# RICES

RESEARCH INNOVATION COMMERCIALISATION & ENTREPRENEURSHIP SHOWCASE

## 2020

## EDUCATION & SOCIAL SCIENCE

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Cover design by Ms. Qistina Binti Ruslan.

# RICES 2020 - EDUCATION & SOCIAL SCIENCE

## RICES EDITORIAL TEAM

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## EDUCATION & SOCIAL SCIENCE

# FOREWORD

## Vice President, RICES 2020

RICES 2020 is one of the numerous publications, including journals that MMU Press takes pride in. I am truly pleased that MMU Press have embarked on the initiative to publish this book.

Despite the global pandemic, the event RICES 2020 was successfully organised virtually, showcasing a multitude of exhibits reflecting research, innovation, commercialization and entrepreneurship activities and achievements. The RICES 2020 book is an extended compilation of MMU's researchers and entrepreneurs' fascinating insights on research ventures and idea creation for commercialising research output as well entrepreneurship. RICES is an excellent platform for MMU to interact with internal and external stakeholders. These interactions enable researchers to realise potentials for collaborations, IP exploitations, commercialisation and further research. It allows for industrial related viable research and feasible output. This RICES 2020 publication extends the present interactions even further, allowing for post-event interactions to materialise beyond the existing valued stakeholders.

RICES 2020 is evidence of the excellent effort by the RICES 2020 organisers and MMU Press. Their commitment and dedication have paid out with another hallmark achievement reflecting the division's synergy in the development of Research-Innovation- Commercialisation-Entrepreneurship (R-I-C-E) nexus in all research activities. I look forward to RICES 2020 publication.

Thank you.

**Prof. Ir. Dr. Hairul Azhar bin Abdul Rashid**
**Vice President, Research and Industrial Collaboration and Engagement**
**Multimedia University**
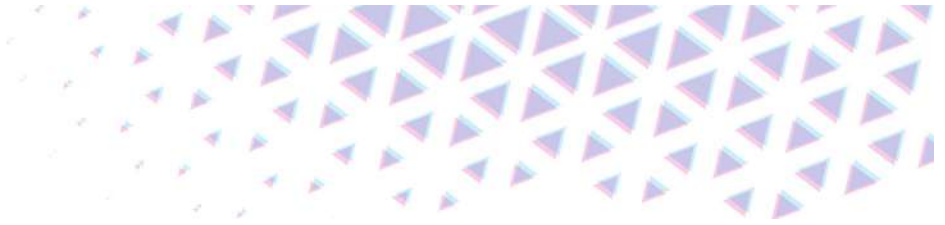
# FOREWORD

## Director, RICES 2020

On behalf of the Committee, it is my great pleasure to welcome you to RICES 2020, the fourth Research, Innovation, Commercialization, Entrepreneurship, Showcase. RICES is an annual event organized by Multimedia University to showcase research innovations, commercialization and entrepreneurship. RICES 2020, with the overarching theme of "Humanizing Innovation," is being held virtually on December 9-10, 2020, allowing for a borderless audience and safe interaction among inventors, venture capitalists, and industries in the midst of COVID-19. It is about ensuring that the results of research and innovation contribute to positive changes in people's lives, society, industry, and the country as a whole.

RICES 2020 pioneered the use of Virtual Reality technology to elevate the virtual exhibition experience by transforming in-person perspectives into an interactive and immersive virtual experience. For the first time, RICES 2020 hosted a virtual conference, disseminating the most recent research results and findings for researchers and academics to discuss. This year, 194 projects were accepted for presentation at RICES 2020, distributed across Project Showcase (Research Project, Social Innovation Project, and Startups), Embedding Entrepreneurial Learning, and Conference. Both internal and external judges who evaluated the showcases had used the judging criteria similar to those set for international exhibitions such as International Conference and Exposition on Inventions by Institutions of Higher Learning (PECIPTA) and International Invention, Innovation & Technology Exhibition (ITEX).

I would like to express my heartfelt gratitude to the organizing committee and everyone who helped make RICES 2020 a success in various ways. Last but not the least, I would like to thank everyone who submitted work and participated in RICES 2020.

Thank you all for contributing!

**Mr. Cheong Soon Nyean**
Director of RICES 2020
Deputy Director, Technology Transfer Office
Multimedia University

# FOREWORD

## Deputy Director, RMC
## (Head, MMU PRESS)

I would like to humbly thank various people who made MMU Press publications a success especially in its RICES publications 2020. Congratulations to Mr. Cheong Soon Nyean, Director of RICES 2020 who has successfully organized the event despite the Covid-19 pandemic. The RICES 2020 hosted the Virtual Reality technology to ensure all participants and visitors immerse into this virtual experience and making the participation almost possible for everyone.

On top of that, RICES showcases the best technology, research innovation, R&I commercialization, receives valuable feedback and develops new partnerships that bring great value to society. MMU Press is proud to have produced a total of 5 publications in 2021 namely research on (i) Engineering, (ii) ICT and Multimedia (iii) Social Science, (iv) Entrepreneurship & Social innovation projects as well as (v) RICES Conference Extended Abstract.

It is our utmost hope that MMU Press mission will be an internationally recognized academic press. Its spirit is to connect Multimedia University (MMU) with the larger communities and institution through innovative and inspiring writings. We welcome all contributors to publish with MMU Press to better equip ourselves and the community at large with various new ideas and technologies.

Finally, all these achievements are made possible due to strong commitment by all especially the Coordinator of Special Publication – Dr. Tan Yi Fei, chief editors, editorial team members and the project leaders, who have contributed to the publication of RICES 2020. Kudos to all of you!  Thank you and let's make MMU Press be the beacon of knowledge.

**Assoc. Prof. Dr. Tan Siow Hooi**
Deputy Director, Research Management Centre (Head, MMU Press)
Multimedia University

# EDUCATION & SOCIAL SCIENCE

![msu management & science university logo] **SUSTAINABLE DEVELOPMENT GOALS** | 4 QUALITY EDUCATION | FUMO3D

# 3D-PRINTING RAT  AND AUGUMENTED REALITY AIDED VENIPUNCTURE TEACHING TOOL  FOR 21ST CENTURY EDUCATION

## ABSTRACT

Background: Three dimensional (3D) visualization technologies are one of the innovative methods in enhancing student's thinking skills and increasing realism. In sequential systems learning , students may feel that some systems are more or less complicated than others for different reasons that will enable them to learn about each  system effectively. 3D-printed model and augmented reality (AR) has been introduced in the teaching and learning process to increase understanding and interests in a specific topic. Application of 3D-printing model embedded with AR will help to improve student spatial visualization skill and enhanced their interests in a difficult problem or subject specifically in the science-based subject. Objective: This study aims to evaluate the effectiveness of using 3D-printing rat model embedded with AR (with mobile apps)for teaching blood withdrawal technique and rat's anatomy among undergraduate students at private institute. Method: A questionnaire was given to students before and after the usage of 3D- printed rat model. The students were given proper instruction and briefing on classical way (normal teaching method) before practising blood withdrawal using the 3D rats model. Data collected using a questionnaire consisting of socio-demographic, pre-test, and post-test question. Total of 117 students was tested with this 3D-printed rat model embedded with AR as part of paired sample t-test to check the effectivness. Results: Students has been respondent to prove the hypothesis that usage of the 3D- printed rat model embedded in teaching blood withdrawal techniques and rat's anatomy are more effective compared to using classical teaching method (p<0.05). A positive attitude and interests in the 3D- printed model embedded with AR have been observed among all participated. Conclusion: Usage of the 3D-printed model embedded with AR was more effective among undergraduate students rather than using the classical method in classroom.

## OBJECTIVE

1. To learn the appropriate veins for blood  withdraw by using 3D printing rat with AR model as a learning/teaching aid in classroom.
2. To assess the effectiveness of using 3D printing rat models with AR on the teaching and learning process.
3. To minimize the usage of animal for teaching purpose as part of supporting the 3Rs rules. (Replace, reduce, refine)

## INTRODUCTION

**3D PRINTER** — process of making a three-dimensional solid object of virtually any shape from a digital model (Mpofu, T. P et.al, 2014)

the use of 3D results in improved outcomes in terms of understanding spatially demanding anatomical knowledge.

## METHODOLOGY

**ETHICAL**
- Application for Human ethic
- MSU-RMC-02/FR01/06/L1/004

**DEVELOPMENT**
- Develop 3D musculoskeletal system
- Develop questionnaire

**OBTAIN DATA**
- Conducted workshop
- Data Analysis paired t-test

## IMPORTANT

This 3D printing rat models can be replace real rat as part of teaching method for blood withdrawal technique. It also will help to reduced the usage of animal in teaching purpose as part of supporting the 3Rs rules (Replace, Reduce and Refine). Using  this kind of model not only improve students technique, it could put a brake on the demand if usage of rats and overcome some of the ethical and legal issue related to animal abuse.

## RESULT & DISCUSSION



ASSESSING THE USE OF 3D MODEL

Strongly Disagree · Disagree · Neutral · Agree · Strongly Agree
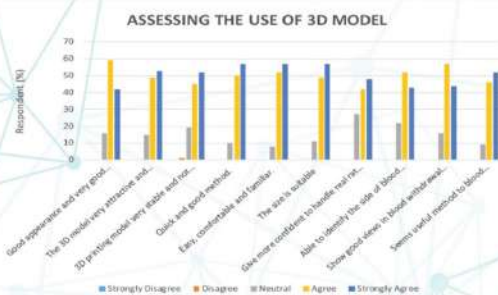
**D:** Majority number of the students agreed with the application of 3D printing model had enhanced their knowledge in   musculoskeletal system . The objective and goals for the research of anatomy studies in musculoskeletal system after using 3D printing model were successfully achieved

*Ethics approval: MSU-RMC-02/FR01/06/L1/004*



**FUMO 3D SDN BHD INDUSTRY**

**MSU SEED GRANT RM20K**

**WORKSHOP ON 3D MODEL  AND APPS AMONG STUDENTS**

**3D MODEL OF RATS** | **MOBILE APPS** | **MOBILE APPS INTERFACE** | **AR OF RATS IN DIFFERENT SIX SYSTEMS ORGAN** | **COPYRIGHT IN PROGRESS**

AZRINA ZAINAL ABIDIN, SANTHRA  SEGARAN BALAN,  SITELL MAYA,  HASNAH BAHARI,  MUHAMMAD FUAD MOHD,  RAHMITA WIRZA O.K. RAHMAT AND KHAIRUL AZANNI AMRAN
MANAGEMENT AND SCIENCE UNIVERSITY AND UNIVERSITI PUTRA MALAYSIA

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## A FRAMEWORK FOR ENHANCING INTENTION TO RECOVER AND CREDIBILITY OF THE REHABILITATION CENTRE AMONG OLDER ADULT IN MALAYSIA

### Choo Pei Chin [1], Dr Lai Kim Piew [2*], Dr Yuen Yee Yen [3]

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3)Faculty of Business, Multimedia University Jalan Ayer Keroh Lama, 75450 Bukit Beruang, Melaka.

## Research Problem

❖ In 2017, 6.2% of the Malaysian population was 55 years and above and the percentage of older adults in Malaysia is expected to surge to 14.5% in 2040.

❖ There will be three elderly people for every 20 Malaysians (Department of Statistics Malaysia, 2017).

❖ The growing number of older adult has drastically increased the healthcare expenditure of Malaysian government (MIMS, 2017).

❖ As the medical recovery is one of the major problems of older adult in Malaysia (The Borneo Post, 2017).

❖ However, there is still lack of comprehensive local studies which link rehabilitation service with patient's intention to recover and active ageing credibility.

## Research Objectives

1. To examine whether health consciousness affect credibility of the rehabilitation centre and Intention to recover.
2. To examine whether participation affect credibility of the rehabilitation centre and Intention to recover.
3. To examine whether physical environment affect credibility of the rehabilitation centre and Intention to recover.
4. To examine whether financial security affect credibility of the rehabilitation centre and Intention to recover.
5. To examine whether online learning affect credibility of the rehabilitation centre and Intention to recover.
6. To examine whether credibility of the rehabilitation centre affect Intention to recover.

## Overarching Theory

❑ Relationship Marketing Theory

❑ Stimulus-Organism-Response Theory

## Research Questions

1. Does health consciousness affect credibility of the rehabilitation centre and intention to recover?
2. Does participation affect credibility of the rehabilitation centre and intention to recover?
3. Does physical environment affect credibility of the rehabilitation centre and intention to recover?
4. Does financial security affect credibility of the rehabilitation centre and intention to recover?
5. Does online learning affect credibility of the rehabilitation centre and intention to recover?
6. Does credibility of the rehabilitation centre affect intention to recover?

Stimulus    Organism    Response

Health Consciousness

Participation

Financial Security

Physical Environment

Online Learning

Credibility of the Rehabilitation Centre

Intention to Recover

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## MULTIMEDIA UNIVERSITY

# A PROPOSED FRAMWORK OF DIGITAL TECHNOLOGY USE BY MICROENTERPRISES IN THE INFORMAL SECTOR

Ho Sai Eng, Dr. Yvonne Lee Lean Ee (Multimedia University)

## Abstract

• An informal sector tends to be viewed as vital field across the world. It provides a **major source of earning** for lower income group.
• Informal sector provides variety of job opportunity to **urban area** and contribute to **informal economy**.
• With the emergence of mobile devices nowadays, mobile payment is widespread and commonly use among societies, but **not to lower range** particularly informal group.
• This research will proposed a model to study the antecedents that influence the mobile payment usage by informal sector and to what extend the digital payment will ensure their well-being.

## Problem Statement

• In today's cashless society, adoption of mobile payment by microenterprises is not prioritized and they risk being left behind, thus no promising in their well-being especially the quickly-spreading pandemic that is threatening their livelihood.
• Government policies that encourage micro-entrepreneurs to adopt digital technology but the adoption was not compulsory.
• Financial burden, no intention and lack of habit to try and use new technology, unaware the usefulness of the adoption and lack support from policy maker as well as mobile network operators are some of the issues faced by informal sector (Urban Redevelopment Authority, 2019).

## Research Questions

1. What are the UTAUT2 antecedents that influence the usage of mobile payment among the microenterprises?
2. Is there any effect of mobile payment usage on street food hawker's well-being?

## Literature Review

• According to SME Corporation and circular issue from Bank Negara Malaysia, microenterprise Malaysia is defined as enterprise with sales turnover less than RM300,000 or employees less than five people (SME Corp, 2020).
• Subjective well-being (SWB) also refer to the one's life satisfaction with how quality of one's lives include how pleasure level of one's lifestyle (Angner, 2010; Diener, 2009).
• Scholars reveal that the use of e-wallet, mobile phone technology paves a way for betterment among farming group (Singh et al., 2016; Uduji et al., 2019; Zainol et al., 2017).
• Policy maker Malaysia, Bank Negara Malaysia emphasized on the transforming traditional payment method to e-wallet among all level of micro-enterprises and SMEs (Lee & Daniel, 2018).
• Dennis, (2004) indicated that business transactions nowadays is in electronic payment method whereby replace the previous cash based payment methods which take place in globally accessible e-commerce platform (Abrazhevich, 2004).
• Nowadays most of the countries strongly promotion of demonetization mobile payment, citizen in South Africa, India are following this trend as well.
• Digitalization transformation is needed for micro-enterprises by recommend the usage of mobile payment through mobile service providers able to close the credit gap and ensure the microenterprises' well-being.

## Methodology

• Document Analysis of:
  o International Reports: GSM Association, Organisation for Economic Development (OECD), United Nations Educational, Scientific and Cultural Organization (UNESCO),
  o National and State-level Reports: Department of Statistics, 11th Malaysia National Plan, Government of Penang (World Heritage Site Special Area Plan: Georgetown), World Bank Report on Digital Malaysia 2018
  o Journal articles on:-
    ▪ e-wallet and mobile payment - 168 journals
    ▪ Informal sector - 73 journals
    ▪ UTAUT - 116 journals

## Proposed Conceptual Framework
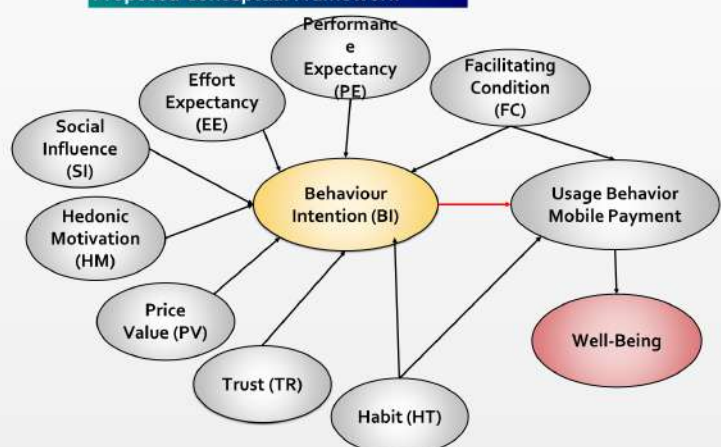
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# ADEPT ELITE ONLINE: ONLINE LEARNING PORTAL & RESOURCE REPOSITORY FOR PROFESSIONAL DEVELOPMENT

**Prof. Ts. Dr. Neo Mai, Ts. Heidi Tan, Ts. Nazirah Mat Sin,**
**Ts. Dr. Low Jing Hong, Ms. Norayesha Nazli, Ms. Nik Idarwani**
*Office of Academic Development for Excellence in Programmes and Teaching (ADEPT), MMU*

## INTRODUCTION

The push to utilize technology to its fullest potential in the classroom has resulted in a shift in the role of the lecturer who now has to change the way they teach while keeping abreast with the latest technology and digital innovations. This has resulted in increased workplace stress as some educators struggle with the changes (Zahiruddin Othman & Vevehkanandar Sivasubramaniam, 2019). Professional development has been said to lead to a reduction of work-stress with the rise in digitisation (Foo, 2018), however supporting the development of these workplace skills requires a user-friendly approach so as to reduce anxiety or stress when learning new technology-supported teaching approaches. With the onset of COVID-19 and working from home, many staff now seek to improve their professional development online, and ELITE Online serves to provide the platform to do so.

## PROJECT DESCRIPTION

### ELITE ONLINE (Engaging Learners, Innovating Teaching Environments)

ELITE Online is **an online learning portal** that serves as a resource for all of **ADEPT's digital teaching and learning content.** ELITE Online is used as a supplementary support to the academic development workshops that ADEPT conducts, whereby **participants are able to gain fundamental technical and theoretical knowledge online at their own learning pace** and then be coached on how to apply the knowledge towards relevant real-life scenarios during workshop sessions. ELITE Online serves as a **repository** where academics can **access videos from past workshops, tutorial videos, learning manuals, ebooks and other digital learning materials.** The platform is underpinned by the MMU Teaching & Learning framework and were effective in improving staff professional development in teaching and learning.

- Each online training is a short course with multiple modules that staff can complete and revisit anytime they want.
- Courses are designed by trainers and subject matter experts with the guidance of an instructional design expert.
- The system allows trainers to track each participant's progress and generate reports for further insights.
- Completion of certain courses will provide participants with a certificate of completion and corresponding training hours
- Badges can also be awarded to participants at certain milestones

## VALUE ADDED

- ELITE Online was specifically designed to **alleviate the stress and challenges** in professional development for staff.
- This online platform for professional development is **1) user-friendly, 2) scaffolding and collaborative, and 3) learner-centred**.
- With the **COVID-19 pandemic** disrupting regular face-to-face Teaching and Learning workshops, ELITE Online has provided staff **a flexible, stress-free way to improve their teaching and learning competencies** at their own pace from the comfort of their home and gave ADEPT a central platform to share the latest updates on virtual classroom T&L strategies in MMU
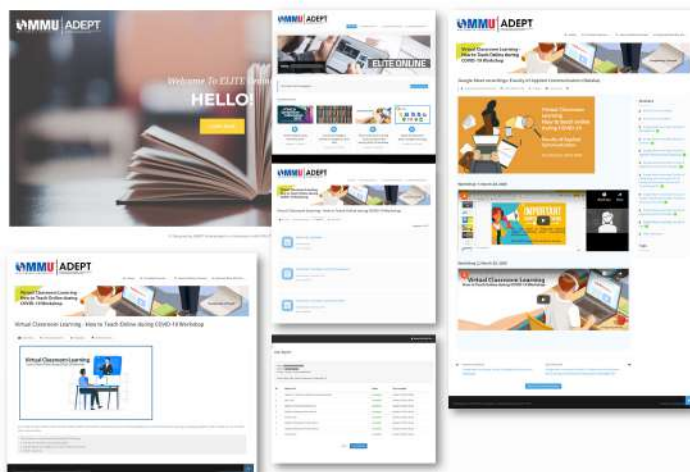
## FEEDBACK

- **95.1% of respondents agreed to strongly agreed that their T&L competencies were enhanced through ELITE Online**
- **97.5% agreed to strongly agreed that they will be able to apply what they learn through ELITE Online to their classes**
- *"I can learn at my own time and own pace. I can even repeat few times to understand better."*
- *"yes, especially in this covid situation, online learning and document submission are significant"*
- *"Easier than face to face training and more convenient"*

## COMMERCIALISATION POTENTIAL

As the ELITE Online platform was developed similarly to platforms that host MOOCs, it has a high potential marketability and can be scaled to other content domains, making it a sustainable online platform.

## SPECIAL HIGHLIGHTS

- IP: 1 Copyright awarded
- IUCEL 2019 GOLD Award

## REFERENCES

Foo, K. Y. (2018). Two in five Malaysians fear losing jobs in rising digital economy — survey. The Edge Markets, pp. 23–26. Retrieved from https://www.theedgemarkets.com/article/two-five-malaysians-fear-losing-jobs-rising-digital-economy-—-survey

Zahiruddin Othman & Vevehkanandar Sivasubramaniam. (2019). Depression , Anxiety , and Stress among Secondary School Teachers in Klang, Malaysia. International Medical Journal (1994), 26(2), 71–74.

## ACKNOWLEDGEMENT

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# AN ENHANCED 'SENSE OF PLACE' FRAMEWORK FOR THE SUSTAINABILITY OF CULTURAL & HERITAGE TOURISM

LEADER: Tan Siow Kian (Faculty of Management, MMU); Members: Tan Siow Hooi, Lin Jo-hui, Choon Shay Wei, Hasliza Hassan, Chong Lee Lee, Ong Hway Boon; GRA: Chong Phooi Kwan

## Abstract/Product Description/Introduction

This research aims to understand how to enhance local's sense of place at World Heritage Site (WHS) for the sustainability of cultural & heritage tourism. Interviews and observations were conducted at Melaka and George Town, UNESCO WHSs of Malaysia, from 2014 till 2019. Two models have been constructed, the first one is to understand the insights of sense of place from locals' perspective. The second is to identify the elements of place to be constructed as a learning approach. These two models might be used to design place-based learning activities to nurture young generations for the sustainability of a WHS.

## Methods & Materials

Location: Melaka and George Town, WHSs of Malaysia

Qualitative approaches: In-depth interviews, observations, content analysis

Interview respondents: Authors/writers of the local history related books; school teachers; tour guides; guided tour participants; local residents; local magazine's and book's editors

Observations: Guided tours with different themes

Data analysis: Open coding, axial coding, selective coding

## Results

A sense of place framework has been constructed for the sustainability of intangible cultural heritage at a WHS.

A Place-based Approach, using clan/geographical association heritage as an example, has been outlined to nurture locals' sense of place at a WHS.

## Discussion

The first model extends the literature of place attachment as well as illustrating how sense of place contributes to the sustainability of intangible cultural heritage.

The second model extends the dimensions of place as well as suggesting a place-based approach that might be applicable at a WHS.

## Conclusions

Two articles have been published in Web of Science – SSCI journals: Tourism Management; Journal of Hospitality and Tourism Management



### Acknowledgements

### Special Highlight

- 2019 TRMC Best Paper Award (Sponsored by Journal of Hospitality and Tourism Management)

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# AN IMPROVED INTEGRATED REPORTING FRAMEWORK FOR ENHANCING THE VALUE RELEVANCE IN MALAYSIA

Nahariah Jaffar,[1]* Azleen Shabrina Mohd Nor, [2]* Zarehan Selamat [3]*
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## INTEGRATED REPORTING (IR)
…the FRAMEWORK established in 2013

…content elements…

- Organizational overview and external environment (E1)
- Governance (E2)
- Business model (E3)
- Risks and opportunities (E4)
- Strategy and resource allocation (E5)
- Performance (E6)
- Outlook (E7)
- Basis of presentation (E8)

…new way of corporate reporting.

### ISSUE

Eleventh Malaysian Plan: promote investment to spearhead economic growth. Investors need comprehensive information but traditional corporate reporting is no longer provides enough information.

CEO of IIRC-2014: lack of the Malaysian local companies embracing the IR framework.
PwC- 2014: although the Malaysian businesses have the basic of reporting covered, their reporting is not yet integrated.

The 30 % bumiputera corporate equity ownership is not yet achieved.

### OBJECTIVE

(i) To investigate whether the disclosure of information related to the IR content elements enhances the value of corporate information;
(i) To assess the effect of Bumiputera corporate equity ownership on the value relevance of the corporate information;
(ii) To examine the difference in value relevance of accounting information in pre and post establishment of the IR Framework

### CONCEPTUAL FRAMEWORK
Information Related to IR Framework content elements

- Organizational overview and external environment
- Governance
- Business model
- Risks and opportunities
- Strategy and resource
- Performance
- Outlook
- Basis of preparation and

Bumiputera corporate equity ownership

Control variables: Firm size; leverage; profitability

→ Value relevance

## RESULTS

### Voluntary Disclosure (2015)

- E1 497 (82.42%), disclose between 71% to 80%
- E2 572 (94.86%), disclose between 81% to 90%
- E3 411 (68.16%), disclose between 41% to 50%
- E4 568 (94.2%), disclose between 51% to 60%
- E5 466 (77.28%), disclose between 51% to 60%
- E6 494 (81.92%), only disclose between 31% to 40%
- E7 495 (82.09%), disclose between 41% to 50%
- E8 495 (82.09%), disclose between 41% to 50%

### RESEARCH METHOD

Annual reports of all companies listed on the Main Market of Bursa Malaysia for 2012 & 2015 (Out of 800, utilized 603).

