROSSDIR	-	-1.326	0.035*			
POLITIC	+	1.352	0.001*			
AGE	-	0.001	0.968			
FOUNDER	+	0.992	0.003*			
LEVERAGE	+	-1.052	0.171			
Constant		1.497	0.511			

Theory (Pritchard, Ferris, & Jagannathan, 2003; Sarkar & Sarkar, 2009). In addition, POLITIC is positively associated with restatement incidence. Specifically, firms with political connections are found to engage in financial misstatement (Chaney, Faccio, & Parsley, 2011). Such adverse exposures may lead to agency costs (Rahman & Salim, 2010). Moreover, a positive and significant effect of FOUNDER on financial restatement signifies that founder as member of the board fails to monitor management activities. The study failed to identify a statistically significant association for BDIND, INDTENURE, GENDER, ACQLFD, ECBD, FORBD, DUALITY and AGE.

As per Kilic (2015), the study used LOGBOARDSIZE (the effect of natural log of the size of board) as an alternative measurement for board size. Results show similar directions with the earlier observations where LOGBOARDSIZE, CROSSDIR, POLITIC and FOUNDER are statistically associated with financial restatement. Second, this study examined the percentage of founder on the board (represented as FOUND) as an alternative proxy for FOUNDER as suggested by Hussin et al. (2014). The findings present a significant impact of BDSIZE, DUALITY, CROSSDIR, POLITIC and FOUND on financial restatement. However, DUALITY and FOUND are now statistically significant at 10%. Thus, the findings produce similar observations thus imply that the results are fairly robust. The robustness test results are shown in Table 4.

Table 4
Robustness test results

	Exp. Sign	B	Sig.		Exp. Sign	B	Sig.
		Alternative 1				Alternative 2	
LOGBOARDSIZE	-	-3.710	0.022*	BDSIZE	-	-0.559	0.042*
BDIND	-	0.330	0.814	BDIND	-	0.329	0.806
INDTENURE	-	0.028	0.606	INDTENURE	-	0.026	0.634
GENDER	-	-0.313	0.342	GENDER	-	-0.360	0.274
ACQLFD	-	-0.354	0.675	ACQLFD	-	-0.153	0.856
ECBD	-	1.058	0.115	ECBD	-	0.940	0.149
FORBD	+	1.111	0.345	FORBD	+	-0.956	0.404
DUALITY	+	0.456	0.174	DUALITY	+	0.591	0.075**
CROSSDIR	-	-1.355	0.031*	CROSSDIR	-	-1.268	0.042*
POLITIC	+	1.347	0.001*	POLITIC	+	1.278	0.001*
AGE	-	0.006	0.868	AGE	-	0.003	0.925
FOUNDER	+	1.028	0.002*	FOUND	+	2.649	0.056**
LEVERAGE	+	-1.058	0.167	LEVERAGE	+	-0.845	0.265
Constant		2.183	0.374			1.233	0.589

Notes: *p < 0.05, **p < 0.1, two-tailed tests

CONCLUSION

This paper investigated the relationship between the character of a board's composition and financial restatements using a matched-pair sample of restatement and control firms. Logistic regression analysis was conducted to provide multivariate support for the research hypotheses. The findings reveal that the likelihood of restatement is significantly influenced by board size, multiple directorships, political connections and founder on board. In short, the extent of board size and the presence of directors holding directorships could improve monitoring efficacy, thus supporting the Resource Dependent Theory. Firms with political connections and the presence of a founder member in the board may create incentives for managers to misstate financial statements, leading to agency problems. Despite of reporting insignificant results, the criteria of board independence, directors' tenure, gender diversity, board competence, board ethnicity, foreign board, duality role and board age should be of greater concern when addressing more credible and reliable financial disclosures.

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A Study on the Performance and Risk Diversification Benefits of Real Estate Investment Trusts in Malaysia

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ABSTRACT

An evaluation of M-REITs utilizing the Sharpe, Treynor and Jensen measures was conducted from 2007 to 2015 to investigate the risk diversification benefits of REITs. The results indicate that all selected M-REITs outperform the FBM Property Index. The beta values are less than one, implying that M-REITs are less risky than the market. Low R-squared values, however, suggest that M-REITs are poorly diversified showing the potential for diversification opportunities. A portfolio consisting few different M-REITs may result in better performance. The findings of this research can provide a clearer understanding of REITs performance to portfolio managers and investors.

Keywords: Diversification, market risk, performance ratings, Real Estate Investment Trusts, unsystematic risk

INTRODUCTION

Prior to 1960 investing in properties refers to the buying of physical properties or public listed property stocks or real estate linked debt securities/bonds issued by real estate project developers (Anuar & Soi, 2011). The successful development of a wide range of investments in the real estate sector, led to a remarkable beginning of Real Estate Investment Trusts (REIT hereafter). Globally, REITs have been on the rise since its early inception in the United States (1960) and subsequent adoptions in Australia (1970s), Europe and Asia (1990s-2000s).

Real Estate Investment Trusts (REITs) are an asset class that invests in real estate through property or mortgages. It is often

traded on major exchanges similar to a stock, allowing investors (also known as unit holders) to acquire ownership in real estate ventures, own and in some cases, operate commercial properties such as apartment complexes, hospitals, hotels, housing, industrial facilities, infrastructure, nursing homes, office buildings, shopping malls, timberlands and warehouses. Certain REITs strategically design their investment portfolios by focusing on property locations or types (Lee, Ali, & Lee, 2006). REITs provide investors with an extremely liquid stake in real estate, and providing investors with most of its profits as dividends with benefits of diversification and long-term capital appreciation. Since REITs receive special tax consideration, they, on average, pay out at least 90% of the total annual income to their investors (Securities Commission Malaysia, Aug 2008).

Malaysian REITs or M-REITs, previously acknowledged as Listed Property Trusts (LPTs) performed poorly and experienced slow growth due to impediments both from the underlying local structure and regulatory impediments (Newell, Ting, & Champing, 2002). Changes occurred after the Asian Economic Crisis 1997/98 when Asian countries collaboratively made significant developments in new economic and financial policies and legislations (Husni, 2010). After a decade of successive improvements with revisions in REITs guidelines, the former term LPT was renamed Malaysian REIT (M-REIT). Since the first listing of M-REIT, i.e. Axis REIT, on the main board of Bursa

Malaysia in August 2005, the market has grown by leaps and bounds in terms of both market capitalization and the number of listed REITs. In 2013, the KLCC REIT became Malaysia's largest REIT with investment properties of RM14.7 billion. This accounted for three times the size of IGB REIT's of RM 4.6 billion. To date, there are 17 REITs listed on Bursa Malaysia (Appendix 1) with combined market capitalization of RM37.545 billion, total asset value of RM 45.728 billion, total net asset value of RM 31.187 billion as at 31st Dec 2015 (Securities Commission Malaysia, 2015).

With increasing domestic and foreign investors showing interest in M-REITs, market capitalization has been gradually increased over the years. However, market sentiments especially among individual investors is still relatively mild even with continuous listings of M-REITs on Bursa Malaysia.

Limited studies have been conducted to evaluate the performance of all M-REITs stock relative to the broader equity market. This deviates from studies carried out on mutual funds in Malaysia as M-REITs are dividend yield based investments, it is still questionable whether the dividend yields are more significant than domestic inflation levels. It is also debatable if the potential of M-REITs for achieving portfolio diversification is significant as for most fund managers' exposure to this asset class is nominal. This is indispensable as in recent years the increasing inflationary pressure has questioned the effectiveness

of M-REITs as a hedging tool for domestic and foreign investors (NAREIT Brief, 2014; Kloosterman, 2009).

The objective of this study is:

1. To evaluate the investment performance of M-REITs using Sharpe, Treynor and Jensen measures and analysing the results against market indices - FBM Property Index, FBMKLCI Index, and FBMEMAS Index;

2. To determine the risk diversification effectiveness of M-REITs as an investment portfolio.

This paper begins with a review of the literature in Section 2. Data and methodology employed is presented in Section 3. Section 4 highlights the findings and final comments in Section 5.

LITERATURE REVIEW

The thirty years since 1980 saw a number of research conducted that projected REITs' importance and effectiveness in portfolio diversification and performance, along with their risk and return profiles. In a study conducted by Smith and Shulman (1976) it was found that REITs provide higher returns than the market index and saving accounts for the 1963-1973 periods. Other studies showed REITs underperformed the market portfolio were Kuhle, Walther and Turtleback, (1986), Goebel and Kim (1989) and Kim, Mattila and Zheng, (2002a). Titman and Warga (1986) and O'Neal and Page (2000) did not find any evidence that REITs under or overperformed the market benchmark.

Studies from Kuhle, Walther and Wurtzebach, (1986), Gyourko and Nelling (1996), Paladino and Mayo (1998) and Georgiev, Gupta and Kunkel, (2003) found little or no diversification benefits of including REITs in an existing investment portfolio. Lee and Stevenson's (2005) findings indicated that diversification benefits could be derived when REITs were added into an existing portfolio that comprises a mixture of several other assets.

Utilizing common measures of performance such as Jensen (1968), Sharpe (1966) and Treynor (1965), Myer and Webb's (1993) revealed that the performance of real estate funds are not significantly affected by the selection of real estate market indices The findings employed Jensen's alpha measures based on multifactor market model and several real estate market indices. Benefield, Anderson and Zumpano, (2009), examined the differences in risk-adjusted performance between diversified and specialized REITs, and found that the performance of REITs depended much on overall market conditions. Results arising from favorable market conditions exhibited better performance on diversified REITs while less favorable market conditions favored specialized REITs. Eichholtz et al. (2000), based on Jensen's alpha, found that diversified REITs underperformed specialized REITs using both single and multifactor market models.

In Malaysia case studies and evidence on the performance of REITs can be found

in Kok and Khoo (1995), Ting (1999) and Newell, Ting and Acheampong, (2002). Hamzah et al. (2010) showed that M-REITs underperformed the market portfolio during pre-crisis (1995-1997) and post-crisis (1998-2005) period, but outperformed during the financial crisis period (1997-1998). Treynor (1965) and Jensen (1968), Ong (2012) and Aik (2012) also indicated that M-REITs underperformed the market during pre- and post-crisis period but outperformed during crisis period. Results from Ong et al. (2011) which is based on the assessment of net asset value (NAV) of thirteen M-REITs, and revealed that M-REITs are on average traded at NAV premium, i.e. overpriced.

To identify the determinants affecting the performance of M-REITs, Tiong and Rohaya (2015) found that the underperformance of M-REITs is strongly correlated with property types and asset allocation ratios. Anuar and Soi (2011), however, found that total revenue of the underlying real estate assets is the key factor.

The results of Low and Anwar (2014), using Sharpe (1966), Treynor (1965), Jensen (1968), and M-squared (1997) measures indicated that beta values of 12 M-REITs are all less than one and their total risk mostly arising from an unsystematic risk component. The low R-squared values for M-REITs suggested low reliability of beta coefficients, i.e. an indication that M-REITs were very poorly diversified.

METHODS

A sample consisting of 16 M-REITs was used in this study. The number of observations are reflected in Appendix 1 (certain REITs have shorter study period due to different listing dates). Weekly returns were collected from the Bloomberg database. The 3-month Malaysian Treasury Bill is used as the proxy for risk-free rate. The FBM Kuala Lumpur Property Index's weekly returns is utilized as a proxy for market return. Both the 3-month T-bill and market returns were sourced from the Bloomberg database. To make the reported 3-month T-bill rate (an annualized holding period yield) consistent with the weekly returns of M-REITs and market index, it is turned into a weekly equivalent using the formulation of $(1+\text{annualized yield})^{1/52}$.

Total risk or variance of return for each M-REIT is broken down into its systematic and unsystematic risk components. This followed the equation as shown in Levy and Sarnat (1984) and employed by Kim et al. (2002b) and Low and Anwar (2014) in the context of M-REITs.

$$\sigma_i^2 = \beta_i^2 \cdot \sigma_m^2 + \sigma_e^2 \qquad (1)$$

where σ_i^2 is the total risk or the variance of return for M-REIT i; β_i is beta of M-REIT i; σ_m^2 is the variance of return of the market portfolio; $\beta_i^2 \cdot \sigma_m^2$ is the systematic risk of M-REITs i; and σ_e^2 is the unsystematic risk of M-REITs i which represents the portion of the total risk that can be diversified away. A measure of diversifiability can be calculated by taking the ratio of unsystematic risk to total risk for instant σ_e^2/σ_i^2 (Levy and Sarnat, 1984; Kim et al., 2002b). The ratio implies whether further diversification is needed

and it is equivalent to the value of one minus the R-squared (1 − R-squared). If the ratio is approaching 0, it indicates that less unsystematic risk remains in the portfolio and the portfolio's risk constitutes mainly of systematic risk which is not diversifiable. However, if the ratio is approaching 1, it signifies that the portfolio has a large proportion of unsystematic risk remaining to be diversified away.

Another risk dimension is the standard deviation. A standard deviation value measures the amount of dispersion or variability from the mean. A high standard deviation relates to a high amount of investment risk. It can be formulated as

$$\sigma = \sqrt{\frac{\sum_{i=1}^{n}(X_i - \mu)^2}{n-1}} \qquad (2)$$

Where X_i is % weekly returns; μ is the % mean return for the year; and n is the sample period (years).

To evaluate the performance of M-REITs, Sharpe (1966), Treynor (1965) and Jensen's (1968) alpha are applied.

The Sharpe ratio of M-REIT i is interpreted as the average excess return of an M-REIT divided by its standard deviation of return as indicated below:

$$S_i = \frac{r_i - r_f}{\sigma_i} \qquad (3)$$

r_i is the average return; r_f is the average risk free rate; and σ_i is the average standard deviation.

The Treynor ratio is a risk-adjusted performance assessment measure comparable with the Sharpe Ratio.

Both Treynor and Sharpe measures how worthwhile an investment tool is by paying the shareholders for a given degree of the risk. They differ as Sharpe uses standard deviation to measure risk while Treynor uses beta. The Treynor measures the average excess return to the systematic risk of M-REIT i as shown below:

$$T_i = \frac{r_i - r_f}{\beta_i} \qquad (4)$$

Where r_i is the average return; r_f is the average risk free rate; and β_i the beta coefficient of each M-REIT.

Jensen's alpha measures the rate of the return attributed to the market volatility as measured by the M-REIT's beta in relation to the market beta by using the Capital Asset Pricing Model (CAPM). Each M-REIT's Jensen's alpha follows the regression specification to estimate:

Jensen's alpha = Portfolio Return − [Risk Free Rate + Portfolio Beta x (Market Return − Risk Free Rate)]

$$\alpha_i = R_i - [R_f + \beta_i(R_m - R_f)] \qquad (5)$$

where α_i is the Jensen's Alpha for M-REIT i; R_i is the return of M-REIT i; R_f is the risk-free rate; β_i is the beta coefficient of M-REIT i; and R_m is the return of market portfolio.

A statistical measurement that serves as the indication of fund or security movement is the *R-squared*. The benchmark is the Malaysia Treasury Bill is the 3-month Treasury Bill while for M-REITs, the benchmark is the FBM Kuala Lumpur

Property Index. It can be formulated as below:

$$R = \frac{\beta_i{}^2 . \sigma_m{}^2}{\sigma_i{}^2} \tag{6}$$

where β_i^2 is the square of portfolio i's beta coefficient; σ_m^2 is the variance of return of the market portfolio; $\beta_i^2 . \sigma_m^2$ is the systematic risk component of M-REIT I; and σ_i^2 is the variance of return of the portfolio i. R-squared values range from 0 to 100. A R-squared of 100 indicates that all movements of M-REIT are completely explained by the movements of the FBM Kuala Lumpur Property Index. A high R-squared value (> 85) indicates that the M-REIT's performance patterns follow the market benchmark while M-REIT with a low R-squared value (< 70) indicates that the M-REIT's performance is less in line with the market benchmark.

RESULTS AND A DISCUSSION

In the period between November 2007 and December 2015 each M-REIT and market portfolio represented by the FBM Kuala Lumpur Property Index is shown in Table 1. The overall average weekly return of all the M-REITs is 0.152%, a return higher compared to the average weekly return of

Table 1
Summary of descriptive statistics

No	M-REITs	Average weekly return (%)	Standard deviation (%)	Minimum weekly return (%)	Maximum weekly return (%)
1	Amanah Harta Tanah PNB	0.095%	1.699%	-8.783%	8.783%
2	Al-'Aqar Healthcare REIT	0.206%	2.448%	-9.568%	17.960%
3	AmFirst Real Estate Investment Trust	0.088%	1.707%	-8.755%	7.596%
4	AmanahRaya Real Estate Investment Trust	0.071%	2.702%	-16.042%	13.036%
5	Atrium Real Estate Investment Trust	0.119%	1.783%	-8.615%	5.761%
6	Axis Real Estate Investment Trust	0.295%	2.535%	-14.320%	8.762%
7	CapitaLand Malaysia Mall Trust	0.223%	2.550%	-8.004%	9.580%
8	Hektar Real Estate Investment Trust	0.096%	2.693%	-13.353%	11.441%
9	IGB Real Estate Investment Trust	0.076%	1.800%	-4.786%	5.909%
10	KLCC Real Estate Investment Trust	0.125%	2.880%	-10.490%	16.325%
11	MRCB-Quill REIT	0.155%	1.535%	-8.215%	5.767%
12	Sunway Real Estate Investment Trust	0.272%	2.053%	-6.234%	6.676%
13	Pavilion Real Estate Investment Trust	0.295%	2.456%	-6.204%	7.540%
14	Tower Real Estate Investment Trust	0.071%	1.868%	-8.338%	7.654%
15	UOA Real Estate Investment	0.121%	2.167%	-7.402%	12.408%
16	YTL Hospitality REIT	0.116%	1.556%	-7.210%	6.766%
	Average	0.152%	2.152%		
	Market Portfolio: FBM Property Index	0.064%	2.552%	-12.353%	11.342%

0.064% for market portfolio. For the study period, Axis REIT performed best with the highest average weekly return of 0.295% outperforming all other M-REITs, while Amanah Raya REIT performed with the lowest average return of 0.071%.

Risk features of M-REITs are reflected in Table 2. M-REITs' beta values were all less than one with an average of 0.17318.

The M-REITs' low beta values were less risky than the market being backed by the underlying real estate properties. All M-REITs R2 values, with an average of 0.05711, were extremely low. This indicated that all the M-REITs are very poorly diversified. On average, the total risk of M-REITs that is due to unsystematic risk is very much higher than that of systematic

Table 2
M-REITs risk features

No	REITs	Beta β_i	R-squared	Total risk σ_i^2	Systematic risk $\beta_i^2 \cdot \sigma_m^2$	Unsystematic risk σ_e^2	Diversifiability measure $\dfrac{\sigma_e^2}{\sigma_i^2}$
1	Amanah Harta Tanah PNB	0.062	0.009	2.885	0.025	2.860	0.991
2	Al-'Aqar Healthcare REIT	0.030	0.001	5.994	0.006	5.988	0.999
3	AmFirst Real Estate Investment Trust	0.236	0.125	2.914	0.364	2.551	0.875
4	AmanahRaya Real Estate Investment Trust	0.106	0.010	7.299	0.073	7.226	0.990
5	Atrium Real Estate Investment Trust	0.205	0.086	3.179	0.273	2.906	0.914
6	Axis Real Estate Investment Trust	0.212	0.045	6.425	0.292	6.133	0.955
7	CapitaLand Malaysia Mall Trust	0.186	0.035	6.503	0.225	6.278	0.965
8	Hektar Real Estate Investment Trust	0.088	0.007	7.252	0.051	7.201	0.993
9	IGB Real Estate Investment Trust	0.182	0.067	3.242	0.216	3.026	0.933
10	KLCC Real Estate Investment Trust	0.206	0.033	8.296	0.277	8.019	0.967
11	MRCB-Quill REIT	0.217	0.130	2.356	0.306	2.050	0.870
12	Sunway Real Estate Investment Trust	0.242	0.091	4.213	0.382	3.831	0.909
13	Pavilion Real Estate Investment Trust	0.225	0.055	6.030	0.330	5.701	0.945
14	Tower Real Estate Investment Trust	0.260	0.127	3.489	0.442	3.048	0.873
15	UOA Real Estate Investment	0.171	0.040	4.694	0.189	4.505	0.960
16	YTL Hospitality REIT	0.142	0.054	2.420	0.131	2.289	0.946
	Average	0.173	0.057	4.824	0.224	4.601	0.943

risk, i.e. 4.60064 and 0.22383 respectively. The diversibility values which range from 0.87028 to 0.99901, with an average of 0.94289, further support that there are notable opportunities for diversification.

The risk-adjusted performance results and rankings of each M-REIT as indicated using Sharpe, Treynor and Jensen measures have been tabulated in Table 3. The observed differences in performance ranking orders are attributed to the assumption of risk measures, standard deviation of return against beta. As earlier indicated, the R-squared values for M-REITs depict low

Table 3
Risk-adjusted performance measures and rankings

REITs	Sharpe Ratio	Ranking	Treynor Ratio	Ranking	Jensen's Alpha	Ranking	Average-score ranking
Axis Real Estate Investment Trust	0.659	1	1.253	2	0.269	1	1
Sunway Real Estate Investment Trust	0.539	2	0.72506	3	0.16540	2	2
Pavilion Real Estate Investment Trust	0.39703	3	0.68778	4	0.14911	3	3
Al-'Aqar Healthcare REIT	0.3522	4	4.52947	1	0.13738	5	4
CapitaLand Malaysia Mall Trust	0.31067	5	0.6772	5	0.11846	6	5
KLCC Real Estate Investment Trust	0.2869	6	0.63591	6	0.13750	4	6
MRCB-Quill REIT	0.27193	7	0.30586	10	0.05899	7	7
YTL Hospitality REIT	0.1847	8	0.32115	9	0.04828	11	9
Atrium Real Estate Investment Trust	0.1654	9	0.22872	12	0.05016	10	11
UOA Real Estate Investment	0.14147	10	0.28535	11	0.05072	9	10
Hektar Real Estate Investment Trust	0.12631	11	0.61086	7	0.05566	8	8
Amanah Harta Tanah PNB	0.08709	12	0.37616	8	0.02152	12	12
AmFirst Real Estate Investment Trust	0.06789	13	0.07784	14	0.01445	13	13
IGB Real Estate Investment Trust	0.04407	14	0.06923	15	0.01022	16	15
Tower Real Estate Investment Trust	0.02988	15	0.03402	16	0.01376	14	16
AmanahRaya Real Estate Investment Trust	0.02365	16	0.09548	13	0.01210	15	14
Market Portfolio: FBM Property Index	-0.005		-0.015				

values implying low reliability of the beta coefficients. As such, Treynor and Jensen's result measures are less reliable. Despite three measures present fairly consistent rankings, average scores are computed to make an objective comparison based on the average-score rankings. The top three noticeable M-REITs are Axis, Sunway, and Pavilion REITs that outperform other M-REITs in the market. The last three M-REITs with relatively poor risk-adjusted performance are Amanah Raya, IGB and Tower REITs that may appear to be less attractive to the investors. By comparing Table1 and Table 3 for the risk-adjusted and -unadjusted returns, the rankings of top three and last three remain. Sharpe and Treynor ratios of FBM Property Index are both in negative values as the property market as a whole underperform during the sample period.