### Pre and Post Issuance Period of IR Framework

| IR Content Element | Mean 2012 | Mean 2015 | IR Content Element | Mean 2012 | Mean 2015 |
|---|---|---|---|---|---|
| Organizational overview & external environment | .8528 | .7863 | Strategy & resource allocation | .3227 | .4907 |
| Governance | .7665 | .8393 | Performance | .5900 | .3628 |
| Business model | .5507 | .4652 | Outlook | .4535 | .4716 |
| Risks & opportunities | .5935 | .5416 | Basis of presentation | .5144 | .4753 |

Paired sample t test

Strategy & resource allocation ($t_{602} = -27.807$, $p < 0.001$)

Governance ($t_{602} = -26.266$, $p < 0.001$)

Outlook ($t_{602} = -6.230$, $p < 0.001$)

Regression

2012
- LOGTA, EPS & BV are positively significantly affect the VALUEREL.
- BUMI and IR content elements do not affect the value relevance of the corporate information.

2015
- BUMI, E1, E7, LOGTA & BV are positively significantly affect the VALUEREL.
- E2 – E6 & E8 do not affect the value relevance of the corporate information.

## RESEARCH OUTPUTS

**Conferences:**
International Conference on Business Management, Tourism Management, Education and Arts 2018 (ICBTEA 2018) Mercure Bali Legian, Bali, Indonesia, 18-19 December 2018

2nd ASEAN Academic Network International Conference on Economics and Business Management (AICEBM 2018), Langkawi Seaview Hotel, Kedah, 4-5 December 2018

International Conference on Business Management, Education, Social science and Computer Science 2018 (ICBESC 2018), Mercure Kuala Lumpur Shaw Parade Hotel15-17 August 2018

**Journals:**
Jaffar, N., Mohd Nor, A.S. & Selamat, S., (2019). Voluntary Disclosure of Integrated Reporting Elements: The Malaysian Public Listed Companies Evidence. International Journal of Advanced Science and Technology, Vol. 28 (8), pp. 742-754.

Jaffar, N., Mohd Nor, A.S. & Selamat, S., 2019, Integrated Report Content Elements Effecting Value Relevance of Publicly Listed Companies in Malaysia. International Journal of Innovation, Creativity and Change, Vol. (6), 303-318.

Jaffar, N., Mohd Nor, A.S. & Selamat, S., (2018). Analysis of Voluntary Disclosure Before and After the Establishment of the Integrated Reporting Framework. Accounting & Finance Review, 3 (4), 105 – 113.

## CONTRIBUTIONS

Assist the profession and regulators in understanding the level of integrated reporting practices of the listed companies in Malaysia.

Insight regarding the importance to improve corporate reporting by practicing IR as it may enhance the quality and decision usefulness

This study suggests that an increase in the adoption of IR may be achieved if relevant parties could undertake a significant role to promote full adoption of IR in Malaysia.

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# ANALYSING THE LEVEL OF READINESS OF MOSQUE COOPERATIVENESS SECTOR IN FACING THE DIGITAL ECONOMY

Haniza Hashim, Dr. Abdullah Sallehhuddin Abdullah Salim, Md Shukor Masuod, Mohd Ariff Mustafa, Siti Nurul Huda Mohd and Hazlaili Hashim

## Introduction

The Government had launched the National Policy on Industry 4.0, known as Industry4WRD on October 2019. The policy is to assist the private sector towards digital transformation and to embrace Industry 4.0 in a systematic. Digital Economy projection and IR 4.0 is expected to change business model and this will give impact to mosque cooperativeness compared to old model cooperativeness. Interview had been conducted to Mosque Cooperativeness in Selangor and Melaka. Findings from that showed that Mosque Cooperativeness in Selangor and Melaka are not fully prepared for the digital economy.

### Objective of the study

- To study the level of readiness of mosque cooperativeness sector in facing Digital Economy.

Level of Readiness of Mosque Cooperativeness Sector In Facing Digital Economy
- Organization Innovations
- Product Innovations
- Social Innovations

### Problem Statement

- Mosque cooperativeness faced in terms of skills and technology usage level especially information communication technology (ICT) among Board of Directors of Mosque and management.

### Research Methodology

**Interview and focus group**

**Analysis using Atlas.Ti**

SAMPLES

### RESULTS AND DISCUSSION

1. Mosque Cooperativeness in Selangor are not fully ready to digital economy. However, they had applied WhatsApp group. These Cooperativeness had Facebook but did not updated.

2. Mosque Cooperativeness in Melaka are not ready to face digital economy. Just implement walk-in practices only.

### GALLERY

- Journal myCITE 2021
- Conference ISEB 2021
- RESEARCH OUTPUT
- Conduct Training and Workshop
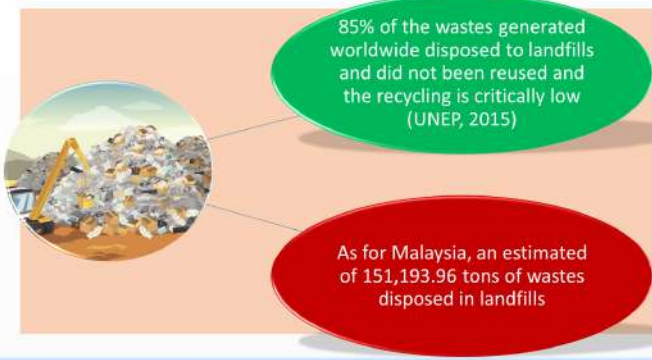
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# CONSTRUCTION WASTE MANAGEMENT: A SYSTEMATIC LITERATURE REVIEW OF TPB & NAM

## MARIA MAIYUS, DR. SOLARIN SAKIRU ADEBOLA & DR. AL-MANSOR ABU SAID

### CONSTRUCTION WASTE DATA



85% of the wastes generated worldwide disposed to landfills and did not been reused and the recycling is critically low (UNEP, 2015)

As for Malaysia, an estimated of 151,193.96 tons of wastes disposed in landfills

**LITERATURE TAXONOMY**

- CW definition and generation
- The research areas of previous studies in CW management 2017 – 2020
- The application of TPB and NAM theory in studying the construction waste management behavior.
- Discussions and conclusions

### BEHAVIOUR

**Conclusion**

- There are still critics and questionable issues in terms of the usage for both theories
- Improvement of the theories can be done by adding other variables

| CONSTRUCTION WASTE DEFINITION | |
|---|---|
| Tchobanoglous et al., 1977 Roche et al., 2006 Menegaki et al., 2018 | Also known as construction and demolition waste. Produced within construction, renovations and demolition |

| CONSTRUCTION WASTE RESEARCH | | |
|---|---|---|
| | Authors | Previous Research |
| 2017 | Bakshan et al.; Crawford et al.; Marrero et al.; Bamgbade et al.; Yusof et al.; Wu et al. | Causal behavioural determinants, barriers in improving waste management practices |
| 2018 | Ding et al.; Yuan et al.; Tam et al.; Suciati et al.; Akinade et al.; Umar et al.; | Waste reduction measures, attitudes and behaviour towards recycling, assessing construction worker |
| 2019 | Wu et al.; Chen et al.; Islam et al.; Oliveira et al.; Wang et al.; Hoang et al | Assessment methods for construction waste, decision behaviour, nano particles from construction wastes |
| 2020 | Liu et al.; Li et al.; Ma et al.; Umar et al.; | Behaviour of the construction enterprises and recycling enterprises, factors affect construction waste reduction |

| TPB & NAM | | |
|---|---|---|
| 2017 | Shi et al.; Dalvi-Esfahani et al.; Liu et al. | Waste reduction behaviour, green information system, sustainable transport behaviour |
| 2018 | Bird et al.; Ünal et al.; He et al.; Wang et al.; | Walking and cycling behaviour, pro environmental intentions, electric vehicles, sustainable supply chain |
| 2019 | Mak et al.; Song et al.; Li et al.; Sia et al | Recycling, green purchase intention, energy-saving appliances, eco-friendly house |
| 2020 | Jain et al.; Liu et al.; Yang et al. | Recycling activities, product knowledge, safety citizenship behaviours, waste reduction behaviours |

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# >> CYBERBULLYING: TIME TO TACKLE THE BULLIES <<

**Project Leader: Dr. Bahma Sivasubramanim**
**Team Members: Academicians from MMU, UKM, Legal Practitioners**

## 1 INTRODUCTION

In line with Malaysia's aspiration towards a digital society and empowering digital citizens, MMU has, with the endorsement of Kementerian Komunikasi dan Multimedia Malaysia (KKMM) embarked on a research project that aims to examine on the establishment of an anti-cyberbullying law

Recent reports of young people committing suicide due to cyberbullying are sobering facts that have galvanised the Government and concerned groups to seriously examine the need for a specific piece of legislation to address this issue

Our ASEAN counterparts, namely Singapore and Philippines have statutes on their books – Protection from Harassment Act 2014 of Singapore and the Anti-Bullying Act 2013 of the Philippines. United Kingdom has the Protection from Harassment Act 1997. What about Malaysia?

This research will also address the adequacy of the existing legislations such as the Communication and Multimedia Act 1998 and the Penal Code 1950 on cyberbullying issues. It is hoped that the research will result in detailed background support which will assist in the creation of a much needed piece of legislation



## 2 RESEARCH OBJECTIVES

**MAIN OBJECTIVE:**

To examine and evaluate how the Government can fulfil its obligations and commitments in managing cyberbullying issues

**OTHER OBJECTIVES:**

1) To examine whether the existing laws of Malaysia is sufficient in managing cyberbully issues

2) To identify and define criminal behaviours that amount to cyberbullying including *"mens rea"* and *"actus reus"* of cyberbullying

3) To examine rights and remedies of the target victims and the punishment for the perpetrators

4) To establish a theoretical framework on Anti-Cyberbullying Bill and to address ancillary issues

## 3 METHODOLOGY

**1. Roundtable discussion**

- 6 August 2020
- i-Tech Tower Cyberjaya
- 67 respondents from various agencies
- 3 breakout sessions (BOS)

**2. Online Survey**

Duration: 16 – 29 Nov 2020

Respondents: General public & Legal fraternity

- Public & Legal Questionnaires

## 4 ACTIVITIES

Bahagian Hal Ehwal Undang-Undang, JPM (BHEUU)
- Courtesy visit on 18 August 2020

UNICEF
- Online meeting on 29 September 2020

KKMM
- Meeting on 5 October 2020

MCCA
- Online engagement on 29 October 2020

Members of Parliament (MP)
- Online meeting with YB Kathuri Patto & YB Maria Chin Abdullah on 7 October 2020

## 5 OUTCOME

Upon the completion of all data collection including information, MMU Research Team will prepare the report before submitting and presenting to KKMM latest by 30 January 2021

## 6 ACKNOWLEDGEMENT

We would like to thank to TM for funding this research project and the support provided by KKMM, SKMM, MMU Management and the respondents who involved in this project

Life Made Easier™  TM Group

# MMU
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# Determinacy of Qalb Behavioral Traits Towards Inclusive Entrepreneurial

Project Leader: **Assoc. Prof. Dr. Kamarulzaman Ab. Aziz**
Nor Azlina Binti Ab Aziz, Nadira Binti Mohamed Isa, Noor Shahaliza Binti Othman, Norhazlin Binti Ismail,
MHD Louai Sarhan, & Atikah Bt Mohd Zulkifle

## Abstract:

Many Muslim countries including Malaysia need for innovative inclusive entrepreneurs from among the community. This study proposes that a key to the situation is to produce inclusive entrepreneurs from our graduates. By understanding the determinants for these youth's intentions. Muslims' daily activities must be focused foremost on pleasing Allah. It is believed that the focus is at the heart or qalb. It is proposed that Qalb behavioral traits, namely, necessities (daruriyyat), needs (hajiyat), and luxuries (tahsiniyyat), could be key determinants for the behavioral intention to become inclusive entrepreneurs. Thus, Ajzen's Theory of Planned Behaviour was adapted for this study and specific antecedents for inclusiveness is under explored.

## Framework:

The framework was designed to investigate the determinacy of Qalb Behavioural Traits towards the formation of Inclusive Entrepreneurship Behavioral Intention. Ajzen's Theory of Planned Behaviour was used as the underlying theory supporting this framework. Furthermore, the roles of Religiosity, Prior Entrepreneurship Experience and other generic demographic aspects such as age as well as gender, as moderators were added to complete the framework. The following is the final model based on the findings:

$$IEI = 0.714 + 0.165(D) + 0.141(H) + 0.508(Att) + 0.410(PBC) - 0.571(Demo)(T) + 1.517(PriorEx) + 0.191(PriorEx)(T)$$

### Conclusion:

The findings suggest that awareness and reinforcement of Qalb Entrepreneurial Traits can lead towards more of our Muslim youth become inclusive entrepreneurs that can contribute towards the betterment of the Ummah. Thus, it is recommended to promote the offering of Qalb Entrepreneurship trainings and short courses to Muslim youth. This can be done in collaboration with agencies such as JAKIM, the state Zakat centres and student bodies such as Usrah club, etc.
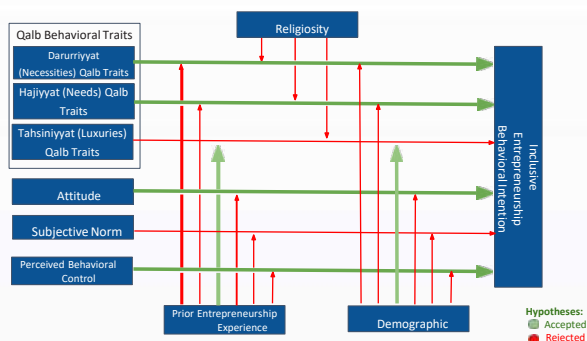


## Acknowledgements

## Achievements:

1. Sarhan, M. L., Ab. Aziz, K., & Mohd Zulkifle, A. (2019). Determinacy Of Qalb Behavioral Traits Toward Inclusive Entrepreneurial Intention Among Muslim Student. Volume 88, The 13th Asian Academy of Management International Conference 2019, pp. 274-287, doi: 10.15405/epsbs.2020.10.25

2. Mohd Zulkifle, A., Ab. Aziz, K., & Sarhan, M. L. (2019). Determinant Of Social Entrepreneurship Intention Among Malaysian Youth. Volume 88, The 13th Asian Academy of Management International Conference 2019, pp. 288-300, doi: 10.15405/epsbs.2020.10.26

3. Knowledge Transfer Program with Malacca Farmer's Organization on 12th September 2020

## Collaborators:



Life Made Easier™ | TM Group

# Determinants That Will Boost Womenpreneurship Among B40

**Background** – Based on Malaysia's 2030 Sustainable Development agenda, we want to empower women in the economic sector. Now a days we can see many start-ups and micro business run by women. During the pandemic, many B40 women embark in the entrepreneurship world. Women now equally has become the player and provide toward the world economic.

**Purpose** - The purpose of this research is to examine the factors that can boost the involvement and success of a womenpreneur among B40 women. The theoretical framework is developed based on the Theory of Planned Behaviour (TPB) which covers factors like an inspiring role model, education on digital skills, and financial support.

**Findings** - Women that in the entrepreneur world that possess a clear target will have the right attitude in their pathway and will be a role model to the society. This pressure from the society will make this womenpreneurs strive hard to equip themselves with adequate education so that they can open more doors of opportunity.

**Design/methodology/approach** - This study will adopt a quantitative approach and used a convenience sample comprising 100 women entrepreneurs in Malacca.

Result shows that all factors are significant to womenpreneurship performance. Having education in digital skills stated the highest Beta result. This shows that with digital skills which relevant in this digital era is vital to boost womenpreneurship among B40 women

From this study, we found out that all 3 factors do show significant in boosting womenpreneurship among the B40 women. The growth of success can be achieve if they strengthen their digital skills. They should take the opportunity of this digital era to leverage their business. Transforming physical business to digital business is not only important for big business but all types of businesses. Women have to be more daring to "experiment' new digital tools and platform in their business.

There is no doubt that the rise of social media has change how business people run their business, their sales and marketing. Social media platforms like Facebook, Instagram, TikTok, YouTube and LinkedIn is a amazing and "viral" tool for businesses to embrace and adapt.

Ideation stage: "PM TEPI" is app platform that will help B40/micropreneur women to identify their strength, weakness and needs. This platform will help to recommend courses/training base of what they need. So that they can equip themselves with more knowledge & tools to do better in their business. Using "PM TEPI" also can build your network with other womenpreneurs and find strategic location to start your business.

11

# Developing a Framework for Patients' Choice of Private Dental Care Service in Malaysia

Sook Fern Yeo ( Faculty Of Business, Multimedia University)
Cheng Ling Tan (Graduate School Of Business, Universiti Sains Malaysia)
Goh Mei Ling ( Faculty Of Business, Multimedia University)
Kah Boon Lim ( Faculty Of Business, Multimedia University)

## Abstract

- Dental care has seen a robust growth in Malaysia compared to the past decade, but the utilization of dental care services in Malaysia seems low compared to OECD countries.
- 10.8% considered their oral health poor and had pain related to teeth and gums (MOH,2011).
- Ministry of Health Malaysia (2016) stated that nine in 10 Malaysian adults have experienced periodontal disease and dental caries.
- 7% of adults in Malaysia had lost all their natural teeth and about 30% of Malaysian adults were found to have oral health problems (Bernama, 2016).
- The purposive sampling technique was used to obtain 191 patients who visited their dental care providers.
- This study is expected to develop a framework that can work holistically to improve the health system delivery to enhance efficiency and effectiveness which will then increase patient's choice of visiting the private dental clinic.

## Objectives

To examine the factors influencing patients' choice of private dental care service in Malaysia.

## Research Framework

Dentist Concern → Experiential Value → Patients' Choice on Dental Care
Healthscape
Trust
Perceived Value
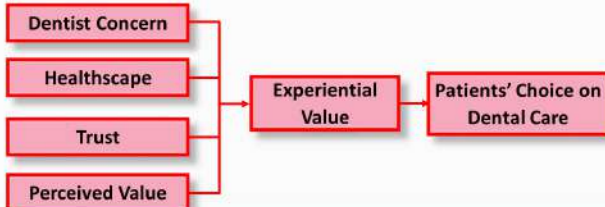
## Methodology

- Minimum sample size = 129 (G*Power analysis)
- Questionnaire Unit analysis : Individuals who had just visited private dental care clinics (within a year) in Malaysia. Collected from 191 patients
- Quirkos, SPSS version 25 & Smart PLS

## Achievements



1st Place 3-Minutes Thesis Competition 2018 | Silver Medal IDE4TE 2019 | Bronze Medal Research Innovation Commercialisation & Entrepreneurship Showcase (RICES) 2019 | Gold Medal 3-Minutes Thesis Competition 2020 | Gold Medal PYPP Poster Competition 2020

## Findings

- Top most criteria in choosing their choice of dental care clinic.
- Build patient's confidence.
- Educate patient about how to maintain a healthy teeth.
- Caring dentist who respects patients.
- Facilities are kept in tip-top condition.
- Adequate medical equipment.
- Trustworthy dentist.
- Dental care clinic reputation.

## Novel theories/New findings/Knowledge

- This research is to develop a theoretical generalization on the Expected Utility Theory (EUT). EUT explains how one make a risky choices involving monetary outcomes, but it is also used to explain how one make risky choices involving health outcomes such as clinical decision analysis.
- Filling the current gaps in the research by incorporating the mediation effect of experiential value on the relationship between the influencing factors and the patients' choice in the private dental care in Malaysia.
- Bridges the academic discipline by incorporating the government thrust that emphasizes the research collaboration effort among industry, institutions and government.

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- BERNAMA, (2016, April 8), 9 in 10 Malaysian adults have periodontal disease and dental caries. The Sun Daily.
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- Oral Health Division, Ministry of Health Malaysia. Dental Health Report, 2011, Malaysia: Malaysia Ministry of Health.

# MMU
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# Developing a Teaching & Learning Ecosystem in Virtual Learning Classroom Using RICES Strategy & Team Based Learning

**DEVELOPING A TEACHING & LEARNING ECOSYSTEM**

i-Teach Symposium 2017

IDE4TE 2019

IRIS 2019

RICES 2019

IDE4TE 2020

*ELITE CONFERENCE: BEST PRESENTER AWARD*

A new norm in teaching & learning has arise because of the pandemic. All that involve have to quickly learn and adapt, with learning outcome still in mind as the main objective. We believe with a proper **teaching and learning ecosystem** in the online classroom is vital. An ecosystem whereby every single components in the teaching & learning process is interconnected in order to bring an effective and impactful experience. Team based learning (TBL) is a structured method of small group learning that focuses on students collaborative learning and preparedness. TBL is used as a driver to develop the ecosystem in a virtual classroom.

## Introduction

# R I C E S

**R**elationship and role : Strong bond between educators and students will result to building trust. As a 21st century educator we play multiple roles such as Motivator, Coach, Story teller and many more.

**I**ntroduction : Introducing new activities or instruction in a structured and clear method is important in determining students acceptance of the information. Unclear information will lead to students being demotivated and will not participate the activities. Blake (2009).
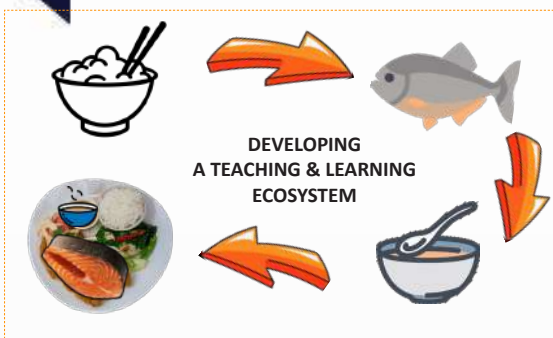
**C**ommunication : Educators must be communicate with their students not only in an effective way but also in a very creative way.

**E**motion : This virtual learning setting has resulted to many students feel stress and loss of interest in learning. Some of them feel demotivated because there is no real interaction between friends and lecturers.

**S**tructure : In a virtual setting, educators really have to prepare themselves before going to class. New technology tools has to be learn in order to make the classroom alive. TBL helps the educators to be more structure in conducting their classes online.

## Team Based Learning

**Pre-work:** All reading material, videos, references and etc is uploaded prior to the class
**IRAT:** Students will go through Individual Readiness Assurance Test
**TRAT:** Student will be break into groups and send to breakout rooms to do their Team Readiness Assurance Test.
**Application**: A case study is given to the same team to discuss and develop solutions/suggestions

## Discussion

Base on the result of this study shows that the RICES strategy should be practice in order to create this "epidemic" ecosystem. And the most significant component in the strategy is the roles and relationship. So as an educator we do play an important role to make sure that the ecosystem is built and it works. Instructor themselves should put effort into creating a virtual classroom that benefits and give impact to students. As a conclusion, teaching with technology is not a one size fits all approach (Jenna,2017). This is the main reason why a lecturer needs to be creative by playing multiple roles during online class to social relationship building as enhancing the student experience online.
This RICES strategy is not only used in virtual classes, it has also has been tested in training/ workshops and a training has been conducted in MMU to teach lecturers how to implement this strategy

EcoKit 1.0 is a app/web base platform that will be an interactive and informational for users that want to build their own classroom ecosystem. Some of the unique function is able to recommend user on the different type of RICES tools base on the subject they teach and the size of the class. It will also be a complete guide to implement team based learning to develop the ecosystem. Currently this EcoKit 1.0 is still at ideation stage.

## Result

Based on a survey and test run, roles and relationship was rated the highest and most important in building this virtual classroom ecosystem. So from here we concluded that this component will be the main driver in developing this ecosystem. This particular result is also similar to a research paper that is presented in International Conference On Business Sustainability and Innovation (ICBSI)2020

Blake, H. (2009). Staff perceptions of e-learning for teaching delivery in healthcare. Learning in Health and Social Care, 8(3), 223-234.

Jenna Gillett-Swan (2017), The Challenges of Online Learning Supporting And Engaging the Isolated Learner. Journal of Learning Design, 2017 Vol. 10 No. 1

WELCOME
ecoKit 1.0
Welcome to ecoKit. Explore the RICES strategy to build and foster the teaching and learning ecosystem. The ecosystem will ensure educating this generation will be more holistic whilst enabling the learning-centred approach to be used effectively. Prepare to get excited about the learning journey!

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# Developing an Accountability Disclosure Index for Islamic-Based Federal Public agencies in Malaysia

Norzarina Md Yatim, Abdullah Sallehhuddin Abdullah Salim, Ruzanna Ab Razak, Abby Ashraff Saprudin, Zakiah Manjanib, Mohd Khairul Izwan Mustafa

## INTRODUCTION

- Budget 2019 aims to ensure full disclosure of assets and liabilities
- Trust-deficit towards disclosure of financial information
- More efforts are needed – introduction of Accountability Disclosure Index (ADI)
- Aligned with Strategic Reform Initiative: Public Finance Reform in New Economic Model
- Inline with the aspiration of verse Al-Ahzab (33): 72

## RESEARCH OBJECTIVES

- To develop an ADI for Islamic-based Federal agencies
- To measure the ADI of Islamic-based Federal agencies
- To evaluate the influence of gender in BOD to ADI

## METHODOLOGY

- Annual report
- 2015 to 2017
- Sample & Population: 15
- ADI developed based on 1PP/PA3.1
- Correlation and multiple regression analysis using SPSS

## RESULTS
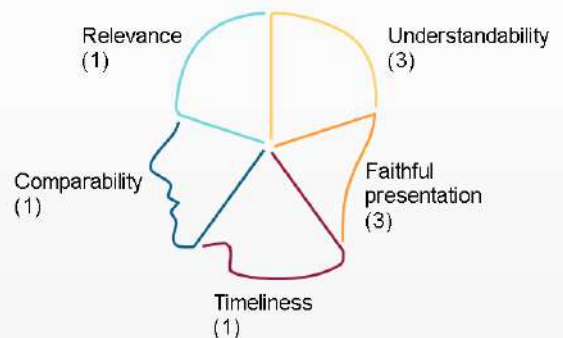
- Relevance (1)
- Understandability (3)
- Comparability (1)
- Faithful presentation (3)
- Timeliness (1)

## ACKNOWLEDGEMENT

"Sesungguhnya Kami telah kemukakan tanggungjawab amanah kepada langit dan bumi serta gunung-ganang (untuk memikulnya), maka mereka enggan memikulnya dan bimbang tidak dapat menyempurnakannya (kerana tidak ada pada mereka persediaan untuk memikulnya), dan (pada ketika itu) manusia (dengan persediaan yang ada padanya) sanggup memikulnya. Sesungguhnya tabiat kebanyakan manusia adalah suka melakukan kezaliman dan suka pula membuat perkara-perkara yang tidak patut dikerjakan".
Al-Ahzab (33):72

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# DEVELOPING REGULATIONS TO REDUCE HUMAN ERROR IN SMEs MANUFACTURING INDUSTRY

## Yeow Jian Ai, Chow Mei Min, Audrey Cheak and Tai Heng Toong (FOB,MMU)

Recently, Malaysia has recorded a **worrying increase in the numbers of accidents** by Social Security Organisation (SOCSO). **the manufacturing industry is one of the biggest contribution** of workplace accidents in Malaysia. DOSH Malaysia Statistical Analysis had recorded more than 2700 workplace accidents that involved disabilities and death in year 2019.Mansor, Zakaria and Abdullah (2012) highlighted that there is a **need to identify the dimensions that causes workplace accident in** Malaysia. According to Williamson and Feyer (1990), two out of three workplace **accidents are caused by human error.** Howell (2008) noted that **human factor appears to be the foundation of all causes** and therefore, it is more critical to review human error as variables for research. World Health Organisation (WHO) revealed that many countries especially the developing countries had **inadequate control over their workplace safety strategy which include insufficient awareness,** education, shortage of human resources, communication problems and poor safety enforcement.

## RESEARCH FRAMEWORK





## Methodology
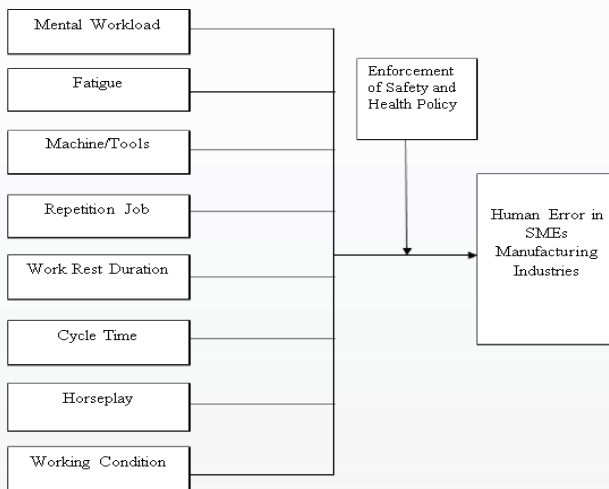


## Hypothesis Testing

| Variables | Interaction effect | outcome | R2 | Slopes |
|---|---|---|---|---|
| MW>Safe>HE | t=1.8608, sig 0.0625 @ 0.031 (sig for 1 tail) | Direct interaction | 19.35 % | 'Yes' steeper |
| f>Safe>HE | t=3.7115 sig 0.003 | Direct interaction | 11.41 % | 'Yes' steeper |
| M>Safe>HE | t=2.05 sig 0.0413 | Direct interaction | 11.73 % | 'Yes' steeper |
| RJ>Safe>HE | t=1.3495 sig 0.1783 | No direct interaction | 9.03 % | 'Yes' steeper |
| WR>Safe>HE | t=1.0823 sig 0.2801 | No direct interaction | 6.83 % | 'Yes' steeper |
| CT>Safe>HE | t=-0.37713 sig 0.7962 (not sig) | No interaction | - | - |
| HP>Safe>HE | f=0.9233 sig 0.3509 (not sig) | No interaction | - | - |
| WC>Safe>HE | t=2.8777 sig 0.0043 | Direct interaction | 10.19 % | 'Yes' steeper |

## CONCLUSION

**Analysis >** evidence of reliability and validity of the variables> increase **enforcement in Safety and Health Policy and knowledge is needed in SMEs manufacturing Industries**

Promote as a guidelines to policy maker, workers, manufacturers, and enhancing safety environment in workplace

In SMEs manufacturing industry, rules and regulations enforcement especially related to variables such as mental workload, fatigues, machinery handling and working condition are important . The enforcement of regulations will help to reduce human error in the workplace.

For examples, the need to go for medical check-up annually, the needs to inspect machinery thoroughly, the need to report faulty of equipment immediately, proper SOP on reporting any problem of working condition etc should be enforced in SMEs manufacturing industry.

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Howell, W. C. (2008). Human Factors in the 1990s: Sealing Transition Cracks. *Human Factors Journal, 50*(3), 354-358
Williamson, A., & Feyer, A. M. (1990). Behavioural Epidemiology as a Tool for Accident Research. *Behavioural Research Journal, 12*, 207-222.
Zakaria, N. H., Mansor, N., & Abdullah, Z. (2012). Workplace Accident in Malaysia: Most Common Causes and Solutions. *Business and Management Review, 2*(5), 75-88.

## Observations – Key Findings



Machinery- disadvantage to left hander
Not paying attention (Mental workload)

Fatigue worker

Working condition

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## EDUTAINMENT GAME ABOUT PANDEMIC IN AN VIRTUAL ENVIRONMENT

Nur Afshaa Binti Mohd Ameeruddin, Eunice Lim, Chuah Yew Sing,
Muhammad Najmi Imran B Harman , Cheong Soon Nyean , Yap Wen Jiun

### Introduction

OVERXPOSED is a PC-based edutainment game about the Covid-19 Pandemic in an virtual environment with adventure mechanics and an original story and characters. Player will take the role as Mikael and complete the upcoming task given that aims to educate people on how to prepare upon exposing themselves to the infected world.

### Methodology

This edutainment game is to educate user the importance of their safety and protocol during the Covid-19 pandemic:

- Wearing mask and gloves all the time when going out
- The importance to check tempreture and scan qr code before entering any place such as supermarket
- Need to keep social distancing with anyone to avoid from getting the virus
- Sanitize our hand after touch anything when you going out.

When player complete each level,Informative message will prompted to educate the player of the education goal of each level.



THINK. ENDURE. LIVE.

OVERXPOSED
EXPERIENCE THE EPIDEMIC

### Implementations



At the point when the player stroll into market territory, a security will request that the player examine QR code and sweep temperature, this interactivity is to instruct the to agree to the public authority to ensure we can guarantee the security of general society. This ongoing interaction can build up the propensity for the player to filter temperature prior to going in to the public region.

The model is made in Autodesk Maya. Got an inspiration for the character design from one of MMU lecturer.Why our character texture in class material? is because we want to express that the human body is fragile to the virus.

**Mikeal** is a lecturer from Multimedia University who is currently living with his beloved wife. He is a family-oriented man and would risk anything to protect the love of his life.

After the player leave the safe area (home), NPC will ask the player to wear the mask, this action can increase the precautionary awareness against the inflected area and teach the player how to use the equipment take precaution of covid-19.



Player will be given a health bar to represent immune system of the main character, the player need to avoid them in all cost to prevent the health bar deducted, this action will let the player know social distances when they going outside in real life.

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# EDUTAINMENT GAME TO PRACTICE STANDARD OPERATING PROCEDURES DURING PANDEMIC

Mah Shi Ting, Joanne Hew Zi Ying, Liew Yu Hang,
Mohamad Aiman Bin Mohd Izham, Cheong Soon Nyean, Yap Wen Jiun

## Introduction

The objective of the project is to develop an edutainment game during this pandemic is to teach children from age 7~12 years old to **protect themselves in school** while following the Standard Operating Procedures (SOP) set by the government. Player will take the role of Aden and complete the tasks given. Player will understand besides following SOP, they will understand **personal hygiene** is also one of the way to protect ourselves during pandemic.

## Methodology

**Unity** is the major software to place our model, programming, build and run. For the characters, mostly using **Maya** to model it. There are 2 levels in total which required player to complete **multiple tasks**.

**Keys/Concepts:**
- Given a clear concept for children **do not simply touch contaminated places**
- **Follow the SOP** that given by government in in simulated school environment.
- Learn the reasons that touching contaminated place **gives a risk to infected covid-19.**
- Provide a **solution** for children before touching a contaminated surface.
- Learn to sanitize before touching through **repetition**.
- Textbook which also the target object which player need to collect works as an learning material to **expose the knowledge about this pandemic.**
- Players can easily immerse themselves as Aden as the main character looks more attachable to the target audience.



**\*Software Used:** unity

**Setting:**
- World settings will be happened in **Malaysia after the Covid-19 outbreak**.
- It is designed according the **primary school** in Malaysia
- Color that used is **cheerful or bright vibe** that suits the school environment



Main character-Aden

Front    Side    Back

- **Name**: Aden,
- **Age**: 10 years old
- **Class monitor**
- Able to travel back 14 days before he got infected
- The art style of the character is more to **cartoon style**.


\*Screenshot from game screen

Player needs to complete all the tasks given. **The health bar above indicates the player's game lives.** If the health bar becomes zero. It will lead to mission failure. For example, the left picture shown the player needs to wash their hand as one of their missions.

Finding textbook which locates in a box is a part of gameplay which player must go through. The textbook names the Fun Facts about Covid-19 and it contains the truths of Covid-19. Players are not only **learning how to protect themselves during the pandemic** and also giving an opportunity to **learn some facts and fun things about this pandemic.**


\*Screenshot from game screen

## Implementations


\*Screenshot from game scene

Virus which present in red color mean covid-19 virus in the game. Player needs to **use the sanitizer (press F) before touching the contaminated surface** while dealing with virus. The main concept that we implement in order for player learns sanitizing by **repeating the action** (use the sanitizer) and the repetition will builds paths in our brain. If player accidentally contact with the virus, it will learn to loses their health.

Throughout the process, player not merely learns how to deal with viruses and also **learn the importance of using sanitizer and mask**. If the player keeps touching contaminated surfaces unconsciously it will proceed to lose scene which means death.

## Conclusion

- Create a virtual world that able to educate children the **importance of personal hygiene** during the pandemic.
- Children will have the **awareness avoid touching contaminated surface** after playing multiple times.

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# EEL AUTOMATED ONLINE PROCTORING AND ANTI-CHEAT SYSTEM

Supervisor: **Mohd Haris Lye Abdullah**
Project Leader: **Muhammad Nurmahir Mohamad Sehmi**
Project Member: **Ramkhumar Thiagarajan, Mohammad Fikry Izuddin Ahmad Joyo, Haziq Muqri Nawawi**

**Faculty of Engineering (FOE)**

## ➤ Introduction

Since COVID-19 pandemic hit, many educational institutions had to adopt **remote teaching**. However, there are drawbacks when assessing students understanding of the subject matter via **online test** as compared to face-to-face examination.

## ➤ Problem Statement

- The invigilator **cannot continuously monitor all candidates closely** during the online examinations as they would do in the traditional examination.
- Monitoring a **large number of students** need more attention and effort by the invigilator, and **not all candidate can fit in one screen** to monitor.
- Current **invigilator-candidate communication may disturb another candidate** doing the exam.
- It is challenging to know **what the student is doing** or **who is doing** the exam.
- Candidate **can access resources anywhere without invigilator noticing** during online exam.
- Student can **quietly use other communication software** to discuss and get answers.

## ➤ Solution Description

This solution uses both **webcam and microphone** to detect if the candidate is cheating during the examination. The most used method of cheating during examination such as **private communication, additional person help, using smartphone, being away from the webcam** and **referring notes** are detected by the solution. The solution uses **object detection, voice detection** and **open apps detection** to detect suspicious activity. The solution will **record audio, capture image,** and **warn individual candidate and invigilators** in real-time. Invigilators can inspect all recordings and images captured by the system for investigation.



## ➤ Prototype and Results



System GUI Prototype

Captured images and audios
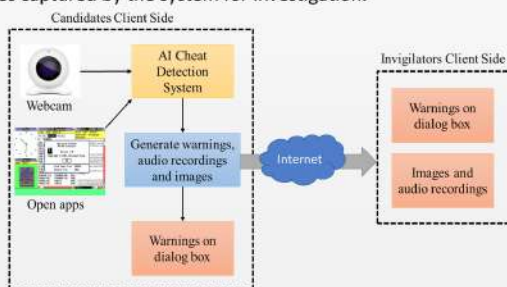
## ➤ Commercialization Potential

- **Real-time automatic proctoring** system for public or private educational institutions organizing online examination.
- The system can provide lecturers and teachers **effortless monitoring** because less manpower is needed to monitor a large number of students.
- The built-in Artificial Intelligence (AI) anti-cheat system will **limit students to cheat**, and invigilators can **focus on investigating suspected cheating** student reported by the system.
- Our system will be the **perfect sidekick** for invigilators to monitor students in real-time.

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3. S. Prathish, A. N. S. and K. Bijlani, "An intelligent system for online exam monitoring," 2016 International Conference on Information Science (ICIS), Kochi, 2016, pp. 138-143, doi: 10.1109/INFOSCI.2016.7845315.

*The project is done for ECE3086 Multimedia Technology and Application subject group assignment and part of MMU Embedding Entrepreneurial Learning (EEL) Scheme

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# e-MEDIATION IN THE NEW NORMAL: A MALAYSIAN LEGAL PERSPECTIVE

**Wong Hua Siong** *Faculty of Law, Multimedia University*

## Methodology

This is qualitative study that involves a of library study rather than empirical study. Various primary secondary data sources namely cases, statutes, articles and journals from online database will be studied and analysed. Methods include data collection, organise and subsequently analyse to the data.

## ABSTRACT

In recent years, electronic mediation has proliferated as a dispute resolution method, predominantly in the context of online dispute resolution (ODR) for settling e-business conflicts. E-mediation refers to the use of web-based support systems to facilitate conflict resolution and negotiation processes not only restricted to e-business, but also including such areas as family mediation, labor negotiations, peace negotiations, and environmental conflicts. The issues including but not limited to the effectives of e-mediation in resolving the dispute and the recognition of e-mediation in our country.

## Problem Statement

ODR can be efficient in that it encourages the resolution of disputes in the environment within which the dispute arose. However, ODR faces difficulties integrating into national legal systems and applicable international rules for the simple reason that these systems and rule were not designed for methods with the specificities of ODR. Our Mediation Act 2012 is silent about the application of the e-mediation in resolving the dispute among the people.

## Research Questions

1 In today's rapid development of Information and Communication Technologies (ICT), do we consider to adopt ODR as a faster and cheaper mechanism to resolve disputes in Malaysia?

2 Will it be feasible for Malaysian to adopt ODR as a method of settling daily disputes?

## Research Objectives

1 To determinate the viability of applying ODR as one of the faster and cheaper mechanisms to resolve disputes in Malaysia.

2 To study the feasibility of Malaysian to adopt ODR as a method of settling daily disputes.

## Discussion

Australia has started few ODR including but not limited to ADRonline, Complain.com.au, NotGoodEnough.com.au, Retail Tenancy Unit NSW Online Mediation and The Hearing Room. The online mediation process typically begins when a claimant registers with an ODR provider which offers electronic mediation. Privacy and security are issues in an online environment as they are for traditional ADR services. However, it is important to note that no communication method can provide for absolute security. Security is always a question of risk management. Online ADR fits well with cyberspace values of flexibility and innovation and thus seems an appropriate choice for dealing with online disputes. Malaysian laws do not prohibit for using e-mediation in solving the dispute among the parties.

## Conclusion

1. E-mediation does not violent any written law in Malaysia.

2. A user-friendly instrument should be set up in Malaysia for the purpose of e-mediation.

## References

1. Haloush, H.A. & Malkawi, B.H., (n.d.). Internet Characteristic and Online Alternative Dispute Resolution. Harvard negotiation Law Review, 13:327,327- 348.
2. Research into Online Alternative Dispute Resolution Exploration Report prepared for the Department of Justice, Victoria, 21 March 2003.
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## Commercialization Potential

1. To use as a platform to substitute the face to face meeting, saving the time and costs for venue, beyond the boundary limit as e-mediation is a very flexible mechanism to reduce the disputes, including dispute among the staff and/or lecturers and the students.
2. Agreement can be done via online.

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# EMPLOYERS' EXPECTATIONS TOWARDS THE EMPLOYABILITY SKILLS AND INITIAL SIGNALS OF FRESH GRADUATES FOR RECRUITMENT DECISION

Jaya Ganesan[1], Koh Sin Kiat[2], Kavitha Raman [3]

Faculty of Business, Multimedia University, Melaka, Malaysia

## 1. Research Background

- 204,000 jobless graduates - major contributors of youth unemployment 2017 (40.5% of total unemployment) (MIDF Research, 2018)
- Malaysian fresh graduates lacked employability skills - cause of fresh graduates unemployment (Imtiaz Hossain et al, 2018)
- SG Education Group founder and chairman mention Malaysia is publicising industry 4.0, but does not have standardized system to produce graduates with necessary skills for industry 4.0. Further increased graduate skill gaps
- Students take part in extra-curricular activities + degree are inclined to develop additional skills (QS, 2018). Hence, recruitment priorities are used by employers to infer the quality of candidates.
- Nowadays, jobs getting more sophisticated given the fast-paced change in technology, globalisation and other factors, lead to multiple criteria in the recruitment and selection methods (Zarei & Wong, 2014).

### Problem Statement

- The quality of candidates are not directly observable causes the employers source other observable attributes to infer the quality of the candidates which called as initial signals (Spence, 1973). Different credentials are signaling different ability (Cole, Field, & Giles, 2003). The shifting of skills will cause the way employers assess the candidates also different. Thus, the initial signals that employers value is very important to be identified
- Additionally, disruptive technologies will invariably cause the shifting of skills demanded by employers (Deloitte, 2018a), leading to the needs in determining the more recent employability skills that employers are seeking to offer them a competitive advantage in rival markets.
- In Malaysia the research of signaling is rare as compare to overseas. Finch, Peacock, Levallet, & Foster (2016) mention that the acquiring of skills is important for success but the ability to develop a strong and coherent narrative that shows the requisite skills also important.
- Bailly (2008) - signaling theory of Spence (1973) is detriment of beliefs because information itself will not reduce the uncertainty. It does only when embedded within the belief system. Hence, the role of employers' belief in the job signaling theory should be identify.

## 2. Research Objectives

- To determine the relationship between *employability skills* and *recruitment decision* of employers towards fresh graduates, if there is a relationship, and then identify the specific employability skills that employers perceive to be important for fresh graduates.
- To investigate the relationship between *initial signals* and *recruitment decision* of employers towards fresh graduates, if there is a relationship, then explore the specific initial signals that employers perceive to be important for fresh graduates.
- To examine whether *employers' belief on productivity level* mediates the relationship between *initial signals* and *recruitment decision* of employers towards fresh graduates.

## 3. Methodology

- Unit of Analysis: Employer
- Respondents: MEF (Malaysian Employers Federation) members
- Sampling Method: Purposive sampling
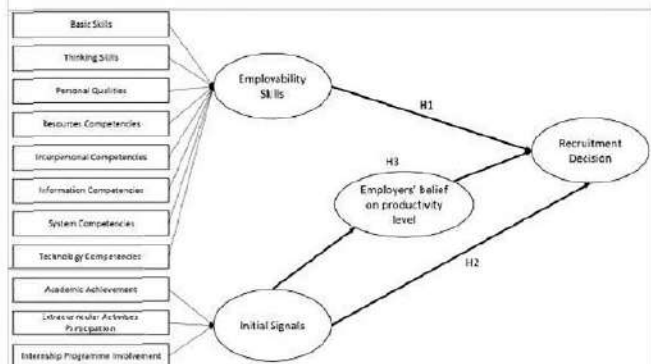


### Hypothesis Development

- There is a significant positive relationship between employability skills and recruitment decision.
- There is a significant positive relationship between initial signals and recruitment decision.
- Employers' belief on productivity level mediates the relationship between initial signals and recruitment decision.

## 4. Discussion and Conclusion

- Employers will assess the employability skills and initial signals to make recruitment decision of fresh graduates. (H1 & H2, both supported)

| Ranking | Employability Skill |
|---|---|
| 1 | Personal Qualities |
| 2 | Basic Skills |
| 3 | Information Competencies |
| 4 | Interpersonal Competencies |
| 5 | Thinking Skills |
| 6 | Resources Competencies |
| 7 | Technology Competencies*** |
| 8 | System Competencies |

| Ranking | Initial Signal |
|---|---|
| 1 | Internship Programme Involvement*** |
| 2 | Extracurricular Activities Participation |
| 3 | Academic Achievement |

- Employers' belief on productivity level is not explaining the relationship between initial signals and recruitment decision. (H3 not supported). Thus, there is another mediator which is better in explaining the relationship between Initial Signal and Recruitment Decision in Malaysia context.

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# FIRE X SIMULATOR:
## Virtual Reality Fire Extinguisher Training Kit

Arif Hilmi Bin Khairul Safian, Zarifah Nazirah Raihanah Bt. Abdullah, Muhammad Aqil Bin Mohamad Kamisruddin, Azinuddin Asyraf Bin Ishak, Cheong Soon Nyean, Dendi Permadi

## ♦ Introduction

Knowing how to use a fire extinguisher is important as it may save a life and most people don't know how to use it. **FIRE X SIMULATOR** is created with the reason to prepare people how to use a fire extinguisher in a fire situation. With the futuristic technology of Virtual Reality, people will not only learn to use a fire extinguisher but will also get to experience a fire situation simulated in a realistic environment.

## ♦ Methods & Materials

Virtual Reality Technology will be the key for this application in order to:

- Simulate an immersive learning environment
- Guided hands-on experience
- Practical training within simulated fire scenario
- Removing the potential risk in fire training

FIRE X SIMULATOR users will learn the **PASS** technique in operating a fire extinguisher through both training and practical session

## ♦ The Application

### ● Immersive Learning Environment



Users will learn the PASS technique with the help of an interactive hologram and accompanied by 3D Tutor, "BLAZE", that provides step-by-step guidance.

### ● Guided hands-on experience



Users will have a guided hands-on experience of operating a virtual fire extinguisher.

### ● Practical Training within Simulated Fire Scenario



Users get to apply what they learn in a simulated fire scenario without the risk of getting themselves burn.

### ● Sensation of weight



Controller is attached to real fire extinguisher to complement the virtual experience.

## ♦ Conclusion

- **FIRE X SIMULATOR** is a VR application that could help anyone who are young and older to enhance the process of learning the fire extinguisher and the steps to extinguish fire.
- The training can be done without involving both substantial risk and costs for the materials that are needed.

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# FOSTERING SELF-REGULATED LEARNING FOR SMART LEARNING IN LEARNING CITIES: A CASE OF A SMART CITY IN MALAYSIA

Ts. Dr. Lilian Anthonysamy, Faculty of Management
Associate Professor Dr. Koo Ah Choo , Faculty of Creative Multimedia
Dr Hew Soon Hin, Faculty of Creative Multimedia
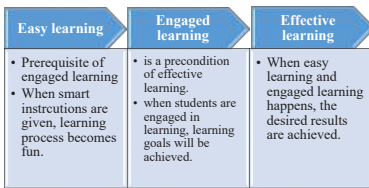
## Smart Learning



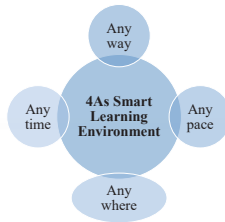Figure 1: Three basic characteristics of smart learning (3Es) (Huang, 2012).

Figure 2: 4As of smart learning environment (Huang et al., 2017).

## Self-regulated learning strategies (SRLS)

- Self-regulated learning strategies (SRLS) are used to assist individuals to achieve smart learning by learning efficiently.
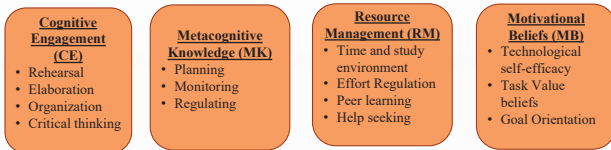


Figure 3: Self-regulated learning strategies and its domains

## Problem Statement

Little is known about the use of self-regulated learning strategies (SRLS) that are essential to assist young adults in smart learning (Zhao, Wu, & Liu, 2020; Huang, Zhuang, & Yang, 2017). Therefore, there is a urgent need to assess the extent of use of SRLS among young adults in a smart city.

## Research Method



- .Quantitative
- .107 students from random computer science courses from one private university were chosen. These students have enrolled in at least one blended learning subject.
- .Questionnaire
- .Collection strategy : paper-based
- .SPSS (v25)
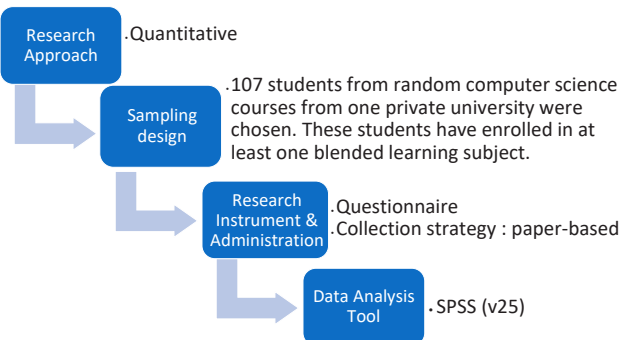
## Key Findings and Discussion

### RO 1: To examine to what extent is the level of SRLS use among undergraduates.

- Metacognitive Knowledge strategy domain is **least** used which is consistent with the findings of Hashemyolia and associates where they discovered that many university students used ineffective cognitive and metacognitive strategies within the online learning environment (Hashemyolia, Asmuni, Ayub, Daud, and Shah, 2015).

### RO 2: To compare the use of SRLS between high achievers, average and low achievers.

- **High achievers tend to use more SRLS** as compared to average achievers. This is consistent with the findings of Zhu and associates where low achieving students have poor use of SRLS online (Zhu, Au, and Yates, 2016).