CONCLUSION AND IMPLICATION

This study examined the performance of 16 M-REITs across different industries over an 8-year study period from Nov 2007 and December 2015 using Sharpe, Treynor, and Jensen measures. The results of risk-adjusted and unadjusted returns indicate consistency in the performance of M-REITs. However, the Sharpe ratio tends to exhibit a more reliable indication as low R-squared values implying low reliability in beta coefficients and hence, Treynor ratio and Jensen's alpha are less reliable. Low R-squared values also imply that M-REITs are poorly diversified and therefore showing

tremendous diversification opportunity. This finding is further supported by diversifiability measure, as on average, 94.3% of the total risk of M-REITs comes from unsystematic risk component. The beta values of the M-REITs are all less than one (i.e. less risky than the market) since they are secured by underlying real estate properties.

Risk-adjusted and -unadjusted returns present identical results in terms of their performance. All selected samples of M-REITs outperform the market benchmark. This result is not consistent with previous studies. FBM Property Index is employed in this study to represent the real estate sector while FTSE Bursa Malaysia KLCI is employed by other studies examining the Malaysian context. However, it is consistent with the findings that investing in M-REITs provide better returns than real estate properties arising from diversification possibilities of M-REIT portfolio.

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APPENDIX 1
Study period for each M-REIT

No	REITs	From	Till	Observations
		Study Period		
1	Amanah Harta Tanah PNB	24/8/2010	28/12/2015	282
2	Al-'Aqar Healthcare REIT	7/11/2007	28/12/2015	425
3	AmFirst Real Estate Investment Trust	7/11/2007	28/12/2015	425
4	AmanahRaya Real Estate Investment Trust	7/11/2007	28/12/2015	425
5	Atrium Real Estate Investment Trust	7/11/2007	28/12/2015	425
6	Axis Real Estate Investment Trust	7/11/2007	28/12/2015	425
7	CapitaLand Malaysia Mall Trust	16/7/2010	28/12/2015	252
8	Hektar Real Estate Investment Trust	7/11/2007	28/12/2015	425
9	IGB Real Estate Investment Trust	21/9/2012	28/12/2015	172
10	KLCC Real Estate Investment Trust	2/4/2013	28/12/2015	144
11	MRCB-Quill REIT	23/8/2010	28/12/2015	280
12	Sunway Real Estate Investment Trust	8/7/2010	28/12/2015	287
13	Pavilion Real Estate Investment Trust	7/11/2007	28/12/2015	212
14	Tower Real Estate Investment Trust	7/11/2007	28/12/2015	425
15	UOA Real Estate Investment	7/11/2007	28/12/2015	425
16	YTL Hospitality REIT	7/11/2007	28/12/2015	425

Networking and Innovation Performance of Micro-Enterprises in Malaysia: The Moderating Effects of Geographical Location

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ABSTRACT

Using a quantitative approach, this study on micro-enterprises employing confirmation factor analysis (CFA) and structural equation modelling (SEM) AMOS version 21.0 tested the moderating effect of geographical location on the relationship between external networking and innovation performance. The study adds to the theoretical and practical knowledge on improving firm performance, specifically micro-enterprises. In addition, the findings will help the SMEs' Masterplan towards achieving a high nation income by 2020 in line with The New Economic Model.

Keywords: Innovation, micro-enterprises, networking, performance

INTRODUCTION

Small and medium enterprises (SMEs) in Malaysia is expected to contribute up to 42 percent of the country's GDP by the year 2020 (The Borneo Post, 2015). In 2014 it contributed 35.9 percent to the economic growth, which was above the standard benchmark for a developing nation (The Borneo Post, 2015).

SMEs in Malaysia can be categorized into micro, small, medium and large enterprises based on the amount of annual sales turnover and number of full-time employees (SME Corp. Malaysia, 2013). According to SMEs Department of Statistic Census 2011 micro-enterprises comprised 75 percent of the total SMEs, while small, medium and large sized accounted for 20%3% and 2% respectfully. Nevertheless, micro-enterprises suffer from various

challenges ranging from finance to human resource deficiency (Mohamed Asmy & Mohammed, 2015; Samad et al., 2016) in order to survive and compete in the market. Thus, it is important to identify and understand the success factors and key determinants of their performance. Several researchers (Abou-Moghli, Abdallah, & Muala, 2012; Al-Ansari, Pervan, & Xu, 2013; Aziz & Samad, 2016a; Büyükbalcı, 2012; Samad et al., 2016) suggested that micro-enterprises must improve by innovation for sustainable competitive advantage.

Hence, applying the Resource-Based View (RBV) theory, this study investigated how networking influences innovation performance in micro-enterprises in Malaysia. The study presents a framework that synthesizes the cooperation of micro-enterprises with external networking and investigates how networking which consists of customers, competitors, and government agencies affect the innovation and performance. The study also examines how geographical location may moderate the relationship between networks, innovation, and performance of micro-enterprises.

LITERATURE REVIEW

External Networking and Innovation Performance

A firm's ability to survive in the marketplace depends on its internal resources that are difficult to be imitated and substituted by others (Barney, 1991). A firm's ability

to innovate has become crucial in todays globalized commercial interaction. Some researchers suggest that micro-enterprises need to expand their resources, knowledge and contacts through collaboration with external networks to enhance their innovation capabilities (Hardwick, Cruickshank, & Anderson, 2012). In Malaysia, substantial research has been conducted on the impact of external networking towards the SMEs competitive advantage (Abdullah et al., 2009; Hassan, Yaacob, & Abdullatiff, 2014; Ismail, Domil, & Isa, 2014; Turyakira & Mbidde, 2015). However, little is known about the impact of external networking on innovation performance specifically in Malaysian micro-enterprises.

Researchers previously emphasized that there is a need for micro-enterprises to engage with the various actors since this activity may bring more impact on firms' innovative performance (Baker, Amir, & Harmancioglu, 2016; Egbetokun, 2015; Molina-Morales, Garcia-Villaverde, & Parra-Requena, 2014; Simonen & McCann, 2008). External networking may enhance interaction between different actors like customers, competitors, suppliers and government agencies. A study done by Zeng, Xie and Tam (2010) found that the innovation performance of manufacturing SMEs in Shanghai, China have been significantly affected by inter-firm cooperation, cooperation with intermediary institutions and research organizations. They further stated that cooperation with suppliers and customers played an important role

in the innovation process. While, Tu and Hwang (2014) reported that the increased in the generation of product and service innovations was found when the cooperation of micro-enterprises with the suppliers exist. In addition, a good relationship between micro-enterprises and customers may create customers' loyalty, ensure continuous demand and feedback from customers related to the quality of their products (Hassan, Yaacob, & Abdullatiff, 2014). Moreover, various government agencies may also help in developing sustainable micro-enterprises. These agencies provide a wide range of services for different target groups (Hassan et al., 2014). Although, some of the researchers, for example (Zeng et al., 2010) found that the linkage and cooperation with government agencies do not demonstrate any significant impact on the innovation performance of SMEs. The first hypothesis of this paper is:

H1: There is significant influence between networking and innovation performance

Geographical Location

Geographical factors could contribute to innovation performance in micro-enterprises and as shown by Doran, O'Leary, & Jordan, 2009; Jong & Freel, 2010; Molina-Morales, Garcia-Villaverde, & Parra-Requena, 2014. In particular, nearness contributes to higher rates innovation collaboration (Jong & Freel, 2010). Proximity also encourages intense interactions among the different actors in the industry and allowing knowledge to be spread through e face to face relations and inter-organizational interactions (Molina-Morales et al., 2014).

According to Savic, Smith, and Bournakis (2014), both regional and international networks are conducive for firm's innovativeness. Consequently, geographic distance is seen as an accelerator of entrepreneurship and innovation (Aziz & Samad, 2016b; Ben Letaifa & Rabeau, 2013). On the other hand, Simonen and McCann (2008) reported that face to face knowledge exchanges between firms is insignificant with respect to innovation suggesting closeness also would reduce the potential for newness and innovation (Boschma, 2005). Since there are mixed findings on the effect of geographical location on external networking and innovation performance, the second hypothesis of this study is:

H2: Geographical location moderates the relationship between networking and innovation performance.

METHODS

Research Framework

The conceptual framework shown in Figure 1 seeks to investigate the influence of external networking on the innovation performance and show the moderating effect of geographical location on the path relationship between the external networking and the innovation performance.
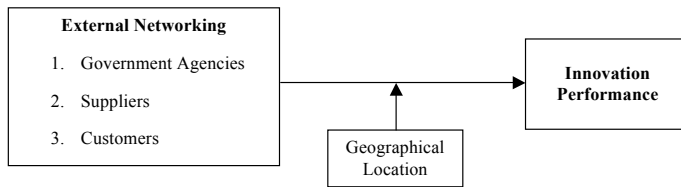
Figure 1. Conceptual framework

Research Design and Data collection

Data were collected through a cross-sectional survey using a set of the questionnaire on a sample of micro-enterprises in Malaysia. The sample frame for micro-enterprises was obtained from the official website of the Ministry of Agriculture i.e. www.eiat. moa.gov.my. A pilot study was initially carried out with a hundred owners of micro-enterprises. Minor changes were done in the final research after the pilot test was completed. In total, 400 questionnaires were distributed to randomly selected micro-enterprises in Malaysia. From the 400 questionnaires, 330 usable questionnaires were received, yielding a response rate of 82.5%. The primary data obtained from questionnaires were analyzed through AMOS graphic version 22.0.

The questionnaire consists of two sections. The first section related to questions on the demographic characteristics of the enterprises. The second section includes 24 items using a five-point Likert-Scale that ranging from 1 (strongly disagree) to 5 (strongly agree). 12 items are related to external networking and another 12 items are on the innovation performance. The result of Cronbach's Alpha values ranging from 0.852 to 0.906 which fulfils the minimum requirement level of reliability. The Cronbach Alpha values indicate that the scales used in this survey are reliable.
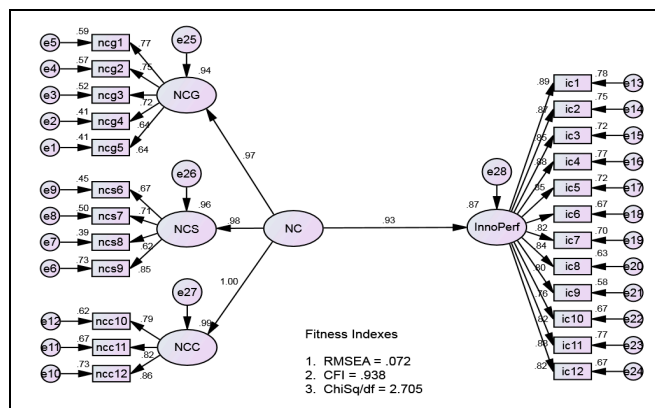
Figure 2. The standardized path coefficients between constructs in the Second Order Model

RESULTS

Path Analysis of the Model and Results: Structural Equation Modelling (SEM)

After the issues of uni-dimensionality, validity and reliability of the latent constructs were addressed the constructs were modeled into a structural model for analysis using SEM. The basic model in Figure 1 was proposed as the first research objective i.e. to determine the influence of innovation on competitive advantage.

Figure 2 indicates the standardized path coefficients estimated by the structural equation modelling procedure. The Coefficient of Determination (R^2) is 0.87 (Figure 2), which indicates that 87% of the innovation performance can be estimated by the exogenous construct namely networking. The next step is to perform regression analysis, and the results are shown in Table 1.

Table 1
The regression path coefficients and its significance

	Estimate	S.E.	C.R.	P	Result
InnoPerf <--- NC	1.742	.141	12.389	***	Significant

Note: *** $p < 0.001$, N = 330, InnoPerf = Innovation Performance, NCG = Networking Capability

When NC goes up by 1, InnoPerf goes up by 1.742. The regression weight estimate, 1.742, has a standard error of about .141. Dividing the regression weight estimate by the estimate of its standard error gives $z = 1.742/.141 = 12.389$. In other words, the regression weight estimate is 12.389 standard errors above zero. The probability of getting a critical ratio as large as 12.389 in absolute value is less than 0.001. In other words, the regression weight for NC in the prediction of InnoPerf is significantly different from zero at the 0.001 level (two-tailed).

Table 2
The summary of hypotheses testing and result

	Research Hypothesis	Estimates	Results
H1:	There is a positive effect of networking on innovations performance	1.742***	Supported

The result in Table 2 shows that there is a significant influence of networking on innovation. This indicates that the core influence of innovation on competitive advantage is significantly positive (β = 1.742, $p < .001$) with R^2 value is 0.87 (Figure 2). The finding supports hypothesis one that there is an effect of networking on innovation performance.

Testing of Moderation Effect

The data was split into two groups and renamed as "City Council Group" and "District Council Group" to test the moderating effects of geographical location on networking. The "City Council Group" is defined as micro-enterprises located at the city that administrated by the local government. Whereas, the "District Council Group" is defined as micro-enterprises located in the rural areas that administrated by the district council. Table 2(a), 2(b) and 2(c) show the moderating test for city council group, while Table 3(a), 3(b) and 3(c) show the moderating test for district council group.

Table 2(a)
The chi-square value and DF for constrained model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	47	447.082	253	.000	1.767
Saturated model	300	.000	0		
Independence model	24	543.880	276	.000	1.971

Table 2(b)
The chi-square value and DF for unconstrained model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	48	446.784	252	.000	1.773
Saturated model	300	.000	0		
Independence model	24	543.880	276	.000	1.971

Table 2(c)
The moderating test for City Council Group data on networking

	Constrained Model	Unconstrained Model	Chi-Square Difference	Result of Moderation	Result on Hypothesis
Chi-Square	447.028	446.784	0.244	Not Significant	Not Supported
DF	253	252	1		

The difference in Chi-Square value is 0.244 (447.028 – 446.784). Meanwhile, the difference in Degree of Freedom is 253 - 252 = 1. For the test to be significant, the difference in Chi-Square value must be higher than the value of Chi-Square with 1 degree of Freedom that is 3.84.

Table 3(a)
The chi-square value and DF for constrained model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	46	1006.149	254	.000	3.961
Saturated model	300	.000	0		
Independence model	24	1146.289	276	.000	4.153

Table 3(b)
The chi-square value and DF for unconstrained model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	48	968.311	252	.000	3.843
Saturated model	300	.000	0		
Independence model	24	1146.289	276	.000	4.153

Table 3(c)
The moderating test for District Council Group data on networking

	Constrained Model	Unconstrained Model	Chi-Square Difference	Result of Moderation	Result on Hypothesis
Chi-Square	1006.149	968.311	37.838	Significant	Supported
DF	254	252	2		

The difference in Chi-Square value is 37.838 (1006.149 – 968.311). Meanwhile, the difference in Degree of Freedom is 254 – 252 = 2. For the test to be significant, the difference in Chi-Square value must be higher than the value of Chi-Square with 2 degree of Freedom that is 5.99. Since the moderating test result for the "City Council Group" is not significant, but the moderating test result for the "District Council Group" is significant, then full moderation occurs.

Since the moderation effect was initially established via non-parametric testing, the study to determine the relationship between networking and innovation performance is more pronounced using a parametric testing. Table 4(a) and 4(b) show the standardized beta estimates for the "City Council Group" and the "District Council Group" in the path networking to innovation performance.

Table 4(a)
The effect of networking on innovation performance is not significant for City Council Group

			Estimate	S.E.	C.R.	P	Results
InnoPerf	<---	NC	2.084	2.063	1.010	.312	Not Significant

Table 4(b)
The effect of networking on innovation performance is significant for District Council Group

			Estimate	S.E.	C.R.	P	Result
InnoPerf	<---	NC	.415	.133	3.124	.002	Significant

Table 4(a) and Table 4(b) show that the standardized parameter estimates networking for the "City Council Group" is 2.084 (p=.312) and the same estimate for the "District Council Group" is 0.415 (p = .002). The results conclude that the effect of networking with external parties on innovation performance is more pronounced in the "District Council Group" compared to the "City Council Group".

DISCUSSION

This paper analyses the influence of external networking of government agencies, suppliers and customers on innovation performance in micro-enterprises in Malaysia and examines how geographical factor may influence it to enhance opportunities. Results shown in Table 1, the estimated value was found to be positive which show the influence of networking on the innovation performance ($\beta = 1.742$, p < .001 with R2 = 0.87 (Figure 2)). The result supports that there are effects of external networking on the innovation performance by contributing 87 percent to the increased in the innovation performance. In addition, it also strong external networking can improve opportunities for innovation. The research supports the results (Saguy & Sirotinskaya, 2014; van de Vrande et al., 2009; Yeoh, 2014) that networking with external parties has a positive impact on firm innovation. The study also shows that geographical location has a moderating effect on the relationship between external networking and innovation performance. The influence of networking on innovation performance is stronger when the micro-enterprises located in the urban areas and close with all of the amenities, supports, organizations and opportunities. The study supports previous findings (Jong & Freel, 2010; Molina-Morales et al., 2014) on distance and innovation performance. Therefore, in order for micro-enterprises to benefit from networking on innovation performance, they need to establish long-term mutually beneficial relationships with external parties in order to boost innovation opportunities. For instance, the government, suppliers and customers are the examples of external networking that may help micro-enterprises in Malaysia to upgrade the available products and to develop new products in order to strengthen their innovation performance.

CONCLUSION

Collaborating with external parties is considered to be an important way micro-enterprises can enhance their opportunities to achieve innovation performance. This study found the moderating effect of geographical location on external networking

and innovation performance. Therefore, indicating micro-enterprises need to engage and build the continuous relationships to increase innovation performance and maintain market sustainability.

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The Relationship between Household Debt Composition and GDP in Malaysia

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ABSTRACT

This study aims to investigate the link between household debt and GDP. By utilising the Toda-Yamamoto non-casuality test, findings of this study reveal that there is a unidirectional causality that runs from the household debt to GDP which is consistent with the findings based on composition of debt. A Johansen cointegration test was also conducted and results confirmed that long run relationship exists with one cointegrating equation found for each model. Findings from this study can be useful for policymakers working on making Malaysia a high-income country by 2020.

Keywords: Causality, cointegration, consumer debt, GDP, household debt, Malaysia, mortgage debt

INTRODUCTION

Recently, household debt in Malaysia has begun to rise significantly. This study focuses on Malaysia where household debt especially after the Global Financial Crisis has taken on levels that are at par with developed nations such as the United States.

Section 2 of the paper explains the background of the study to be followed by a literature review in Section 3. In Section 4, the research methodology is highlighted and Section 5 discusses the results. The conclusion and recommendation of this study are presented in Section 6.

Background of the Study

According to Bank Negara Malaysia (2013), household debt is made up of loans for properties, personal use, credit cards, motor vehicles loans, loans for securities and others. It can be divided into secured and unsecured debt. Apparently, more than

half of the total household debt in countries all around the world are in the form of a mortgage debt (Pearce, 1985).

A comparison of household debt among countries shown in Figure 1 indicates Malaysia is among the highest with the debt-to-income ratio of almost 1.5 times higher than their income. The debt service ratio is also found to be the highest suggesting

households in the country allocate more than 40 percent of their income for debt servicing.

Based on central bank targets a debt service ratio which exceeds 30 percent suggests dependence on debts for everyday expenditure, thereby increasing the country's risk of plunging into a recession.
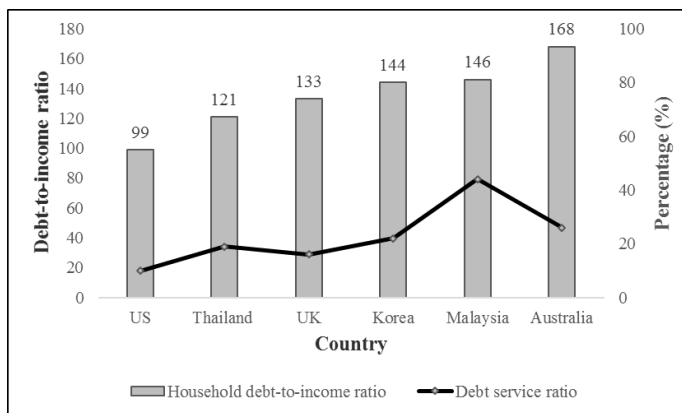
Figure 1. Household debt-income ratio and debt service ratio in year 2014
Source: CEIC data

Mian and Sufi (2014) in their book, "House of Debt" reveal that the U.S Great Recession which began in 2007 was caused by high levels of household debt that reached nearly 100% of GDP. During this period, the unemployment rate increased sharply and caused consumer demand to fall and asset prices especially for housing to drop, triggering a rise in default payment. Consequently, this incident has given a negative impact on other countries all over the world and caused the Global Financial Crisis in 2008 (Meniago, Mukuddem-Petersen, Petersen, & Mongale, 2013).

Although a household debt is necessary for the economy to grow, a high debt level, if not associated with the growth in income and productivity, will be harmful to the economy. This is because it may lead to a higher default rate. Unfortunately, since the past decade, household debt in Malaysia has been growing faster than the growth in GDP, which suggests that a rapid rise in the household debt has hindered economic growth. As illustrated in Figure 2, during the pre-crisis period, the trend in household and real GDP growth indicates an inverse relationship whereby the growth

The Relationship between Household Debt and GDP in Malaysia
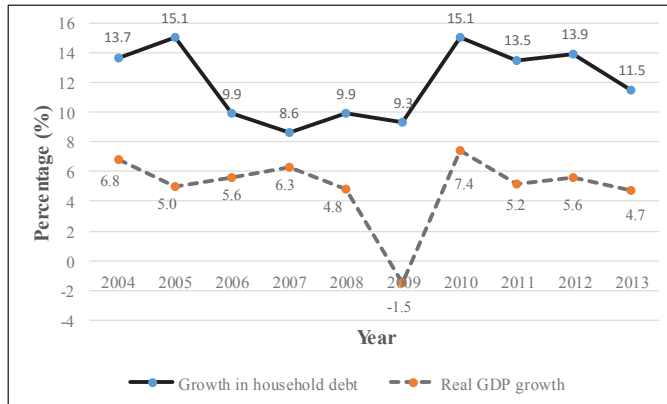
Figure 2. Growth in household debt and real GDP from 2004 to 2013
Source: Department of Statistics Malaysia (2013) and Bank Negara Malaysia (2014)

in the household debt is associated with a decline in the GDP growth. However, the relationship has shifted significantly after the crisis, and the direction of causality between the two variables remains unclear, calling for further investigation on the subject.

From one perspective, the rise in debt level can partly be explained by the continuous rise in a household income since the household will have a higher capacity to borrow since they can afford a higher debt level. Positive income growth also increases consumer confidence in the economy and may influence households to borrow. From the standpoint of lenders improvement in household income may influence them to increase loans based on the assumption that borrowers will be better able to service their debts.
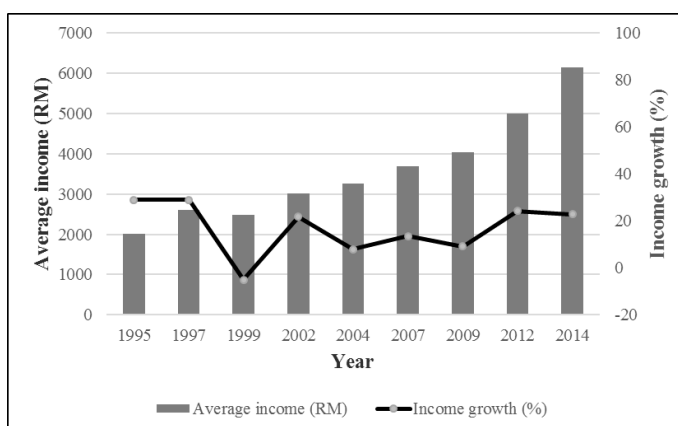
Figure 3. Mean monthly household gross income (1995- 2014)
Source: Department of Statistics Malaysia (2014)

As illustrated in Figure 3, there is an increasing trend in the average household income since the past two decades as the income growth also shows an upward trend in the same period apart from 1998 and 2008. The income level as recorded by Gross Domestic Product (GDP) suggests that increases in economic growth will indirectly influence household debt to rise.

As Malaysia aims to achieve high-income status by 2020, it is important to sustain economic performance and avoid financial instability. Thus, the investigation of the link between a household debt and GDP is crucial aspect of policy formulation.

LITERATURE REVIEW

Based on the Life Cycle Model, a household will smooth their expenditure over time and choose to save when their income is high and spend when the income level is relatively low. Due to expectations that incomes will increase in the future, households will choose to borrow money in order to finance their current spending at the expense of future income (Modigliani & Brumberg, 1954). Thus, the income level plays important role in the household debt model.

Previous studies support the view that household debt and incomes are positively related, such that when incomes rise the amount of debt level also increases (Wasberg, Hira & Fanslow, 1992; Crook, 2001; Calza, Gartner & Sousa, 2003; Hofmann, 2004; Jacobsen & Naug, 2004; del Río & Young, 2006) This is due to a

higher income and wealth increase debt limits for the household and thereby may indirectly increase the demand for loans (Duca & Rosenthal, 1993).

Findings based on the two-period model of consumption show that a household that expects a higher future income growth will eventually have a higher level of borrowing (Fan, Chang & Sherman, 1993). Thus, a continuous improvement in a nation's growth and productivity has led to an optimistic expectations of the households on their future income growth and thereby results in a greater household debt (Meng, Hoang & Siriwardan, 2013; Moroke, 2014). Moreover, Barba and Pivetti (2008) state that the growth in household indebtedness in the United States is due to a response to stagnant wages in which the households have used the debt as a form of wage substitution.

A study conducted by Livingstone and Lunt (1992) in the United Kingdom highlights that household disposable income does not affect household indebtedness but it may affect the debt level through its impact on personal savings. Turinetti and Zhuang (2011) conclude that household income negatively affects household debt in the United States. In addition, evidence from the Survey of Consumer Finances has shown that income is negatively related to a debt which in the forms of a credit card debt (Chien & Devaney, 2001). Thus, the relationship between income level and household debt may differ according to the types of debt.

A study by Mokhtar and Ismail (2013) in Malaysia based on Vector Error Correction Model (VECM) suggests income is one of the leading factors which explains rising household debt level in Malaysia. This finding however has been contradicted by Rahman and Masih (2014) who showed that changes in income may not affect household debts. The inconsistencies found in both studies may be due to the measurement of the income level used. As supported by Meniago et al. (2013), there is a negative relationship between a household debt and real income and a positive correspondence with the real GDP.

A study conducted by Moroke, Mukuddem-Petersen and Petersen (2014) in South Africa reveals that there is a unidirectional causality between GDP and household debt. This is also confirmed by Puente-Ajovín and Sanso-Navarro (2015). Kim (2011) however showed that in the United States there is bidirectional positive feedback process between aggregate income and household debt.

Since the direction of causality between household debt and GDP remains unclear, therefore, further investigation based on the composition of debt could significantly contribute to the study of household debt. In addition, as Malaysia aims to become a high-income country by the year 2020, the high debt accumulation may hinder its economic performance and increase the risk of the country to dive into a recession as what experienced by the United States during the Global Financial Crisis. Hence, the findings of this study could provide some guidelines to policymakers in their policy formulation to sustain the nation economic performance.

MATERIALS AND METHODS

The focus of this study is to investigate the direction of causality between household debt and GDP in Malaysia that is either the household debt has caused the GDP to change or vice versa. The data used in this study is from Bank Negara Malaysia (BNM). Using quarterly time series data from Q1:1999 to Q4:2014, this study employs the Toda-Yamamoto non-causality test to determine the direction of causality between the two variables. In addition, further analysis has been undertaken to determine the direction of causality based on the composition of debt.

In order to conduct the non-causality test, the following equations are specified to test the causality between the two variables. Specifically, this study follows Toda and Yamamoto (1995) by using the modified Wald test. This method is more suitable since it allows for variables with mixed order of integration. The null hypothesis of the Toda-Yamamoto non-causality test represents that the household debt does not Granger cause GDP and vice versa.

$$LHD_t = \alpha_0 + \sum_{i=1}^{k} \alpha_{1i} LHD_{t-i} + \sum_{j=k+1}^{dmax} \alpha_{2j} LHD_{t-j} + \sum_{i=1}^{k} \gamma_{1i} LY_{t-i} + \sum_{j=k+1}^{dmax} \gamma_{2j} LY_{t-j} + u_{1t}$$

[1]

$$LY_t = \beta_0 + \sum_{i=1}^{k} \beta_{1i} LY_{t-i} + \sum_{j=k+1}^{dmax} \beta_{2j} LY_{t-j} + \sum_{i=1}^{k} \delta_{1i} LHD_{t-i} + \sum_{j=k+1}^{dmax} \delta_{2j} LHD_{t-j} + u_{2t}$$

[2]

Where LHD and LY refer to the log of a household debt and the log of Gross Domestic Product respectively while d represents the maximum order of integration of the variables in the model. The optimal lag length, k, is chosen based on the Akaike Information Criterion (AIC). It is assumed that the error terms are not correlated. The null hypothesis for Equation 1 represents that the GDP does not cause the household debt while the null hypothesis of Equation 2 represents that the causality does not run from the opposite direction.

Besides that, in order to determine the direction of causality based on the composition of debt, the following equations are tested to determine the direction of causality between a mortgage and consumer debt with the GDP.

$$LMD_t = \mu_0 + \sum_{i=1}^{k} \mu_{1i} LMD_{t-i} + \sum_{j=k+1}^{dmax} \mu_{2j} LMD_{t-j} + \sum_{i=1}^{k} \varphi_{1i} LY_{t-i} + \sum_{j=k+1}^{dmax} \varphi_{2j} LY_{t-j} + v_{1t}$$

[3]

$$LY_t = \sigma_0 + \sum_{i=1}^{k} \sigma_{1i} LY_{t-i} + \sum_{j=k+1}^{dmax} \sigma_{2j} LY_{t-j} + \sum_{i=1}^{k} \theta_{1i} LMD_{t-i} + \sum_{j=k+1}^{dmax} \theta_{2j} LMD_{t-j} + v_{2t}$$

[4]

$$LCD_t = \omega_0 + \sum_{i=1}^{k} \omega_{1i} LCD_{t-i} + \sum_{j=k+1}^{dmax} \omega_{2j} LCD_{t-j} + \sum_{i=1}^{k} \emptyset_{1i} LY_{t-i} + \sum_{j=k+1}^{dmax} \emptyset_{2j} LY_{t-j} + z_{1t}$$

[5]

$$LY_t = \pi_0 + \sum_{i=1}^{k} \pi_{1i} LY_{t-i} + \sum_{j=k+1}^{dmax} \pi_{2j} LY_{t-j} + \sum_{i=1}^{k} \tau_{1i} LCD_{t-i} + \sum_{j=k+1}^{dmax} \tau_{2j} LCD_{t-j} + z_{2t}$$

[6]

In particular, Equation 3 and Equation 4 test the direction of causality between a mortgage debt and GDP while Equation 5 and Equation 6 are used to examine the direction of causality between consumer debt and GDP. It is expected that the direction of causality between a mortgage debt and consumer debt with GDP will be consistent with the findings of the causality between a household debt and GDP.

Finally, in order to determine the validity of the result of the causality test, this study conducts the Johansens's cointegration test to determine the presence of cointegration between a household debt and the GDP. By following Johansen and Juselius (1990), the null hypothesis indicates that there is no cointegration among the variables, and rejection of the null hypothesis proves that a long run relationship exists between

household debt and GDP thus validating the results of the non-causality test.

RESULTS AND DISCUSSION

As a preliminary, this study conducts the unit root test to determine the level of integration of the variables. Particularly, the Augmented Dicky-Fuller (ADF) test is utilized and the results of the test presented in Table 1. In addition, this finding is also consistent when tested using the Phillips-Perron unit root test. Hence, the Toda and Yamamoto (1995)

non-causality test is appropriate to instead of the traditional Granger non-causality test which only suitable for variable that is stationary at levels.

Through the Toda and Yamamoto (1995) non-causality test with the maximum order of integration, d, is equal to 1 and the lag length, k, is chosen based on the AIC, the result of the direction of causality between the debt and GDP which is presented in Table 2.

Table 1
Unit root test

Variable	Level		1st difference	
	Intercept	Intercept & trend	Intercept	Intercept & trend
ADF test				
LHD	-0.421314	-1.824109	-8.033114***	-7.988464***
LMD	-1.731678	-1.616500	-6.975987***	-7.230630***
LCD	1.071475	-3.269708	-7.014557***	-7.235036***
LGDP	-0.895629	-2.088691	-7.797334***	-7.760585***

Note: The lag selection for the ADF test is based on the Akaike Information Criterion (AIC)
*** indicates the significance level at 1%

Table 2
Toda-Yamamoto non-causality test

Direction of causality	df	Chi-square	Decision
Model 1:			
LY $\rightarrow$ LHD	2	1.505035	Do not reject H_0
LHD $\rightarrow$ LY	2	10.30438***	Reject H_0
Model 2:			
LY $\rightarrow$ LMD	3	1.185114	Do not reject H_0
LMD $\rightarrow$ LY	3	12.58813***	Reject H_0
Model 3:			
LY $\rightarrow$ LCD	2	2.467090	Do not reject H_0
LCD $\rightarrow$ LY	2	4.660719*	Reject H_0

Note: *** and * indicates the significance level at 1% and 10% respectively

Based on the result of the non-causality test for Model 1, the null hypothesis that GDP does not cause the household debt is rejected. On the other hand, the null hypothesis that household debt does not cause the GDP is rejected at 1 percent significance level, thus indicating there is a unidirectional causality that runs from a household debt to GDP.

Consistently, the findings based on the composition of debt as shown in Model 2 and Model 3 also indicate a unidirectional causality between mortgage and consumer debt to the GDP. The result obtained is found to be consistent with studies conducted by Puente-Ajovín and Sanso-Navarro (2015) based on OECD countries and Moroke et al. (2014) in South Africa.

Following Johansen and Juselius (1990), the result of the long run relationship is reported in Table 3. Result obtained for

this test indicate that for each of the models there is one cointegrating equation which is significant at 5 percent significance level. This validates the results of the non-causality test which found a unidirectional causality which runs from the household debt and its composition to the GDP.

The findings indicate that household debt plays an important role in the economy by influencing the GDP through its impact on aggregate demand. Although the household debt is necessary for the economy to grow, Malaysia should take a lesson from countries such as the United States which experienced a severe recession in 2008 as a result of high debt accumulation. To achieve high-income nation status by 2020 policymakers could target the credit market as one of their tools to promote economic growth.

CONCLUSION

This study investigates the link between household debt and GDP in Malaysia using the Toda-Yamamoto non-causality test. The findings of this study reveal that the direction of causality runs from the household debt to GDP, and is in line with the findings based on the composition of debt. The result of the cointegration test also supports the contention that there is a long run relationship between household debt and GDP. Based on the findings of this study policymakers attempting to influence economic growth should consider using the credit market since it will significantly influence the GDP. Given the limitations of this study, further analysis using the growth

Table 3
Johansen's Cointegration test

No. of CE(s)	Trace statistic	Critical value (5%)
Model 1: LHD		
None	32.66970**	20.26184
At most 1	6.403431	9.164546
Model 2: LMD		
None	22.65966**	20.26184
At most 1	7.546047	9.164546
Model 3: LCD		
None	31.65318**	20.26184
At most 1	5.134208	9.164546

Note: The lag is chosen based on Akaike Information Criterion (AIC)
** denotes the rejection of the null hypothesis of no cointegration at 5% significance level.

model is needed to determine the threshold level at which the debt will start to dampen the nation economic growth.

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SOCIAL SCIENCES & HUMANITIES

Continuous Usage Intention of Location-based Services (LBS) Technology Among Smartphone Users in Malaysia

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ABSTRACT

Mobile phone utilisation is changing from basic communication features and location-based services (LBS) has become an important feature. In developing countries such as Malaysia, the development and implementation of LBS can be important for the public since an LBS does not only boost individual decision making, but also supports the business functionality depending on its operation policy. We conducted a research to investigate users' expectation and intention to use the LBS. Developing the work based on Unified Theory of Acceptance and Use of Technology (UTAUT). The findings show the roles of effort expectancy and social influence in predicting the intention to use of LBS.

Keywords: Information system use, intention, location-based service acceptance, location-based services

INTRODUCTION

Mobile phones are no longer used only for the purpose of making e voice calls and sending messages. Remarkably, through an unprecedented revolution and innovation in technology, mobile phones have become pocket-sized computers and entertainment devices. Called smartphones come with powerful hardware and software, and thereby expand the opportunity of mobile service providers to release variation of services, such as mobile instant messaging (IM), mobile games, mobile payment, and LBS.

As an emerging service, LBS is called the killer application and its usage has received attention from researchers studying user behaviour of services and technologies (Junglas & Watson, 2008). According to Zhou (2013), LBS can show optimal and

customized information and services to users based on their current location. By sharing information, regardless of their locations, Chang and Chen (2014) have discovered that most users reveal their location. . The most imperative advantage of LBS is the capability to track a person's location at anytime and anywhere, however, this location information also generates a risk for the individual's privacy (Junglas, Johnson, & Spitzmüller, 2008). Both the development of the LBS market and advances in LBS innovation have raised privacy concerns because of the potential misuse of users' location information (Junglas & Watson, 2008). We aimed to examine what factors influence users' intention to continuously use the LBS in the Malaysian setting.

Location-based Services (LBS)

According to Perusco and Michael (2005), LBS can be defined as services that use the current location information of a mobile user to offer individualized services. These personalized services can give a new experience to users, the most is locatability. Locatability is the ability of mobile servers to learn the current physical position of wireless devices which will be the principal enabler of an appealing mobile business operation (Junglas & Watson, 2008). By using LBS, users must agree to reveal their current locations to the service provider, thus risking their privacy. The LBS will request the users' locations, and this information is sent to a Third Service Provider (TSP), following which the latter will respond with the information needed by the users, be it to locate Places of Interests (PoI), petrol station, banks, shopping malls, hospitals, and navigation services.

A drawback of this technology is the potential abuse of location information and data stored in the devices such as emails, texts, or photos could be misused for theft, for example bank cards and credit card numbers, stalking, hackers, blackmail and other abuse (Junglas & Watson, 2008).

Unified Theory of Acceptance Use of Technology (UTAUT)

Zhou (2013) stated to understand usage behaviour mobile service providers need to know the factors affecting user acceptance of a particular technology. UTAUT constructs can be applied to understand the acceptance of individuals who adopt LBS (Venkatesh et al., 2003). The purpose of this research is to determine the relationship between UTAUT constructs and continuous usage of LBS. The four key constructs which determine technology usage intention and behaviour are: performance expectancy, effort expectancy, social influence, and facilitating conditions according to UTAUT (Venkatesh, Morris, Davis & David, 2003).

However, the facilitating conditions construct is excluded from the analysis in this research because the concern is more on the personal influences rather than organizational influences. According to Yun, Han and Lee, (2013), UTAUT provides a strong theoretical foundation which is also supported with empirical evidence.

Performance expectancy. Performance expectancy in this study is defined in terms of usage of LBS technology to enhance task performance (Venkatesh et al., 2003). Hence, when using LBS an individual would reduce his or her time and effort required to search needed information or services. Moreover, according to Davis (1989) individuals believe when using this system job performance will improve. According to Junglas and Watson (2006) performance expectancy assumes the capability of LBS to correctly stipulate the intended services. Following from the above the hypothesis was developed:

H₁: There is a significant relationship between performance expectancy and continuous usage intention of LBS

Effort expectancy. Effort expectancy refers to the level of simplicity associated with a particular system (Venkatesh et al. 2003), and which in the case of LBS refers to the effort needed to operate LBS. If the procedure of LBS subscription encompasses many steps or uninteresting documentation such as registration, reading the privacy policy and service terms and conditions, then the more effort may inhibit a user to subscribe for such services. The greater the effort required to adopt a system can affect its adoptability. Based on this, we developed the following hypothesis:

H₂: There is a significant relationship between effort expectancy and continuous usage intention of LBS

Social influence. Social influence can be defined as a measure by which a user perceives that others believe he or she should use a particular system (Venkatesh et al. 2003). According to Venkatesh et al (2003), the social influence affects user actions through acceptance, internalization and identification.

Furthermore, subjective norms significantly influence distinguished usefulness via both internalization and identification. The former incorporated social influences into users' own usefulness perceptions and the latter, in which user uses a system to pick up status and influence within the work group and thus increase their job performance (Venkatesh & Davis, 2000). Thus, the following hypothesis was constructed:

H₃: There is a significant relationship between social influence and continuous usage intention of LBS

Continuous Usage Intention

Continuous usage intention can be defined as the degree to which LBS is planned for future use (Baek, Park, & Lee, 2011) which is measured by UTAUT constructs. A similar study by Zhou (2011) which utilised the UTAUT to examine the variables influencing the mobile Internet continuation in China concluded that performance expectancy had the most important effect on continuous usage as compared to the other UTAUT constructs.

RESEARCH FRAMEWORK

Figure 1 represents a relationship between the constructs of UTAUT and continuous usage intention of LBS. The independent variables of this study are the constructs of UTAUT which consist of performance expectancy, effort expectancy and social influence. The dependent variable of this study is continuous usage intention.
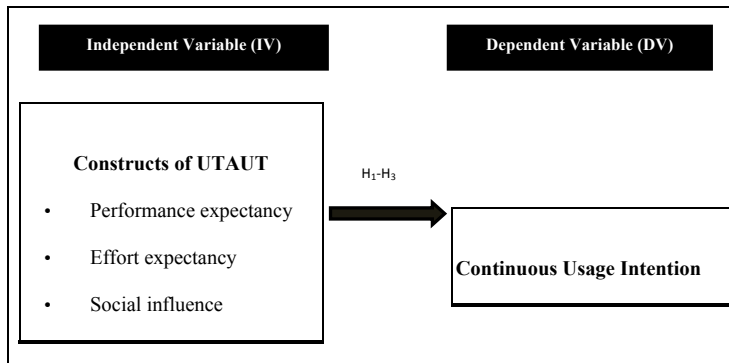
Figure 1. . Research Framework on the perspective of Unified Theory of Acceptance and Use of Technology (UTAUT) and continuous usage intention of Location Based Services (LBS) (Adapted from: Venkatesh, 2003)

RESEARCH METHODS

The research framework in Figure 1 was designed to verify the relationship between UTAUT constructs of performance expectancy, effort expectancy and social influence with continuous usage intention of LBS. The framework was tested by using non-experimental research which is the correlational method.

Instruments

 A questionnaire in two languages: English and Bahasa Melayu was designed. The questionnaire was divided into three sections. Section A consists of respondent's demographic profiles, which include respondent gender, respondent age, type of smartphone uses and the main purpose of using LBS. Section B assesses respondent perceptions of the indicated independent variables, while Section C on the perceptions of intention to use LBS. The items were used to measure independent variables and dependent variable were adopted from Venkatesh et al., (2003).

Data Collection

The respondents in this study were employees working at one of the government institutions with a total of 69 respondents as shown in Table 1.

Table 1
Demographic profiles

Demographics	n = 69	
	Frequency	Percentage (%)
Gender		
Male	14	20.30
Female	55	79.70
Age		
<= 20 years	4	5.80
> 20 years	65	94.20
Smartphone		
IOS (Iphone)	31	44.90
Android (Samsung, Sony, Lenovo, etc)	37	53.60
Others	1	1.4
Reasons of using LBS		
Information Search/ Directory Services	41	59.40
Location-Based Social Network	7	10.10
Emergency Services	5	7.20
Tracking & Navigation Services	16	23.20

RESULTS AND DISCUSSION

Data from the survey was analysed by structural equation modelling using the AMOS (Analysis of Moment Structures) software.

Assessing Validity and Reliability

A test on normality distribution yielded the items' coefficients were within the ±2.00 skewness and/or kurtosis range which indicated for an assumption of normality. In order to assess for the instrument validity, two methods were performed. First, a principal component analysis as a procedure of exploratory factor analysis was conducted. The principal axis factoring and Varimax with Kaiser Normalization rotation was used. The results produced a total variance of 78.602%. In addition, the KMO result of 0.885 indicated factor analysis was appropriate. As the MSA>0.5, it was suggested all variables should be included in the factor analysis. As suggested by Beavers, Lounsbury and Richards, (2013), only items with a loading of .40 or greater were considered.

Further analyses on the instrument validity were performed to assess the convergent validity, composite reliability and discriminant validity. The instrument was also checked for its reliability. The Cronbach's alpha scores indicated that the questionnaire was reliable (Hair et al., 2010). Thus, the data can be used for further analyses. Table 2 shows the results of the factor loadings, composite reliability, average variance extracted (AVE) to assess the convergent validity and the descriptive results.

All item loadings surpassed the required cut-off level of 0.60 as suggested by Bagozzi and Yi (1988). The composite reliability values exceeded 0.70 as recommended by Hair et al. (2006) and the AVEs were above 0.50 as suggested by Fornell and Larcker (1981).

Confirmatory Factor Analysis (CFA)

The discriminant validity was tested by comparing the constructs' correlations and the square root of the average variance extracted. The results shown in Table 3 indicate for an adequate convergent and

Table 2
Factor loadings, reliability and descriptive results

	Item Loadings	Mean	SD	α	AVE	CR
Performance Expectancy				.866	0.623	0.868
Increases life productivity	.710	3.8116	.69187			
Increases work productivity	.896	3.7681	.78861			
Improves life efficiency	.769	3.7826	.72497			
Improves work efficiency	.770	3.6377	.74697			
Effort Expectancy				.901	0.697	0.902
Learning is easy	.887	3.9130	.70166			
Skill is easy	.819	3.8261	.80360			
Easy to use	.820	3.8406	.81571			
An easy task	.811	3.7826	.70439			
Social Influence				.873	.635	.874
People who are important to me think I should use	.702	3.4493	.91613			
People around me help me to use						
Family supports to use	.825	3.6232	.84194			
Friends support to use	.806	3.5217	.77855			
Continuous Usage Intention	.847	3.5942	.86294	.926	.810	.927
Will be using LBS regularly	.870	3.7681	.79748			
Intend to use LBS continuously	.918	3.8406	.87691			
Will continue using in the future	.911	3.8551	.91194			

discriminant validity as the square root of the AVE is greater than the construct's correlation coefficient. In addition, there were significant correlations between all the determinant factors and usage intention.

A Confirmatory Factor Analysis (CFA) was run using AMOS to test on the associations between all variables. The results yield a CFA model that is acceptable [χ^2/df = 1.259, CFI = 0.969, GFI = .824, TLI = 0.961 and RMSEA = 0.062]. The Bollen-Stine bootstrap p –value based on 200 resamples is 0.054, which is > 0.05.

Thus, the model "correctness" is acceptable. It indicates that there is sufficient cross validation of the model. Based on the results, all variables are significantly related to one another. The highest association is between social influence and continuance usage intention (r=.656, p < .05) followed by the association between effort expectancy and continuance usage intention (r=.569, p<.05) and performance expectancy and continuance usage intention (r=.527, p < .05). The results are shown in Table 3.

Table 3
Inter-construct correlation

	1	2	3	4
Performance Expectancy	0.789			
Effort Expectancy	0.743	0.835		
Social Influence	0.531	0.463	0.797	
Continuance Intention	0.527	0.569	0.656	0.900

The Measurement Model

Structural equation modelling analyses were run to test the hypotheses. In this procedure, all constructs were loaded simultaneously. The results of the hypothesis testing are shown in Table 4.