### RO 3: To compare the use of SRLS between Year 1 and Year 2 students.

- Year 2 undergraduates was found to utilise **slightly more SRLS** than Year 1 undergraduates.

| | Similarity | |
|---|---|---|
| | Highest-used Strategies | Least-used Strategies |
| Year 1 and Year 2 | MB Domain | RM Domain |

### RO 4: To compare the use of SRLS between male and female students.

- Findings showed a **higher use of SRLS among female students** as compared to male students.

| | Male Students | Female Students |
|---|---|---|
| Most-used Strategy | (MK Domain)("If I get confused during an online task, I use other methods to learn the task (e.g watch YouTube videos, google, and ask friends") | (RM Domain)("I collaborate online with a group of students to discuss blended learning subject matter (E.g whatsapp)"). |
| Least-used Strategy | (RM Domain)("I will email or talk to my lecturer to clarify concepts or questions I don't understand"). | (MK Domain)("I set some standards (what I need to achieve) for my online task"). |

## Publication and Award

## Conclusion

- For students to excel in a digital learning environment, students need to equip themselves with self-regulated learning strategies.
- Smart learning bases its foundation on smart devices and intelligent technologies. By tapping on research pertaining to self-regulated learning strategies, a more effective digital learning environments that offer convenience to learners can be created in order to keep pace with the changing demands of the digital age in a smart city.

![MMU MULTIMEDIA UNIVERSITY]

# G-V-C APPROACH AND TEAM-BASED LEARNING FOR UNDERGRADUATES' LEARNING IN VIRTUAL CLASSROOM: PREPARING UNDERGRADUATES FOR INDUSTRY 4.0

## Dr. Wendy Teoh Ming Yen; Dr. Yuen Yee Yen; Assoc. Prof. Dr. Chong Chin Wei
## Multimedia University

## ABSTRACT

This past year, Malaysian undergraduates were found lack of soft skills including creativity, communication and critical thinking skills as well as low proficiency in the English language. A combination of blended learning and traditional learning technique such as Gamification, Video creation, and Case study practices (G-V-C approach) is an effective learning platform to allow students to collaborate, work on problems and creatively find its solutions. This study analyses students' engagement in learning Organisational Behaviour using G-V-C approach. Results show these learning approaches have a positive impact on improving students' academic performance and their full engagement towards the subject learned. It also cultivates student's creativity, critical thinking, communication, collaboration and values and ethics (4R1V), which in line with Malaysia Higher Education Blueprint 2015-2025 that aims to prepare future-proof graduates ready for Industrial Revolutions 4.0.

## OBJECTIVES

**01** To promote higher quality programmes that use experiential and technology-enabled learning models which offer more personalised and engaging learning experiences to students.

**02** To provide students with opportunity to creatively interact with their peers and increase their passionate interest in the subject matter itself.

## VALUE ADDED

- ❑ Enhance students learning experience
- ❑ Handle problematic social interactions
- ❑ Improve students' questioning skills
- ❑ Record of discussion history for revision
- ❑ Enable teacher to personalise instruction for handling different paces/styles of learning

## CONTRIBUTION

- ❑ Create competition with others through gamification learning activities
- ❑ Prepare students for the career of the future

## COMMERCIALISATION POTENTIAL

- ❑ Create and share interactive content that puts students at the center of the classroom
- ❑ Can be applied to the business-related courses and conduct this active learning strategy not just in face-to-face classes, but also in blended or distance learning
- ❑ Conduct knowledge transfer programmes
- ❑ Well-designed questionnaire can be used to apply for intellectual property status

## APPLICABILITY

Student-Teacher Interaction During Storyboard & Script Writing Stage → Experiential Learning and Active Dialogue via Blended learning tools; Peer Feedback → Formative Assessment on Storyboard & Script Writing, and Video Making → Academic Performance

**Completing the OB Video Project has helped me to consider to work hard at being knowledgeable on my topic of research.**



60.5%, 28.9%, 2.7%

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

**Learning using a case study makes me get to know more about the real world.**



46.9%, 46.9%, 5.2%

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree
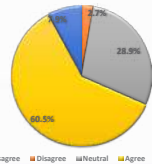
> "Although the assignment task given is challenging, it is quite interesting to me. I learnt how to apply OB theories in real-life situations."

> "Throughout this course, I like the fact that after each lesson end I can recap each chapter by doing the quizzes provided in Google Classroom."

> "I enjoy making video as I take it as an opportunity for me to learn new skills such as video editing skills by using different software and writing skills in an creative way. Besides, video assignment is an effective way for students to understand the topics better and use it to convey information to everyone effectively."

**Final Exam Results**



A 64.2%, B 32.1%, C 3.7%

A | B | C

## RECOGNITION

- ➢ **Gold** medal in the 2019 IDE4 Teaching and Learning Exhibition (IDE4TE 2019)
- ➢ **Bronze** medal in the 2019 International e-Learning Carnival and Conference (eLCC 2019)
- ➢ Teoh, W.M.Y., Yuen, Y.Y., & Chong, C.W. (2019). *Role Playing in Blended Learning : Strengthening Student Engagement and Sustained Learning in Classroom*. Conference proceedings of the 2019 International e-Learning Carnival and Conference (eLCC 2019) at UTeM , Melaka, Malaysia.
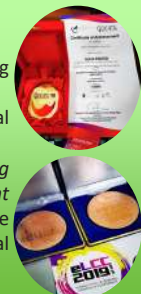
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# HEALTH EDUCATION FOR ALL:
## A CREATIVE CREATION RESEARCH PROJECT

Koo, A. C., Perumal, V., Sharji, E. A., Fauzan, R., Tan, C. H. (2020)

# IMPACT OF PEDAGOGICAL AGENT APPROACH ON STUDENTS' LEARNING

## Choo-Kim Tan, Huai-Swan Khoo, Choo-Peng Tan
## Multimedia University

**ABSTRACT**

Many students have trouble with mathematics while some students find it more difficult than other subjects. Consequently, students feel anxious in Mathematics, which causes them to perform poorly in Mathematics[1]. In view of the importance of Mathematics to Science, Technology, Engineering and Mathematics (STEM) and helps us to solve all science problems in our life, efforts have to be made to overcome the issue of high mathematics anxiety levels and poor mathematics performance among students. Studies found that pedagogical agent (PA) helps to improve students' mathematics learning[2]. In this study, a new teaching and learning approach, PA approach, had been introduced. The animated pedagogical agents were incorporated into the teaching and learning of mathematics classroom via a computer-based virtual learning environment. Mathematics Anxiety Rating Scale (MARS) was administered to determine students' anxiety levels before and after students learn Mathematics with PA approach. However, the pre-determined anxiety levels before the PA approach were used to determine the appropriate amount of anxiety treatment messages given to students by the PA when they learn mathematics. Emotional support and cognitive motivational messages were provided by PA to address affective and cognitive mathematics anxiety, respectively. Students were motivated by PA and their anxiety levels were alleviated as well. The findings showed that students' anxiety levels decreased when the PA approach was adopted.

**OBJECTIVE**: To alleviate students' mathematics anxiety levels with pedagogical agent approach.

**METHODOLOGY**

**Sample:** 43 undergraduates

**MARS :** To determine students' anxiety levels before & after PA approach

**Anxiety Treatment Messages:** Appropriate amount provided by PA during the study to motivate students and to reduce the anxiety levels.

## RESULTS, DISCUSSION & CONCLUSION

- Figures below show that
- ❖ frequencies of medium and high anxious students has reduced.
- ❖ a significant decrease in mathematic anxiety levels.
- A new learning experience to students in learning mathematics in the virtual learning environment.
- A comfortable and positive developmental learning environment for students to learn mathematics with less tension and allowed them to feel more ease and motivated to explore new mathematical concepts.
- Chances of students experiencing negative experiences had reduced with a one-to-one learning session with the PA.
- PA as the delivery medium provided emotional and cognitive motivational supports to students reported the positive impact and effectiveness of using the PA to alleviate students' mathematics anxiety and enhance learning.
- The results are in line with previous studies that students gained benefits when PA was used in learning mathematics.
- Conclusion: PA approach gave positive impact on students' learning particularly in motivating them and reducing their mathematics anxiety levels.



Even though you are feeling anxious that's OK. A little bit of anxiety can actually help you perform better.

Frequency of Students of Different Anxiety Levels for Pre and Post Study

MARS Mean Scores between Pre and Post Study
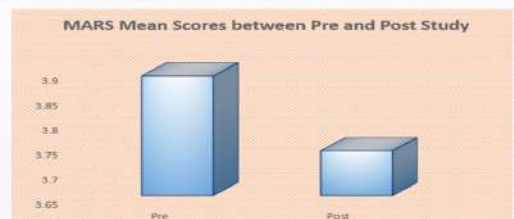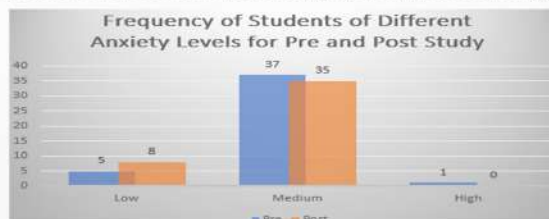
## USEFULNESS & VALUE ADDED

- ➤ The PA approach could be useful for other Mathematics subjects and other educational settings. It can be benchmarking for other subjects with high anxiety levels among students.
- ➤ Benefits to Mathematics educators, researchers, learning institutions, and students. With the reduced no. of high anxious students, mathematics performance in the nation will be improved.

## SPECIAL HIGHLIGHT

- ➤ The system was granted copyright.
- ➤ Won Gold medal in IDE4TE 2020.
- ➤ Publications:
- ❖ Huai-Swan, Khoo, Choo-Kim, Tan, and Wooi-Ping, Cheah (2018). Proposed Learning Agent for Reducing Different Mathematics Anxiety Levels. Australian Journal of Basic and Applied Sciences. 12(8). pp.94-97.
- ❖ Huai-Swan Khoo, Choo-Kim Tan, and Wooi-Ping Cheah. (2017). *Proposed Pedagogical Agent for Reducing Mathematics Anxiety of Different Level*. 3rd International Postgraduate Conference on Social Sciences and Business Research (IPCSSBR 2017). 5-6 December 2017. Langkawi, Malaysia.

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2. Bringula, R. P., Fosgate, I. C. O., Garcia, N. P. R., & Yorobe, J. L. M. (2017). Effects of Pedagogical Agents on Students' Mathematics Performance: A Comparison Between Two Versions. *Journal of Educational Computing Research.* 56 (5): 701-722.

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# INCORPORATION OF MATHBOT IN TEACHING AND LEARNING OF MATHEMATICS

## Tan Choo Peng, Tan Choo Kim, Lau Siong Hoe, Koo Ah Choo, Chong Zheng Rong, Lee Chin Poo

## Abstract

Mathematics concepts are abstract. The famous mathematician, Poincaré (1908/52) has already described impressively on students' difficulties to understand mathematical ideas in the past century (Rösken, B. & Rolka, K., 2007). It is the subject that triggers the strongest negative feelings where students may establish and even result in an attitude of refusal towards mathematics, or may block their thinking processes (Buxton, 1981).

Universities' classes are mostly in large size. Hence, students have difficulty to get individualized support and engage effectively with lecturer (Brinton, Rill, Ha, Chiang, Smith, & Ju, 2015). Lack of individualized support tend to have weak learning outcomes, high dropout and dissatisfaction (Brinton et al., 2015; Eom, Wen, & Ashill, 2006; Hone & El Said, 2016).

Chatbots have the potential as the solution. They are the computer programs engage with human users in a dialogue using natural language for various purposes. Even thought they are becoming a ubiquitous trend used in many fields, but they are still at the beginning of expansion stage and will spread more in the education field (Chatbot's Magazine 2017). Its implementation in education is still found very limited (Winkler, R. & Söllner, M., 2018) especially in Malaysia and in Mathematics subject. This project is to design and to develop a chatbot aimed to help students in learning mathematics and to evaluate the effect of using it on students' mathematics achievement.

## Objectives

- To design and develop the system.
- To incorporate the system to the teaching and learning of Mathematics
- To examine the effect of the incorporation on students' mathematics achievement.

## Project Phases

Design the lesson and the framework of the system → Develop the system → Field study, Data collection and Data Analysis

## Methodology

- Sample: 2 tutorial groups of private university students who self-registered to a degree mathematics subject.

- Instruments: Simple Survey, Mathematics Achievement Test (MAT), Interviews

- Procedures:
➢ Before System Development
   Simple survey is given to gather students' preferences on the system.
➢ Before the Invention of the System
   Pre-MAT is given to both groups of students.
➢ During the Invention of the System
   Both groups of students are taught by the same tutor with the same contents but only experimental group is exposed to the use of the system.
➢ After the Invention of the System
   Post-MAT is given to both groups of students. Interviews to a sample of experimental group students.

## Result and Discussion

This project is now at the beginning stage of Phase III, thus, quantitative analysis have not been done completely to report the effectiveness of this incorporation. But, the information gleaned from the literature reviews shown that

- medical students scored higher marks on exams (Kerfoot, B. P., Baker, H., Jackson, T. L., Hulbert, W. C., Federman, D. D., Oates, R. D., & DeWolf, W. C. , 2006 ).

- computer literacy and conceptual physics students have almost always gains statistically significant of an average of 0.8 standard deviation unit (or translated to letter grade of approximate 0.8 grade) (Graesser, A.C., Chipman, P., Haynes, B.C., & Olney, A., 2005).

An important result from the simple survey conducted before the system development to gather student's preference on the system is shown on the pie chart.

Preference to have explanation in texts and images together
- Strongly agree 37.50%
- Agree 58.30%
- Neutral 4.20%
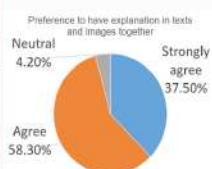
95.8% of the students agreed and strongly agreed and none of the students are disagreed or strongly disagreed to the preference to have explanation in text and images together. This preference is explained and supported by Mayer's cognitive theory of multimedia learning at which students are learning deeper when the materials are explaining in words and pictures together than when the words used alone (Mayer, R. E., 2009).

Some of the positive feedback of students from the interviews conducted after the students have used the system, are they easily get the information under one roof, easy to get the assistants whenever and wherever they need it, the system guided them to solved problem, it is a fun way to learn mathematics, they feel happy to learn with the system, etc.

The feedback from the interviews reflect that students are happy and satisfied to engage the learning with the system and they may get the personalized support from the system anywhere and anytime.

## Innovators details

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# INDUSTRY 4.0 – A GAME CHANGER FOR MALAYSIAN SMEs

Project Leader: Dr Sreenivasan Jayashree; Members: Dr C A Malarvizhi, Mohammad Nurul Hassan Reza, Dr.Rathimala Kannan
Faculty of Management, Multimedia University, Cyberjaya, Malaysia

## ABSTRACT

The study explores the major critical success factors and successful implementation of Industry 4.0, contributing to sustainability. The government of Malaysia and a large number SMEs are dedicated to promote and are planning to embrace and incorporate Industry 4.0. However, as a holistic framework of Industry 4.0 and sustainability are still missing, most companies do not have a comprehensive implementation plan. Therefore, this research proposes a novel framework, including the major critical success factors of Industry 4.0 and their role in its implementation towards achieving sustainability.

## INTRODUCTION

Nowadays, the organizations are aware of the effect of their activities on the environment, society and resource consumption and Industry 4.0 can support through cost saving, energy consumption and enhance productivity(Machado et al, 2020).This study is based on the Ministry of International Trade and Industry (MITI) framework of Industry 4.0 and aims to test the success of Industry 4.0 in Malaysian SMEs which will result in increased productivity and sustainability.



Smart Technologies of Industry 4.0

## PROBLEM STATEMENT

As the concepts of Industry 4.0 and sustainable manufacturing are newly emerged, the fundamentals are still unclear. Hence, a holistic model is crucial for the SMEs to gain a better understanding about the role of the critical success factors of Industry 4.0 on its effective implementation towards sustainability in Malaysia.

## RESEARCH QUESTIONS & OBJECTIVES

| Research Questions | Research Objectives |
|---|---|
| [RO1] What are the critical success factors of Industry 4.0 in Malaysian SMEs? | [RQ1] To identify the critical success factors of Industry 4.0 in Malaysian SMEs. |
| [RO2] Is there any relationship between the critical success factors of Industry 4.0 and TBL sustainability? | [RQ2] To assess the relationship between the critical success factors of Industry 4.0 and TBL sustainability. |
| [RO3] To what extent do the critical success factors influence the effective implementation of Industry 4.0? | [RQ3] To examine if the critical success factors have a significant influence on the effective implementation of Industry 4.0. |
| [RO4] What is the relationship between the effective implementation of Industry 4.0 and TBL sustainability? | [RQ4] To investigate the impact of the effective implementation of Industry 4.0 on TBL sustainability. |
| [RO5] Does Industry 4.0 mediate the relationship between the critical success factors of Industry 4.0 and TBL sustainability? | [RQ5] To examine whether Industry 4.0 mediates the relationship between its critical success factors and TBL sustainability. |

## RESEARCH METHODOLOGY

A new model including four critical success factors and their effect on organizational sustainability is introduced for Malaysian SMEs. The study is conducting a cross-sectional survey on Malaysian SMEs, and the data collection is in progress now. The questionnaire is already sent to the organizations located in different states of Malaysia. The statistical analysis will be performed through the employment of the Structural Equation Modeling (SEM).

## FRAMEWORK
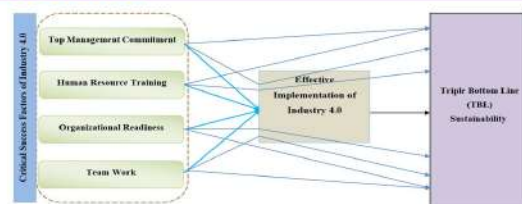


## DISCUSSION

The study focuses on the critical success factors of Industry 4.0, including top management commitment, training, organizational change, and teamwork. Top management is responsible for predicting the operational possibilities of incorporating Industry 4.0 technologies. As Industry 4.0 needs adequate training and skills development for both staff and logistic associates, human resource training must deal with the evolving challenges. Organization readiness is useful in forecasting the accomplishment of change management procedures. Teamwork is also crucial as the organizational departments and logistics will be interconnected.
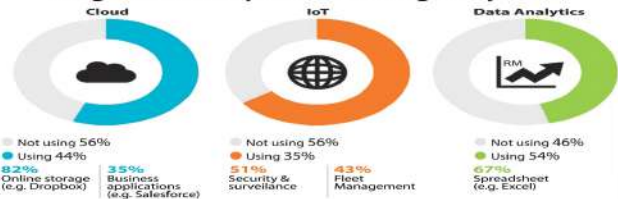


Source: Malaysia Digital SME Study 2018, SME Corp. Malaysia & Huawei Technologies (M) Sdn. Bhd.

Usage of Industry 4.0 Technology in Malaysian SMEs

## KEY FEATURES

**Novelty and Inventiveness:** The study proposes a holistic framework based on the recommendation of MITI, 2018 requirements stated in the 11th of the country.

**Product/Technology Readiness:** To develop an application which can be adopted by the SMEs implementing Industry 4.0 to evaluate their readiness.

**Commercial potential:** An app will be developed after the completion of data analysis and a book chapter will be published.

**Knowledge Transfer:** Will contribute to policy development and enable the SMEs as well as the people to engage with government, voice their opinions, coordinate their efforts.

## PUBLICATIONS

Articles
[1]Impact of Organizational Readiness on IR 4.0 & Sustainability-A Conceptual Framework for SMEs (2019). EJAC, 14 (1), pp 209-215.
[2] Entering the era of IR 4.0 & Sustainability Through Proper Training and Strategic Alignment. (2019). Information, 22 (5), pp 379-386.
[3] Effect of Management Leadership & Commitment on IR 4.0- A Conceptual Model. (2019). Information, 22 (5), 387-392.
[4] Building Proper Organizational Culture for IR 4.0 and Sustainability—A Conceptual Framework. (2020). JCTN, 17(5), 2172-2175.
[5] Effect of National Culture on the Fourth Industrial Revolution and Organizational Sustainability, (2020). JCTN, 17(2-3), 1464-1468.
Conference Paper/proceedings
[1] The Challenges & Opportunities of Industry 4.0-A Review. (2019). APSS, 5(2), 173-178.
[2] Testing a Framework for Industry 4.0 Digital Disruption-A Study in Malaysian SMEs. (2019). APSS, 5(2), 179-184.
[3] The Role of Industry 4.0 Technologies in Determining the Triple Bottom Line Sustainability-A Framework for Malaysian SMEs. (2020). APSS, 6(3), 294-301.
[4] The Impact of the Determinants of the Fourth Industrial Revolution on Competitive Advantage and Sustainability-A Study for Malaysian SMEs. (2020). APSS, 6(3), 283-289.
REFERENCES
[1] Machado, C. G., Winroth, M. P., & Ribeiro da Silva, E. H. D. (2020). Sustainable manufacturing in Industry 4.0: an emerging research agenda. International Journal of Production Research, 58(5), 1462-1484.

AWARDS :
[1] 2nd Runner up for the Poster Presentation in 5th Asia International Conference (AIC)-2019, 6-8 December, Kuala Lumpur Convention Centre, Malaysia
[2] Best Presentation for the Presentation in 4th ASIA International Multidisciplinary Conference (AIMC-2020). 15-18 May, University Technology Malaysia, Johor Bahru, Malaysia

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# Industry-Supported Authentic Learning Environment (ISALE) : Bridging the industry and classroom

## Nor Alley Zulkafly, Multimedia University

## ABSTRACT

The technological advancement and active environments in the globalized information economy constantly in need of a dynamic new generation of graduates. A graduate is expected to master the knowledge of industry standards and equipped with the required soft skills such as problem-solving, communication, creativity, innovation, and collaboration skills. A higher education's students only experienced industry context during the internship and had not had enough time to develop soft skills to be a holistic skilled graduate. Moreover, the recent outbreak of COVID-19 has affected educational systems not only in Malaysia but worldwide, leading to near-total closures of all educational institutions. Because of the restricted movement control order by the government, our university had to implement a fully online learning environment that resulted in the evolvement of the way the students and lecturers acquiring and delivering knowledge and information. In this study, the researcher aims to give exposure to industry context to the students through activities such as sharing session, workshop, coaching, and assessment that conducted online. This poster presents the implementation of industry support learning environment to enhance the student learning environment in design education.

## INTRODUCTION

Malaysia Higher Education has undergone a massive transformation over the centuries. The government is willing to invest in the enhancement of graduate work-readiness as they believe that the progress of employability would entail increasing the employment rate and national strength (Jayasingam, Fujiwara, & Thurasamy, 2016). Work-readiness is 'the ability to function effectively upon entering the workforce and across a range of contemporary working environments' as defined by Jackson, 2018 (p. 23). Three areas that were the highlight in Malaysia Education Blueprint are industrial training with the company to expose the students to the learning experienced in the industry; collaboration with a local and international industry expert to give insight to the student about the industry in a workshop; and the use of the online platform.

The knowledge sharing between the industry expert not only enriches the student experience but also motivates the students to prepare for their future endeavors. There are many activities in the current curriculum such as field trips, case studies, observation, internship, and project-based learning that promote industry experience (Burns & Chopra, 2017; Chad, 2020). However, according to Imtiaz et al (2008), there is still a lack of real industry context and standards that students can experience in the classroom. By focusing on the course and an industry coaching project, students were able to integrate the theory learned in the classroom into a real-world application..



Authentic Learning Framework by Herrington and Oliver's (2000)

The introduction of online learning platforms in education is the cornerstone of innovation in teaching methods and pedagogy. Online learning environments allow the student to access multiple resources besides the lecturer. Kramer-Simpson (2018) argues that with a proper module, an industry expert can facilitate the learning experience to cater to the student's learning need. Moreover, the perspective of authentic learning (Herrington et al., 2010; Herrington and Herrington, 2006)as a mechanism for bringing work experience to formal learning in higher education settings was adopted in this study. The researcher highlight four activities for the industry expert that can be implemented in an online learning environment which are sharing session, workshop, coaching and scaffolding, and authentic assessment.

## METHOD

The lecturer used two main methods to achieve the objectives for the course. The first is through conducting a series of coaching by an industry expert that helps to facilitate the class. The lecturer's second method was through a project-based assignment that consists of 2 main tasks. The first task is to do situational analysis research and come out with a proposal. The second task is to conduct a social media campaign on Instagram. The aim of this project-based assignment is for the students to be more familiar with the course theory and implementation while motivating them to take ownership of their learning. There are 19 students from Advertising Design 4 from the Faculty of Creative Multimedia who participated in this study.

## RESULTS

| Sharing Session | Workshop | Coaching and scaffolding | Authentic Assessment |
|---|---|---|---|
| **OBJECTIVE:** To enable the student to access various levels of motivation towards their field of study by listening to the industry expert story | **OBJECTIVE:** To strengthened the student knowledge on how to apply the theory | **OBJECTIVE:** To share the standards of the creative design industry and give students a more authentic and relevant evaluation of their work | **OBJECTIVE:** To provide evaluations for reflection and modification before submission |
| **DURATION:** 1 hour Week 2 | **DURATION:** 2 hour 30 mins Week 11 | **DURATION:** 30 mins per group Week 2, 3, 6, 9 and 11 | **DURATION:** 30-45 mins per group Weeks 7, 10 and 14 |
| **VENUE:** Google Meet application | **VENUE:** Google Meet application | **VENUE:** Google Meet application | **VENUE:** Google Meet application |
| Industry expert share experiences and give real-life successes and failures. The sharing session last for 40mins and the students are encouraged to ask question and share their concerned. | The workshop was about how to present or pitch idea to the client. During this workshops, the expert give tips and trick to be implemented during a presentation.. Then student need to do a mini-project on the workshop topic, and discuss it with the experts present. The discussion was conducted within a small group so that more comprehensive feedback can be given. | The expert provide support to the brief of the project, and industry expectations. Beside that, the expert provide consultation during and after class hour. Student make an appointment meeting to discuss about the project with the expert. | The Industry experts gave their feedback on relevant and industry standard for Task 1 and Task 2. The feedback will include industry standards that the students will need to adhere to, and help them to revise their work-in-progress continuously. |



The industry help me in exploring how to work efficiently and what it the requirements of the market needs
~Student A

They gave a better inside and feedback of the real world and not just base on grading
~Student B

Very, they opened my eyes up to some aspects that we needed to polish more
~ Student C

Useful feedbacks and they are very generous in sharing their knowledge and expertise. They also give great possible ideas for us to think about and explore.
~Student D

**Project based assignment:** To create awareness on brand new Malaysia traditional "kuih Bahulu"



## DISCUSSION & CONCLUSION

Students should be exposed to real case studies, latest industry insight and get training assistance for educational purposes. It should be a continuous process throughout their three-year degree studies to ensure students acquire levels of skills that permit them to position themselves in the market. Classroom collaboration with the industry could be one of the solution and based on this study, students gain many benefits from the four activities planned

## SPECIAL HIGHLIGHTS

**STRATEGIC COLLABORATION WITH INDUSTRY:**
As one of the main talent pipelines for the industry, establishing the connection between industry and university enables us to systematically include additional development and training for students to promote industry readiness among the students. By using the online platform, we could explore more opportunities to exchange talent, knowledge, and expertise between industry and university.