Table 4
Results of the hypotheses testing

Hypotheses	Relationship	Coefficient	C.R	R^2	Results
H1	PE -> CUI	0.056	0.502	0.401	Rejected
H2	EE -> CUI	0.375	3.200		Accepted
H3	SI -> CUI	0.507	4.063		Accepted

Referring to the table, all hypotheses, apart that on the relationship between performance expectancy and continuance usage intention, were accepted. Comparing effort expectancy and social influence, the latter plays the most influential role in determining continuance usage intention (β = .507, p=.000) while the former plays less role, even though it is still β = .375, p = .001. Overall, the predictors explain 40.1% of the variance in continuous usage intention.

The results from the relationship analysis between effort expectancy and continuous usage intention show that most of smartphone users have relatively high self-efficacy and therefore, using LBS does not mean a difficult task for them (Xu, Gupta, & Pan 2009). It also found that the social influence affects users' actions through acceptance, internalization and identification (Ventakesh, 2003). According to Xu, Gupta and Pan, (2009), social influence is the point at which a user perceives that peers opinion is important when considering LBS usage. However, the research found that there was no relationship between performance expectancy and continuous usage intention of LBS in terms of life and work productivity and efficiency. The result contradicts with the finding of related studies by Zhou (2011) as well as Xu et al. (2009).

CONCLUSION

In the perspective of UTAUT, the study recognized the factors affecting continuous usage intention of LBS. Nevertheless, the

predicament of these factors might also depend on determinants such as attitudes, individual cognition ability and experience which demand further exploration. Since the study only involves small samples of smartphone users, the results may be biased because most of the respondents have some experience with LBS. Future study will include other factors as moderating factors such as privacy, that might influence the continuous usage intention of LBS. The study needs to be generalized to the larger population, such as among youngsters in order to provide more insights on the usage intention.

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Social Commerce in the Digital Age: Analysis of Adoption Differences among Consumers in Malaysia and Nepal

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ABSTRACT

This study examines social commerce adoption in Malaysia and Nepal. Both nations are in the group of developing countries but information and communication technology levels are quite significantly different. Given the different level of access to ICT we aim to investigate how consumers in these two countries adopt social commerce by focusing on their acceptance of the process quality, communication quality, security and privacy, service quality and continuance. Using the survey method, data was collected from social commerce users in both countries. The results show no significant differences in the scores of communications, service quality and continuance adoption. However, there are significant differences in how they perceive the process quality and security in social commerce.

Keywords: Factors of social commerce adoption, social commerce adoption, social commerce in Malaysia, social commerce in Nepal

INTRODUCTION

The emergence of social commerce following the growth of development and demand for technology signifies the digital age. The booming roles of social commerce in expediting social and community development have led to creative innovations and growth of studies in diverse perspectives including its acceptance and adoption. Social commerce is seen as an important strategy for creating branding (Michaelidou,

Siamagka, & Christoudoulides, 2011). While both sellers and buyers show positive attitude towards social commerce, they are nevertheless motivated differently. Sellers use social commerce for fulfilling their social utilitarian and social motivation needs while buyers' influenced by their hedonic motivation. Nevertheless, studying the factors of adoption in two different settings can improve understanding of this subject.

In this study, we examine the perceptual differences in social commerce adoption among consumers in Malaysia and Nepal. While both nations are in the group of developing countries, the information and communication technology maturity rate is significantly different. Therefore, given the different level of access to ICT in the digital age, we aim to investigate how consumers in these two countries adopt social commerce, specifically on their acceptance on the process quality, communication quality, service quality, security and privacy and social commerce continuance adoption.

LITERATURE REVIEW

Early studies found antecedents of social commerce adoption are system quality and service (technology) quality (Liang, Ho, Li, & Turban, 2011), normative belief (Teh & Ahmed, 2011) and perceived usefulness and perceived ease of use (Shen, 2012). More recent studies have started to shift to examine the roles of relationship quality (Wang & Hajli, 2014), observe consumer purchase (Chen & Shen, 2015) and parasocial interaction (Xiang, Zheng, Lee, & Zhao, 2016). There are some key issues of

social commerce use. Since it involves social media, communication and relationships are important issues. Similarly, the process of the buying-selling and the privacy aspects are not less than significance.

Process is a basis of any business (Lohrmann & Reichert, 2013). In social commerce, it relates to the attributes of reliability, ease of use, design and purpose fit (Victor Chen, Chen, & Capistrano, 2013). Failure to offer these qualities will off customers. As netizens are known to be the group that prefers speedy process reliable social commerce is important. Good quality communication and interaction is essential in business. Client loyalty requires improving the customer's experience (Janita & Miranda, 2013) and social commerce is about interactions. Therefore, maintaining interaction by giving prompt response is necessary (Kassim, Othman, & Zamzuri, 2016).

As the communication and interaction is open, social commerce operators must provide a secure protection to customer's information. Customers who are confident with the privacy features will be more likely to return, thus promoting for higher social commerce effectiveness. Delivering service quality is very important, especially with the presence of web technologies. The extent to which the online site facilitates efficient and effective shopping, purchasing and delivery of products (Collier & Bienstock, 2015) is important. Service quality has been found to be a significant predictor of social commerce adoption (Liang et al., 2011; Lee, Cha, & Cho, 2012).

Social Commerce in Malaysia

In Malaysia, social commerce has begun to be widely acceptable. Reports from the Business Insider highlights the rise of social commerce and its impact on the retail market. The social media increased its share of e-commerce referrals nearly 200% between the first quarters of 2014 and 2015. While Facebook continues to grow its lead as the dominant social commerce platform, Snapchat and Instagram have also become the choice for influencer marketing (Business Insider Malaysia, 2015). Studies on social commerce in the local context show that trust in the social network plays an important role in mediating the relationships between closeness, familiarity and intention to purchase (Ng, 2013). Similarly, customers trust in social network online purchase is affected by the level of security quality (Jailani, Othman, & Kassim, 2014). Kassim et al (2016) in their study concluded social commerce operators emphasized on the importance of managing customer relationship by strategizing on the purchase process, service quality and communication.

Social Commerce in Nepal

The concept of social commerce in Nepal is fairly new. A study conducted by Sharma and Lijuan (2015) on online service qualities suggested that information quality and online service quality were the key determinants for user satisfaction and the sustainability of e-commerce technology. Another study by Sharma and Lijuan (2014) on the various factors that influence consumer trust and privacy on e-commerce system revealed the significance of ethics on consumer purchase and its influence on online marketing. They also found the role of ethical performance of the online portal in facilitating trust, which enhanced customer commitment and loyalty.

METHODS

Instrument Development

An online survey was utilized to collect the data. Five constructs were used in the study namely process quality, communication quality, service quality, security and privacy and social commerce continuance adoption. The items were adopted from Victor Chen, Chen and Paolo (2013), Janita and Miranda (2013) and Udo (2001) and modified accordingly in order to fit the context of the study. All items were scored on a five-point Likert scale ranging from (1) not true to (5) very true. Table 1 summarizes the items.

A content validity procedure was conducted by asking two experts in the field to evaluate the items, and which was followed by a pilot study. The Cronbach alpha results of greater than 0.70 show the scores for all items have the same range. Thus, the internal consistency was assumed. Factor analysis was done to examine the construct dimensionality by using the exploratory factor analysis of principal component and varimax with Kaiser Normalization rotation. The KMO measure of sampling adequacy for the social commerce scale is .935 indicating that the items were interrelated. Bartlett's Test of Sphericity shows a significant

Table 1
Item measurement

Measure	Items	Source
Process Quality	Purchase is reliable	Victor Chen, Chen and Paolo (2013)
	Product received as expected	
	SC design easy to understand	
	Purchase achieved buying purposes	
	Purchase was easy	
Communication Quality	Received order acknowledgement	Janita and Miranda (2013)
	Prompt reply to comments	
	Quick response to request	
	Deal with product return	
	Communicate in good manner	
Security and Privacy	Confident business protects financial info	Janita and Miranda (2013), Udo (2001)
	Confident business not share personal info	
	Purchase is protected by terms and regulations	
	Confident with security protection	
	Feel secured when release financial info	
Service Quality	Products delivered within time	Janita and Miranda (2013)
	Quality and quantity matched with order	
	Confident with purchase	
	Products free of defects	
SC Continuance	Recommend products to others	Victor Chen, Chen and Paolo (2013)
	Consider seller as first choice	
	Will do more purchase	
	Will recommend seller	

value (Approx. Chi-Square = 8500.823, p<0.01) indicating the significance of the correlation matrix and appropriateness for factor analysis. Moreover, the individual MSA values range from .917 to .973, indicating that the data matrix was suitable to be factor analysed. Results of factor analysis with varimax rotation indicated the existence of four factors with initial eigenvalues greater than one that explained 78% of total variance. The results of a scree test also provided support for a four-factor

solution. As the survey was conducted in two countries, the questionnaire which was originally written in English, was translated to two languages– Bahasa Malaysia and Nepali.

Demographic Profile of Respondents

The profile of the respondents is shown in Table 2.

The sample consisted of 520 respondents from Malaysia (53%) and 463 respondents

Table 2
Demographic profile of respondents

		Number (percent)			
		Malaysia		Nepal	
Gender	Male	200	(38.5)	223	(48.2)
	Female	320	(61.5)	240	(51.8)
Occupation	Student	126	(24.3)	189	(40.8)
	Others	394	(75.7)	274	(59.2)
IT Competency	Yes	426	(81.9)	326	(70.4)
	No	3	(0.6)	10	(2.2)
	Just know the basic	91	(17.5)	127	(27.4)
Use of social media for online purchase	Instagram	478	(91.9)	139	(30.0)
	Facebook	300	(57.6)	264	(57.0)
	WhatsApp	426	(81.9)	27	(5.8)
Reasons for purchasing through social media	Easy	496	(95.4)	379	(81.9)
	Trending	259	(49.8)	163	(35.2)
	Confident	144	(27.7)	67	(14.5)
	Habit	104	(20.0)	26	(5.6)
	Only sold via social media	126	(24.2)	40	(8.6)
Continue purchase	Yes	506	(97.5)	432	(93.3)
	No	13	(2.5)	31	(6.7)
Will social commerce dominate online business?	Yes	517	(99.4)	280	(60.5)
	No	3	(0.6)	183	(39.5)

(47%) from Nepal. The gender distribution in Nepal was evenly mixed but there were more female respondents in the Malaysia sample. Nevertheless, majority of the respondents in both countries claimed to be competent in information technology. The main reason for shopping via social commerce was easy. When asked about their intention to continue purchasing via social commerce, more than 93% were willing to do so. However, while the Malaysian respondents strongly believe social commerce will dominate the online business, only about 60% of the respondents from Nepal share similar thought.

RESULTS AND DISCUSSION

Test for Common Method variance

As both dependent and independent variable data were collected from a single informant, common method variance could be a potential problem. Therefore, the Harman's one-factor test was performed to examine the extent of the bias. The results indicate common method variance does not occur.

Means, Standard Deviations and Correlation Matrices

Table 3 shows the means, standard deviations and bivariate correlations coefficients of the constructs. The internal consistency

scores are shown in bold. The results of the correlation coefficient indicate multi-collinearity is not an issue since there is no correlation coefficient value greater than 0.90.

Similarly, the Variance Inflation Factors (VIF) indicated in Table 4 show all variables have VIFs of less than the minimum required cut-off value of 10. Thus, it suggests multi-collinearity issue does not exist.

Table 3
Means, standard deviations, internal consistency and correlation matrices

Measure	Mean	SD	1	2	3	4	5
Malaysia Sample							
Process Q	4.160	.694	.910				
Communication Q	3.912	.764	.714**	.901			
Security Q	3.618	.844	.546**	.720**	.906		
Service Q	4.099	.704	.739**	.653**	.579**	.900	
Continuance	4.183	.772	.698**	.642**	.572**	.807**	.908
Nepal Sample							
Process Q	3.537	.720	.649				
Communication Q	3.454	.711	.425**	.611			
Security Q	3.305	.812	.299**	.319**	.758		
Service Q	3.398	.795	.474**	.356**	.350**	.698	
Continuance	3.342	.885	.441**	.295**	.313**	.536**	.798

Table 4
Collinearity statistics

Independent variable	Malaysia		Nepal	
	Tolerance	VIF	Tolerance	VIF
Process Q	.360	2.780	.693	1.443
Communication Q	.330	3.027	.762	1.312
Security Q	.459	2.176	.826	1.211
Service Q	.404	2.437	.712	1.404

Tests of Significant Differences

A set of independent sample t-tests was conducted to examine the differences in social commerce adoption between the two groups. The results are presented in Table 5. The Levene tests for equality of variances of ($p > .05$) show there are no significant differences between the variances of the groups. Hence, the independent-groups t-test assumptions are assumed. Table 4 shows the results of the tests.

Table 5
Results of t-tests and Descriptive Statistics of social commerce adoption

Outcome	Group						95% CI for Mean Difference		
	Malaysia			Nepal					
	M	SD	n	M	SD	n		t	df
Process	4.16	.694	520	3.53	.720	463	0.53, 0.71	13.79*	981
Communication	3.91	.764	520	3.45	.711	463	0.36, 0.55	9.72	979.11
Security	3.61	.884	520	3.30	.812	463	0.20, 0.41	5.90*	981
Service	4.09	.704	520	3.39	.795	463	0.60, 0.79	14.60	928.92
Continuance	4.18	.772	520	3.34	.885	463	0.73, 0.94	15.77	922.98

* $p < 0.05$

From the results, it can be concluded there are statistically significant differences, at the .05 level of significance, between Malaysians and Nepalese in their perception of social commerce process quality and security quality. However, there is no statistical difference exists between consumers in both countries in terms of communication and service quality and continuance.

The findings suggest respondents in both countries perceive communication qualities during the transaction to be satisfactory. There was also no significant difference in how service quality of social commerce is perceived. This may be related to the Asians qualities which providing good services regardless of the business means are very important. Furthermore, both groups of respondents share similar attitudes towards social commerce continuance adoption. As technologies are more accessible and communication via the Internet has become part of everyday life, consumers are putting more trust on utilizing the Internet even for buying and selling. Thus, even though national ICT infrastructure and facilities provision differ in both countries, it does not differentiate the consumers' willingness to continue adopting social commerce. The findings also explain digital age has no boundary.

However, process quality and security and privacy are perceived differently as these two qualities are more related to business and technical procedures. In addition, both qualities are provided depending on the ICT maturity and how much the system is trusted. As the ICT infrastructure is different, it could explain varying degree of perception. Malaysia has a higher rate of social media and Internet penetration while Internet access is fairly limited in Nepal thus utilizing social commerce is more challenging. Furthermore, different perception of security describes that trusting the business to protect the financial and personal data is an issue. Even though we are living in the digital age, concerns on privacy, data protection and violation are highly contained. Thus, it highlights for the alerting needs of policy improvement.

CONCLUSION

This study explored perceptions of social commerce adoption in Malaysia and Nepal. Five constructs were examined: process quality, communication quality, security and privacy, service quality and social commerce continuance. While there seem to be no significant difference in how the respondents react towards communication, service quality and social commerce continuance adoption, there are differences in how they perceive the process and security and privacy qualities. The non-differences could be attributed to the Asian qualities and the influence of technologies in the everyday life of the digital age, whereas the differences could be related to the technical, IT maturity, and consumers' cautious and awareness of digital information and system readiness attributes.

The findings of the study could be used by business to position their brands in different settings by adopting customized strategies. In addition, the study could provide a foundation for further exploration on the dynamics of social commerce and data protection policy, and opens up an avenue for future research to explore differences in other social commerce issues. Future study may investigate how the new trend of e-commerce could be adopted to help single mothers or people who live away from big cities to use social media in reaching the potential customers.

ACKNOWLEDGEMENTS

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Relationship between Indoor Environmental Quality (IEQ), Occupant's Satisfaction and Productivity in GBI Rated Office Building using SEM-PLS

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ABSTRACT

Indoor environmental quality is getting extra attention since most people these days spend most of their time indoors. This initial study aims to examine the association between Indoor Environmental Quality (IEQ), occupant's satisfaction and productivity in an office building. The survey was conducted in an office building that is Green Building Index (GBI) in the heart of Kuala Lumpur, Malaysia. This office building was awarded the Platinum Provisional Certification by the GBI Association Malaysia. A questionnaire was administrated to 120 occupants working in the rated green office building, where respondents were asked to select their preferences based on a seven-point Likert scale of agreement and satisfaction. Analysis was conducted using PLS-SEM: SMART PLS Version 3.2 to examine the reliability and validity of the questionnaire. Results indicated that there is a significant relationship between the Indoor Environmental Quality (IEQ), occupant's satisfaction and productivity in an office building especially with regards to visual comfort. Results highlighted the importance of the Indoor Environmental Quality (IEQ) for productivity.

Keywords: Indoor Environmental Quality (IEQ), Green Building Index (GBI), office building, occupant's satisfaction, productivity

INTRODUCTION

Driven by environmental needs, Green Building Index (GBI) was founded and developed by the Pertubuhan Akitek

X

Indoor environmental quality can be defined as "the measurement of the key parameters affecting the comfort and well-being of occupants" or the "elements to provide an environment that is physically and psychologically healthy for its occupants" (Garnys, 2007). The National Institute for Occupational Safety and Health in the United States of America has established a definition of Indoor EnvironmentQuality (IEQ) which includes the integrated physiological and psychological influences of thermal, acoustic and luminous environments and air quality on occupants (Li, You, Chen, & Yang, 2013). Clements-Croome and Baizhan (2000) stated that the indoor environmental quality comprises of a range of components such as humidity, indoor air quality, temperature, and ventilation, lighting, noise and workspace density. Sarbu and Sebarchievici (2013) believed that the main environmental factors that define the indoor environmental quality are the thermal comfort, indoor air quality, acoustic comfort and visual comfort. It is supported by Hodgson (2008) as cited in Aminuddin, Rao and Hong (2012) who highlighted that the four primary criteria emphasised in green building rating tools are: (1) indoor air quality; (2) acoustics; (3) visual comfort (lighting); and (4) thermal comfort. However, many believed that even though the fact that acoustics is one of the main criteria for indoor environmental quality (IEQ), it is often overlooked and neglected. Similarly, Chandratilake and Dias (2015) stated that primary indoor

environmental quality (IEQ) parameter includes the occupant health and safety, thermal comfort, daylight, visual quality, acoustic and indoor air quality. Prakash (2005) added ergonomics as one of the factors that need to be taken into account in providing a comfortable indoor environment to the end users. Apart from that, indoor environmental quality also comprises of few other aspects such as the spectrum of the paints (Prakash, 2005), electric lighting, daylight, views, individual control, and indoor contaminants by materials and tenants as the components of the indoor environmental quality in a building. (GBCA2009b). Subsequently, Frontczak and Wargocki (2011), from the results of his research, has recommended that when developing systems for governing the indoor environment, the type of building and outdoor climate including seasons should be taken into account. Findings from his research indicated that thermal comfort is ranked by building occupants to be of greater importance compared with visual, acoustic and air quality. However, the ranking was different in different countries and depended on the building whether it is private or public. However, for this pilot study discussion is focused on the aspects of the reliability and validity of the proposed questionnaire as an instrument in data collection.

Hypothesis and Research Model

Figure 1 portrays the conceptual research model for this study. It is hypothesized that four factors influence occupant's

satisfaction. These factors include; Thermal Comfort, Acoustic Comfort, Visual Comfort and Indoor Air Quality (IAQ). The proposed initial conceptual model for the study is as presented below:
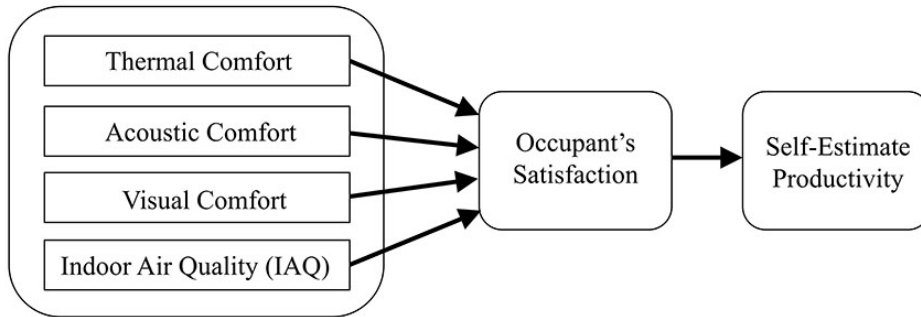
Figure 1. Conceptual research model

Subsequently, this study has two hypotheses that are tested in this initial study which is as follows:

- H1. Indoor Environmental Quality (IEQ) has a positive relationship with Occupant's Satisfaction.

    - H1a. Thermal Comfort has a positive relationship with Occupant's Satisfaction.

    - H1b. Acoustic Comfort has a positive relationship with Occupant's Satisfaction.

    - H1c. Visual Comfort has a positive relationship with Occupant's Satisfaction.

    - H1d. Indoor Air Quality (IAQ) has a positive relationship with Occupant's Satisfaction.

- H2. Occupant's Satisfaction has a significant positive influence to Self-Estimate Productivity.

METHODS

The selected building is a government building located in the heart of Kuala Lumpur Malaysia with an occupancy rate of over 700 occupants and had been occupied and fully operated for less than two years. This beautiful and modern design green office building was awarded the Platinum award by the GBI Malaysia in its Provisional Stage.

This study employed a cross-sectional research design that enable the integration of the literature review and the real data survey that utilises both the subjective and objective measurement of data collection

(Azman et al., 2014). The initial stage of this study will test the reliability and validity of the instruments (subjective measurement) through a hands-on survey of occupants. The unit of analysis of this study are the occupants in the rated Green Building Index (GBI) office building. The study employs a non-probability purposive sampling since it is not possible to obtain the list of all the elements of the building population due to privacy considerations. The non-probability purposive sampling facilitates the selection of respondents. A total of one hundred questionnaires were distributed by hand to occupants of the selected GBI office building, and of this number 81 questionnaires were received representing approximately 81% of response rate.

Subjective Measurement

The main data collection of this research will be measured using two instruments, namely: objective and subjective measurement. Objective measurement o is the data collected using fieldwork while the subjective measurement is data collected through the questionnaire. However, for this initial study, only subjective measurement is taken into account to identify the reliability and validity of the instrument as well as to determine and to arrive at preliminary results on the hypotheses.

The survey questionnaires used in this study have four sections. The first section of the questionnaire focuses on the independent variable (IV) viz., the Indoor Environmental Quality (IEQ) and its four dimensions; (1) Thermal Comfort, (2) Acoustic Comfort, (3) Visual Comfort and (4) Indoor Air Quality (IAQ). All 20 items in the first section are adapted from the CBE and BOSSA post occupancy evaluation as well as from the literature review (CBE, BOSSA). The second section of the survey relates to occupant's satisfaction as the indirect variable. The third part of the questionnaire inquires occupants' perception towards productivity levels which is measured using three items adapted and modified from CBE and BOSSA. These items in the three sections were measured using a 7-item scale. The last section of the survey focuses on the demographic variables of the respondents as listed in Table 1.

RESULTS

SPSS 22 and Smart PLS 3.2 were employed to assess the reliability and validity of the survey questionnaires. The demographic profile of the respondents was analysed using the SPSS version 22 while the measurement and structural model of the research framework were analysed using the SmartPLS 3.2. The significant advantage of using the SmartPLS 3.2 in determining study reliability and validity is that this method delivers latent variable score thus avoiding the problem of small sample size and efficiently handling complex models with many variables (Henseler, Ringle, & Sinkovics, 2009).