# INTERACTIVE AUGMENTED REALITY APPLICATION (IARA) FOR LEARNING MATHEMATICS

Md Asifur Rahman, Dr. Lew Sook Ling(✉), Dr. Ooi Shih Yin

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## PROBLEMS

Insufficient Interactivity, Difficulties in Visualising and Conceptualising

## JUSTIFICATION OF STUDY

- Complex mathematical concept that requires visualisation and spatial skills is difficult through traditional teaching methods [1, 2].
- Implementation of Augmented Reality can highly engage students in learning [2], improve human-human interaction by creating a more conducive learning environment [3].

## OBJECTIVES

- To design an interactive learning framework for learning Mathematics
- To develop an interactive learning system for learning Mathematics
- To evaluate the effect of interactive learning system in performance of learning Mathematics

## HYPOTHESESES

H1: Human-system interaction is positively associated with student's learning experience.

H2: Human-human interaction is positively associated with student's learning experience.

H3: Improvement of learning experience improves performance of learning
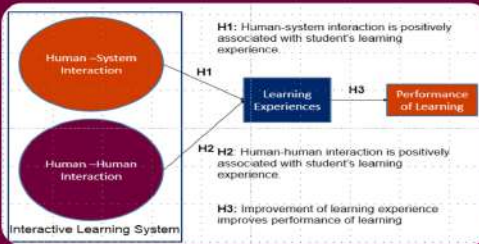
## MODEL ASSESSMENT RESULTS

### DESCRIPTIVE STATISTICS

### INFERENTIAL STATISTICS

| Factors | Composite Reliability | Average Variance Extracted (AVE) | FORNELL-LARCKER CRITERIA | | | |
|---|---|---|---|---|---|---|
| | | | HHI | HSI | LE | LP |
| HHI | 0.885 | 0.560 | 0.748 | | | |
| HSI | 0.894 | 0.522 | 0.57 | 0.722 | | |
| LE | 0.894 | 0.513 | 0.702 | 0.569 | 0.716 | |
| LP | 0.771 | 0.64 | -0.277 | -0.262 | -0.285 | 0.8 |

Abbreviation:
- HHI (Human-Human Interaction)
- HSI (Human-System Interaction)
- LE (Learning Experience)
- LP (Learning Performance)

## IARA DEVELOPMENT

curve $y = \sqrt{x}$ ; interval (0-4)

YZ Plane  XZ Plane  XY Plane

### 3D Solid in Autodesk Inventor

AR Marker Set-Up   AR Target Plane

## APPLICATION FUNCTIONS & USAGE

## ACHIEVEMENTS

- INFINEON WEEK 2018 (IT Project Showcase – Champion)
- Interactive Augmented Reality Application for Learning Mathematics. Poster Presented at the ECEL 2018: 17th European Conference on eLearning 1-2 November 2018 Athens, Greece. (Poster)
- Interactive Augmented Reality Application for Learning Mathematics. Poster Presented at the Infineon Week 2019: Infineon Research Poster Competition, 19 April 2019, Multimedia University Melaka. (Poster)
- Rahman M. A., Lew, S. L., Ooi, S. Y. (2020) Augmented Reality for Learning Calculus: A Research Framework of Interactive Learning System. In: Alfred R., Lim Y., Haviluddin H., On C. (eds) Computational Science and Technology. Lecture Notes in Electrical Engineering, vol 603. Springer, Singapore. (Publication - SCOPUS Q3)
- Master of Science (IT) – Md Asifur Rahman (Talent Development)
- Design and Development of Interactive Learning System for Mathematics (Grant - MMU GRA SCHEME - RM58800)

Student Project Demo (invited)   Knowledge Transfer Programme

## DISCUSSION & CONCLUSION

Confirmatory Factor Analysis (CFA) shows that all factors met the satisfactory criteria of Composite Reliability (CR), Convergent Validity (AVE), and Fornell-Larcker Criteria (FLC) making the proposed model accepted for analysing the designated research. All the three hypotheses are supported as the $t$-value is greater than 1.645 in the conducted one-tailed test ($\alpha$=0.05) [4]. From the results, it can be inferred that HHI that occurs in between teacher and students through system has a positive impact on learning experience. Besides, the results suggest that learning through HIS also impacts learning experience positively. It can also be said that the learning experience through the two interactivities improves learning performance as the results indicated.

## REFERENCES

[1] Fernández-Enriquez, R., & Delgado-Martín, L. (2020). Augmented Reality as a Didactic Resource for Teaching Mathematics. Applied Sciences, 2560.

[2] Salinas, P., & González-Mendívil, E. (2017). Augmented Reality and Solids of Revolution. International Journal for Interactive Design and Manufacturing (IJIDeM), 829–837. doi:10.1007/s12008-017-0390-3

[3] Blasco-Arcas, L., Buil, I., Hernández-Ortega, B. and Sese, F., 2013. Using clickers in class. The role of interactivity, active collaborative learning and engagement in learning performance. Computers & Education, 62, pp.102-110.

[4] Ramayah, T., Cheah, J., Chuah, F., Ting, H., & Memon, M. A. (2018). Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0: An Updated and Practical Guide to Statistical Analysis. Kuala Lumpur: Pearson Malaysia Sdn. Bhd.

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# LEFT AND RIGHT BRAIN BALANCING APPLICATION WITH EEG NEUROFEEDBACK SYSTEM

Assoc. Prof. Dr. Ts. Tan Shing Chiang, Ir. Prof Dr. Sim Kok Swee, Lim Zheng You, Toa Chean Khim, Edwin Rao

## Abstract

The left and right brain dominance theory has been established for decades. According to research, it shows that brain balancing is able to unleash full potential of brain and enable rapid learning. Currently, the only way to determine a person whether is left or right brain dominance is by making a questionnaire assessment. There is no scientific data that can directly reflect brain activity to prove the left and right brain theory as well as the effectiveness of the left and right brain development training. Hence, in this research, it is aimed to implement deep learning neural network to classify the brain dominance level based on electroencephalogram (EEG) signal. Besides, this research also aimed to develop series of left and right brain training applications based on augmented reality (AR) technology. In current progress, this research has determine the correlation between EEG and brain dominance level, and classification using deep neural network. Besides, an AR application namely Augmented Reality Memory Card Game is developed to train the visual memory which focused on training the right brain hemisphere.

## Methodology

- EEG Acquisition Device
  - Open BCI Mark IV Headset
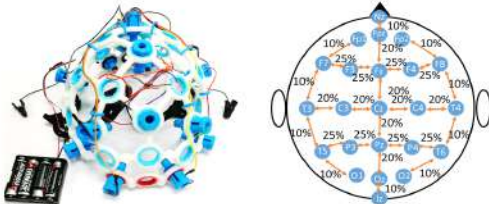


- EEG Signal Processing
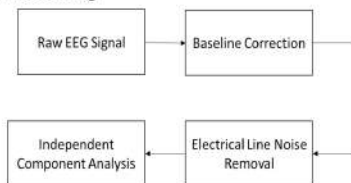


- Deep Learning Neural Network For Classification
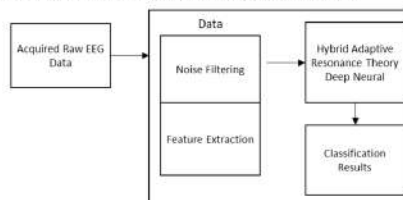


- Unity IDE for Augmented Reality Development

## Results and Discussion

- **Correlation between EEG Signal and Brain Dominance Level**
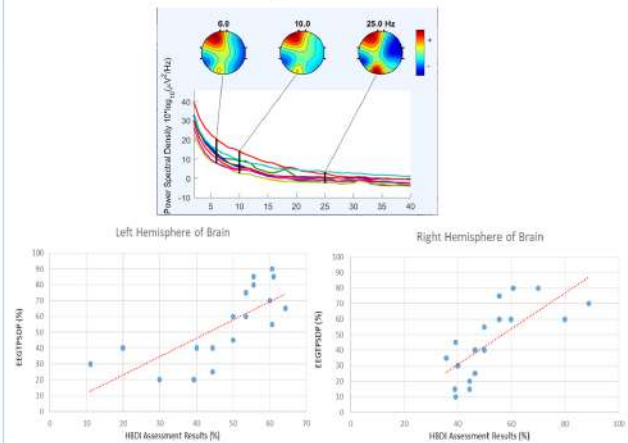


- **Deep Learning Neural Network For Classification**
  - Convolutional Neural Network (CNN)
    - Accuracy: 78%
  - Gated Recurrent Unit (GRU)
    - Accuracy: 80%
  - Long Short Term Memory (LSTM)
    - Accuracy: 62%
  - Recurrent Neural Network (RNN)
    - Accuracy: 53.5%
- **Augmented Reality Memory Card Game**



## Uniqueness

- Innovative: The brain dominance level can be determined using EEG signal without using questionnaire method.
- Simple: The process only involves EEG recording and import the EEG data into the GUI. The GUI will classify the EEG signal using the trained neural network and displays the classification results.

## Recognitions/ Awards

- Copyright:
1. CIC/IP/CR/2018-030
2. CIC/IP/CR/2018-011
- Patent filed:
1. Method and apparatus for colorimetric analysis (PI 2016704027)
2. Latex Article stamping apparatus (PI 2015702206)
- Silver Award in The 7th KOREA CREATIVE INVENTION CONTEST 2020
- Special Award in Korea Invention Award 2020
- Special Award in KINEWS 2020
- Gold Award in International Invention Innovation Competition in Canada 2020
- Silver Medal In International Invention Innovation Competition in Canada 2020
- TISIAS Special Award In International Invention Innovation Competition in Canada 2020
- Top 10 Best Inventions In International Invention Innovation Competition in Canada 2020

# MAPPED MOBILE INTERACTIVE SYSTEM IN TPACK FRAMEWORK

Daniel Lai, Dr. Lew Sook Ling(✉), Dr. Ooi Shih Yin
sllew@mmu.edu.my

## CONVENTIONAL CLASSROOM

According to Li, Mu Chen et al.(2019), students feel **PRESSURE** and **DULL**, thence, **LOSING INTEREST** in class [1]. The use of traditional methods has received criticism for not creating an environment in the classroom to develop **CRITICAL THINKING** and **PROBLEM-SOLVING SKILLS** [2].

**Teacher-Centered**

Trgalová et al.(2018) once mentioned, teacher needs to have in-depth understanding about **TECHNOLOGIES**, **TRADITIONAL TOOLS** and **RESOURCES** due to technology involvement in education [3]. It is important for lecturers to be **WELL-EQUIPPED** with the **NECESSARY KNOWLEDGE** and **SKILLS** to integrate technology into their teaching process [4].

**Overwhelmed Teacher**

## JUSTIFICATION STUDY

Research mainly focused on the integration of mobile interactive system with on-screen writing into TPACK framework and the relationship between modified TPACK framework and research elements.

The combination of **knowledge** and **pedagogy** with the involvement of **information technology** enabled teachers in developing pedagogical knowledge, skills and enhancing students' learning [5]. Furthermore, student learning capability will be improved presuming teacher himself or herself is willing to refine their **technological knowledge** and **integrate** it into their **content knowledge** and **pedagogical knowledge** [6]. Moreover, the core changes brought by ICT in society has called for research on specific **new forms of learning** and **epistemological issues** regarding how learning occurs and how knowledge emerges beyond the borders of traditional systems of education [7].

**TPACK = Technological Pedagogical Content Knowledge**

## OBJECTIVES

- To design a modified TPACK framework in teaching and learning
- To develop a mobile interactive system in TPACK
- To evaluate the effect of the mobile interactive system in TPACK in performance of learning

## INTEGRATION OF MOBILE INTERACTIVE SYSTEM

**On-Screen Writing**

**Online Session Ready**

**Synchronous Display**

**Mapped TPACK Framework**

**Mobile Device as Presentation Tool**
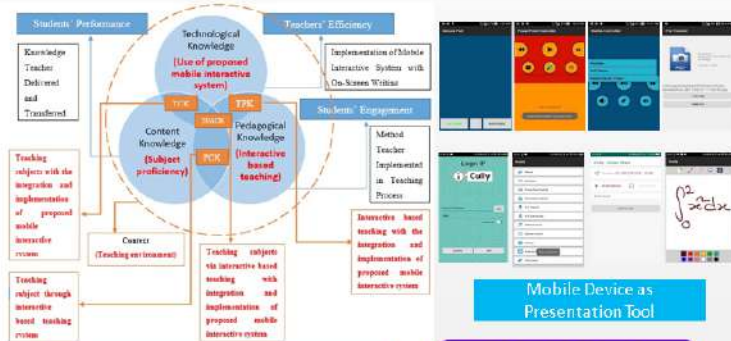
## METHODS & EMPIRICAL TESTS

- Quasi-Experiments
- Sample size: 100 individuals (95.23%)
- "With" is 7.99/10 while "Without" is 7.48/10.

## ACHIEVEMENTS

- PECIPTA 2019 [Gold]
- Seoul International Invention Fair 2019 (Gold)
- Malaysia Technology Expo 2020 (Silver)
- ITEX 2020 (Gold)
- Daniel L, Lew S. L, Ooi S. Y (2020), Pedagogical Framework Integrating of TPACK for Mobile Interactive System, Lecture Notes in Electrical Engineering (LNEE) [Publication: Scopus Q3]
- Daniel L, Lew S. L., Ooi S. Y, A Modified TPACK Framework for Teachers' Efficiency, Students' Performance and Students' Engagement, Advances in Intelligent Systems and Computing (Publication: Scopus Q3)
- Daniel L, Lew S. L., Ooi S. Y, Integration of Proposed Mobile Interactive System in the Classroom, Advances in Intelligent Systems and Computing (Publication: Scopus Q3)
- Master of Science (IT) – Daniel Lai Joon Kit (Talent Development)
- Interactive Learning Framework for Improving Teaching and Learning Mathematics among Students from Low-Income Families in the Fourth Industrial Revolution (Fundamental Research Grant Scheme (1/2018): RM67200)
- Interactive Learning Framework for Improving Teaching and Learning Mathematics among Students from Low-Income Families in the Fourth Industrial Revolution (MMU Fund 2019-2020: RM7200)

**Knowledge Transfer Programme**

**Industrial Collaboration**

**Student Project Demo (Invited)**

## REFERENCES

1 Li, Mu Chen (2019), The status and strategies of game teaching on Chinese course in primary schools.
2 A Comparison of Teacher-Centered and Student-Centered Approaches in Educational Settings. (2018)
3 Trgalová (2018), Technology and resources in mathematics education
4 Vasodavan (2019), TPACK in Higher Education: Analysis of The Collaborative Tools Used By Lecturers
5 Malik (2019), TPACK with Information and Communication Technology (ICT) Integration:
6 Karns (2019), Pairing a Learning Activity Types Short Course with collaborative curriculum design
7 Malik (2018), Educational Challenges in 21St Century And Sustainable Development Journal of Sustainable Development Education and Research

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# MARINE DEBRIS MONITORING & ASSESSMENT USING STANDING-STOCK SURVEY AT SELECTED BEACHES ALONG PAHANG COASTLINE

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[4]Department of Chemistry, Kulliyyah of Science, International Islamic University Malaysia, 25200 Kuantan, Pahang, Malaysia

## INTRODUCTION

- Marine debris accumulation governed by three factors; The emission rate of plastics into oceans, the amount of plastics already present in oceans, the degradation rate of plastics.
- Such efforts of Malaysia on reducing marine debris are Roadmap Towards Zero Single-use Plastics 2018-2030 and joining The Coordination Body of the Seas of East Asia (COBSEA) to deliver target SDG 14.
- This study was one of the collaborative subproject to contribute databases initiated by UN Environment Program (UNEP) and Marine Debris Monitoring and Assessment Program (MDMAP) by NOAA

## OBJECTIVES

1. To determine major types and possible source of marine debris
2. To study the relationship of seasonal pattern to debris density within Pahang coastline
3. To study the debris density changes between northern and southern of Pahang beaches.

## METHODOLOGY



| LAND-USE MAP METHOD | DEBRIS MONITORING | BEACH PROFILE |
|---|---|---|
| Landsat 8 images | 4 Area Selected for monitoring monthly (28 ± 3 days) | Beach profile using Leica Total Station during Low-Tide |
| Conversion to Reflectance and Radiometric Correction | Debris recorded every 4 random transects line for each site. | Theodolite data were analysis using Surfer v15 |
| Applying Normal Difference Built-up Index (NDBI) | >2.5 cm debris will be recorded in datasheet | Export 2D Beach Profile |
| Unsupervised Classification (ISODATA) | Beach width are recorded every transect | STATISTICAL ANALYSIS |
| Accuracy Assessment | Densities were calculated | Independent t-test on seasonal pattern and spatial variation |

## CONCLUSION

**Objective 1**
- Plastic is the major type of debris along Pahang coastline
- Southern part Pahang is the possible source of debris

**Objective 2**
- There is positive relationship between seasonal pattern and debris density due to high wind speed carrying debris into the beach.
- There is significant different on debris density between Northeast and Southwest monsoon.

**Objective 3**
- There is significant different on debris density between North and South Pahang.

### Acknowledgement

## RESULTS & DISCUSSION

### 1. Major type and possible sources of debris



Percentage of Plastic

- 17.12% Plastic Fragments
- 6.79% Food Wrapper
- 7.46% Beverage Bottles
- 4.14% Other Jugs
- 9.52% Bottle Caps
- 3.32% Cigar Tips
- 6.92% Cigarettes
- 2.09% Disposable Lighters
- 2.22% 6 Pack Rings
- 7.94% Bags
- 11.10% Plastic Ropes
- 2.27% Floats
- 2.28% Fishing Lures
- 3.58% Cups
- 2.09% Plastic Utensils
- 3.29% Straw
- 1.61% Balloons - Mylar
- 3.17% Personal Care
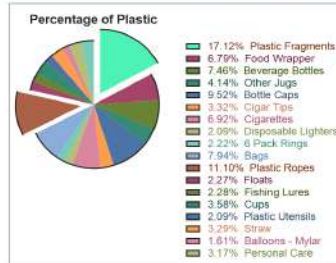
- 88.1% are made up of plastic which includes plastic fragments, food wrapper, beverage bottles, container caps, and plastic ropes
- Pekan district is the possible source of marine debris.
- No correlation between area of land-use and debris density
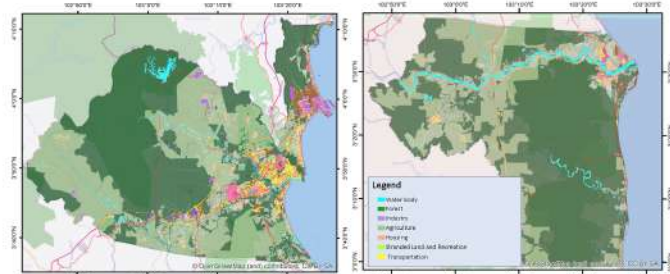


Figure 2 shows land-use map on Kuantan district (left) and Pekan district (right)

### 2. Relationship Of Seasonal Pattern To Debris Density Within Pahang Coastline
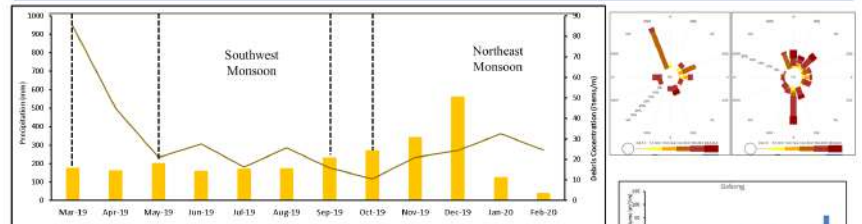


### 3. Debris density changes between northern and southern of Pahang beaches
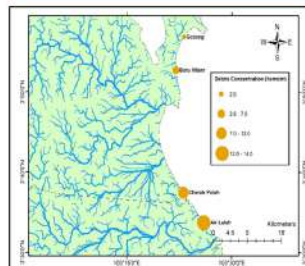


- **Spatial Variation**
There is significant different on debris density between North and South of Pahang ($X^2(3) = 81.4$, $p < 0.05$)

- **Seasonal Variation**
There is significant different on debris density between Northeast and Southwest monsoon
$t (2.19) = 132.17$, $p = 0.03$

Figure 7 shows Northern part of Pahang has many rivers based on hydrology analysis using ArcMap 10.6
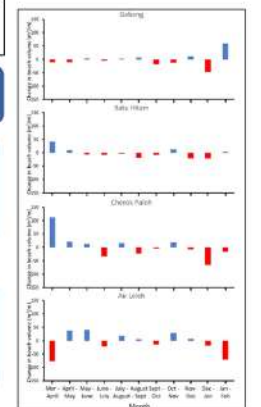


Figure 5 shows the change in beach volume, $m^3/m$ (y-axis) and the months (x-axis)

## KNOWLEDGE TRANSFER



- This project was developed marine debris message throughout the local communities by beach clean-up program under IIUM Marine School.
- This project provided a systematic marine debris assessment and monitoring for World Cleanup Day 2019 and International Coastal Clean-up 2020 for data collection.
- This project also educate the public about the importance of keeping the coast clean.

# MEASURING MUSLIM CONSUMERS' INTENTION AND PURCHASE BEHAVIOUR TOWARDS *Shariah* COMPLIANT HOTELS IN MALAYSIA

**Project Leader**: Dr. Abdullah Al Mamun Sarwar, Multimedia University
**Team Members**: Dr. Nasreen Khan & Dr. Melissa W. Migin

## Study Background

1. There are more than two billion Muslim populations in the world spreading over 112 countries. The market opportunities are outstanding and the global marketplace is too lucrative for academicians, marketers and hoteliers to ignore (Alam & Sayuti, 2019).

2. The global tourism market is estimated to be worth US$124.52 billion by the year 2024 and the tourism industry pegged to grow at a rate of 7 percent annually driven by the increasing value and diversity of the consumer market, combined with global tourism and reverse colonization(Anne-Birte, 2020).

## Research Question & Objective

| Research Questions | Research Objectives |
|---|---|
| What are the factors influencing Muslim consumers' intention and purchase behaviour towards Shariah compliant hotels in Malaysia? | To identify the factors that influence Muslim consumers' intention and purchase behaviour towards Shariah compliant hotels in Malaysia |

## Methodology

| Research Approach | Deductive |
|---|---|
| Research Design | Descriptive and causal |
| Research Paradigm | Positivist paradigm |
| Data Type | Primary data |
| Method of Data Collection | Survey method using a set of self-administered questionnaires |
| Population | Muslim tourists |
| Sampling Plan | Non- probability judgment sampling |
| Sample Size | 329 Muslim tourists |

## Path Coefficient and Hypothesis Testing

| Hypothesis | Relationships | Path Coefficients | Std. Error | T Values | P Values | Decision |
|---|---|---|---|---|---|---|
| H1 | ATT -> PI | 0.178 | 0.063 | 2.329 | 0.000 | Supported |
| H2 | HI -> PI | 0.384 | 0.076 | 3.411 | 0.000 | Supported |
| H3 | HA -> PI | 0.160 | 0.073 | 2.542 | 0.000 | Supported |
| H4 | RE -> PI | 0.456 | 0.060 | 5.080 | 0.000 | Supported |
| H5 | PI -> PB | 0.182 | 0.064 | 5.859 | 0.000 | Supported |

## Problem Statement

1. Gaining a clear understanding of the needs, wants, interests as well as behaviours of Muslim tourists from different parts of the world is of utmost importance as these factors affect their intention to stay in a particular hotel.

2. Researchers have started to take interest in enhancing their knowledge regarding *Shariah* Compliant Hotel (SCH), however, there is still a scarcity of knowledge in contemporary literature regarding SCH (Razalli et al., 2018; Samori & Rahman, 2019), and what leads Muslim consumers to choose such hotels, particularly in the Malaysian context (Zailani et al., 2019).

3. Therefore, this study aims to explore the factors that may affect Muslim consumers' purchase behaviour of *Shariah* Compliant Hotels.

## Study Model
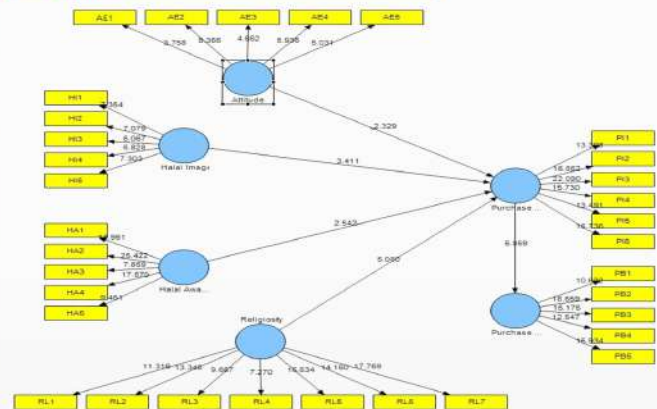


## Conclusions & Recommendation

1. It is hoped that the findings of this particular study may bridge the gap that currently exists in the area of *Shariah* Compliant Hotels. The findings of the study provides practitioners with relevant insights which in turn will be beneficial for them to develop effective strategies.