Table 1
Demographic profile

Variable	Valid Percentage
Gender	
-Female	51.9
-Male	48.1
Age	
-Under 30 years	27.2
-31 to 50 years old	61.7
-Over 50 years old	11.1
Posting	
-Administrative	43.2
-Technical	11.1
-Professional	28.4
-Managerial	14.8
-Other	2.5
Years Working in the Building	
-Less than 6 months	29.6
-7 to 12 months	18.5
-1 to 2 years	51.9
-2 to 5 years	0
-More than 5 years	0
Work Area Proximity to:	
-External Glass Wall/Window	66.6
-Atrium	2.5
-Courtyard	1.2
-Not Applicable	29.6

Demographic Profile of the Respondent

Based on Table 1, the percentage of female and male respondent were roughly equal, with female group score being 51.9% (female) and male score at 48.1%.Majority of respondents were between ages of 31 to 50 years old. Table 1 also indicates that most of the respondents were working in the administration area and most of them worked in the building between 1 to 2 years. This finding was equal to the duration of building occupancy of fewer than two years. Table 1 also shows that majority of respondents work area or sitting location is close to the external glass wall or windows.

Measurement Model Analysis

Table 2 summarizes the results of the measurement model after a few adjustments were made. Originally, the model consists of 20 items that were divided into: seven items for thermal comfort, four items of the acoustic comfort, five items for visual comfort and lastly four items for indoor air quality (IAQ). However, four items were deleted from the thermal comfort section, and one item from visual comfort was brought forward to the thermal comfort section to increase the composite reliability of the independent variable. As for the indirect variable of the model; Occupant's Satisfaction, the original number of items was four and was then reduced to two items in order to increase the reliability of the variable. The last variable of the model is the dependent variable of Self-Estimate Productivity that measures how the building occupants perceived their productivity based on their satisfaction levels of the Indoor Environmental Quality (IEQ) aspect in the building. The variable originally consists of three items, however, in order to increase its reliability value, one of the item is removed from the construct. The model was analyzed using SmartPLS 3.2 algorithm function with a total of 6 variables that comprises of 20 items. Results of the model are presented in Figure 2:
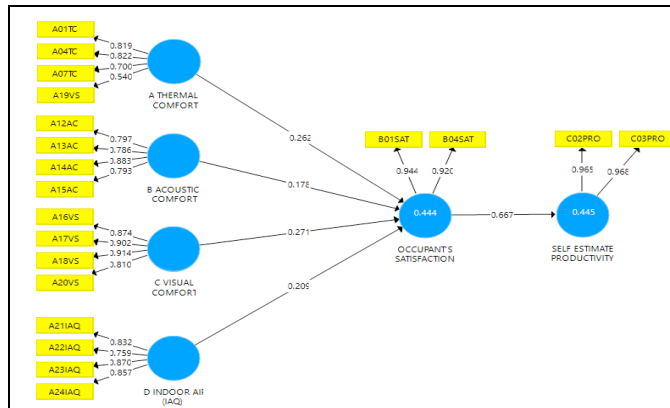
Figure 2. SmartPLS algorithm value of the measurement model

In order to test the goodness of the proposed conceptual model and rectify its validity as an instrument for real study data collection they need to be tested for reliability and validity. According to Sekaran and Bougie (2013), reliability is a test to measure the consistency of the instruments while validity is a test that indicates the wellness of the developed instrument in measuring a particular concept of the study.

Table 2
Measurement model analysis result

Construct	Item	Convergent Validity		Internal Consistency Reliability		Discriminant Validity	
		Cross Loading	AVE	Cronbach Alpha	Composite Reliability	HTMT	VIF
		>0.50	>0.50	0.60-0.90	0.60-0.90	Confidence Interval Does Not Include 1	<5.00
Thermal Comfort	4	0.540-0.822	0.532	0.698	0.816	Yes	1.602
Acoustic Comfort	4	0.786-0.883	0.665	0.835	0.888	Yes	1.067
Visual Comfort	4	0.810-0.914	0.767	0.898	0.929	Yes	1.364
Indoor Air Quality (IAQ)	4	0.759-0.870	0.690	0.850	0.899	Yes	1.821
Occupant's Satisfaction	2	0.920-0.944	0.869	0.850	0.930	Yes	1.000
Self-Estimate Productivity	2	0.965-0.968	0.934	0.930	0.966	Yes	

Table adapted from Hair et al. (2014)
*AVE: Average Variance Extracted; HTMT: Heterotrait-Monotrait Ratio; VIF: Collinearity Statistic

Reliability

Reliability of the model can be accessed using two values; the Cronbach's alpha coefficient of above 0.6 in assessing the inter-item consistency and through composite reliability where value ranged from 0.7, or greater is considered as acceptable (Fornell & Larcker 1981). In this study, as per Table 2 indicates that the composite reliability of the model measurement values ranged from 0.698-0.930 for Cronbach's Alpha value and range of 0.816-0.966 for composite reliability as portrayed in Table 2. The values prove that it is acceptable to measure the instruments consistently.

Validity

The primary purpose of the validity test is to measure fitness and is divided into convergent validity and discriminant validity tests. Convergent validity can be assessed by looking at the results of measurement model's factor loading, composite reliability and also its average variance extracted (AVE) (Hair et al., 2014). Table 2 shows that the factor loading of each item in the construct exceeded the endorsed value of 0.5 as stated by Hair et al. (2014). Although the cross-loading value of items in the first construct (Thermal Comfort) was quite small, it still passes the minimum requirement value of 0.50. This low loading value may be due to the small sample size of the respondents in the pilot study. Subsequently, Table 2 also further confirms the validity of the model by indicating the value of composite reliability of the model that ranged from 0.816-0.966,

which surpassed the recommended value of 0.7 (Hair et al., 2010). The model's average variance extracted (AVE) values also exceed the expected value of 0.5 (Fornell & Larcker, 1981, Barclay, Higgins, & Thompson, 1995, Hair et al., 2014) with the range of 0.523-0.934 that reflects the overall amount of variance in the items for the latent construct. Thus, the result for convergent validity is acceptable for this model.

The next test that needs to be taken into consideration is the discriminant validity test that explores the degree to which accurate measure of one variable is not a reflection of another variable in the model. According to Cheung and Lee (2010), discriminant validity test can be indicated by the weak correlation between items in a different construct. This test can be identified by looking at the collinearity statistic of the Varian Inflation Factor (VIF) value of the constructs. Table 2 rectifies that all constructs in the model obtain VIF values of less than 5. It can be concluded that there are no collinearity issues between the constructs in the proposed conceptual model. To further examine the status of model discriminant validity, as suggested by Henseler et al. (2014), it is best to assess the discriminant validity in PLS-SEM by looking at the HTMT criterion value to auxiliary confirm that the items across construct do measure different construct in the model. It is identified by looking at the fact that the confident interval value of HTMT statistic must not comprise the value of 1 for an entire combination of the construct and also by assessing the value of

HTMT below that 0.90 (Hair et al., 2014) as presented in Table 3 Table 3 shows the value of HTMT of the entire construct is less than 0.90 which indicates minimal discriminant validity for the model.

Table 3
Varian Inflation Factor (VIF) value

Variables/Construct	TC	AC	VC	IAQ	SAT	PRO
Thermal Comfort (TC)						
Acoustic Comfort (AC)	0.280					
Visual Comfort (VC)	0.521	0.235				
Indoor Air Quality (IAQ)	0.800	0.278	0.546			
Occupant's Satisfaction (SAT)	0.658	0.354	0.580	0.625		
Self-Estimate Productivity (PRO)	0.289	0.381	0.398	0.402	0.739	

Based on the above discussion it can be concluded that all the four constructs of the Indoor Environmental Quality (IEQ) are valid to measure individual constructs based on their factor estimations and statistical significance.

Structural Model Analysis

In order to test the hypotheses a structural model was tested and analysed. As shown in Table 4, out of the five variables thought to influence occupant's self-estimate productivity in a green office building only four were significant. Results indicate that thermal comfort, visual comfort and indoor air quality (IAQ) are positively related to occupant's satisfaction where the p-value is less than 0.05. However, one of the independent variables that is acoustic comfort was found to be not significant. Subsequently, as for the indirect variable of occupant's productivity, the result specifies significant direct effect on the dependent variable (self-estimate productivity) of the model.

Table 4
Structural model analysis result

Hypothesis	Relationship	Coefficient	p-value/ t-value	Result
H1A	Thermal Comfort → Occupant's Satisfaction	0.262	0.030/ 2.177	Supported
H1B	Acoustic Comfort → Occupant's Satisfaction	0.178	0.126/ 1.531	Not Supported
H1C	Visual Comfort → Occupant's Satisfaction	0.271	0.007/ 2.702	Supported
H1D	Indoor Air Quality (IAQ) → Occupant's Satisfaction	0.209	0.050/ 1.967	Supported
H2	Occupant's Satisfaction →Self-Estimate Productivity	0.667	0.000/ 9.684	Supported

DISCUSSION

This study emphasizes the importance of Indoor Environmental Quality (IEQ) in providing office occupants an environment that could increase their productivity. The study attempted to highlight the interaction between the six main variables of the research:

1. Thermal Comfort
2. Acoustic Comfort
3. Visual Comfort
4. Indoor Air Quality (IAQ)
5. Occupant's Satisfaction
6. Productivity

The findings of this pilot study showed that the occupant's satisfaction on the aspect of Indoor Environmental Quality (IEQ) may lead to higher productivity in an office building. This result is parallel with findings of Haynes (2008), Gou & Lau, (2013) and also Vimpari and Junnila (2014).

It (the study) suggests that the Indoor Environmental Quality (IEQ) variables of the thermal comfort, visual comfort and indoor air quality (IAQ) contributed to occupant's satisfaction. Meanwhile, occupant's satisfaction was found to have a positive relationship on occupant's self-estimate productivity. However, surprisingly, there is no significant relationship between acoustic comforts with occupant's satisfaction. The result may be due to the small number of respondents. Thus, currently, the main data collection of this study has collected a large number of respondents which hoped to encourage and contribute to research findings that are more substantial.

CONCLUSION AND FURTHER WORK

This study tested a conceptual framework based on the indoor environmental satisfaction literature. The instrument used in this study fulfilled the acceptable requirements for reliability and validity analyses. The outcome of the path model analysis confirmed that Indoor Environmental Quality (IEQ) is significantly correlated with Occupant's Satisfaction and Productivity.

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Preventing Illegal Marriages in the Light of Maqasid Al-Shariah

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ABSTRACT

One of the areas of primary concern to maqasid al-Shariah (objectives of Islamic law) is protection and advancement of the five essentials (al-dharuriyyah al-khamsah), namely protection of religion, life, progeny or family, intellect and property. In marriage, Shariah guides Muslims in achieving these maqasid. Additionally, there are obligatory procedures and formalities in Malaysia on couples planning to get married. Such procedures and formalities include attending a premarital course, undergoing HIV screening, registration of marriage and others. Unfortunately, some perceive the decreed rules, procedure and formalities as burdensome leading to illegal solemnisation of marriage through syndicates or by eloping. This research attempts to shed some light on the concept of maqasid al Shariah in marriage and to examine the application of maqasid al-Shariah in preventing illegal marriages among Muslims in Malaysia. A combination of library research and semi structured interview is used to highlight the importance of maqasid al Shariah and loopholes in the current practice. Findings of this research show that the theory of maqasid al–Shariah is extremely relevant in addressing the current challenges of Muslim marriage. The study proposes some recommendations to control illegal marriages in the light of maqasid al-Shariah.

Keywords: Illegal marriages, Malaysia, maqasid al-Shariah, muslims

INTRODUCTION

Legal marriage is the most important criterion in good family governance as decreed in Islam. Islam has outlined some rules prior to getting married, such as obtaining consent from the guardian,

entering the event of betrothal first before marriage and others. Additionally, there are specific Sharia compliant procedures and formalities imposed by the state that must be undertaken by all couples planning to get married. However, this has not prevented couples entering into illegal marriage contracts.

Illegal marriages in this study refer to marriage syndicate and runaway marriages (familiarly known as cross border marriages or elopement). It is also known as marriage in contravention of the Act/Enactment as stated in Section 12 of the Islamic Family Law (Federal Territories) Act 1984, (hereinafter called IFLA1984) and also in Islamic Family Law Enactment of other states in Malaysia.

Abdullah (2001) and Saidon et al. (2016) highlighted that there is not much difference between a runaway marriage and a syndicate marriage. It is possible for a syndicate marriage to take place within the state, but a runaway marriage or elopement could take place within the country's borders, especially in the northern region. Md Hashim (2009) opines that the term "runaway marriage" denotes marriages solemnised either abroad or any part of Malaysia without the permission of the state religious office or Shariah court. Kamaruddin and Abdullah (2002) on the other hand, consider syndicate marriages as those conducted by certain individuals who do not have the authority to solemnize a marriage.

The solemnisation of marriages through syndicates takes place discreetly in secluded areas. However, feedback from interviewees indicate such marriages also take place openly in public. Another criterion of this type of marriage is normally, neither *wali nasab* (bride's guardian), nor *wali hakim* (guardian authorised by the Yang di Pertuan Agong or Sultan), are required to approve the marriage, as the witnesses and *jurunikah* (the person in-charge of solemnising the marriage) is provided by the syndicate. According to Saleema (2002) and Suffian (1993), the marriage is also considered illegal even if it is conducted in accordance with Islamic teaching by fulfilling all the 'pillars' or requirements of marriage such as having an appropriate *wali* (guardian) and qualified witnesses but contravenes laws and procedures prescribed by the states.

It is a fact that a number of illegal marriages in Malaysia is alarming. Recent data reveals an increasing number of applications for validations of marriages against the Act/Enactment especially for non-polygamous marriages. Kelantan recorded the highest number of applications for non-polygamous marriages and Selangor for polygamous marriages (JAKIM, 2011). Realising the seriousness of the practice of illegal marriages, this study would highlight the importance of maqasid al-Shariah and its application in preventing illegal marriages among Muslims in Malaysia.

METHODS

This is a qualitative research on illegal marriage. A library research method is used to examine the concept of maqasid al-Shariah in marriage. Literature in the

form of books, journal articles, procedures/ guidelines and relevant websites are used to provide insights and information relating to the research area. The related provisions as stated in IFLA 1984 are analysed to highlight the current legal mechanism in combatting illegal marriages. Since Federal Territories are the capital of Malaysia and directly administered by the federal government, IFLA 1984 is selected to present other states. This research also employs a semi-structured interview of respondents from selected institutions. The selected respondents consist of Registrars from the Islamic Religious Department (hereinafter called SIRD) of Selangor, Negeri Sembilan and Federal Territories, two judges from the Shariah Lower Court of Selangor and Kelantan, and one Shariah High Court judge. The interview method aims to examine the current legal and administrative mechanism in preventing illegal marriage and to identify the loopholes in the system particularly on the application of maqasid al-Shariah.

RESULTS AND DISCUSSION

The discussion on the analysis of the study is divided as per below.

Maqasid Al –Shariah Concept in Marriage

Islamic law aims at preserving the people's interest and preventing them from harm in this world and hereafter. It also aims at regulating the conduct of human beings and preventing them from destroying one another (Ibn Qayyim, 1993; Al-Qardhawi,

1997; Laldin, 2006). A clear definition of maqasid al-Shariah as provided in Ibn Ashur (2004, 2006) describes maqasid as the purpose and wisdom behind the enactment of all or most of the Shariah rulings. As far as maqasid al-Shariah is concerned, one of the primary relevant areas of Islamic law is protection and advancement of the five essentials (al-dharuriyyah al-khamsah) namely religion, life, intellect, family and property (al Shatibi, (n.d); Al Ghazali, 1938). The realisation of these essentials is very important for the community both collectively and individually. From the five major objectives of Shariah, preservation and promotion of posterity (*nasl*) or progeny (*nasab*) constitutes the primary goal of Muslims.

Shariah guides Muslims in achieving the maqasid of marriage. For example, Shariah has strictly encouraged Muslims to choose religious spouses (Qur'an, (24): 2). In addition, men are chosen as the protector (qawwam) and responsible for the maintenance of their family (Qur'an, (4): 24). Marriage and procreation are strongly encouraged and various laws of spousal marital obligations are prescribed (Qur'an, (24): 32, (30): 21), etc. At the same time, to achieve maqasid of marriage, Shariah, through its Quranic ruling and the Prophet's (SAW) guidance have prevented anything that could lead to harm or mafsadah. Illustrations include the prohibition of any illegal relationships such as adultery, homosexuality, and cohabitation. These acts are not only shameful, but lead to evil, and can destroy the family institution (Qur'an, (17): 32, (24): 30-31, (6): 151).

As the principle of maqasid al-Shariah, is vital, Atiyyah (2001) has proposed a contemporary context of maqasid al-Shariah relating to family which consist of regulating the relationship between the opposite sex, preservation of human race (*nasl*) realisation of harmony and mutual affection between spouses, preservation of lineage (*nasab*), preservation of religious well-being of the family, taking care of interpersonal relationships in the family and lastly, providing for the financial needs of the family.

In regulating marriage and the family, the application of maqasid should be given emphasis. In order to achieve this objective a number of legal rulings should be strictly instituted, including those which encourage marriage, effective sanction on polygamy and divorce, prohibition of illegal marriages, etc. It is interesting to note that changes in the present Islamic Family Law took place after re-examination of the Shariah laws contemporaneously, for the purpose of maqasid. Thus, the question is how to attain those maqasid in couples that caught in an illegal marriage?

Prevention of Illegal Marriages

To ensure e the principle of maqaṣid al-Shariah the Islamic Family Law Act/Enactments has been designed to ensure the legality of marriage both under the Shariah and Malaysian laws. Thus, it is disheartening to find couples opting to work with syndicates or elope. For the purpose of discussion, relevant provisions and procedures from the IFLA 1984 are reviewed with the aim of preventing illegal marriages.

Requirement for registration of marriage. To achieve maqasid in marriage, it is essential to register the marriage.

Amongst the reasons for registration are to eradicate any unforeseen intricacies when proving one's marriage and in the request of *mahr* (Tanzil-ur-Rahman, 1984), to ensure that the rights and responsibilities of both parties are secured and for the benefit and protection of the society as a whole. According to Yaacob (2001), such requirement ensures the proper administration of a marriage and establishes the paternity of a child. Registration of marriage is also important to enable the husband or wife applying for a divorce as the marriage certificate is essential for all legal procedures (Yaacob, 2001). Another reason mentioned by him is to circumvent illegal and secret marriages and to prevent any form of abuse within a marriage from both parties (Yaacob, 2001).

The requirement of registration is clearly mentioned in r Section 25 of the IFLA 1984. Reporting void or illegal marriages is regarded as a duty of every Muslim (Section 27, IFLA 1984). The provision is created to reduce the number of illegal marriages. However, the requirement of registration does not determine the validity of a marriage, but only as a proof of the existence of the marriage contract. A marriage solemnised contrary to any provision of the Act is valid according to the *Hukum Syara'*, and can be registered under the Act with an order

from the court (Section 12 (2), IFLA 1984). Nevertheless, if the person is found to have committed an offence, he or she will be tried and if convicted the punishment is a fine not exceeding one thousand ringgit or imprisonment not exceeding six months or in some instances both. In addition, none of the provisions of the Act renders invalid a marriage that has not been registered (Section 34, IFLA 1984).

Solemnisation of marriage procedure. Islamic Family Law in Malaysia have specific procedure for solemnisation of marriages. For the solemnisation of marriage within Malaysia, there are two ways of application. First, application of marriage through Registrar, and secondly, through Shariah Court (Section 8, 13, 14, 16 and 23, IFLA 1984). For solemnisation of marriage abroad, the solemnisation needs to take place in accordance with *Hukum Syara'* and through Registrar appointed at the Malaysian Embassy High Commission or Consulate (Section 24 (1), IFLA 1984).

The procedures for the solemnisation and registration of a marriage abroad are similar to that pertaining to a marriage in a state in Malaysia (Section 24 (3), IFLA 1984). For example, before solemnising the marriage, the Registrar must be satisfied that each party has the capacity to marry according to *Hukum Syara'* and the Act (Section 24 (2), IFLA 1984). If the marriage is not solemnised in the Malaysian Embassies etc., the marriage is still valid if it is fulfilled the conditions as stated in Section 108, IFLA 1984. It should also

be noted here that a marriage may also be solemnised elsewhere provided that the permission was given either by the Registrar or Shariah judge (Sections 20 (1) and 20 (3), IFLA 1984).

Penalties for illegal marriages. Various penalties are available under IFLA 1984 for offences relating to syndicate marriage such as a fine not exceeding one thousands Ringgit or with imprisonment not exceeding six months or both under Section 39. Similar punishment applies to offences relating to solemnisation of marriage under Section 40 and Section 40, IFLA 1984.

Section 36 could be applied for prosecuting syndicate marriage. The offences relating to unlawful registers (under Section 32) which, among others includes unlawful issuing of certificate of marriage registered by the Registrar. However punishments are insufficiently severe, amounting to a fine not exceeding one thousands Ringgit or imprisonment not exceeding six months or with both. The same penalty is faced on a person who contracted a polygamous marriage without the court's permission (Section 123, IFLA 1984). Interestingly, in runaway and syndicate marriages, the newly married wife could also be charged under Section 133 for abetting the husband in committing the offence, which carries the same punishment. Unfortunately, this provision is rarely being applied. Meanwhile, a person who has contracted a valid marriage according to *Hukum Syara'* abroad is also required to appear before the Registrar within

prescribed time in order to register the marriage. Failure to do so can result in punishment as per Section 35, IFLA 1984.

Recommendations

Despite the actions taken by the authorities to combat illegal marriages their number continues to rise, thus showing that there are weaknesses in the system which needs to be addressed. The followings are the proposed recommendations to strengthen the regulations of runaway and syndicate marriages which are in line with the principle of maqasid al-Shariah.

Revise related laws and penalties. The existing laws and penalties relating to syndicate and runaway marriages should be revised. Sections 12(2) and 34 of the IFLA 1984 which recognise the validity of marriages that contracted according to *Hukum Shara'*, even though it contradicts laws and procedures. These provisions should be revised as they contribute to the increase of illegal marriage practices.

With regard to current penalties, it is worth mentioning that the penalties related to runaway and syndicate marriages are relatively low and would not deter the offender (Section 32, 35, 36, 39, 40 (1), 40 (2), 123, 124 and Section 133 of IFLA 1984). The available penalty that is fine not exceeding RM1000.00/RM500.00 or imprisonment not exceeding six months or both, which include penalties for all offenders the bride, bridegroom and the syndicate should be increased to maximum

penalty that can be imposed by the Shariah Court i.e. fine of RM5000.00 and three years of imprisonment. This penalty should be increased as research revealed that most couples purposely contracted their marriage in neighbouring countries to escape from the procedures and rules prescribed by authorities in Malaysia (Md Hashim, 2009; Abdullah, 2009). The increment is also needed to deter the offenders as statistics shows that the number of illegal marriages continues to increase. Moreover, severe penalties are necessary as syndicates profit from illegal activities.

Revise on *wali hakim* procedure. This research proposes the provision of wali hakim in the absence of *wali nasab*'s consent as stated in Section 13 (b) of IFLA 1984 should be revised arising from the phenomenon of runaway and syndicate marriages (Md Hashim, 2009; Hussin, & Siti Safwani, 2006). It is suggested that the opinion of Imam Abu Hanifah in giving women the authority to contract her own marriage should be taken into consideration, especially when the *wali* withholds his consent without justified reasons. Abu Hanifah's view will practically reduce the problem of runaway marriages.

Another suggestion is to have specific guidelines on the concept of 'adhl i.e., the guardian's refusal to consent. (Najibah, 2008). The suggested guidelines should provide criteria in which the guardian or *wali* is allowed to refuse to be a *wali*, thus protecting women's interests and ensuring against abuse of authority by the guardian.

This research also recommends that the National and State Fatwa Council should have rules based on ijtihad relating to *wali hakim*. It is suggested rule to make the marriage illegal for those who "runaway" from their *wali nasab* and apply *wali hakim*, because the act of denying or rejecting *wali nasab* without good reason is unacceptable.

Standard and an efficient procedure for registration and prosecution. It is suggested that there must be uniformity in the registration of runaway and syndicate marriages in Malaysia. This research reveals that there is no uniformity in the procedure. For example, in Selangor and Negeri Sembilan, the registration could be made after the offender has been prosecuted and payment of penalties (Yusof, Z. A. M., personal communication, April 17, 2012). However, in Federal Territories, the registration can be done before prosecution (Jusoh, M. Q., personal communication, July 6, 2012). The different procedure enables an individual to choose the lenient procedure for his/her own personal interest.

It is also suggested that the applicant should be prosecuted for offences that he/she has committed regardless of whether the marriage is valid or not. Currently, only if the marriage is valid the couple will be prosecuted. This means that the prosecution is based on the legality of marriage. As such, couples in a marriage not recognised by the Malaysian authorities are legally free to commit the repeated offence as they are not punished for it.

The other important issue is the absence of a mechanism to ensure the submission of the court order to the State Islamic Religious Department for prosecution purposes. Presently the spouse has the option whether to submit or not to the decision of the court. Submission risks prosecution hence the desire to evade registration. (Mutalib, A. A., personal communication, May 3, 2012; Selamat, S., personal communication, June 12, 2012). Thus, a proper mechanism to ensure that the court order is submitted to the State Islamic Religious Department for prosecution purposes needs to be formulated.

Another important issue is, there is no uniformity on the number of offences prosecuted. For example, a person who has committed a polygamous marriage without the court's permission, should be charged under Section 123 (polygamy without the court's permission) and Section 40(2) (offences relating to solemnisation of marriage), the new wife could also be charged under Section 133 for abetting the husband in committing the offence of polygamous marriage. However, in reality this is not the practice. The prosecutor has jurisdiction to prosecute the offender on any offence (Selamat, S., personal communication, June 12, 2012);

Husin, M. A., personal communication, June 15, 2012). Thus it is suggested for the sake of justice and fairness, greater transparency is needed. Failing which the law will lose its function in regulating behaviour and as a result, the society will not be able to function effectively.

Creation of effective plan of action. A proper plan of action is needed to combat the problem of runaway and syndicate marriages. Authorities such as Islamic Development Malaysia Department (JAKIM) and State Islamic Religious Department (SIRD) should appoint people specifically tasked with this duty. Other actions that should be taken immediately are to provide more programmes such as seminars, discourses or talks to inform the public about the importance of registration and observing all the procedures of marriage as prescribed. It is also suggested that a good way to combat runaway and syndicate marriage is to provide information on the proper procedure of marriage.

Stern action should also be taken to stop syndicates from advertising on the website, brochures, and flyers pertaining to such types of marriage. In this regard, close collaboration between religious officers and the police is needed.

Reform the practice of giving *hantaran* (marriage gift). SIRD and JAKIM should tackle the issue of *hantaran*, thus the practice of dual payment by the prospective husbands i.e., *mahr* (the obligatory marriage payment) and *wang hantaran* (marriage gift) should be abolished. *Wang hantaran* (marriage gift) should be considered as *mahr*, it belongs solely to the wife and the wife has the right to decide the amount. The practice of the states of Selangor, Kelantan and Terengganu in converting the *hantaran* or gift into a *mahr* is a good example. The effort of Selangor in increasing the rate

of *mahr* from RM80.00 to RM300.00 is commendable to protect the right of the woman.

Malaysia should provide more welfare funds to promote marriages like in Saudi Arabia, Bahrain, Qatar, and United Arab Emirate (UAE) in providing welfare funds to promote marriage.

CONCLUSION

It can be concluded that realisation of maqasid in marriage is very important not only for the individual and family but also for the whole community. In this regard, illegal marriages such as syndicate and cross border marriages should be prevented as they would not fulfil the maqasid of marriage in Islam. For that reason, multi-dimensional approaches encompassing legal sanction, religious and social measures are necessary. Legal measure is one of the effective methods to govern family. The finding of this research shows there are significant weaknesses in the existing legal and administrative mechanism relating to syndicate and runaway marriages. This shows that the concept of maqasid al-Shariah is given less emphasis particularly in governing such illegal marriages.

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Technology, Social network, Physiology and Psychology as Risks Factors to Mobile Phone Addiction

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ABSTRACT

Mobile phone was invented to ease communication. However, its usage it is argued has led to addiction. This study aims to explore mobile phone addiction among the generation Y (Gen Y) in Malaysia, by focusing how technology, social network, physiology and psychology become the risk factors. A survey method was employed to gather data from 280 respondents. Factor analysis, reliability test and the structural equation modelling were performed. The results show internal consistency and the correlations between all the determinants and addiction. The findings also revealed that the physiological factor is the most important risk leading to addiction problems with mobile phone (β=0.63, p<0.01). However, the technological factor did not predict for the mobile phone addiction (β=-0.008, p>0.05).

Keywords: Gen Y Social network in Malaysia, mobile phones addiction, physiological, psychosocial, risk factors of mobile phone addiction

INTRODUCTION

These days, mobile phone is viewed as the must have gadget. Ismail and Razak (2011) say that smart devices like the mobile phone are viewed as important communication tool. Malaysians use mobile phones rather than fixed line telephone as a tool to keep in touch with their relatives, peers and business partners (Zulkefly & Rozumah, 2009). This trend has led to neglecting other commitments, decrease in social activities and contact with friends, and gaining weight

as a result of giving up physical activity (Porter & Kakabadse, 2006).

Statistics for the first quarter of 2016 showed there are 8.9 million post-paid and 35.2 million pre-paid mobile phone subscription (Malaysian Communication and Multimedia Commission, 2016) in Malaysia. Researchers who studied mobile phone usage among Malaysian youths share general findings that the penetration rate among the group is rapidly increasing (Balakrishnan & Raj, 2012).

Oulasvirta, Rattenbury, Ma and Raita (2011) found mobile phones usage has caused negative checking habits, that could be maladaptive and interfere with people's life. Besides, it could lead to addicted behaviour. The present study will explore the technology, social network, physiology and psychology as risk factors arising from mobile phone addiction among the Gen Y in Malaysia.

LITERATURE REVIEW

The mobile phone is a 24/7 accessible device, in the West online mobile users increased from 31% in 2011 to 42% in 2012 (comScore, 2013).

This trend maybe behind excessive and impulsive behaviour (Oulasvirta et al., 2011), including panic attacks (Haverlag, 2013). Kwon et al., (2013) argue mobile phone usage explains for the addiction.

Consequences arising from mobile phone addiction include headache, stress, sleep disturbances and depression (Borbely et.al., 1999; Binachi & Philips, 2005), an increased risk of glaucoma among users who have started to use mobile phones under the age of 20 (Klaeboe, Blaasaas, & Tynes, 2007), low self-esteem and depression (Moulder, Foster, Erdreich, & McNamee, 2005). Among Gen Y, the compulsive usage and addiction have been found to affect the social life which leads to mental health symptoms such as sleep disturbance and depression (Thomée, Härenstam, & Hagberg, 2011).

Mobile phone addiction is also known as technology addiction. Technology addiction is a mental health condition characterized by a maladaptive dependency on the use of technology, which may lead to a wide range of adverse effects, including technology over-use and increasing usage tolerances, personal withdrawal, conflicts with other activities or tasks and mood changes (Turel, Serenko, & Giles, 2011). Rosen et. al. (2013) found that more than 60% of younger users specifically those in the iGeneration (born in the 1990s) and Net Generation (born in the 1980s) check their mobile phone every 15 min or less, while just 40% of Gen Xers (born between 1965 and 1979) and less than 20% of Baby Boomers (born between 1946 and 1964) engage in this behaviour. Furthermore, the study found about 50% of young people reported anxiety when they could not check their technology, compared to about 25% of Gen Xers and 15% of Baby Boomers who felt the same. After all, the technologies that kept changed rapidly might lead people to be spending more time on social media such as Facebook, Instagram, and Twitter.

Excessive use of mobile phone can affect the physiological health. Musculoskeletal symptoms due to intensive texting on a mobile phone have been reported (Ming, Pietikainen, & Hanninen, 2006), and techniques used for text entering have been studied in connection with developing musculoskeletal symptoms (Gustaffsson, Johnson, & Hagberg, 2010).

A recent study has shown that excessive use of social network site (SNSs) may have negative effect such as on the quality of sleep, health, relationships, and general problems in well-being (Andreassen, 2015). Cao et.al., (2011) investigated the prevalence of problematic Internet use among Chinese adolescents in which it was found those who used the Internet were more likely to suffer from psychosomatic symptoms, emotional and behavioural symptoms as well as physiological dysfunction. Adolescents who have been identified as SNSs site addicts remain on SNSs into the night, resulting in less sleep per night and poor sleep quality compared to non-users. Problems in sleep have been directly related to psychological and physiological impairment over time and may further experience anxiety, significant distress, and depression (Andreassen, 2015).

Based on the discussion, four hypotheses were formulated, which are:

H1: There is a relationship between technology as a risk factor and mobile phone addiction

H2: There is a relationship between social network as a risk factor and mobile phone addiction

H3: There is a relationship between physiology as a risk factor and mobile phone addiction

There is a relationship between psychology as a risk factor and mobile phone addiction.

The prediction is illustrated in the conceptual model in Figure 1.
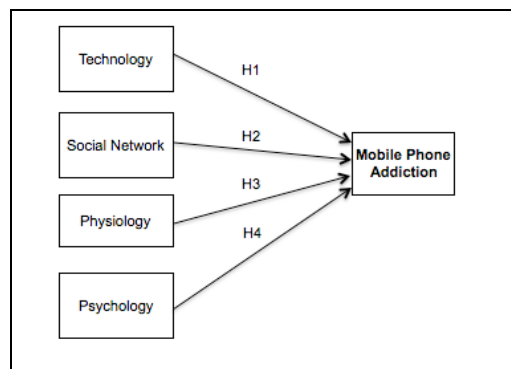
Figure 1. Conceptual Model

METHODS

Data Collection

The survey method was employed to collect primary data from the community in Malaysia. Prior to actual data collection, face and content validity and reliability tests were performed on 30 respondents. The data was analysed using SmartPLS is a professional statistical software package that enables users to do Structural Equation Modeling or PLS path modelling PLS software. The results of the reliability test show the Cronbach alpha was above 0.70. Therefore, the internal consistency was assumed (Hair et.al., 2006). In order to control for the right respondents, there

several items in the survey targeting the potential respondents who owned a mobile phone and have used any social network applications. Overall, 280 respondents who were found to be the target group and aged between 19 to 36 years were used.

RESULTS AND FINDINGS

A descriptive analysis was conducted to describe the demographic background of the respondents. The demographic profiles of the respondents are shown in Table 1. Data results showed that the majority of the respondents were working young adult

(n=237; 84.6%). More than half of the respondents were female (n=181; 64.6%) and single (n=160; 57.1%). In terms of technology, over half of the respondents follow the technology updates (n=169; 60.4%) and this is consistent with the criteria related to decision to buy a mobile phone i.e. high technology (n=152; 60.4%). Half of the respondents paid attention to price and the operating system when purchasing a mobile phone (n=140; 50%, n=141; 50.4, respectively). Only 18% (n=50) of the respondents considered battery life to be an issue.

Table 1
Demographic profiles

Variable	Frequency	%	Variable	Frequency	%
Gender			Mobile phone purchase criteria		
Male	99	35.4	High technology	152	60.4
Female	181	64.6	Price	140	50.0
Marital Status			Operating system	141	50.4
Single	160	57.1	Battery life	50	17.9
Married	118	42.1	Application	84	30
Profession			No of mobile phone		
Working	237	84.6	One	180	64.3
Student	30	10.7	Two	69	24.6
Follow technology updates			Three	17	6.1
Yes	169	60.4	Four or more	14	5.0
No	111	39.6			

Prior to the bivariate analysis a missing data analysis was performed, in addition to performing a normality test to fulfil the underlying assumptions in parametric testing. Based on the skewedness and

kurtosis results factor analysis with principal component analysis and varimax rotation and internal consistency test were then conducted.

Table 2
Factor loadings, reliability and descriptive results

Factors	Item Loadings	Mean	SD	α	AVE	CR
Technology				.821	.550	.829
Mobile phones make life easier	.808	4.375	.676			
Mobile phone makes communication easier	.814	4.439	.663			
Mobile phone saves time	.066	4.003	.865			
Mobile phone allows flexible routine	.669	3.971	.775			
Social Networking (SN)						
Could not stop using SN	.802	3.075	1.046	.874	.585	.894
Spend most time on SN	.864	3.242	1.099			
Use SN to share photos and express feelings	.773	3.292	1.113			
Use SN to read newsfeed	.730	3.667	.919			
Use SN to get info on work/study	.637	3.450	.956			
Physiology				.874	.698	.874
Stay up late and sleep few hours	.834	2.860	1.196			
Too occupied with mobile phone	.785	2.875	1.304			
Do not get enough sleep and rest	.885	2.814	1.264			
Psychology				.878	.587	.876
Feel stress when mobile phone is not with me	.809	3.214	1.159			
Use mobile phone to make life feels better	.705	2.982	1.065			
Feel lonely when phone is not with me	.714	3.160	1.106			
Feel anxious when do not check phone	.806	3.092	1.132			
Feel high level of anxiety, stress and insecure	.790	2.942	1.177			
Addiction				.86	.568	.86
Constantly thinking about mobile phone	.780	2.967	1.180			
Feel incomplete when not logged in SN	.743	2.946	1.108			
Can't stop using mobile phone	.776	2.878	1.148			
Constantly with mobile phone	.762	3.285	1.147			
When wake up, will always check mobile phone	.705	3.696	1.165			

The KMO value of 0.918 specifies that the items were interrelated and the Bartlett's test of Sphericity displays a significant value. It indicates that the significance of the correlation matrix and appropriateness for factor analysis. The MSA fell above the acceptable value of .50.

Thus, the factorability is assumed. The total variance explained accumulated to 66.505%. The internal consistency test shows the results are between 0.821 and 0.878. Thus, the items reliability was assumed. The analysis proceeds to the measurement model. Table 2 shows the results of the factor loadings, composite reliability, the average variance extracted (AVE) to assess the convergent validity and the descriptive results.

All item loadings surpassed the required cut-off level of 0.60 suggested by Bagozzi and Yi (1988). The composite reliability values exceeded 0.70 as recommended by Hair et al. (2006) and the AVEs were above 0.50 as suggested by Fornell and Larcker (1981).

Next, the discriminant validity was tested. It was examined by comparing the correlations between constructs and the square root of the average variance extracted from that construct. As shown in Table 3, the square root of the AVE is greater than the correlation with other constructs indicating adequate discriminant validity. Thus, the reflective measurement model demonstrated adequate convergent and discriminant validity. The correlations between all the determinants and addiction were significant.

Table 3
Inter-construct correlation

Factors	1	2	3	4	5
Technology	0.742				
Social Networking (SN)	0.338	0.765			
Physiology	0.225	0.619	0.835		
Psychology	0.271	0.685	0.752	0.766	
Addiction	0.230	0.657	0.847	0.829	0.754

In order to test the hypotheses, a measurement model using the structural equation modelling was performed. The results are shown in Table 4. The model fit meets the requirement of the structural model, with χ^2/df = 2.630, CFI = 0.912, AGFI = 0.813, TLI = 0.898 and RMSEA = 0.076. The R^2 value was 0.696, indicating 69.6% of the variance in mobile phone addiction was determined by the predictors.

The highest predictor is the physiological factor (β = 0.630, $p < 0.01$), followed by the psychological factor (β = 0.522, $p < 0.01$) and the social network factor (β = .166, $p <= 0.02$). Therefore, H2, H3 and H4 were supported. On the other hand, the technological factor does not seem to have any relationship with the mobile phone addiction (β = -0.008, $p > 0.05$). Hence, H1 was not supported.

Table 4
Results of the hypotheses testing

Hypotheses	Relationship	Coefficient	C.R	R^2	Results
H1	Technology -> Addiction	-0.008	-0.148	0.696	Not Supported
H2	Social Network -> Addiction	0.166	3.174		Supported
H3	Physiology -> Addiction	0.630	9.522		Supported
H4	Psychology -> Addiction	0.522	8.193		Supported

DISCUSSION

Addiction refers to irrepressible urge which is often accompanied by loss of control. Mobile addiction indicates uncontrollable abuse of mobile usage which is associated with other pathologies such as social extroversion, self-esteem and social anxiety (Hong, Chiu, & Huang, 2012). This study found that majority group of compulsive mobile usage was Gen Y. Therefore, their dependence on the behaviour towards social networking sites are the causes behind their Internet addiction disorder, i.e.; firstly, problems related to relationships which refer to spending an excessive amount of time starting and maintaining online friendships in chat rooms, which replace real life friends and family. Second, too much social networking application can give the bad effect on the Gen Y especially on their health. From the study, it can be proved that many respondents agreed that some social networking applications can assist in their study or work, but the respondents have to plan their time to use their mobile phone. The study mobile addiction in young adults can lead to serious problems for the individuals, particularly younger generations who are at the time of growing their mental and physical health.

There are many factors that can effect Gen Y addiction towards mobile phone but since Gen Y are knowledgeable they will know what is good and bad.

CONCLUSION

The present study highlights patterns and levels of usage of mobile phones among Gen Y and its effect on performance in studies, works, health, and daily life. The study provides an understanding of addiction problems among mobile phone users and its effect on human relationship. . This study found the risk factors that affect the psychological and physiological attributes of young adults who are addicted to the mobile phone to be health, self-esteem, depression, sleep disturbance, headaches, and loneliness.

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Integrating Visual Semiotics in Interpretation of *"Tugu Negara"*

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ABSTRACT

This study analyses the commemorative of national monument, *Tugu Negara*, using visual semiotics approach in interpreting the potential meaning of gesture and symbols. Visual semiotics studies have focused on factors from outside the 'text', which includes the implicit meanings of each feature of a particular monument. The analysis primarily utilized O'Toole's framework (1994, 2011) for exploring national monument and accounting insights on how the monument represents several meanings by analysing its features. This framework offers a systematic technique for examining the monument in terms of its constituent components in a hierarchical order that is Work, Figure and Member. O'Toole provided three communicative functions of language of monuments inspired from Halliday's Systemic Functional Linguistics (SFL) theory which are modal function, representational function and compositional function. This study found that *Tugu Negara* as a war monument of Malaysia, symbolizes leadership, unity, solidarity, victory, enthusiasm, strength, bravery, sacrifice and misery. By the same token, this war monument also comprises a meaning of violence and defeat.

Keywords: Meaning, language of war monument, *Tugu Negara*, visual semiotics

INTRODUCTION

"There can be no words without images" --- Aristotle.

Signs, symbols and images have been used as a means of communication since the beginning of humanity. With visual imagery people interpret and understand the meaning of signs and symbols. Semiotics complemented language studies by intensifying the scope of studies and

focusing the multimodality of human communication. Multimodality describes communication practices in terms of the textual, aural, linguistic, spatial, and visual resources - or modes - used to compose messages (Murray & Joddy, 2013). In this paper analysis will focus on visual aspects of *Tugu Negara* that compose messages using visual semiotics approach - a sub-domain of semiotics s that explores the way the visual communicates messages.

Visual semiotics is a field of study which began in the 1990s and described by Jewitt and Oyama (2001) as involving "the description of semiotic resources, what can be said and done with images (and other visual means of communication) and how the things people say and do with images can be interpreted". By means, visual semiotics is a tool to interpret the messages hidden in the symbols, signs, images, gestures, spatial and icons. Visual semiotics focus on how visuals communicate and the system ruling their practice. The system ruling practice is related with cultural and traditional criticism. Therefore, interrelations between these two fields are essential when describing the denotation and connotation of *Tugu Negara*.

Abousnnouga and Machin's (2010) study illustrates that the analysis of language of World War I monuments – Cardiff statue and Tunbridge Wells - through semiotics perspectives found that the features of each monument comprise multiple meanings. The analysis was based on O'Toole's framework of analysis the language of sculpture inspired from Hallidayan linguistics approach. The studies focused on the style

and design of each monument by analysed the pose, gaze, size, material and form. Each pose represents connotation or denotation meaning with specific assumption. For instance, the war monument of Cardiff statue displays positive values which reflect the feeling of calmness and peace, and not aggression or fear. Also, Tunbridge Wells's monument which depicts one soldier in the monument stripping his helmet in order to reveal his head. This pose represents the action of revealing oneself to the power of God in Christianity. The hat's removal also indicates the meaning of individual spirit and sense of invulnerability.

Abousnnouga and Gillian (2012) in their study of British Commemorative War Monuments using social semiotic approach explored the potential underlying meaning of the monuments. The existence of the monuments is semiotically to commemorate war and deliver grief to families who lost their beloved members during the war. Based on their study it was found that the British Commemorative War Monument conveys messages of bravery and sacrifice for the country. By applying the O'Toole's framework of analysis, the language of sculpture, the results showed that the war monuments represent the cultural connotation which provides hegemony framework to form a historical value towards future generation.

Another study which also utilized O'Toole's framework is that of Bowcher and Liang (2013) who analysed the two statues of Chairman Mao. The analysis of Chairman Mao found that the statues were being used

as a historical monument in order to teach the public about the history of communist party, remind the formation of Republic of China, instil national pride, and provide a spiritual enlightening experience during the Red Tour.

Kruk and Sergei (2008) also analysed Soviet monumental propaganda in Leninist. Kruk believed that monumental propaganda in Leninist conveyed through artistic monuments such as painting, sculpture and urban architecture. Monuments were planned as tools to communicate key political ideas to the illiterate. Stalin statues have been used for political motivation especially during 1949 on the eve of Stalin's 70th birthday.

As a war monument, *Tugu Negara* commemorates the soldiers who died during World War II and Malayan Emergency in struggle for freedom. Even though this monument was built to symbolize the sacrifice and unity, many people are unaware of its meanings. *Tugu Negara* also carries aesthetic values that should be defined and explained to the public. This study will explore and describe the potential meanings and aesthetic values that embody the *Tugu Negara*. This effort is essential to instil and enhance the sense of patriotism value among Malaysians.

METHODS

Visual semiotics is based on a hypothetically principled account of the way features of the language (in this study, the language of monument) and features of context show systematic correlation. The fundamental

of this approach originated with Halliday's Systemic Functional Linguistics (SFL) theory. This concept has been adapted and modified by O'Toole (1994, 2011) to analyse a sculpture through his study *The Language of Displayed Art*. By applying this approach, the connotation and denotation of potential meaning for each feature of the monument could be comprehensively interpreted.

Halliday's SFL theory mentioned that "in any situation, a speaker or listener simultaneously attends to three main things: the nature of activity, including subject matter involved (Field), the social relations of participants, the roles vis-à-vis one another (Tenor), and the medium through which the exchange is taking place, either spoken or written and whether there is some channel through which meanings are being conveyed, such as telephone or computer (Mode)." According to this statement, it can be concluded that for a language, the main things such as field, tenor and mode are aligned with experiential features (O'Toole's labelled as representational function), interpersonal features (modal function) and textual features (compositional function). O'Toole defined each function as below:

- Representational Function
  This is the way that 'what the statues represents' and the ideational function or how ideas are conveyed.