2. Besides, this would be an opportunity for the hoteliers in tapping the Muslim market.

## Special Highlight

International Knowledge Transfer Program (KTP) with Telkom University, Indonesia conducted on 20 October, 2020.

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# MICRO COURSES FOR MENTAL WELLNESS PRIORITIES

Juniza Zamri[1] (Exhibition & Web Project Leader);  Koo Ah-Choo[1] (FRGS Project Leader for Mental Wellness Research for Digital Talents)
>>[Members are in alphabetical order: Alham Rashid Aamir Saif Alomairi[1], Cheng Kin-Meng[1], Chiang Weng-Onn (Alexius)[2], Elyna Amir Sharji[1], Hawa Rahmat[1], Siew Wei-Fern[2], Tan Choon Hong[1], <<
[1]Multimedia University, [2]International Medical University

" Result from a study during MCO in Malaysia shows that about half of the 1084 respondents were experiencing high level of negative emotional states. "

(Azuddin, 2020, A report on MCO and mental well-being by theentre.my)

**Take care of mental health, avoid stigma, says Health D-G**

"The number of Malaysian experiencing poor mental health, including low mood, worry and feeling stress in the workplace has tripled from 10% in 1996 to 29% in 2015"(*Workplace Mental Health The Business Cost*, 2020). The current Covid-19 situation has even trigger more burden on workers' mental health. Some measures should be taken to address this issue.

**SCREEN LAYOUT**

Mental Wellness Priorities

## PROBLEM STATEMENT

**Micro courses on Mental Health Priorities** Project aims to **address the gap and the demand for mental wellness micro and impactful contents for raising awareness and skills on this health aspect.** There is a vast potential that e-learning can be an effective intervention that will help the employees (or anyone) to learn about this crucial topic in this uncertain time.

## PRODUCT DESCRIPTION

Micro courses have become **ubiquitous in the new normal as it allows flexible, anywhere, and anytime learning and upskilling for mental wellness in shorter time**. eLearning platform can be an option to help promote healthy self-care and positive talk (Erin, 2016), especially with experts sharing their knowledge and skills.

## APPLICABILITY

This micro courses will be offered to human resource divisions in public and private sectors. The new "work from home" (WFH) setting has resulted the demand on mental wellness guides. These courses are **small and concise practical guides by psychology experts for working people** and general for any public too.

## NOVELTY

## COMMERCIALIZATION

Micro courses platform is able to provide **micro-credential** to workers (or anyone) who completes the whole guide (course). Quizzes and Open Reponses are tracked and captured in the system. Overall platform with contents are independent, and can be commercialized with affordable price to any corporations or organizations, as an upskilling platform for improve mental wellness skills and knowledge.

## ACKNOWLEDGEMENT

Special thanks to:
Grant Support - by MOHE FRGS Fundamental Research Grant Scheme 2019 September.
Scholarship Support - Hadiah Latihan Persekutuan (HLP).
Jabatan Pengajian Politeknik (JPP), Masters of Multimedia (e-Learning Technologies), MMU.

SCAN ME

**ewellness.hafizjuniza.com**

Theory of Happiness — ★★★★★ 5.00 (1) — by ewellness in PERMA Model — Free — Get Enrolled

Which Personality Are You? (Personality Test for Knowing My Strength) — by ewellness in Personality Types — Free — Get Enrolled

eHealth domain for mental wellness — by alham in eMental Health — Free — Get Enrolled
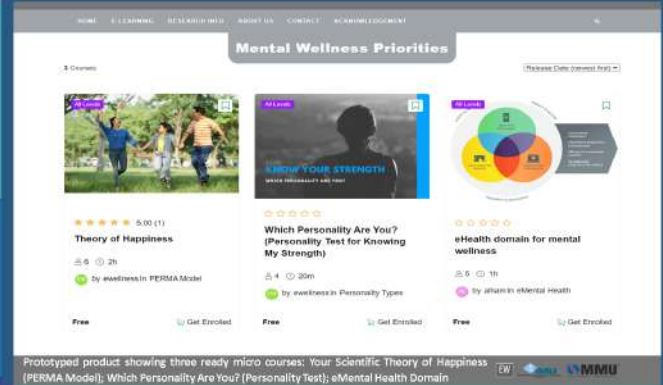
Prototyped product showing three ready micro courses: Your Scientific Theory of Happiness (PERMA Model); Which Personality Are You? (Personality Test); eMental Health Domain

The PERMA+ Model of Well-being

**Recognition of Previous Project on Wellness Research and Creation:**
1. Cancer Caregivers' Needs for their well-being in Seamless Information Era, Global Health 2020, Nice France, 25-26 Oct 2020.
2. Web Elements Framework for Health Promotion in Malaysia (2019). Health Promotion International - Manuscript ID HPI-2017-089 Oxford University Press. Published on 9 May 2019.  Scopus Q1
3. "What is Diabetes" is an infographic animation created in 7 type of languages, used by UNHCR for Health Education purposes (in UNHCR Hall and Refugee Learning Centres). Developed it with a team of Faculty of Creative Multimedia talents

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# MODEL FOR FRUGAL INNOVATION THROUGH INTELLECTUAL CAPITAL AND IT CAPABILITY TO BUILD AN IR4.0 EDUCATION ECOSYSTEM

**Ts. Dr. Magiswary Dorasamy[1], Jayamalathi Jayabalan[2], Professor Dr. Murali Raman[3]**
**Multimedia University [1] Universiti Tunku Abdul Rahman[2] INTI International University[3]**

## Research Background



Intellectual Capital and Dynamic Capabilities for Frugal Innovation in Higher Educational Institution in Malaysia

**HUMAN CAPITAL**
- training and competence
- employees' knowledge
- skills
- experience
- expertise and abilities

RESOURCES
Value of Investments in Employees

**STRUCTURAL CAPITAL**
- Information systems
- Corporate cultural
- Management systems.

RESOURCES
Knowledge Accumulated and Distributed

**Information Technology Capability**
- IT Infrastructure capabilities
- IT business spanning capabilities
- IT proactive stances

**INTERNAL RELATIONAL CAPITAL**
Knowledge Available
Knowledge Available and Embedded

**EXTERNAL RELATIONAL CAPITAL**
- Supplier
- Customer
- Stakeholder
- Industry
Knowledge and Resources with External

## Research Problems

1. HEI faced with Budget Reduction and intense need to improve efficiency and effectiveness (NST,2018)
2. Issues with Intellectual Capital systems in Higher education (Sanchez et.al.,2009 and Leitner,2004)
3. HEIs faced diverse pressures for educational transformation & IR 4.0
4. Industry-academia pressure to boost innovation without huge investment (Secundo et al., 2010)

Changing landscape for HLIs:
- educational transformation
- Higher public expectation
- Poor profitability
- Increasing expenditure
- Continuous shrinking of funds
- Understaffing and obsolete facilities
- Technological change

## INTELLECTUAL CAPITAL
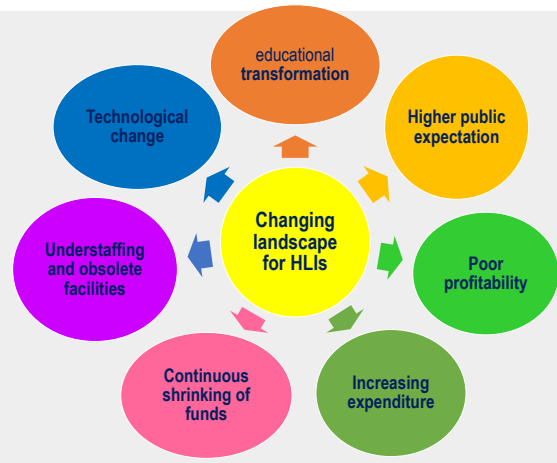
Human Capital
Relational Capital
Structural Capital

## FRUGAL INNOVATION

Creating more economic and social value with fewer resources

To sustain competitive advantage

## IT CAPABILITIES

IT infrastructure capability
IT business spanning capability
IT proactive stance

## Theoretical Framework
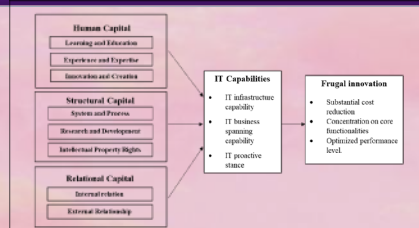


## Method for Practice Review

## Practice Review Result

**Technological Challenges**
- Outdated technology platforms
- Leverage new and efficient technologies to improve on the management and operations
- Technological obsolescence and the need to upgrade equipment and processes
- Lack of IT infrastructure

**Structural Challenges**
- Costly to maintain building and develop facilities
- Ceiling or limitation on capital expenditures
- Undercapitalised
- Dilemma in managing aging buildings and infrastructure

**Operational Challenges**
- Lack of Human capabilities
- Increasing student mobility
- Drivers of staff motivation are often unclear
- Poor capital and operational budgetary allocations

**Financial Challenges**
- Price sensitive consumer
- The cost of providing higher education is increasing
- Rising costs and shifting funding
- Universities struggle to stay in business under

**Social Challenges**
- Academic staff capacity
- Resource scarcity
- Rising student expectation
- Value oriented customer with various consumer

Findings & Recommendations

# MODELLING ISLAMIC LEADERSHIP STYLE FROM THE PERSPECTIVE OF GLC EMPLOYEES IN SELANGOR

Mazni Alias (Multimedia University), Adedapo Oluwayesi Ojo (Multimedia University, Aravindan Logeiswaran (Multimedia University), Nur Farhana Lyana Ameruddin (Sunway University)

## INTRODUCTION

- Mohammed (2016) have highlighted that Islam has mutual proficiencies in dependency and a paradigm of leadership skills.
- Islamic leadeship mainly derived from Sharia resources which are Quran and Sunnah (Aliza et al;, 2016)
- Styles of leadership impact organisational commitment (Olayide & Kewal, 2017).
- Aina and Verma (2016) highlighted the association between various leadership styles and organisational commitment.
- Organisational commitment has been an predicted as an indicator of an employees' productivity and human performance.
- Limited studies has looked into various leadership based on Islamic approach specifically on organisational commitment (Bababola, 2016).
- Attempts to answer the knowledge gap in the specific context of leadership styles among GLC employees' perspectives.

## LITERATURE REVIEW

- Participative leadership associated with an employee innovation (Chang et. al., 2019).
- Knowledge leadership important in sustaining organisation competitive advantages and job satisfaction (Liu & Lan, 2011; Abdul Rahman, 2017).
- Role model leadership involving ethics and high morals in work encourages employees' achievement in high quality work (Essam Al-Abd, 2010).
- Motivational leadership according to Anwar and Haider (2015) a leader's job centres in motivating employees to do their work.
- Hurduzeu (2015) postulated that leadership style as a significant indicator of organisations' performance.
- Organizational commitment has mediating effect on leadership style and employee's performance (Almutairi, 2016).

## RESULTS

- The PLS structural model was used in testing the hypotheses.
- Motivational leadership and organisational commitment ($\beta = 0.57$, $p < 0.001$), the three other leadership styles were not significantly related to organisational commitment.
- Organisational commitment was also significantly related to employee performance.
- Mediating relationships only supported the indirect effect of motivational leadership on employee performance through organisational commitment ($\beta = 0.20$, $p < 0.01$).
- $R^2$ for organisational commitment and employee performance were 0.31 and 0.13 respectively.
- Model is able to explain 31.2% variance in organisational commitment and 12.6% variance in employee performance.

## DISCUSSION AND CONCLUSION

- A Muslim motivation to strive are not only from the notions of self-fulfillment or material achievements, but from loftier aims which is well-being of this world and the hereafter.
- Motivational leadership practices - Approachable, open to dialogue, willing to consider a different perspective, welcome innovation and show commitment.
- Motivation leadership practices – involved high challenges, actions changed into thoughts and lays the way in the achievement of organization goals.
- Improves employees' confidence, esteem, satisfaction, performance and development.

## RESEARCH FRAMEWORK
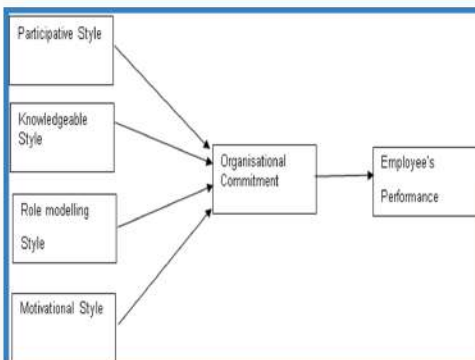


## RESEARCH DESIGN

- Population – GLC in Selangor
- Data collected - 221 respondents.
- Survey - Questionnaire
- Sampling - Stratified random sampling
- Data Analysis – PLS-SEM

## COMMERCIALIZATION POTENTIAL AND COPYRIGHT STATUS

- Training offered to GLC and implication of practice to practitioners.
- Training notes copyrighted and affirmed: 5th August 2020

## RESEARCH OBJECTIVES

- To determine the relationship between styles of leadership and organisational commitment in among Selangor GLC.
- To determine the relationship between organisational commitment and employees' performance among Selangor GLC

## ACKNOWLEDGEMENT

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- Essam Al-Abd. (2010). Role Model and its impact on the individual and society. Retrieved from site.iugaza.edu.ps/...ملصاح د د القدوة الصالحة زهد مصلام 12 7 4212-- - - - - - - doc. on 20 November 2018
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# MODELLING THE RELOCATION OF OLDER PEOPLE TO A SMART RETIREMENT VILLAGE: A PUSH-PULL FRAMEWORK

**Booi-Chen Tan[1], Nasreen-Khan[2], Wooi-Haw Tan[3], Chee-Pun Ooi[4]**

[1&2] Faculty of Management, Multimedia University, Malaysia

[3&4] Faculty of Engineering, Multimedia University, Malaysia

## Introduction

With the increasing growth in the ageing population of Malaysia, providing older people with suitable housing has become a significant focus of policy and practice. Resultantly, developers are already noticing the potential in building more retirement villages to cater to a growing market. Retirement villages are a type of housing that delivers specialized accommodation for older people. Although research associated with retirement villages involves a wide range of topics such as the residents' relocation, living experience and village living environment, little attention has been paid to the inclusion of Internet of Things (IoT), which depicts a world of networked smart devices, in the early stages of planning a Smart Retirement Village (SRV) development from the perspectives of older people.

## Objectives

This study aims to propose a framework based on the push-pull approach to understand the salient factors that influence the older people's relocation intention to a SRV in Malaysia. Besides, based on the stakeholder analysis, SRV features that can influence relocation decisions will be designed and proposed based on the perspectives of the older people.

## Research Framework



**Push Factors**
- Health & mobility restriction
- Social isolation
- Difficulty to maintain existing home/garden
- Lifestyle change

Relocation Intention to SRV

**Pull Factors**
- Built environment (SRV features)
- Affordability
- Location
- Proximity to friends & services
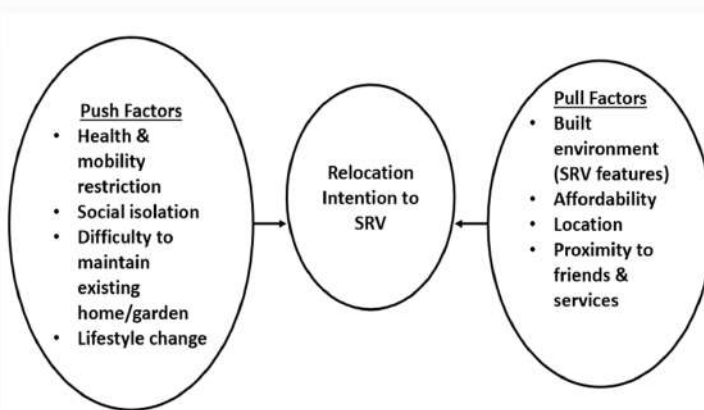
**Methods**: This study will be based on qualitative and quantitative approaches, via the face-to-face interviews with the older people (i.e., retiree) aged 60 and above at the Activity Centre For The Older Persons (PAWE) from the list provided by the Department of Social Welfare. **Sample Size**: 300 participants at PAWE.

**Expected Outcomes**: To all those engaged with commissioning and developing services for older people both in the public and private sectors. To address main policy objectives around promoting independence, choice and quality of life for older people.

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# Online Grocery Shopping: The Gen Y's Perspective

Lim Kah Boon (Faculty of Business, Multimedia University)
Yeo Sook Fern (Faculty of Business, Multimedia University)
Tay Kok Liang (Faculty of Business, Multimedia University)

## INTRODUCTION

- Online grocery shopping in Malaysia is still on the rising trend.
- Generation Y, also known as millennials, is one of the largest groups with significant purchasing power and has emerged as a major force in the marketplace (Fauzi et al., 2018).
- Generation Y has also been living their lives on the internet.
- However, Malaysian consumers' intentions to buy groceries online remain unexplored, particularly among Gen Y, a market segment with significant purchasing power.

## OBJECTIVE

To investigate the factors affecting Gen Y purchasing intention towards online grocery shopping in Malaysia

### RESEARCH FRAMEWORK

Perceived Risk

Perceived Ease of Use

Social Influence

Perceived Usefulness → Purchase Intention ← Visibility

### RESULT

42.5%

57.5%

Response rate = 87.39%
201 respondents

Cronbach's Alpha > 0.8

$R^2 = 0.809$

Composite validity & Rho_A value > 0.7

Outer loadings range from 0.609 to 0.886

AVE values > 0.5

### RESEARCH ACHIEVEMENTS

**Bronze Medal**
Research Innovation Commercialisation & Entrepreneurship Showcase (RICES) 2019

**Silver Medal**
IDE4 Teaching & Learning Exhibition (IDE4TE 2020)

### METHODOLOGY

- Questionnaire survey method
- Target respondent age from 25 to 40 years old
- SPSS version 26 & Smart PLS version 3.3.2

### DISCUSSION

- Only visibility has a significant relationship with Gen Y purchase intention for online grocery shopping in Malaysia.

### NOVELTY

- This research finding can help with the management aspect of business sustainability.

Reference:
Fauzi, M. W. M., Khalil, M. B. O., Aziz, R. A., & Hariz, M. A. B. Z. A. (2018). Factors influencing online buying behaviour of generation Y. International Journal of Business, Economics and Law, 17(2).

>>Poster ID <<

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# OPEN-SOURCE RECONFIGURABLE 4G LTE TRAINING KIT

**LIM HENG SIONG,** Faculty of Engineering & Technology, MMU

## CHALLENGE

Linking theory to practice has been the primary concern of lecturers teaching advanced mobile communication systems, such as LTE, due mainly to the unavailability of an open and affordable network test bed.

## SOLUTION

PC-based implementation of eNB and EPC and SDR as the RRU. This test bed meets all the requirements for in-depth understanding of the full protocol stacks and the key components of the LTE network from radio access to core.

**Assignment:**
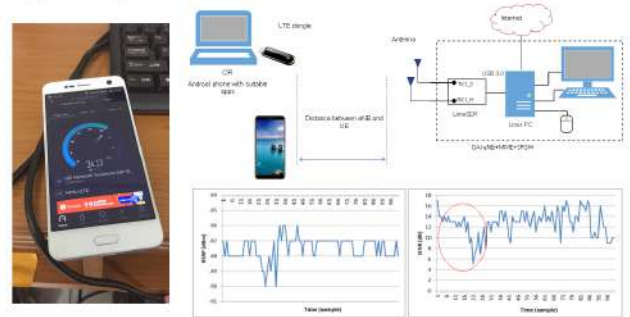




End-to-End LTE Network with OAI's eNB and EPC



The ME1130 LTE Hardware kit
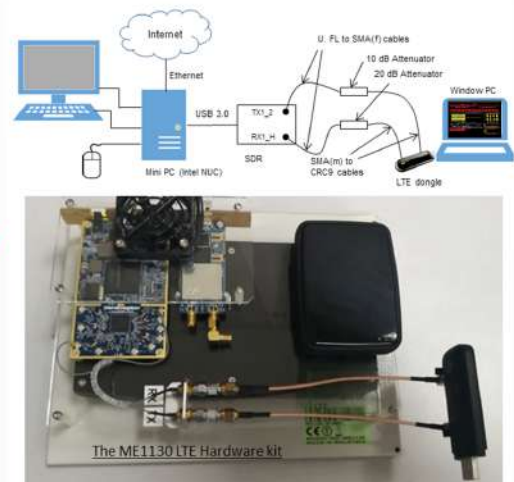
## KEY FEATURES
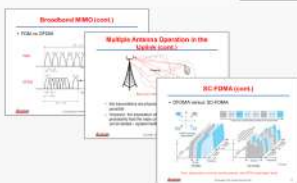




**Protocol Analysis:**



**Teaching Slides:**
1. Introduction to LTE
2. OFDM, SC_FDMA, and MIMO Techniques
3. LTE System Architecture
4. LTE Protocols
5. Spectrum and RF Aspect of LTE
6. LTE-A and Beyond
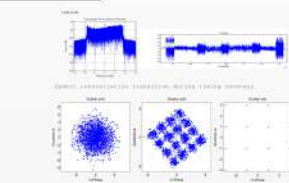
**Lab exercises:**
1. LTE Spectrum Analysis Using GNU Radio and SDR
2. LTE Network Emulation: Configuration and implementation of eNodeB, EPC, and UE
3. FDD-LTE Symbol Timing Recovery and Fractional Frequency Offset Compensation
4. LTE Cell Search: Cell ID Detection Using PSS and SSS
5. LTE Protocol Analysis
6. LTE network Performance Evaluation
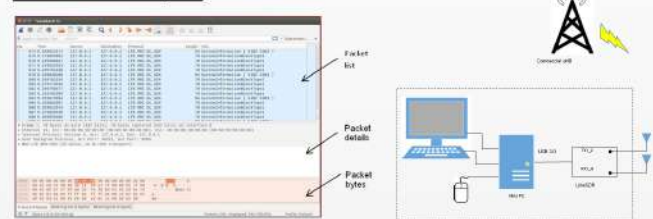
## COLLABORATOR /COMMERCIALIZATION



ME1130 ESSENTIALS OF LTE AND LTE-ADVANCED



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# Peer-assisted Learning strategies for MPU 2202 Grooming and Professional Etiquette

## Elizabeth Marshall, Faculty of Applied Communication Multimedia University, Cyberjaya Campus. Malaysia

This aim of this study was to evaluate the efficacy of peer-learning among Diploma level students for the subject Grooming and Professional Etiquette (MPU2202) Previous attempts to teach this paper highlighted some areas for improvement.



I would like to acknowledge all students who registered in the MPU Grooming and Professional Etiquette course for their input.

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# PERCEPTIONS OF STUDENTS AT HIGHER LEARNING INSTITUTIONS ON CARTOON CONTENT

## Norishamsawati bt Ishak, Dr. Rohaidah bt Mashudi, Faizuniza bt Mashhod

### 1. Introduction

- The aim of this study is to determine the perceptions of students in higher institutions towards cartoon content. Concept cartoons have been found to be highly motivating for groups of learners of all ages and backgrounds and in a variety of circumstances, including those students who have emotional and behavioral difficulties. According to Khalid, Meerah and Halim (2010) majority of the teachers believed that concept cartoons can be a great tool in assessing student's cognitive skills and can be used to identify and eliminate student's misconception in teaching physics subject which have similar results the study conducted by Birisci, Metin and Karakas (2010).

### 2. Objectives

- To recognise the meaning of cartoon message among student
- To analyse the content message of cartoon
- To describe the cartoon message in student daily life

### 3. Methods

- The research design which will be used is the qualitative and quantitative study. Data from student questionnaire and collection of cartoon from several media such as newspaper, analyze the data and interpretation of data will take place. This study emphasizes aspects of language use through the communication ethnographic approach. Hence, research through this communication ethnography focuses on the symptoms the use of the language in the cartoon selected as the study data, by taking local culture as a guide in making interpretation. By using the approach proposed by Hymes (1986) by submitting 8 components communication consisting of background (setting), participants, communication purpose (ends), act sequence, variety (key) , tool or communication channels (instrumental), norms of interaction and interpretations and genres that make emphasis to the communication pattern in a language event.

### 4. Result

- The results of this study can be observed that the cartoon content have significant impact on students perceptions.
- 55.1% and 17.4% of the students agree and strongly agree that using cartoon in learning increase their understanding about the subjects.
- 58% and 20.3% % of the students agree and strongly agree that carton content helps them to give more attention during the lesson.
- 67.7% of the students believe that using cartoon in learning will helps them to get good result.
- 81.2% of the students agree that cartoon helps them to remember more what had been learnt.

### 5. Conclusion

- Based on this study, most of the students find that the concept of cartoons are more enjoyable and interesting which presented using attractive pictures and storyboard. Besides, this method also enables students to comprehend the lesson even better.

### 6. References

- Birisci, S. & Mustafa, Metin & Karakas, Mehmet. (2010). Pre-service elementary teachers'views on concept cartoons: A sample from Turkey. Middle East Journal of Scientific Research. 5. 91-97.
- Khalid, Hamidon & Meeran, Subhan & Halim, Lilia. (2010). Teachers' Perception towards Usage of Cartoon in Teaching and Learning Physics. Procedia - Social and Behavioral Sciences. 7. 538–545. 10.1016/j.sbspro.2010.10.072.

GENDER


LEVEL OF EDUCATION


The using of cartoon in learning effectively helps to increase my understanding about the subjects.


The using of cartoon in learning helps me to give more attention during the lesson.


The using of cartoon in learning gives the good results in return.


The using of cartoon in learning helps me to remember more what had been learnt.

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# PRELIMINARY STUDY ON THE AWARENESS OF P2P LENDING PLATFORMS IN MALAYSIA

**PROJECT LEADER: DR. LAN T.P. NGUYEN (MMU, MALAYSIA)**
**PROJECT MEMBER: PROF. MALICK O. SY (RMIT, AUSTRALIA)**

## MOTIVATION

- THE UNSTOPPABLE GROWTH OF CLOUD FUNDING INDUSTRY IN RECENT YEARS.
- THE COLLAPSE OF MANY P2P PLATFORMS AROUND THE WORLD

## RESARCH QUESTION

- DO MALAYSIAN INVESTORS UNDERSTAND THE RISK AND RETURN MECHANISM OF A P2P LENDING PLATFORM?

## OBJECTIVE

- TO EXAMINE THE AWARENESS OF P2P LENDING PLATFORMS IN MALAYSIA.

### PILOT SAMPLE
- 50 POTENTIAL LENDERS/BORROWERS OF P2P PLATFORMS
- UNIVERSITY UNDERGRADUATE STUDENTS

### ANALYSIS
- DESCRIPTIVE STATISTICS

### QUESTIONNAIRE DESIGN
- FINANCIAL LITERACY
- KNOWLEDGE ABOUT P2P PLATFORMS

### DATA COLLECTION
- METHOD: ONLINE
- PERIOD: NOVEMBER 2019 – APRIL 2020

## IMPLICATIONS

THE AWARENESS ABOUT THE PRESENCE OF P2P LENDING PLATFORMS IS RELATIVELY LOW AMONG MALAYSIANS WITH STRONG AND RELATIVELY STRONG FINANCIAL LITERACY.

THE SUCCESSFULNESS OF SUCH PLATFORMS IS QUESTIONABLE.

## MAIN FINDINGS

ONLY 46% OF RESPONDENTS IN THE STUDY SAMPLE ARE AWARE OF THE PRESENCE OF AT LEAST ONE OF P2P LENDING PLATFORMS IN MALAYSIA.

72% OF RESPONDENTS DO NOT KNOW THAT P2P LENDING IS A DIRECT LENDING FROM LENDERS TO BORROWERS.

30% OF RESPONDENTS AGREE AND STRONGLY AGREE THAT LOANS CAN BE OBTAINED EASILY FROM THESE PLATFORMS. THE REST HAS NO IDEA ABOUT THIS.

38% OF RESPONDENTS THINK THAT LENDING TO BANKS IS SAFER THAN LENDING TO P2P PLATFORMS, WHILE 52% HAVE NO IDEAS.

MAJORITY OF RESPONDENTS POSSESS VERY STRONG (46%) AND RELATIVELY STRONG (36%) FINANCIAL LITERACY.

42% OF RESPONDENTS ARE AWARE OF LESS DOCUMENTS REQUIRED BY P2P PLATFORMS.

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# PROPOSED SOLUTION: INTELLIGENT AGENTS IN BLENDED LEARNING

## Clara A/P Susaie, Tan Choo Kim, Goh Pey Yun

Faculty of Information Technology, Multimedia University, Jalan Ayer Keroh Lama, Bukit Beruang, Melaka, Malaysia.

## Abstract

Mathematics expresses about humans' daily activities. Time, calculation, weighing and almost everything around humans are related to mathematics. However, when looking into closer picture of mathematics in education, there are quite a number of downfalls on why the students' performance is not at welcoming. Learning environment, teaching techniques, the delivery of teaching materials by educators influence the performance of students in Mathematics [1] [2]. Intelligent agents are in human representation but in virtual character, which can be used in e-learning for teaching and other education related matter [3]. This study focuses on integrating blended learning approach and intelligent agent together to enhance the performance of students' in mathematics. The study showed that learners' prefer study mathematics through blended learning however, 36% believe they can perform better in mathematics with the aid of intelligent agent.

## Problem Statement

Learning Environment + Lack of interest in Mathematics → Decrease in students' performance in Mathematics [4]
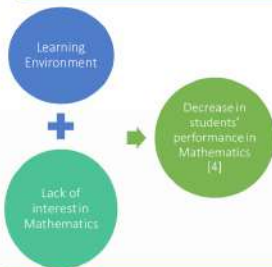
## Objectives

1. To integrate the traditional learning method and online learning method using intelligent agent.
2. To design and develop intelligent agent that teaches students mathematics.
3. To increase the performance of students' in mathematics through blended learning

## Solution

A system is designed and developed by integrating intelligent agent to improve students' performance in mathematics. The intelligent agent will teach Discrete Mathematics to the students and feed encouragement in the tutorial classes.

## Research Methodology

- Identify the control and experimental groups. Both groups will undergo Pre-Discrete Mathematics Achievement Test (DMAT) and Pre-Discrete Mathematics Attitude Inventory (DMAI)
- Control Group (Traditional Learning) vs Experimental Group (Blended Learning with Intelligent Agent)
- Both groups will endure Post-DMAT and Post-DMAI

- Pre-Test
- Intervention (1 Month)
- Post-Test

Method: Quasi Experimental method.
Data: Qualitative & Quantitative data.
Analysis Tool: SPSS
Statistical tests: Descriptive statistics, t-test, ANOVA

## System Development

- Intelligent Agent
- Intelligent Agent in this system is a 3-Dimensional animated human like character used to develop with Animoji feature on iOS. The voice for the intelligent agent is pre-recorded voice from a young female character.
- Online Learning Platform
- HTML, Java, JavaScript

## Results



Students' Favourite in Mathematics — Like, Neutral, Dislike

Learning through Blended Learning — 45%, 37% — Agree, Neutral, Disagree

Perform better in Mathematics through Blended Learning — 41%, 39% — Agree, Neutral, Disagree

Prefer learning with Intelligent Agent — 36%, 36% — Agree, Neutral, Disagree

Perform Better in Mathematics through Blended Learning integrated with Intelligent Agent — 43%, 36% — Agree, Neutral, Disagree

## Conclusion

**Findings**
- Learners' prefer to study in blended learning environment. Though, most of them like the presence of intelligent agent in blended learning.

## Value Added

Through this study, **students** are expected to be benefited from the blended learning integrated with intelligent to improve their performance in mathematics. Besides, **educators, researchers, school/institutions** will be benefitted from this project.

## References

[1] Tahir, H., & Hadayat, H. (2016). Causes of Poor Performance in Mathematics from the Perspective of Students, Teachers and Parents. *American Scientific Research*, 122–136.

[2] Wei, X., Cheng, I. L., Chen, N. S., Yang, X., Liu, Y., Dong, Y., Zhai, X., & Kinshuk. (2020). Effect of the flipped classroom on the mathematics performance of middle school students. *Educational Technology Research and Development*, 68(3), 1461–1484. https://doi.org/10.1007/s11423-020-09752-x

[3] Lippert, A., Shubeck, K., Morgan, B., Hampton, A., & Graesser, A. (2020). Multiple Agent Designs in Conversational Intelligent Tutoring Systems. *Technology, Knowledge and Learning*, 25(3), 443–463. https://doi.org/10.1007/s10758-019-09431-8

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# PUBLIC UNDERSTANDING ON RIP CURRENTS AND BEACH SAFETY KNOWLEDGE IN TELUK CEMPEDAK BEACH

NUR ADAWIYAH MOHAMMED ISA[1], MUHAMMAD ZAHIR RAMLI[*1,2], SITI FAIRUZ CHE OTHMAN[3], MUHAMMAD ZUBIR YUSOF[4], YUSAIRAH AMANI MOHD ALIZIYAD[5]

[1]Department of Marine Science, Kulliyyah of Science, International Islamic University Malaysia (IIUM), 25200, Kuantan, Pahang, Malaysia. [2]Institute of Oceanography and Maritime Studies (INOCEM), International Islamic University Malaysia, Kampung Cherok Paloh, 26060, Kuantan, Pahang, Malaysia.[3]Department of Biotechnology, Kuliyyah of Science, International Islamic University Malaysia, 25200, Kuantan, Pahang, Malaysia.[4]Department of Community Medicine, Kuliyyah of Medicine, International Islamic University Malaysia, 25200, Kuantan, Pahang, Malaysia. [5]Department of Marine Science, Kulliyyah of Science, International Islamic University Malaysia (IIUM), 25200, Kuantan, Pahang, Malaysia.

## INTRODUCTION

- The rips refer to a type of current with the ability to pull victims offshore. As the rips could carry the victims to the middle of the sea, they are typically associated with drowning cases.
- In Malaysia, accidental drownings have been recognized as one of the five primary causes of deaths especially among children (Department of Statistics Malaysia, 2019b).

## OBJECTIVES

1. To examine level of public understanding on rip currents and beach safety in Teluk Cempedak recreational beach.
2. To assess the association between respondents' frequency of visiting the beach and understanding on rip currents and beach safety.

## METHODOLOGY



**Study Site**
Teluk Cempedak Recreational Beach

**Study Design**
Data collection was performed through a cross-sectional survey from August 2019 to November 2019. The respondents were recruited via convenient sampling

**Study Instrument**
Questionnaire comprise of 31 questions and 5 sections have been developed as the main tool.

**Statistical Analysis**
The collected data were analysed using SPSS version 23.

## REFERENCES

Arun Kumar, S. V. V., & Prasad, K. V. S. R. (2014). Rip current-related fatalities in India: A new predictive risk scale for forecasting rip currents. Natural Hazards, 70(1), 313–335. https://doi.org/10.1007/s11069-013-0812-x
Bradstreet, A. J., Brander, R. W., McCarroll, J. R., Brighton, B., Howes, D. D., Drozdzewski, D., ... MacMahan, J. (2014). Rip Current Survival Principles: Towards Consistency. Journal of Coastal Research, 72(November), 85–92. https://doi.org/10.2112/si72-016.1

## RESULTS AND DISCUSSION

### 1. Frequency of Visiting the Beach
- 91% of the beachgoers agreed to revisit Teluk Cempedak.
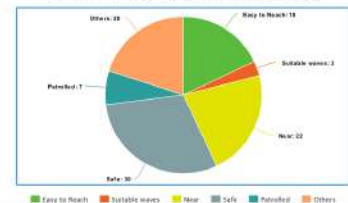


### 2. Swimming ability
- The probability of the respondents drowning from the rips were at moderate levels.
- Over 60% of the respondents can be categorized as poor swimming as most of them can only swim less than 25 meters.
- Poor swimming abilities might have contributed to the low level of rip currents knowledge.

### 3. Beach Safety Knowledge
- 83% of the respondents were aware of the function of the lifeguard tower.
- 45% of the respondents gave the correct answer of the Yellow-Red flag.
- 96.7% respondents answered correctly for Red flag.
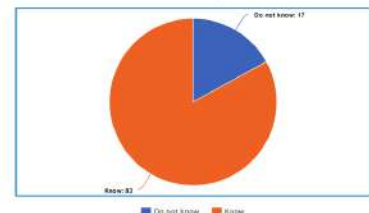


### 4. Rip Current Knowledge
- 83% of the respondents were aware of the existence of currents
- 43% of the respondents were aware of the existence of rip currents.
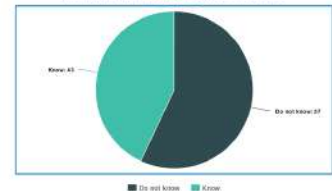


## CONCLUSION

- The beachgoers have poor knowledge of rip currents. Contrary, they are observed to have higher beach safety knowledge.
- A larger sample size will be surveyed to obtain a complete view on public understanding on beach safety and rip currents.
- Beach safety awareness mobile applications can be developed to public users to help beach users by providing real-time information on the current situation or possible hazards while being at the beach.

# MMU
MULTIMEDIA UNIVERSITY

# RELIGIOSITY, TECHNOLOGY READINESS, DATA ANALYTICS COMPETENCIES AND EXTERNAL AUDITORS' PERFORMANCE: A DATA ANALYTICS COMPETENCIES MODEL PERSPECTIVE

**Project Leader:** Associate Professor Dr Nahariah Jaffar (MMU); **Project Members**: Dr Abdul Aziz Ahmad (MMU) & Dr Noor Adwa Sulaiman (UM)

**TECHNOLOGY READY?**

**DATA ANALYTICS COMPETENT?**

**RELIGIOUS?**

## 1 RESEARCH QUESTIONS

Are the external auditors technology ready for the data analytics challenges?

Are the external auditors really competent in data analytics and what is its impact on their performance?

How does religiosity influence the relationship between data analytics competencies (DAC) and external auditors' performance?

## 2 RESEARCH OBJECTIVES

To investigate the level of technology readiness of Muslim and non-Muslim external auditors and its effect on their DAC;

To examine the effect of DAC on the external auditors' performance, and

To examine the moderating effect of religiosity on the relationship between DAC and external auditors' performance.

## 3 CONCEPTUAL FRAMEWORK

**DATA ANALYTICS COMPETENCIES**

Religiosity

**TECHNOLOGY READINESS**
- Optimism
- Innovativeness
- Discomfort
- Insecurity

- Personal capabilities
- Professional skills
- Technical knowledge
- Tools and technologies

External auditors' performance

*Strengell (2017)*

## 4 RESEARCH METHOD

**Measurement:**
- Technology readiness (*Parasuraman, 2000*)(TRI)
- DAC (*Strengell, 2017*)
- Religiosity [Level & Dimension: Faith, Virtue and Optional] (*Mahdzan et al., 2017*)
- External auditors' performance (*Asare & Cianci,2009*)

Survey: 201 external auditors

Questionnaire: technology readiness, DAC, religiosity and external auditors' performance literature

Pilot test: 50 respondents

## 5 RESULTS

Non-Muslim external auditors were more technology ready than Muslim external auditors.

Technology readiness (Optimism) is significantly different between Muslim and non-Muslim external auditors.

DAC (Personal capabilities) is significantly different between Muslim and non-Muslim external auditors.

Technology readiness has a significant effect on Muslim external auditors' DAC (personal capabilities), while no significant effect on all DAC dimensions of non-Muslim external auditors.

DAC (personal capabilities) significantly affects Muslim external auditors' performance, but not for non-Muslim external auditors.

Level of religiosity moderates the relationship between DAC (technologies and tools expertise) and Muslim external auditors' performance, but not for non-Muslim external auditors.

Virtue moderates the relationship between DAC (personal capabilities) and Muslim external auditors' performance.

Faith moderates the relationship between DAC (technologies and tools expertise) and non-Muslim external auditors' performance.

## 6 CONTRIBUTIONS

Provide insights regarding the need for Muslim external auditors to be more technology ready.

Offer evidence concerning the essentials for external auditors to enhance their DAC to meet digital economic needs.

Highlights the importance of auditing professionals to penetrate new challenge of data analytics.

## 7 COMPLETION & PUBLICATION

Completion of project : July 2020  |  Articles sent to journals for publication.

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# SECURITY RISK ANALYSIS FOR INFORMATION ASSET

## Researcher : Muhammad Afif Bin Mohd Fathullah
## Supervisor : Ts.Dr. Anusuyah Subbarao

### INTRODUCTION

Information in its multitude of forms has been recognized as an asset to an organization nowadays comes to be established as 'Information Asset'. As such securities to avoid the damage and leakage for information asset are vital towards an organization. The aim of this research is to choose a security risk analysis model which would optimize the MMU IP unit and IP inventors in MMU information asset usage.

### METHODS

❖ The research design used is the qualitative method with the research philosophy being interpretivism (constructivism).

❖ Literature review was used to understand the important concepts in information security risk related to the information asset (IP) where nine terms were found.

❖ Interview and thematic analysis were used to find the risk affecting the information asset (IP) along with its threats, probability, and consequences in which three risk were found

❖ Literature review was used to choose the best fit model based on this research findings

### DISCUSSION AND CONCLUSION

❖ CORAS can be used the IP inventors and IP intermediaries in MMU to assess and control the risks that affect the information asset (IP) before and in case of risk actualization

❖ More research is warranted to get the views of other parties that are involve in IP such as IP Lawyers to get their perspectives and inputs

### RESULTS

CORAS is the best fit conceptual security risk analysis model for doing security risk analysis for information asset (IP) as it is created based on ISO 31000 and is the most similar to this study conceptual model.

### CORAS SECURITY RISK ANALYSIS MODEL
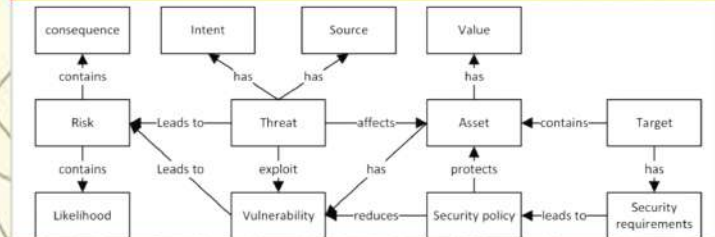


### Findings 1 : Research Terms
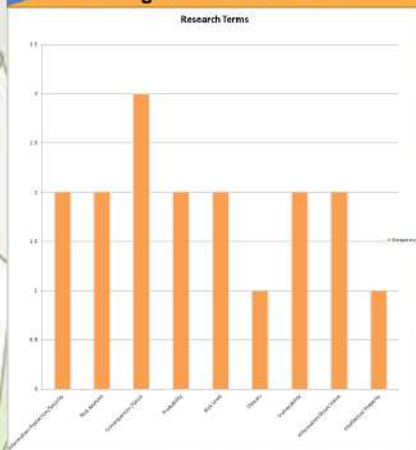


### Findings 2: Risks

| Risk ID | Risk/Theme | IP Type | Threats | Probability | Consequences |
|---|---|---|---|---|---|
| R1 | The invention/work being stolen and pirated by other people | Patent/Copyright | Internal and External (Depend on the intention) | Depends on value and impact of invention and intention of the stealer | Depends on value and impact |
| R2 | Infringement of others work/invention during the invention/creation process | Patent/Copyright | Internal (Depends on the researcher and their collaborator) | Depends on the researcher and colleague awareness | Depends on the value and impact of the invention and the researchers reputation |
| R3 | Work/Invention being stolen and modified during events such as exhibition and etc. | Copyright | External (Can be from the event organizer and participants) | Depends on what the researcher display during the events. | Depends on the value and impact of the invention/ creation. |

### Research Conceptual Model
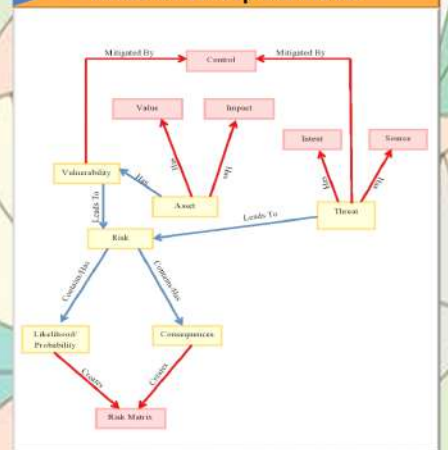
# SEDITION, DEFAMATION AND SECURITY IN THE SOCIAL MEDIA: A CRITICAL ANALYSIS AT HIGHER LEARNING INSTITUTION IN MALAYSIA

**Nur Fazini Asro bt Ramzi Sulaiman**
**Asmida bt Ahmad**
**Nadia binti Abu Hasan**
**Amir Nur Ikhwan bin Amernudin**
**Putri Syaidatul Akma binti Mohd Adzmi**

**Faculty of Law,
Multimedia University**

## ABSTRACT

Social media has become a dominant tool for connection among university students these days. Social platforms such as Facebook, Instagram, Twitter are among the favourites used for various discussions, debates and arguments. Due to the unlimited coverage of information in these social media, most of the time they had gone out of control. As a result, the affected and innocent parties were impacted. This study seeks to determine the awareness among the university students on the usage of social media as a platform for freedom of speech and expression with an objective to understand the online freedom of speech and expression.

### 1 INTRODUCTION

Usage of social media among the university students are more than just seeking knowledge. Social media has become the dominant medium of connection.

### 2 COMMON SCENARIO TODAY

It is a common scenario to see people browsing and surfing social networking sites, reading blogs, or chatting by using laptops, mobile phones or other sophisticated devices anywhere and at anytime (Norsiah, 2013).

### 3 SHARED INFORMATION

Details and information were shared to the public without any limits of filter. Social networking sites are defined as a public or semi-public profile in which individuals share their lives and connect with others (Ellison, N. B., 2007).

### 4 OBJECTIVES

[OBJ-C]

The objective of this study is to seek awareness of the students on their usage of social media and to understand the freedom of speech and expression online. The survey look at whether there are possibilities of filtering or limiting the sharing of information from risk / damage to one's reputation.

### 5 METHODOLOGY

A mixed-methods through integrating quantitative and qualitative data collection and content analysis. Survey was done on 61 students in a private university in Melaka, Malaysia which covers on awareness of usages of social media as platform of speech and expression.

### 6 CONCLUSION

Social media is regarded as the most sought-after information medium which is accessible and borderless. Increase of fake news, mental illness, cyber-bullying. The level of awareness on the negative impact is still within most of us, and thus, it should be taken as a guard for us to improve our speech and expression in social media.

## RESULTS & FINDINGS

### DURATION SPENT ON SOCIAL MEDIA IN A DAY

*Legend: 4 hours & more, 3 hours, 2 hours, 1 hour, Less than 1 hour*
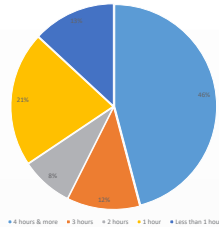
*Many people who regularly use platforms like Facebook or Twitter report high levels of stress (Peterson, 2019)*

### INTENTION IN USING THE SOCIAL MEDIA

*Legend: Lifestyle & fashion, Academic Purpose, Networking, Update news globally*
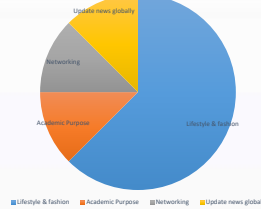
*These people will be influenced from more trendy and famous people in social media (Nouri, 2018).*

### CONCERN ON NEGATIVE IMPACT TO ONE'S REPUTATION

*Legend: Concerned to Extremely Concerned, Neutral to Not Concerned at all*
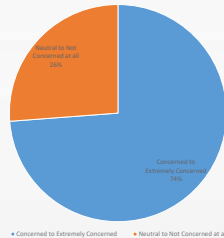
*Evidence had shown that, negative effect of social media to another reputation could lead to cyber-bullying, workplace tensions to name a few.*

### RELIABILITY AND TRUSTWORTHY OF SOCIAL MEDIA

*Legend: Not Reliable, Reliable*
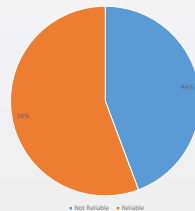
*Youth in Malaysia seen as more likely to trust social media as a news source, even most of the reports or information disseminated is not true (Syed Zulkarnain, 2014)*

## ACHIEVEMENT

## ACKNOWLEDGEMENT

Life Made Easier™ | TM Group

# STUDENT ENGAGEMENT AND COLLABORATIVE INTERACTIVE SURFACE: SOME EMPIRICAL FINDINGS

Lim Tek Yong, Khor Chia Ying and Oon Yin Bee

MMU MULTIMEDIA UNIVERSITY · UNIMAS UNIVERSITI MALAYSIA SARAWAK

## Problem

Student Engagement

Collaborative interactive surface

## Experiment 1

20 pairs

Drag & Match (5 mins) — DELIGHTER — FREE WiFi — ★ Engaged

30 mins break

Draw & Label (5 mins)

30 mins break

Scan & Pick (5 mins)
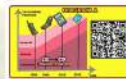
## Experiment 2

20 pairs

Drag & Match 1 (5 mins) — DELIGHTER — FREE WiFi

30 mins break

Drag & Match 2 (5 mins) — SATISFIER

30 mins break

Drag & Match 3 (5 mins) — VOICE CALL — ★ Engaged

## 1x Product Readiness

Tri-A Tabletop: An Interactive Tabletop Manager

## 1x Research Fund

Fundamental Research Grant Scheme, Ministry of Education (completed in December 2019)

## 3x Talent Development

- 1 PhD student (Jennie Tok Bee Lian)
- 2 degree students (Alvin Tan Hoe Leong and Mohamad Fitri bin Amalludin)

## 1x © Intellectual Property

Affirmed Copyright (2019)
- Technical Manual
- User Manual
- Source Code

## 2x Scopus Publication

- 1 Journal (Journal of Telecommunication, Electronic and Computer Engineering, 2017)
- 1 Conference (Lecture Notes in Computer Science, 2017)

## 3x Award Received

- Silver Medal, Research, Innovation, Commercialization and Entrepreneurship Showcase, 2019
- Gold Winner, IDE4 Teaching and Learning Exhibition, 2019
- Gold Winner, iTeach Symposium and Workshop, 2017

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# Students' Entrepreneurial Intention: A Study Of Gamification In Private Higher Education

Sook Fern Yeo ( Faculty Of Business, Multimedia University)
Cheng Ling Tan (Graduate School Of Business, Universiti Sains Malaysia)
Kah Boon Lim ( Faculty Of Business, Multimedia University)
Hazlaili Hashim ( Faculty Of Business, Multimedia University)

## Abstract

- Gamification is an educational approach to motivate and influence students' behaviours in learning to achieve learning outcomes.
- Derived from a growing interest in the educational area, this study investigates the influence of attitude, subjective norms and perceived behavioural control on entrepreneurial intention.
- Data collection was carried out for 120 students who took Strategic Marketing through the distribution of questionnaires.
- The result shows that attitude towards behaviour, subjective norms, and perceived behavioural control positively impact entrepreneurial intentions.
- This study contributes to higher education institutions in applying the gamification model to enhance the learning environment to foster students' motivation to become entrepreneurs in the future.

## Objectives

To examine students' intentions to become entrepreneurs as an impact of gamification model learning in theStrategic Marketing course.