- Modal Function
  This is the way 'how the statues relate to us' through the use of devices to make the statues by the sculptor.

- Compositional Function
This is about arrangement of forms in the space and the function of coherence.

Basically, all three functions work together but are separated to facilitate analysis. Table 1 shows the details of analytical framework of monument based on O'Toole's approach. This paper adapts descriptive technique in fieldwork studies by applying functional analysis in interpreting the potential meaning of *Tugu Negara*. The meaning doesn't necessarily come out visibly, it often exists latently and waits to be revealed, analysed and read. As mentioned above, visual semiotics is the study of meaning and significance based on visual sense through three-dimensional analysis: syntactic, semantics and pragmatics based on the three functions. By using this approach, this study would figure out the potential meaning of the monument systematically and comprehensively.

Table 1
Analytical framework of monument based on O'Toole's approach (2011:34)

Function / Unit		Representational Modal Compositional	
WORK	Process	Scale	Volume
	Theme	Mass	Proportion
	Peripeteia	Modality	Independence
		Equilibrium	Openness / Closure
		Palpability	Fixed / Mobile
		Message	Cohesion
		'Address'	Material
FIGURE	Participants	Scale Characterization	Relative position in
	Body	Mass	Gestalt
	Act	Equilibrium	Parallelism
	Movement / Stasis	Expressiveness	Static / Dynamic
	Position	Address	Fixed / Mobile
		Vitality	Rhythm
		Line	Material
		Solidity	
		Relation to Light	
MEMBER	Basic Physical Forms	Fullness of Realization	Texture
	Drapery	Raw / Polished	Rhythmic
		Stress Factors	Relations
			Material Qualities

Table 1 shows the framework of analysis proposed by O'Toole. In this framework, rank scale has been suggested as a parameter to analyses the artefact. By presenting the concept of rank, O'Toole provides a systematic way to analysis the artwork

in terms of its constituent components in hierarchical order which are WORK, FIGURE and MEMBER. Each rank contains several items to examine according to the representational, modal and compositional functions. In visual semiotics analysis, such as monument, the main parameter is Work which is the whole monument. This parameter focus on process involved to build the monument. The second rank of parameter is Figures which are composed a detail part of the monument. Moving from Work to Figure then Member, analysts move from the general picture to the finest detail in order to arrive at a comprehensive understanding of the makeup of the whole. This concept of rank recounts the scope study from the preliminary point to the whole object and its components. During the analysis of each parameter, several factors being account such as social context and political factors in determining the underlying meaning of the monument.

Overview of *Tugu Negara*

The *Tugu Negara* is a war monument located at the famous Lake Gardens, Kuala Lumpur. There are five major components occupying the 48,562 sq meter space surrounding the monument: the monument, the pavilion, the surrounding gardens, the fountains and the war memorial. It is the first national monument to commemorate more than 11,000 soldiers who died during the struggle for freedom through World War II and Malayan Emergency. This historic monument has also marked a record for being the tallest detached group of bronze statues in Asia. *Tugu Negara* was commissioned in 1963 to replace the Memorial Monument of War and accomplished in 1966 inspired by Tunku Abdul Rahman Putra Al-Haj. It was designed by a sculptor, Felix de Weldon and officially opened to public on 8 February 1966. There are seven bronze figures of man on top of concrete made from emerald coloured stone from Sweden measured 30 x 24 feet. The basic information about the features and dimensions of the monument are listed in Table 2. The plinth of the monument was written with *'Dedicated to The Heroic Fighters in the Cause of Peace and Freedom, May the Blessing of Allah Be Upon Them'* and Malay version *"Memperingati Perwira-perwira yang Berjuang untuk Menegakkan Keamanan dan Kebebasan, Moga-Moga Allah Cucurkan Rahmat ke atas Mereka"* in Jawi script on the right and left of Malaysia's Coat of Arms (See Figure 1).

Table 2
Basic information of Tugu Negara

Material	Statue: bronze; Plinth: stone from Sweden, granite
Height	Statue: 15 m (49.21 ft) - four times bigger from human normal size
	Plinth: Approximately 12 ft
Weight	Each statue approximately 1 tons
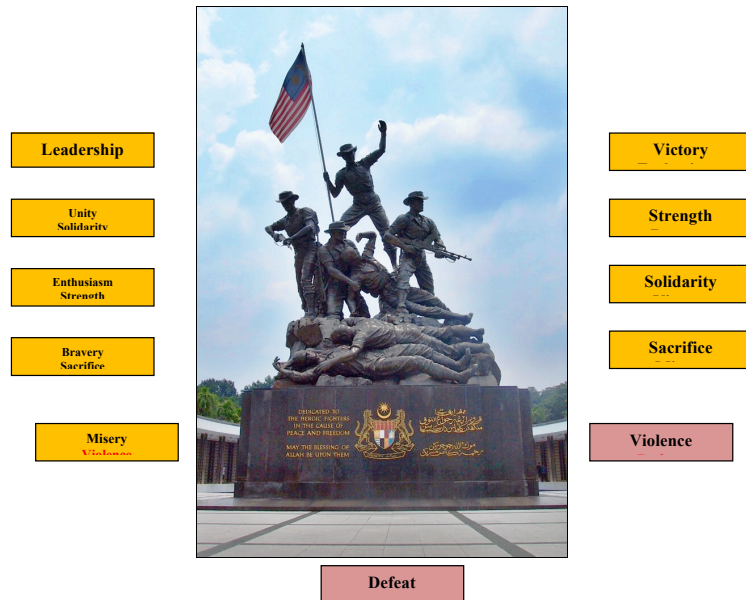
Figure 1. The Tugu Negara at Jalan Parlimen, Kuala Lumpur
© Photograph: Rozaimah Rashidin, 2016

VISUAL SEMIOTICS OF NATIONAL MONUMENT *TUGU NEGARA*

The visual semiotics analysis of *Tugu Negara* found that the monument represents leadership, victory, unity, strength, enthusiasm, solidarity, bravery, sacrifice and misery. It also connotes symbolism of violence and defeat. The analysis of *Tugu Negara* will be divided into three functions, i.e. representational, modal and compositional.

Representational Function of *Tugu Negara*

In the analysis of 'what the monument represents', the visual resources of the monument convey a basic information on the idea of the character, social status, position and actions.

Process, theme and peripeteia. The *Tugu Negara* represents a group figure of human statues. Analysis at the level of WORK involves analysing the process, theme and perepeteia of the monument. *Tugu Negara* was built to commemorate soldiers who died during the struggle for freedom, thus the theme of this monument is remembrance of war. The significant event underlying the *Tugu Negara* construction was inspired by Malaysia's first Prime Minister, Tunku Abdul Rahman Putra al-Haj during his visit to United States of America. He was inspired by the Marine Corps War Memorial which was also known as Iwo Jima Memorial designed by the same sculptor, Felix de Weldon. The peripeteia of this monument was to replace the predecessor of the national monument which was an interwar-

era cenotaph originally initiated by the colonial British administration and now the cenotaph has been relocated in the same compound of *Tugu Negara*.

Participants, body, act, movement and position. The analysis at the level of FIGURE is very crucial because it encompasses a monument with seven different figures. The monument consists of five soldiers from the Malay Regiment and two communist soldiers. The body of the statues is anthropomorphic which is identical with human body. The first statue is static in the middle of the monument and holding the *Jalur Gemilang* and this act is connoting **victory** and leadership, while being flanked left and right by two more armed soldiers. The left statue is armed with a machine gun while the other statue is holding a bayonet. Both statues represent strength, unity and enthusiasm. In the centre of the monument, there is a statue of one soldier lying on the other which signify solidarity, sacrifice, misery and bravery. Whereas the other two statues represent the communist soldiers that lay prostrate on the plinth which imply violence and defeat.

Basic physical forms and drapery. At the level of MEMBER, the analysis involves looking at the arts of sculptured figure. As mentioned earlier, the monument comprises of five Malays soldiers and two communist soldiers. This can be identified through the different drapery, uniform and hat of each statue. The uniform of the statues replicated

is life-like. The Malay soldiers wear a combat boots and civil war slouch hats while the communist soldier wears ankle cut tactical boots and military cadet hats. Moreover, the military cadet hats also contain sign of five-pointed star which is universally known as a symbol of communism. This indicates the lay prostrates' statues are representing communist soldiers.

Modal Function of *Tugu Negara*

As with analysis on 'how the monument relates with the viewers and the space', it is important to look at the place and range of features.

Scale, mass and modality. The total height of the monument is 15 metres (See Table 2) with the fraction 'scaled up accordingly' (O'Toole, 2011). By sculpting a statue with a size that is four times larger than an ordinary human being, it suggests that the statue metaphorically represent "larger than life" which gives a visual sense of heroism and gigantic to the monument. Mass is related with the space; mass exist within space. The mass of the monument would be at centre of gravity as the monument is placed at the centre of the complex surrounding by fountains, pavilion with three domes and garden. Modality engaged with the sense of authenticity either life-like, exaggerated, attenuated or abstract. *Tugu Negara* is represented in a very life-like manner but with exaggerated size in term of scale. This is a great resemblance with authenticity, and hence is a reliable illustration.

Equilibrium, palpability, message and 'address'. The monument is vertically built with a height of 15 meters on the plinth which is 3.7 meters above the ground. With this height, it would create a barrier to avoid the visitors from touching the monument (Palpability). The monument is positioned in the middle of the fountains and seems like an island because it is surrounded with water. This would represent a message of retrospection of the war in struggling for freedom on nations. O'Toole (2011, p. 39) stated that 'address' in statues is primarily concerned with gaze. The Malay soldiers' statues' gazes are looking ahead into the distance and do not make any eye contact with the viewers. Abousnnouga and Machin (2010) find that, this kind of gaze is metaphorically symbolised 'to the future and high ideals'. Meanwhile, the statues' were being sculptured without any gaze.

Scale characterization, expressiveness, vitality, line, solidity and relation to the light. At the level of FIGURE, the monument was sculptured in a very detail manner. The monument was moulded and solid by the use of bronze as its material. Subsequently, the monument was positioned on the granite cubic plinth, which is higher from the ground. The characterization and expressiveness of the Malays soldiers' statues are very proud (with open lips), prepared (due to the armed postures), sad (with downturned lips) and misery (frown lines). In terms of relation to the light, the monument is facing the sunrise which means

towards northeast. It can be concluded that it symbolises as a hope to the nations.

Fullness of realization, raw and stress factors. The analysis at the level of MEMBER involves the fullness of realization which is very detailed in terms of the sculptured and polished. The local authority of Kuala Lumpur City Hall (DBKL) is in charge of the maintenance of the monument. *Tugu Negara* is stressing the messages of leadership, victory, unity, bravery, enthusiasm, strength, solidarity and sacrifice.

Compositional Function of *Tugu Negara*

In analysing the compositional function, it is crucial to focus on material, texture and relation to space of the monument.

Volume, proportion, independence, closeness, fixed, cohesion and material. The monument is located at Jalan Parlimen, Kuala Lumpur which is walking distance from the Lake Gardens. It is located in the middle of area measuring 48,562 sq meters surrounded with fountains, pavilion and gardens. There are two entrances to the *Tugu Negara* either via the staircases or main streets. If the visitors use the staircases, they will see the left side of Memorial Monument, whereas the main streets will bring them to the front of the Memorial Monument. Although *Tugu Negara* is fixed in open area, it is surrounded by gardens and fountains; which makes the monument relatively closed and protected (Closeness).

The materials of the monument are made from bronze while the plinth is granite. Bronze has been one of the most extensively used material for sculpture. According to Abousnnouga and Machin (2010), bronze construes a sense of 'tradition, or more accurately, timelessness'.

Parallelism, static, fixed rhythm, texture, relations and material qualities. The analysis at the level of FIGURE and MEMBER involves the parallelism and rhythmic of the monument. The cubic plinth supporting the statues brings a sense of parallelism and rhythmic structure. Besides that, the arrangement of each figure of the bronze statue plays an important role to balance and stabilize the monument. The bottom of the monument is designed with the laying prostrate statues which gives the steady structure of the monument. Subsequently, there are two statues standing on the left and right of the centre piece. . This structure established rhythmic arrangement of the monument. Meanwhile, the highest statue is positioned at the back of the others and become the focal point of the monument. With the steady and stable arrangement, the relation between the monument and plinth becomes sturdier. A unity rhythmic is established by the way of statues arrangement followed with the qualities of the material.

CONCLUSION

This article has applied O'Toole's (1994, 2011) approach to the analysis of the language of monument. As mentioned earlier, this is the crucial part of the analysis because it involves different gaze, posture, gestalt and characteristic of each statue in one monument. The results of analysis found that each statue complement each other in denoting and connoting numerous meaning: leadership, unity, solidarity, victory, enthusiasm, strength, bravery, sacrifice and misery. Malaysia's *Tugu Negara* also signifies violence and defeat. Hence, *Tugu Negara* plays an important role in encouraging and uplifting; and aims at instilling a sense of national patriotism. As a commemorative site, the monument depicts the victory of the forces of democracy, peace and freedom over the communists.

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Argumentative Knowledge Construction Process in Social Collaborative Learning Environment towards Students' Higher Order Thinking Skills

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ABSTRACT

Nowadays, "thinking about thinking" skills is essential in 21st century education. Preliminary studies demonstrated that students' thinking skills will produce significant results when it is done in collaboration with colleagues. Working in a collaborative environment typically involves processes of evidence and argumentation. Argumentation refers to a claim supported by convincing evidence of extensive and comprehensive understanding of various aspects of an issue. In social collaborative argumentation, knowledge is constructed and shared among peers and the property of a single individual. The challenge is to ensure that argumentative knowledge construction process in social collaborative learning environment improves students' thinking skills. The aim of this paper is to analyze the process involved in argumentative knowledge construction and identifying the process in social collaborative learning environment that contributes towards higher order thinking skills among students. Seventeen students from the Computer Science program participated in the study were randomly divided into 3 groups of four and 1 group of five. This study used mixed method research design concerning the pre-experimental research design that involved type one-group pre-test and post-test design. Data was obtained from performance test and log data files from the social collaborative learning environment. Results showed that argumentative knowledge construction process in social collaborative learning environment could lead students towards higher order thinking skills.

Keywords: Argumentative knowledge construction, CSCL, higher order thinking skills, social collaborative learning environment

INTRODUCTION

In collaborative learning, constructing knowledge at higher level is essential for students' learning because it ensures students acquire knowledge through the elaboration of learning material by constructing arguments (Stegmann, Weinberger, Fischer, 2007). Weinberger and Fischer (2006) claimed that argumentative knowledge construction (AKC) is based on the assumption that learners participate in a particular activity and the frequency of these discourse activities is related to the attainment of knowledge. To nurture student thinking skills to the higher level, a crucial part of critical thinking is to identify, construct, and evaluate arguments. In addition, many studies report positive benefits of using technology for collaborative learning that enhanced social interaction and mutual construction of knowledge (Kanuka & Anderson, 1998; Islas, 2004; Harasim, 2012). It is also believed that students learn well when they actively construct their own understanding through social interaction with their peers (Sthapornnanon et al., 2009).

Participating in online discussions usually give learners the opportunity to engage in argumentative debate and develop knowledge through argumentation. However, previous researches have shown that students' knowledge construction in online learning remains low. (Fisher, 2003; Hong & Lee, 2008; Kiuhara, Graham, & Hawken, 2009; Cookson, 2009; Yee et al., 2011; Durairaj & Umar, 2014). Although interaction has been found to be of high density it tends to focus on social regulations (Janssen, Erkens, Kirschner, & Kanselaar, 2010) or issues being discussed (i.e. off-topics). These can be caused by several influencing factors such as the use of communication mode, the lack of structure of the collaborative tasks or activities and dearth of interactions among peers.

In order to overcome the aforementioned influencing factors, an appropriate social collaborative learning environment (SCLE) needs to be proposed to enhance students' level of AKC. Computer-supported collaborative learning (CSCL) is one of the most promising innovations to improve teaching and learning. Even though CSCL and the use of networked technology has become a popular trend in research and design of learning environments (De Corte, Verschaffel, Entwistle, & van Merrienboer, 2003), empirical research has shown that there is no guarantee that networked collaboration contributes to improved knowledge (Jarvela & Hakkinen, 2002; Leinonen, Järvelä, & Lipponen, 2003). Siemens (2005) and Downes (2007) suggested the connectivism theory, where social learning is incorporated with social media technologies. They believed that, in the emergence world of social media, learning is not an internal or individualistic activity. To a certain degree, learners prefer to collect information through Wikipedia, Twitter, Facebook, RSS, and other similar platforms (El Helou, Salzmann, & Gillet, 2010). A main principle of connectivism is that of the ability to learn is more critical than what is currently known (Siemens, 2005).

As well, the responsibility of a teacher is not just to define, generate, or assign content, but more on helping learners shaping the learning paths and make connections with existing and new knowledge resources (El Helou et al., 2010; Anderson & Dron, 2011). Therefore, it is understood that social learning theories, especially connectivism, provide insights on the roles of educators in this social networked environment.

However, the question is how to ascertain that AKC process in SCLE really reflects students' thinking skills? In this study, we are focusing on Java Programming subject since a programming course can inculcate critical thinking, logical reasoning and problem solving skills (i.e. part of higher order thinking skills; HOTS) to students which they can later apply to their particular disciplines and their daily life.

The purpose of this research is to first, analyzing students' levels of thinking skills using pre-and post-performance test. It is important to know how AKC processes in SCLE correlate and contributes to students' HOTS.

METHODS

Research Design

This research used the pre-experimental design approach, to be exact the one-group pre-test and post-test design.

Participants

A total of seventeen (17) undergraduate students enrolled in a Java Programming subject, from the Computer Science course were involved in this study. They were randomly formed into 3 groups of four and 1 group of five.

Procedure

Phase 1. The researcher developed the instruments needed in conducting this research study and later performs the pilot testing in order to measure the validity and reliability for each instrument developed.

Phase 2. The development of SCLE is in response towards students' HOTS and their AKC. The developed environment will apply the 3A Interaction Model design pioneered by El Helou et al., (2010) and Weinberger and Fischer (2006) framework dimension principles (see Figure 1).
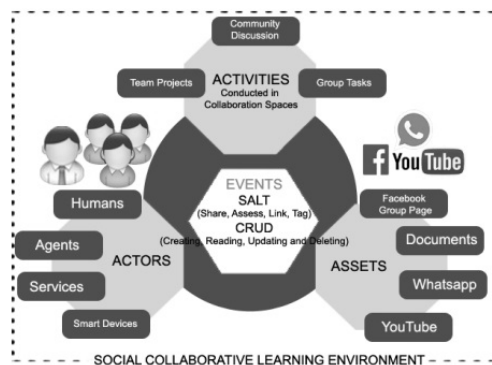
Figure 1. The design of SCLE adapting the 3A Interaction Model (El Helou et al., 2010)

Phase 3. The actual study begins with a pre-performance test. Afterward, every two weeks, starting from Week 2 until Week 10, students will be given five different tasks in SCLE based on topics by the instructor for formative assessment in 5 different weeks and later will discuss in SCLE. Each task

will reflect the content of topic learnt for that week. The discussion will initiate by the instructor as to trigger deeper interaction and argument among students as well as nurturing their thinking skills towards higher levels. Students also are provided with the example of questions prompt as to encourage them to ask questions and commenting on their peers' status (for peer feedback activity). After that, once completed with the social collaborative discussion and learning tasks, students will be given a post-performance test on Java Programming subject on discussed topic as to evaluate their performance.

Phase 4. To analyze, the AKC process through social interaction data in online discussion finally evaluated qualitatively through content analysis technique (with deductive approach) and later converted quantitatively (i.e. descriptive statistics:

frequency, percentage). The correlation between the content analysis of AKC process and performance test is discovered using the Pearson correlation matrix.

Instruments

Two research instruments were used in this study i.e. SCLE and performance test.

1. **Learning tasks in SCLE.** Learning tasks in SCLE is given by the instructor based on topics. Students are encouraged to discuss with their peers throughout the five weeks of study (see Table 1). The researcher played her role; monitored and observed instructor and the student's participation in the discussion. Student discussion was coded accordingly using content analysis technique as shown in Table 2. This research used 'meaning' as the unit of analysis.

Table 1
Sample of learning tasks in SCLE (based on Figure 1)

Week	SCLE (Assets)	Tasks (Activities)	Actors
2	YouTube, Facebook group	Videos and discussion	
4	E-learning, Facebook group	Group project and discussion	Instructor
6	YouTube, Facebook group	Videos and discussion	&
8	WhatsApp	Discussion	Students
10	E-learning, Facebook group	Group project and discussion	

Table 2
Coding scheme with categories in participation, epistemic, argumentative and social dimensions (adapted from Weinberger & Fischer, 2006)

Code	Category	Description
PAR1	Quantity of participation	Entering a CSCL environment and contributing to online discourse.
PAR2	Heterogeneity of participation	(Un-)Equal participation of learners in the same group

Table 2 *(continue)*

EPI1	Non-epistemic activities	Learners discussing off-topic/ digressing off-topic
EPI2	Construction of problem space	Learners relate case information to case information within the problem space with the aim to foster understanding of the problem
EPI3	Construction of conceptual space	Learners relate theoretical concepts with each other and explain theoretical principles to foster understanding of a theory
EPI4	Construction of adequate relations between conceptual and problem space	Applying the relevant theoretical concepts adequately to solve a problem. Learners relate theoretical concepts to case information. A number of concept-case-relations may need to be constructed to adequately solve a complex problem
EPI5	Construction of inadequate relations between conceptual and problem space	Applying theoretical concepts inadequately to the case problem. Learners may select the wrong concepts or may not apply the concepts according to the principles of the given theory.
EPI6	Construction of relations between prior knowledge and problem space	Applying concepts that stem from prior knowledge rather than the new theoretical concepts that are to be learned.
ARG1	Non-argumentative moves	Questions, coordinating moves, and meta-statements on argumentation
ARG2	Simple claim	Statements that advance a position without limitation of its validity or provision of grounds that warrant the claim
ARG3	Qualified claim	Claim without provision of grounds, but with limitation of the validity of the claim (with qualifier).
ARG4	Grounded claim	Claim without limitation of its validity, but with the provision of grounds that warrant the claim
ARG5	Grounded and qualified claim	Claim with grounds that warrant the claim and a limitation of its validity
ARG6	Argument	Statement put forward in favor of a specific proposition
ARG7	Counterargument	An argument opposing a preceding argument, favoring an opposite proposition
ARG8	Integration (reply)	Statement that aims to balance and to advance a preceding argument and counterargument
SOC1	Externalisation	Articulating thoughts to the group
SOC2	Elicitation	Questioning the learning partner or provoking a reaction from the learning partner
SOC3	Quick consensus building	Accepting the contributions of the learning partners in order to move on with the task
SOC4	Integration-oriented consensus building	Taking over, integrating and applying the perspectives of the learning partners
SOC5	Conflict-oriented consensus building	Disagreeing, modifying or replacing the perspectives of the learning partners

2. **Performance test.** Performance test consists of pre-and post-test and designed with the same structured questions. Pre-test were given before the class started and post-test was given to the students on the eleventh week, right before the class ended. The pre-and post-test questions was validated earlier by two experts and based on level by Anderson et al., (2001) rubrics. Table 3 shows examples of questions in the performance test.

Table 3
Examples of questions in the performance test

No	Sample question	Categories of question	Level of question
1	A Java class definition contains an object's _____ and_____.	Remember	L
2	What is the difference between Associations and Aggregation?	Analyze	H
3	Write 3 overloading static method, named min that able to find the minimum value from parameters of different data types as invoked in the following program.	Create	H
	public class Method Overloading		
	{ public static void main (String [] args) {		
	System.out.println ("The minimum between 120 and 135 is " + min (120, 135));		
	System.out.println ("The minimum between 141.2 and 135.7 is " + min (141.2, 135.7));		
	System.out.println ("The minimum between 110.7, 107.3 and 115.3 is " + min (110.7, 107.3, 115.3)); } }		

*L= low level degree; H= high level degree

RESULTS AND DISCUSSIONS

In order to analyze the students' AKC process in SCLE, four dimensions (i.e. participation, epistemic, argumentation, social modes of co-construction) from Weinberger and Fischer (2006) is applied. Mainly, the types of argumentation in this study (i.e. argumentative dimension) are divided into two types: micro level (ARG1 – ARG5) and macro level (ARG6 – ARG8) using the process found in Toulmin model of argument. In addition, the argument dimension also differentiates between argumentative moves and non-argumentative moves. Figure 2 shows the results from four different groups of students based on the discussion in SCLE.

Based on Table 2 we can clearly see the types of process involved in students' AKC through SCLE. The trends show that most of the types of AKC used by students are in argumentative dimension (ARG1 – ARG8) with ARG1 (13 times occurred) being the most dominant category followed by ARG5 (11 times occurred) for argumentative and social modes of co-construction (SOC1-

SOC5) with SOC2 (18 times occurred) are being the most dominant for social modes of co-construction. As we can see, the number of arguments and their types differ from one group to another. Still, an argumentative discourse was developed in each group. In the four groups, 22.73% of the arguments involved an epistemic dimension, 48.86% consists of argumentative dimension and 28.41% of social modes of co-construction dimension (see Table 4).

Truly, the counter claim or rebuttals become part of the arguments when the results attained different with the group's

hypothesis, are uncertainly understood, or when the group's members have contrasting views (Katchevich & Mamlok-Naaman, 2013). Note that the discourse that develops between the group members is highly dependent on the inquiry question selected for inspection by the group (i.e. ARG1 and SOC2). Sometimes the answer to the research question is obviously clear and definitely no in-depth discussion develops between the group members and this is even more so with an argumentative discourse. Using Weinberger and Fischer (2006) framework, this study found that

Group 1

Group 2
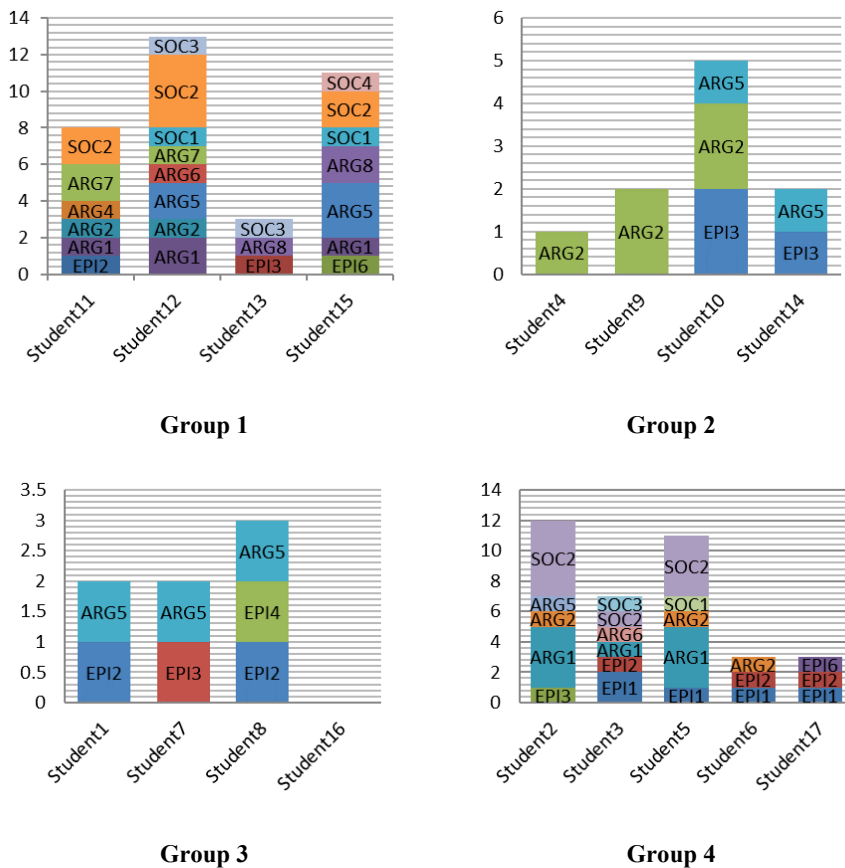
Group 3

Group 4

Figure 2. The quantity and types of process in students' discussion (student vs. group)

ARG dimension has being the dominant types of AKC process transmitted by each student, followed by SOC and EPI dimension. As well, PAR dimension from students' discussion shows that there is equal participation of students' engagement in SCLE.

Additionally, result from Table 5 indicates that there is a positive, moderate significant correlation between the AKC processes with the student's performance when learning (.408). This might be due to the students' benefiting from the process of AKC in the discussion sessions in which this action has contributed to the

students' learning performance. Also, this suggests that AKC process in SCLE can lead students' performances towards HOTS as it supports students in their learning process through proper strategies that stimulate their thinking. The finding reveals that the use of SCLE design can promote students' interests to be engaged in an academic discussion.

Table 6 reveals that about 11 students managed to increase the marks in their post performance test especially in high level (Hpost) question. Results show that 15% of increment occurred in performance test for both Lpost and Hpost. Likewise, students engaged in the AKC discussion

Table 4
Distributions of AKC process in students' group discussion

AKC Process	Group 1	Group 2	Group 3	Group 4	Total	Percentages	Overall percentages
EPI1	-	-	-	5	5	5.68%	
EPI2	1	-	2	3	6	6.82%	
EPI3	1	3	1	1	6	6.82%	
EPI4	-	-	1	-	1	1.14%	
EPI5	-	-	-	-	-	0.00%	
EPI6	1	-	-	1	2	2.27%	22.73%
ARG1	4	-	-	9	13	14.77% *	
ARG2	2	5	-	3	10	11.36%	
ARG3	-	-	-	-	0	0.00%	
ARG4	1	-	-	-	1	1.14%	
ARG5	5	2	3	1	11	12.50% *	
ARG6	1	-	-	1	2	2.27%	
ARG7	3	-	-	-	3	3.41%	
ARG8	3	-	-	-	3	3.41%	48.86% *
SOC1	2	-	-	1	3	3.41%	
SOC2	8	-	-	10	18	20.45% *	
SOC3	2	-	-	1	3	3.41%	
SOC4	1	-	-	-	1	1.14%	
SOC5	-	-	-	-	-	0.00%	28.41%
Frequencies/ Percentages	35	10	7	36	88	100.00%	100.00%

seems to have an improved performance in learning the subject, especially towards HOTS. With the total of 88 types of AKC process it can be seen that S2, S5, S12 and S15 had uttering more than 10 times of AKC process. Note that even others not using too many types of AKC process, yet they still benefiting from peers discussion and established understanding about learning the subject. One of the most important factors of the quality of student experiences and learning outcomes in an online program

is the quality of interactions between the students and instructor. When instructor involvement is low, outcomes are not as positive as in a face-to-face course (Junk & Junk, 2011).

Table 5
Pearson correlation matrix

	Post-test score
AKC process	0.408**

**Correlation is significant at the 0.01 level (2-tailed)

Table 6
Distributions of AKC process and students' pre-and post-test scores

Group	Students	Total of AKC process involved	L_{pre}	L_{post}	H_{pre}	H_{post}	Performance in learning
	S11	8	4	5	2	1	-
1	S12	13	4	6	2	4	+
	S13	3	3	6	2	3	+
	S15	11	3	7	3	3	0
2	S4	1	4	7	2	4	+
	S9	2	4	6	3	3	0
	S10	5	5	6	3	3	0
	S14	2	6	6	2	3	+
	S1	2	5	7	1	4	+
3	S7	2	5	5	3	4	+
	S8	3	6	7	3	4	+
	S16	0	5	4	1	2	+
	S2	12	3	5	2	0	-
	S3	7	3	7	3	2	-
4	S5	11	5	6	2	4	+
	S6	3	5	6	1	4	+
	S17	3	5	7	2	3	+
Frequencies/ Percentages			75	103	37	51	
		88	42.13%	57.87%	42.05%	57.95%	11 of 17

* Lpre= low level pretest; Lpost= low level posttest; Hpre= high level pretest; Hpost= high level posttest;
+ = increment; - = decrement; 0 = maintain

The limitations of this study are: was addressed. First, the discipline being examined was limited to a computer-based subject called Java Programming. Studies on the AKC process in SCLE in other disciplines or subject areas may provide different results. Secondly, this study was carried out in real learning settings in which the instructor did not have control over the students' behavior. Thirdly, the current research involves less participation of instructor through the AKC process in SCLE. Finally, it is suggested that in future factors affecting higher engagement of AKC process in SCLE needs to be examined.

CONCLUSION

An apt setting for SCLE can result in nurturing students' HOTS and constructing their knowledge via argumentation. This study also showed that the processes of AKC in SCLE through the discussion will increase students' performance in learning. AKC with its emphasis on students' participation and engagement in the discussion contributes to academic achievement.

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The Design and Implementation of Massive Open Online Course (MOOC) For Highway Engineering Course

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ABSTRACT

Developments in information technology have implications for education in engineering disciplines. Massive Open Online Course (MOOC) is a means of providing education without incurring high costs. This article is on the design and implementation of UTM-MOOC Highway Engineering course. It hopes to provide useful information on flexible education in UTM that is in line with New Academia Learning Innovation (NALI) framework.

Keywords: MOOC, NALI, Open Learning, UTM-MOOC

INTRODUCTION

Massive Open Online Course (MOOC) was first developed in 2008 by the University of Manitoba for an online course known as Connectivism and Connective Knowledge (CCK08) (Sandeen, 2013). This course was led by George Siemens of Athabasca University and Stephen Downes of the National Research Council (Kocaleva, Petkovska, & Zdravev, 2014). 'Massive' denotes a large or an unlimited participation while 'Open Online Course' indicates online course which open access is via web (Sandeen, 2013). MOOCs integrate social networking and accessible online resources, facilitated by leading practitioners in the field of study. MOOC use a variety of materials such as readings, videos and problems, to provide user build learning community for students, teaching assistants and professors (Pappano, 2012). MOOC is an online programme with no fees and with

no special requirement besides having access to the internet (Kay, Reimann, Diebold & Kummerfeld, 2013). The programme is open to public and there are no predefined expectations or formal accreditations (McAuley, Stewart, Siemens & Cormier, 2010). MOOC normally takes a few weeks for its completion, with assignments, homework and final examinations given as a means of assessments. The assignments should be done through collaborative learning (Devgun, 2013) monitored by a discussion board (Pappano, 2012).

A Brief Overview of MOOCs

There are two kinds of MOOCs, namely, xMOOCs and cMOOCs (Kocaleva, Petkoyska & Zdravev, 2014) with clear distinctiveness in terms of embedded pedagogy. xMOOC is more toward Profit Corporation and centred on business model. The approach taken is more on traditional method where the teacher is the most relevant and dependable reference of knowledge and information. This type of MOOC privileges the knowledge transfer and duplication. Embedded pedagogical approaches highlight behaviourism (Guàrdia Maina, & Sangrà, 2013), which means that, xMOOCs is based on very old and outdated behaviourist education, depending primarily on information transmission (Bates, 2012). On the other hand, cMOOC promotes knowledge creation and generation, created earlier than the known counterparts and interprets connectivist principle to the design of the course. This type of MOOC normally focuses on beginners' personal

learning environments and beginners' networks, while their basic education is social constructivism and connectivism (Guàrdia et al., 2013).

In 2012, MOOCs entered the mainstream with three major platforms known as Coursea, Udacity and edX shown in table 1, (Wang & Gao, 2014). edX is a non-profitable organization led by MIT professors who initiated partnership between MIT and Harvard and it is currently in alliance with a number of universities (Sandeen, 2013). Udacity and Coursea, are for-profit organizations founded in California and led by Stanford University professors. In 2013, Coursera had almost 3.7 million students enrolled, as it affords plenty instructional and assessment tools, course development support, format guidelines, marketing and customer and technical support (Sandeen, 2013). This organization uses a dispersive model and comrade with famous brand universities in the United States, and sixteen new institutions such as Columbia, Brown and Ohio State (Kolowich, 2012). Besides, Coursera normally provides upper department and professional curriculum (Attis, Koproske, & Miller, 2012). Until 2013, Coursera had offered courses in Artificial Intelligence Planning, Global History Since 1760, Fantasy and Science Friction, Introduction to Finance, English Common Law and Healthcare Innovation and Entrepreneurship (Gaebel, 2014). Udacity, tends to provide a large proportion of basic courses, notably in Mathematics and Science as it has diligent manufacture method. It has the most vertically integrated

course design, i.e. with a high degree of instructional design, integrated feedback and assessment tools (Sandeen, 2013). The third platform, edX, with its start-up with a non-profit concept, formed comrade with universities that afford knowledge, and in 2012, it acquired a new member, Wellesley that became a second liberal art college to jump on MOOC bandwagon (Gaebel, 2014). Besides, Peking University and Tsinghai University also announced the desire to join edX in 2013 (Guo, et al., 2014). Although edX provides fewer degree programs compared to Udacity, it contributes to course and assessment design based on students' interactions with the course and their outcomes (Sandeen, 2013).

Problem Statement

Learning through Massive Open Online Course (MOOC) is a complex process. To overcome this problem instructors should use more effective methods of learning to encourage students to think critically. In MOOC environment, compared to conventional classrooms, students tend to be more active where they will learn independently with the aid of technology while the instructors act as facilitators. The implementation of MOOC that meets the needs of students in Malaysia is just starting to evolve and more engagement with instructors is needed to support the formation of learning through MOOC Malaysia (https://www.openlearning.com/malaysiamoocs). This study aims to design and implement MOOC class for Highway Engineering course. This study has an impact on the national talent development through flexible education in Malaysia. It supports third shift: Lifelong Learning and ninth displacement: a global online learning for Malaysian Education Development Plan (PPPM25).

The Design of UTM-MOOC

Most MOOCs still use the lecture as the main medium (Pappano, 2012) of instruction in addition to assessments and social networking. Figure 1 shows the screen shot from "Introduction to Highway Engineering" (SKAA 2832), one of the MOOCs of UTM with navigation bars on the left.

Figure 1. Screen shot from SKAA 2832 with navigation bars on the left

Lecture Materials

Lecture materials are materials used in MOOCs to conduct lectures to the students taking the courses, comprising lecture notes or slides and lecture videos. The lecture notes or slides in MOOCs are the same as the ones used in conventional classroom lectures in the form of presentations prepared for each week for the lectures. They usually contain

an overview of the topics to be covered and are prepared with software such as Microsoft PowerPoint. Figure 2 below shows the screen shot of the lecture slides from the SKAA 2832.

Figure 3. Screen shot of the Lecture videos from SKAA 2832
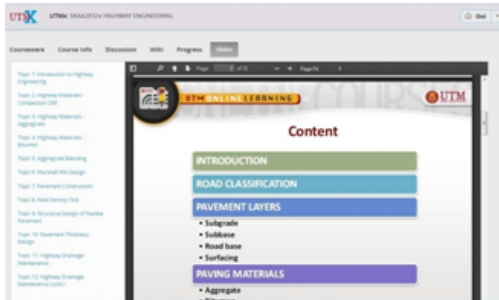
Figure 2. Screen shot of the Lecture Slides from SKAA 2832

Lecture Videos

Lecture videos refer to the set of videos or lecture sequences released each week. They are usually narrated by the lead instructor and are typically short, on average less than 10 minutes (Breslow, et al., 2013). This kind of approach is known as "flipped classroom" approach. Usually lecture notes or slides having similar content with the lecture videos will be available to students. To improve the effectiveness of lecture videos in MOOCs, some lecture videos will use quizzes or assessment problems to ensure that concepts are understood. Typical lecture videos are shown in Figure 3.

Assessments

The assessments used in MOOCs consist of course activities and examinations. They are used to assess the progress of students undertaking the course and also to help them in the learning process. Course activities include assignments, quizzes, laboratory activities, tutorials and proposal topics for projects or papers. Most of the time, the course activities in MOOCs are designed in a way which will encourage the students to solve given problems using collaborative learning. For the SKAA 2832, its course activities consist of multiple choices, true or false, text input and also online activities. The online activities are activities where students are required to solve a set of questions and the time taken to finish them. . The screen shot of some course activities from the SKAA 2832 is shown in Figure 4.
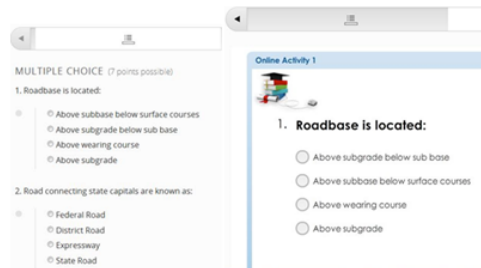
Figure 4. Screen shot of some Course Activities from SKAA 2832

Examinations are similar to course activities. The only difference between examinations and course activities would be that, course activities are for students to apply what they have learn while examinations are to assess the learning progress of the students. Basically, course activities are platforms for students to practice what they learn and examinations are where students show the knowledge they gain from the course and get evaluated.

METHODS

The purpose of this study was to design and implement a UTM course, known as Highway Engineering (SKAA 2832), through a MOOC platform. In addition, this study also aimed to obtain feedback from students, based on four research constructs: students' awareness, preferences, accessibility and readiness to use. A total of 69 of the respondents, comprising Malaysian undergraduates undertaking Highway Engineering (SKAA 2832) course with various backgrounds, participated in this study. The teaching and learning in the course consisted of blended face-to-face teaching lectures, together with online participation through the university's MOOC system. The course ran for 15 weeks, comprising 13 weeks of lectures, and one week each of the mid-semester break and the study week.

RESULTS AND DISCUSSION

Results showed that, 43% of the respondents were male students and 57% was female students with such previous education backgrounds as Foundation, Form Sixth, Matriculation College, Polytechnic Diploma and University Diploma. It was found that, those with the University Diploma formed the largest number of respondents (30 students), very closely followed by those from Matriculation College (29 students). Five of the respondents had Polytechnic Diplomas; four students were from Form Sixth and one from Foundation. The results of the study also revealed that, 61% of the respondents scored excellent CGPA from 3.50 to 4.00 while 33% of them earned CGPA of 3.00 to 3.49. Only a small percentage of the respondents (6%) earned CGPA of 2.99 and lower.

Students' Awareness of MOOC (SKAA 2832)

Results obtained showed that, 83% of the respondents were aware of the existence of MOOC (SKAA 2832). The means by which such knowledge was obtained are highlighted in Figure 7.

Student Preferences of MOOC (SKAA 2832)

This section described students' preferences for SKAA 2832, such as, content, teaching method, meeting frequency and login frequency. The content most preferred by the students was Power Point with video explanation (40 out of 69 students), followed by video recording of teaching content (34 students). A total of 30 students still preferred Power point presentation medium for MOOC (SKAA2832), while

two students wrote in other options, naming game as their preferred content.

The teaching methods referred to the amount of face-to-face and sessions preferred by students. There were 11 options for the respondents to answer the questions, however, only six options were chosen. Results of the study showed that, 80% of face-to-face and 20% of online participation was chosen by the respondent as the most preferred teaching method for MOOC (SKAA2832). There were 16 out of 69 students who preferred 100% face-to-face teaching method. The lowest option chosen by the students was 60% face-to-face and 40% as preferred teaching methods. It was also found that, the students preferred to meet their lecturers once a week, while some of them and chose once in a semester.

Students' Accessibility to MOOC (SKAA 2832)

This section focused on understanding accessibilities to MOOC (SKAA 2832). Table 1 highlights eight questions related to students' accessibility. The data was analysed based on 5 point Likert scale. The first question showed a mean value of 3.94 or equivalent to a high score mean value, indicating how easy student login was (http://mooc.utm.my/) as provided by UTM CICT and currently managed by UTM CTL. The second question was related to students' behaviour to understand how easy they took notes while watching a video on their digital devices. They responded positively and showed a high score mean value or 3.61, explaining that, the students

were able to control video and web pages for personal interest. The third question in this section was to seek the students' views about learning via videos presented in MOOC (SKAA 2832). The result showed a mean value of 3.74 or equivalent to a high score of mean analysis, indicating that, the students were able to understand learning via videos presented in the web site. The fourth question also asked about videos and the students' ability to relate what they already learned from the videos to other information they found from other sources. The result still showed a high score of mean analysis of 3.77, indicating that, the students were able to relate information in videos to other sources such as online reading and books in the university library. The fifth question highlighted a multi task activity while accessing to MOOC (SKAA 2832). A mean score of 3.49 and equivalent to medium value of mean analysis was obtained. The result explained the limitation of multi task activity while accessing the web site. The students were able to watch videos and control web pages, but they could not download or directly save a video to offline mode, while simultaneously creating open discussion among other users. The sixth question highlighted the students' ability to complete a task without distractions. The mean score of 3.48 or equivalent to a medium level of mean analysis was obtained. Students in UTM have access to 5GB quota for learning, while at the same time they could also use their own quota for other purposes such as surfing for entertainment. The seventh and

eight questions showed a medium result of mean analysis. The results related to internet speed provided by the University, where the students could opt for either low-quality videos at a low internet usage or high-quality videos at a high internet usage.

Table 1
Student accessibility of MOOC (SKAA2832)

Items	Scale					Mean	Analysis
	1	2	3	4	5		
Login into SKAA2832 without any issue	3	5	14	18	29	3.94	High
Take note while watching a video on the computer	3	4	24	24	14	3.61	High
Understand course related information when it's presented in video formats	2	4	17	33	13	3.74	High
Relate the content of the video to the information that I have read online or in books	1	3	20	32	13	3.77	High
Multitask while access to MOOC	2	5	28	25	9	3.49	Medium
Complete my task without distractions	1	7	28	24	9	3.48	Medium
Download MOOC content	4	7	23	23	12	3.46	Medium
Watch MOOC video without buffering	3	15	25	15	11	3.23	Medium

Students' Readiness of MOOC (SKAA 2832)

Students' readiness included their participation in paid courses and attachment to other social network sites. The results of the study showed that, more than half or 81% of the respondents agreed, they were interested to participate in the study, due to learning content, learning activities and knowledge. Students' readiness for paid courses indicated an almost balanced distribution, with 54% in agreement and 46% in disagreement indicating they were not yet in a position to accept paid MOOC courses. 78% of the students agreed to use other social networking site such as Facebook and blogs together with MOOC while 22% were concerned with privacy issue pertaining to it.

CONCLUSION

In MOOC, learners were not only students, they were also producers of knowledge, learners in the realization and absorption, based on the coalition of knowledge, reformation and knowledge sharing, thus forming the dynamic development of open learning resources. Advancements in technology can help detect the difficulties faced by learners to further improve knowledge transfer and accreditation purposes.

Significance and Implication of the Study

The findings of this study exposes theoretical gaps in the current MOOC literature. The results and findings from the study may help educators, practitioners and researchers

to understand how to seamlessly integrate MOOC into Malaysian tertiary classrooms.

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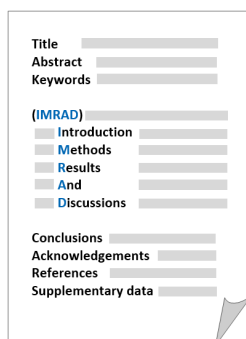
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