## Research Framework

Attitude towards behaviour

Subjective norms

Perceived behavioural control

→ Entrepreneurial intention
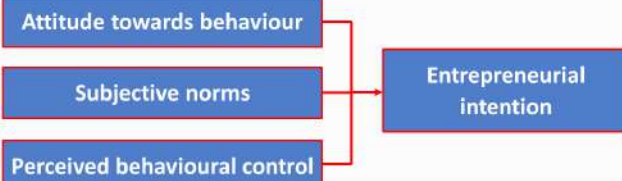
## Methodology

G*Power analysis:
Minimum sample size = 96

Questionnaire -
Collected from 120 students

(SPSS) version 25
Smart PLS version 3.2.9

## Findings

58    62    Age    20 – 42
21 – 56
22 - 22
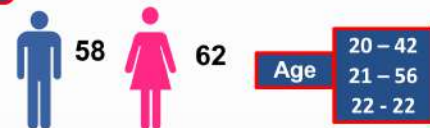
| | Composite Reliability |
|---|---|
| Attitude towards behaviour | 0.858 |
| Subjective Norms | 0.876 |
| Perceived behavioural control | 0.886 |
| Entrepreneurial intention | 0.873 |

- Attitude towards behaviour, subjective norms and perceived behavioural control have a positive and significant impact on the entrepreneurship intention.
- Not only do these results support the existing theory but also bridge the gap between gamification and entrepreneurship intention, combining both fields of research and highlighting the benefits of using gamification when attempting to change behaviours in particular towards entrepreneurship.
- Findings are relevant for higher education institutions to apply the gamification model in both classes (online and face-to-face).

## Research Achievements

### Talent Development

### Awards Won

Redzuan Syazni – Owner of Petronas Peringgit Jaya Melaka

Toh Heng Yet – Owner of Speed Design 6.1

Bronze Medal RICES 2019

Gold Medal 3-Minutes Thesis Competition 2020

Gold Medal FYPP Poster Competition 2020

Silver Award IDE4TE2020

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# SUCCESSFUL INTELLIGENCE OF NASCENT ENTREPRENEURS

Norizaton Azmin Mohd Nordin, Aliza Akmar Omar, Abdul Aziz Ahmad, Norzarina Md Yatim

## ABSTRACT

This is an exploratory study, using a qualitative approach, aimed at identifying the evidence of successful intelligence in nascent entrepreneurs towards determining their ability to be successful entrepreneurs. Findings indicate that nascent entrepreneurs lack successful intelligence in matters of problem-solving, decision-making, opportunity-identification, and ideation. In this regard, Institutions of Higher Learning (IHLs), with support from the Ministry of Education Malaysia, can provide and equip nascent entrepreneurs with the necessary skills to hone their successful intelligence for business profitability, longevity and vitality.

## INTRODUCTION

In promoting entrepreneurial community, the government, under the Ministry of Education Malaysia, launched the Entrepreneurship Development Policy for Institutions of Higher Learning on 13 April 2010, to produce graduates with entrepreneurial mindset and capabilities, increase the number of graduate entrepreneurs and nurture entrepreneurial academics and researchers. Since then, a total of 17,122 higher education graduates have benefitted from this effort by the Ministry - an increase of seventy-five percent in 2011.

Despite support from the government and the private sector, many of these young start-ups fail. About fifty-four percent of new businesses survive a year and a half, while only twenty-five percent survive six years. The service sector shows the highest failure rate, followed by retail, manufacturing and high-tech respectively (Pena, 2002).

Literature indicates the following reasons:
- limited validation of the product or poor product-market fit
- lack of comprehensive business, operation and marketing knowledge at each stage of start-up growth
- lack of focus leading to incorrect prioritization

Under the Triarchic Intelligence Theory (Sternberg, 2005), three factors contribute to successful entrepreneurship: creative intelligence, analytical intelligence and practical intelligence. He later named this Triarchic intelligence as successful intelligence.

Successful intelligence requires a blend of analytical, creative, and practical aspects of intelligence and represents the ability to succeed in life, according to one's own conception of success, within one's environmental context.



> "Instil an entrepreneurial mindset throughout Malaysia's higher education system and create a system that produces graduates with a drive to create jobs, rather than only to seek jobs."

Malaysia Education Blueprint 2015-2025 (Higher Education)

**Under the Triarchic Intelligence Theory (Sternberg, 2005), three factors contribute to successful entrepreneurship: creative intelligence, analytical intelligence and practical intelligence. Stenberg later classified this Triarchic intelligence as successful intelligence.**

## RESEARCH METHOD

A qualitative research approach, featuring interviews and focus group discussions, was used on 6 new entrepreneurs from 5 different companies, and 2 entrepreneurs with businesses established more than 3 years. The start-up businesses include food and beverage, online learning, smart attendance, kitchen assistance, digital board games and fashion watches. Atlas.ti was used for data analysis.

## DISCUSSION

The approach studied successful intelligence in problem-solving, decision-making, opportunity-identification, and ideation. Findings showed that nascent entrepreneurs lacked successful intelligence in all four areas, indicating how differently successful entrepreneurs approached business.

## CONCLUSION

Institutions of Higher Learning (IHLs), with support from the Ministry of Education Malaysia, can provide and equip nascent entrepreneurs with the necessary skills to hone their successful intelligence for business profitability, longevity and vitality.



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# TECHNOLOGY INNOVATION : EVALUATING THE EXTENT OF AWARENESS AMONG AGRICULTURE AND AGRO-BASED INDUSTRY UNDER ASNAF CATEGORY

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* Multimedia University, Malaysia

## Abstract

To determine the awareness of technology adoption in agriculture industry among smallholders and factors associated with it, a total of 245 smallholders under asnaf category from selected area in Kuala Selangor were given a questionnaire to answer. The result from the survey shows that economy, knowledge and attitude were found significant with the awareness of the smallholder in using technology in the agriculture industry. Limitation of this study is sample size and the area covered. Only 245 respondent and the area covered only in four (4) states due to the limitation of accessible and research time frame.

## Introduction

- Agriculture plays a crucial role in our economy, both for exports and local consumption. Occupying a dominant position in the Malaysian economy, it is the backbone of the country, providing raw material, food, export revenue and employment opportunities.
- The small-scale producers can be said to be responsible for the future of agriculture. However, many challenges limit their productivity that would effect their income.
- Infrastructural problems such as the absence of R&D innovation, lack of institutional backup, limited financing and small investment from the private sector are some of the factors which affect them significantly

## Objective of the study

To investigate factors influence the awareness of smallholder farmers under Asnaf category towards the technology innovation

## Research Methodology

Identified selected asnaf with a collaboration with Lembaga Zakat Selangor

Data Collection by survey

Analyzed using SPSS

## Result Discussion

| Model | Sum of Squares | Df | Means Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 130.162 | 5 | 26.032 | 38.307 | 0.000 |

The significance value is 0.000 (i.e., $p = .000$), which is below 0.05. and, therefore, the Anova table shows that the overall model was statistically significant.

Economy: Significant where P Value < 0.05 (p = 0.001)

Knowledge: Significant where P Value < 0.05 (p = 0.000

Attitude: Significant where P Value < 0.05 (p = 0.000)

Government support: Not significant where P Value > 0.05 (p = 0.761)

Demographic: Not significant where P Value > 0.05 (p = 0.372

## Conclusion

The objectives of the research are to examine the relationship of the factors that influence on the awareness of smallholder farmers under Asnaf category towards the technology innovation. Therefore, statistical findings of the research found knowledge on characteristics of technology, economy factors and attitude factors are the significant factors on the awareness of smallholder farmers under Asnaf category towards the technology innovation, while demographic factors and government support are found not significantly influence on the awareness of small holders' farmers on the awareness of smallholder farmers under Asnaf category towards the technology innovation. It is crucial to understand the factors that determine the awareness of the smallholder farmers under Asnaf category, because the respective body may get some overview from the perspective of smallholder's farmer toward their acceptance towards technology innovation. Therefore, better policy and strategy could be implemented by respective body for sake of smallholders and their competitiveness in future agricultural industry.

## Moving Forward

Generate training module

Conference and Scopus Journal

Future Collaborative with respective agency

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# MMU
## MULTIMEDIA UNIVERSITY

# THE DEADLY HUMAN PAPILOMAVIRUS(HPV) INFECTION:INFLUENCING FACTORS TOWARDS CERVICAL CANCER AWARENESS AMONG MUSLIM YOUTHS

AUTHORS: Shadia Suhaimi, Dr. Abdullah Sallehhuddin Abdullah Salim, Dr. Yeo Sook Fern, Anushia a/p Chelvarayan, Md Shukor Masuod, Mohd Ariff Mustafa
AFFILIATIONS: Multimedia University (MMU), Malaysia

## INTRODUCTION



Normal | Abnormal | Pre-Cancer | Cancer

It takes 10-20 years from abnormal cells into cervical cancer

Highly preventable with early detection

Symptoms



- Unusual vaginal discharge
- Abnormal vaginal bleeding
- Heavier & longer menstrual cycle
- Discomfort while urinating

Risk Factors

- Sexually active
- Early onset of sexual activity
- Multiple sex partners
- HPV infection
- STD Sexual Transmitted Disease
- Weak immune system
- Smoking
- Oral contraceptive

Treatment
- Surgery
- Chemotherapy
- Radiation Therapy

(Source: KnowTreatment.Com,2020)

3rd most common cancer among woman → Rank No.7th among Malaysian

➤ Average 6 new cases of cervical cancer reported every day
➤ For every 2 minutes, average 1 woman dies in the world
(Source: Ministry of Health Malaysia ,2019)

## OBJECTIVE OF THE STUDY

- Investigates the awareness, attitude and knowledge of Muslimah youths towards cervical cancer.
- Improvement in regards to the knowledge that respondents already have about cervical cancer

## SPECIAL HIGHLIGHT

"Community Engagement Cancer Awareness programme in collaboration with Ministry of Health in year 2021

SCOPUS CONFERENCE
6th ASIA International Conference 2020 (18-20 December 2020)
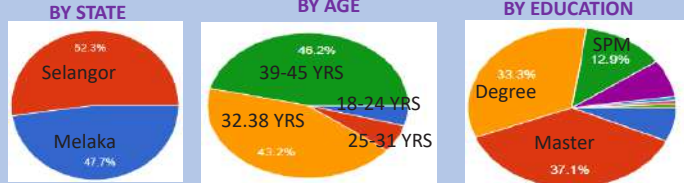
ACHIEVEMENT

Journal published in 2021

Extended topic has been successful secured FRGS Grant 2020

## METHODS

Identified selected universities in Melaka and Selangor
↓
Distributed 300 questionnaires to focus group
↓
Analyses data using SPSS

THE SAMPLES

MMU CYBER AND MELAKA | KUIS | UNITEN | UKM | UTEM | KUIM

## RESULT AND DISCUSSION

### Women who involved in Cervical Cancer Awareness Survey

**BY STATE**



Selangor 52.3%
Melaka 47.7%

**BY AGE**



39-45 YRS 46.2%
32.38 YRS 43.2%
18-24 YRS
25-31 YRS

**BY EDUCATION**



SPM 12.9%
Degree 33.3%
Master 37.1%

| Factors | Mean | CONCLUSION |
|---|---|---|
| Social Influence | 3.73 | |
| Knowledge | 3.91 | The Mean range between 3.68 to 5.00 is considered as high (Landell,1997) |
| Attitude | 4.20 | |
| Behavioural Intention | 4.10 | |
| AVERAGE MEAN | 3.98 | it shows that all factors/variables have a strong influence towards the Cervical Cancer Awareness |

| | t | df | Sig. (2-tailed) | Mean Difference |
|---|---|---|---|---|
| Mean Social Influence Score | 8.939 | 129 | .000 | .72821 |
| Mean Knowledge Score | 14.171 | 129 | .000 | .90615 |
| Mean Attitude Score | 23.325 | 129 | .000 | 1.19692 |
| Mean Behavioural Intention Score | 19.097 | 129 | .000 | 1.10192 |

## CONCLUSION

With ample knowledge and the means to prevent it, there is real possibility that Malaysian can actually reduce or eliminate cervical cancer cases altogether.

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1. Chinmay, P. (2020). Why Cervical Cancer Awareness? https://knowtreatment.com/diseases/cervical-cancer/2020
2. Nor Filzatun Borhan (Ministry of Health 2019). Cervical Cancer. http://www.myhealth.gov.my/en/cervical-cancer/

## ACKNOWLEDGEMENT

Project ID: MMUE/180066

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# THE USE OF SOCIAL MEDIA FOR ACADEMIC PURPOSE

Anushia Chelvarayan (Faculty of Business, Multimedia University)
Yeo Sook Fern (Faculty of Business, Multimedia University)
Hazlaili Hashim (Faculty of Business, Multimedia University)
Chew Wei Min (Faculty of Business, Multimedia University)

## Abstract

❖Students these days can be defined as members of the digital native or network generation, born in digital era while interact with digital technology since childhood.

❖Social media can be defined as a fairly large tool for collaborative media creation and sharing of information with one another and can impact students both positively and negatively as it provides positive conditions for instructions and study.

❖This research will show the influencing factors for students' satisfaction in using social media for academic purpose which are interacting with peers, interacting with supervisor, perceived ease of use and perceived usefulness.

❖A total of 200 respondents from two different universities participated in this research.

❖Samples were selected using convenience sampling and the respondents answered the questionnaire via Google form and paper and pencil method.

❖The data collected and also information in this research are highly beneficial and valuable to students, supervisors, academics, researchers, learning institution and the government as we are able to gauge and understand the factors influencing students' satisfaction in using social media for academic purpose.

## Objectives

The main purpose of study is to recognize the factors influencing students' satisfaction in using social media for academic purpose. The overall goal of this research is to examine if interacting with peers, interacting with supervisor, perceived ease of use and perceived usefulness influence students' satisfaction in using social media for academic purpose.
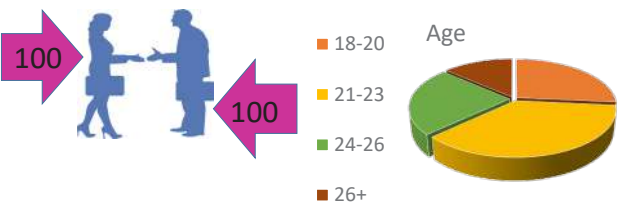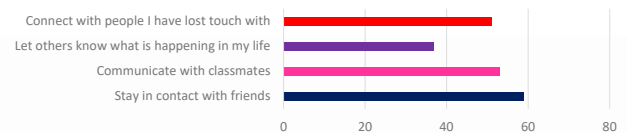
## Framework

- Interacting with Peers
- Interacting with Supervisor
- Perceived Ease of Use
- Perceived Usefulness

→ Students' Satisfaction in Using social Media for Academic Purpose

(Research Framework: Developed for this research)
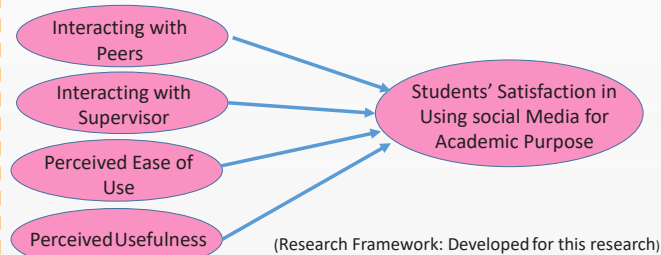
## Methodology

Quantitative study

200 students, Convenience Sampling

Online Questionnaire, SPSS

## Findings

100 100

### Age
- 18-20
- 21-23
- 24-26
- 26+

### Purpose of Using Social Media
- Connect with people I have lost touch with
- Let others know what is happening in my life
- Communicate with classmates
- Stay in contact with friends

(0, 20, 40, 60, 80)

### Frequency of Social Media Usage
- Once a day
- 2-5 times a day
- 6-10 times a day
- 11-15 times a day
- More than 15 times a day
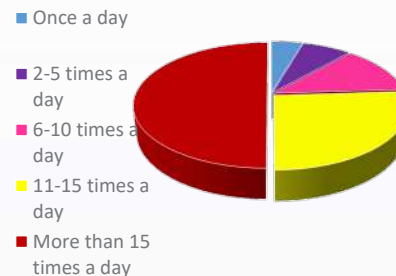
### Hypotheses Summary

| No | P-Value | Results |
|----|---------|---------|
| H1 | 0 | Supported |
| H2 | 0 | Supported |
| H3 | 0.833 | Rejected |
| H4 | 0.53 | Rejected |

### Conclusion & Recommendation

❖Students become excited and participative with their peers using social media platform

❖Many Universities and Academics are using social media as part of their classroom teaching activities

❖Not an appropriate and suitable platform to be used for academic purpose

❖Social media is a platform for entertainment purpose and not so suitable to be used for academic purpose

❖Sharing session for academics and universities to highlight on the usefulness of the social media platform that might enhance student's interaction with their lecturers.

## Achievements

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# COLLABORATIVE LEARNING SYSTEM

**Ruzanna Binti Abdullah, Adris Ichiro Bin Mohd Faris, Muhammad Nabil Anwar bin Md Zaid, Muhammad Luqman Hakim Bin Razlan**

## Tutory

SCAN ME

## Abstract

The outburst of COVID-19 pandemic has a large impact to the education sector globally. The sudden shifting from physical to online classes does comes with several adaptive issues. Tutory, a collaborative learning system aims to ease the shifting paradigm by offering a collaborative digital learning platform for both students and lecturers. Among the key features implemented in the system is collaborative whiteboard to encourage engagement, "classrooms" for group based discussions, video call for classroom members, public forum to exchange ideas, file sharing to share notes and exercises, and notification to enhance task efficiency. The features offered indeed allows for a more interactive learning experience.

## Objective

- To provide a collaborative digital learning platform which encourage engagement from students and lecturers by facilitating communication through forum, classroom and whiteboard features.
- To enhance the efficiency and alert the important task of student's day to day study activity by providing todo list and notification features.
- To facilitate students' collaboration and encourage exchange of ideas across universities through public forum.
- To improve student's accessibility to learning materials such as notes and exercises on variety of topics through file sharing and whiteboard features.

## Target Users

Students    Educators
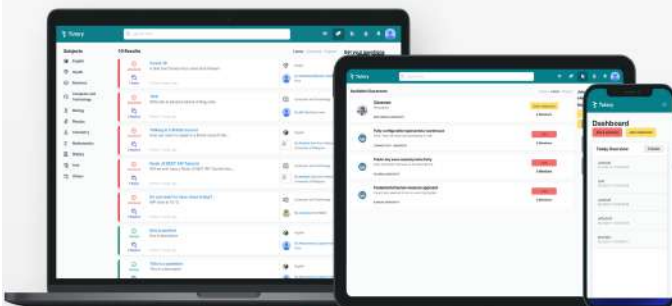
## Technologies used

## System Features

**Public and Private Classroom**
Learn in groups and share knowledge among many users

**Video Call**
A video call session without a third party services

**Virtual Whiteboard**
Students and Educator can sketch and discuss better online

**Study Management Tools**
Collaborative todo list and study group scheduling

**File Sharing**
Share and manage any study material

**Responsive Design**
Adaptive layout, fluid grid, and flexible media to fit across all devices

## What makes us different?

| System Features | MMLS | Tutory | Google Classroom |
|---|---|---|---|
| Subject Based Class Group | ✓ | ✓ | ✓ |
| Personal Profile Page | ✓ | ✓ | ✗ |
| Open Platform | ✗ | ✓ | ✗ |
| Forum Discussion | ✗ | ✓ | ✓ Limited to each class |
| Virtual Collaborative Whiteboard | ✗ | ✓ | ✓ Through Google Jamboard |
| Video Call | ✗ | ✓ | ✓ Through Google Meet |
| Personal Todolist | ✗ | ✓ | ✓ |
| Personal Dashboard | ✗ | ✓ | ✗ |
| Notification | ✗ | ✓ | ✓ |

## Conclusion

In light with shifting paradigm of offline to online classes due to COVID-19, Tutory has provided an interactive and collaborative learning environment through all of it system features to ensure the learning process can run virtually successfully.

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# Virtual Reality Electrical Plug & Socket Training Kit

Amirul Asyraf Bin Mohd Amsham, Muhammad Ikram Hakim Bin Mohd Zahiruddin, Danial Imran Bin Azimi, Sean Joshua Lee Chuan, Cheong Soon Nyean, Dendi Permadi

## ◆ Introduction

- The COVID-19 pandemic has disrupted the operations of thousands of schools in Malaysia

- It is common that Google Meet has been used to teach in secondary school during the pandemic. However, it is not able to teach effectively on the subjects that involve practical session such as "Reka Bentuk dan Teknologi".

## ◆ Methods & Materials

Immersive VR : enables us to replicate a real life simulation of the socket replacing process
- Provide hands-on experience for the user with hand controllers to execute tasks. (Learning in Virtual Environment)

AR application : developed as a complimentary application to our VR simulator
- Provides guidance right in the palm of your hands.
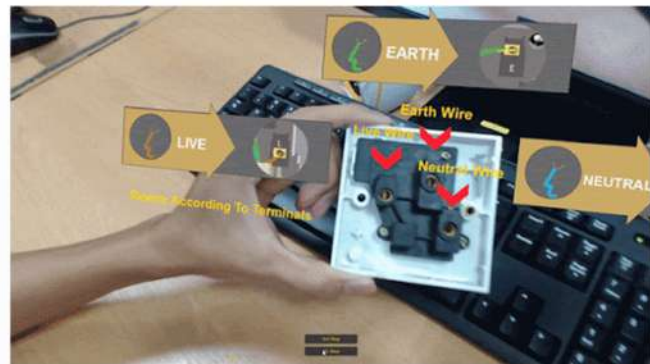- A tool to help you refresh your memory in the real life process (Learning in Real Environment with Virtual content aid superimposed on real world)

Broken socket to be changed



Simulated Real-Life Scenario

## AR.



Virtual guided process projected onto real-life socket

## ◆ Results

### VR.

Visual Guide Board

Voice guide by Ai Tutor



Simulated Workshop Environment

Ai Tutor to Assist with Learning



Learn The Tools

Guided Hands-on Experience

## ◆ Discussion & Conclusion

- The VR experience allows users to experience a simulated process of an electrical work
- Simulated environments in VR helps to create a more engaging and real learning environment (electrical workshop).
- The presence of 3D AI tutor to assist and automate the learning process of changing a socket in VR
- VR provides users the ability to fully interact with virtual environments.Hence, learn the tools by interacting with it
- VR provides guided hands-on experience to change a socket by voice of Ai tutor, visual guide board and is hazard free of electrical injuries and the possibility of getting Covid-19.
- Simulated real-life changing a socket scenario is used to evaluate what users have learned from the simulated VR workshop.
- AR training kit is provided to further strenghten the learning process by doing with a real provided training socket and virtual guided content projected on the training socket to help refresh the process of changing a

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55

# WHERE IS THE QALB?
# EXPLORING QALB BEHAVIOURIAL TRAITS AMONG MUSLIM ENTREPRENEURS
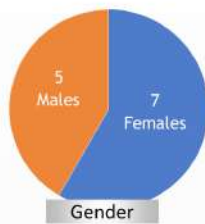
Project Leader: **Assoc. Prof. Dr. Kamarulzaman Ab. Aziz**

Norhazlin Ismail, Nor Azlina Ab Aziz, Putri Syaidatul Akma Mohd Adzmi, Noor Shahaliza Othman, Nadira Mohamed Isa, MHD Louai Sarhan, & Atikah Bt Mohd Zulkifle
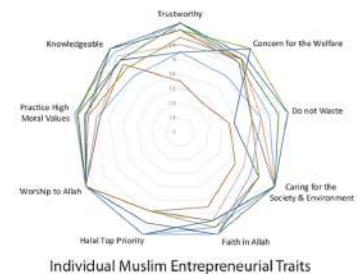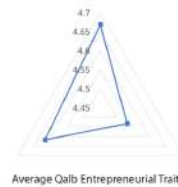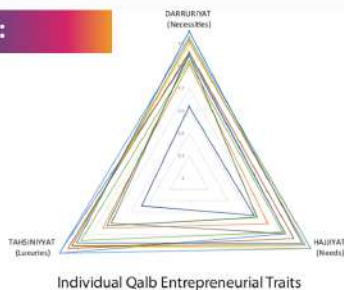
## Abstract:

Given the small footprints the muslims are making in the global economic arena generally and the large percentage of the community at the bottom of the economic pyramid (BOP) or the B40, one questions what should leading muslim country such as Malaysia do to provide exemplary replicable solutions? Muslims' daily activities must be focused foremost on pleasing Allah. It is believed that the focus is at the heart or qalb. Qalb behavioural traits using the Maqasid al-Shariah framework where there are 3 levels namely, necessities (daruriyyat), needs (hajiyat), and luxuries (tahsiniyyat) proposed that excellent values of the entrepreneurs are very much related to the condition of Qalb al-Salim. This study intent to profile muslim entrepreneurs and their Qalb behavioural traits to provide insights key to the formulation of policy frameworks and strategies to produce bigger pool of holistic and well-balanced muslim entrepreneurs from among our students and staff in MMU and Malaysia in general.

## Demographic:



Gender



Status



Business Type



## Findings:



Individual Qalb Entrepreneurial Traits



Average Qalb Entrepreneurial Traits



Average Muslim Entrepreneurial Traits



Individual Muslim Entrepreneurial Traits

| Averages before and after KTP in Melaka | Knowledge about | Pre-Program | Post-Program |
|---|---|---|---|
| | Inclusive entrepreneurship | 3.65 | 10 |
| | Qalb entrepreneurship | 3.55 | 10 |
| | Social entrepreneurship | 3.6 | 10 |

## Achievements:

### FISABILILLAH R&D GRANT SCHEME (FRDGS)

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2. Mohd Zulkifle, A., Ab. Aziz, K., & Sarhan, M. L. (2019). Determinant Of Social Entrepreneurship Intention Among Malaysian Youth. Volume 88, The 13th Asian Academy of Management International Conference 2019, pp. 288-300, doi: 10.15405/epsbs.2020.10.26

3. Knowledge Transfer Program with Malacca Farmer's Organization on 12th September 2020

Collaborators:

# ACKNOWLEDGEMENT

**RICES 2020 Organising Committee**

**Units related:**
All MMU Faculties
Entrepreneur Development Centre (EDC)
President's Office
VP Marketing & Communication Office
Corporate Communications Unit
IT Services Division (ITSD)
MMU Production Team
Multimedia Product Innovation Unit
Media Support Unit
Facilities Management Department
Procurement Unit
MMU Staff Development Committee