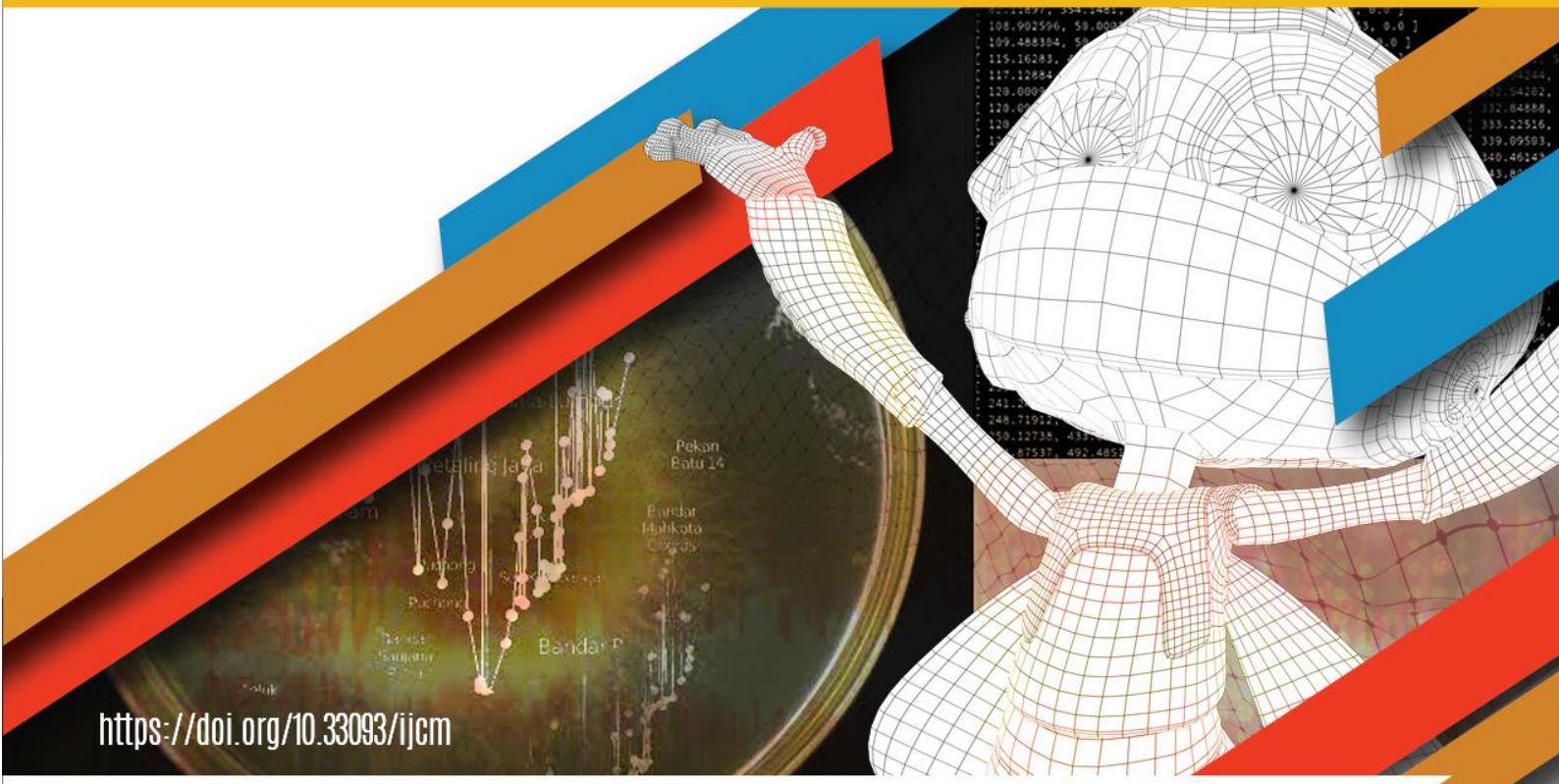
JUNE 2020 VOL. 1 SPECIAL ISSUE

E-ISSN: 2716 6333



https://doi.org/10.33093/ijcm

INTERNATIONAL JOURNAL OF CREATIVE MULTIMEDIA

MMU® MULTIMEDIA UNIVERSITY | UNIVERSITY PRESS

International Journal of Creative Multimedia

June 2020 Vol. 1 Special Issue 1

E-ISSN: 2716-6333

doi: https://doi.org/10.33093/ijcm

Editorial Board

Aim and Scope

The International Journal of Creative Multimedia (IJCM) is a peer-reviewed open-access journal devoted to publish research papers in all fields of creative multimedia, including Digital Learning, Film & Animation, Media, Arts & Technology and Visual Design & Communication. It aims to provide an international forum for the exchange of ideas and findings from researchers across different cultures, and encourages research on the impact of social, cultural and technological factors on creative multimedia theory and practice. It also seeks to promote the transfer of knowledge between professionals in academia and industry by emphasising research where results are of interest or applicable to creative multimedia practices. We welcome all kinds of papers that connect academic researches with practical and industrial context in the field of creative multimedia. The scope of the IJCM is in the broad areas of Creative Multimedia following the five major thematic streams, includes but not limited to:

- Digital Learning
- Media, Arts & Technology
- Games and Virtual Reality
- Cinema and Film Studies
- Animation and Visual Effects
- Visual Design and Communication

Foreword from Digital Learning Editorial Team

Greetings from the Editors and welcome to the Special Issue on Digital Learning in the 21st century. In this Issue, we present papers from international and local researchers focusing on research papers in areas of education technology, learning analytics, e-learning, engineering, IT, business and management, creative multimedia and many other domains that seek to improve the learning process of the learner with technologies. These papers were presented in the ELITE 2019 International Conference held in Multimedia University, Cyberjaya, Malaysia on October 2, 2019, in conjunction with the 2019 IDE4TE International Exhibition on Oct 1, 2019. Themed, "Empowering Learning, Innovating Teaching Environments", this event showcased best practices of Malaysian Universities, particularly from the network of Industry Driven Education Alliance (GLU iDE4) comprising of Universiti Teknologi Petronas (UTP), Universiti Multimedia (MMU), Universiti Tenaga Nasional (UNITEN) and Universiti Kuala Lumpur (UniKL), as well as from international presenters from China, India, Bangladesh and Maldives.

The papers presented in this Special Issue centred around 5 sub-themes; 1) Innovative Pedagogies & Instructional Design, 2) New Roles of Teachers, 3) Redesigning Curriculum for Education 4.0, 4) Emerging Technologies In The Classroom, and 5) Designing Learning Spaces for 21st Century Education, and are very timely articles for readers interested in adapting technology in today's classrooms. We hope that these papers will provide further insight and contributions to the knowledge base in these fields and we hope you enjoy reading them.

Prof. Ts. Dr. Neo Mai, Multimedia University, Malaysia

Professor Dr. Neo Mai is the Director for Academic Development for Excellence in Programmes and Teaching (ADEPT) for Multimedia University, and Professor in the Faculty of Creative Multimedia, and the Institute for Digital Education and Learning (IDEAL). Prof. Mai is the Director of the award-winning MILE Research lab and founding Chairperson form the CAMELOT (Centre for Adaptive Multimedia, Education and Learning cOntent Technologies) Research Centre. Prof. Mai's research interests are in the design of constructivist learning environments, micro-learning, team-based learning and web-based education. She was the recipient of the 2014 Excellent Researcher Award, an AKEPT Certified Trainer for Interactive Lectures (Level 1, 2, 3), an HRDF certified trainer and is certified in Team-Based Learning from the Team-Based Learning Collaborative, USA.

Dr. Gan Chin Lay, Multimedia University, Malaysia

Dr. Gan Chin Lay is a Senior Lecturer affiliated with the Faculty of Business, Multimedia University. Her main research interest is in learning analytics, particularly related to technology-enhanced student-centered learning environments. Her research domains include teaching and learning issues such as student engagement, and educational technology integration frameworks.

Dr. Liew Tze Wei, Multimedia University, Malaysia

Dr. Liew Tze Wei is a Senior Lecturer at the Faculty of Business, Multimedia University, Malaysia. He is leading the Human-Centric Technology Interaction Special Interest Group, in addition to serving as the collaboration & innovation coordinator and research & innovation committee member in the faculty. His research interests and contributions fall within learning sciences, human-computer interaction, and media psychology; with a strong focus on experimental research approach.

The **International Journal of Creative Multimedia** (E-ISSN: 2716-6333) is published biannually.

Typeset by MMU Press.
Cover Images by Kok Yoong, Lim.
Cover Design by Nekhat Sultana.

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International Journal of Creative Multimedia

Student's Perception on Implementation of Blended Learning in UNITEN

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Abstract

Blended learning (BL) can be regarded as a teaching approach that combines online and face-to-face method of instructions in which it integrates the conventional classroom teaching with a combination of media, tools and teaching methods in web-based environment settings. Universiti Tenaga Nasional (UNITEN) has been implementing blended learning since 2016 on selected courses offered. The implementation of blended learning was carried out in four levels comprising of information dissemination, online assessment, flipped teaching and adaptive learning. The objectives of this study are to investigate students' awareness towards blended learning implementation and to measure their level of satisfaction on the courses they registered. A set of questionnaire was created on an online platform, and was disseminated to the respondents via an e-mail blast. The questionnaire has two different formats ('Yes/No' and 'Four-point Likert-scale'). At the end of the questionnaires, each student is asked to give suggestions on current BL implementation. Data were gathered from a sample of 489 undergraduate students comprising of three main programs offered which are foundation, diploma and bachelor degree. Based on the results, majority of students are aware that UNITEN is implementing BL concept (36% fully aware, 47% aware, somehow aware 13% and not aware at all, 4%). From the findings, majority of the students show satisfaction on BL implementation as well as responded with the perception of agreeing that BL has helped them in their studies, mainly in increasing CGPA, provides better time management and reinforcing their learning. The suggestions obtained from this research can be used to improve the BL implementation in the future.

Keywords Blended; Learning; Implementation; Satisfaction; Perception

International Journal of Creative Multimedia (2020) 1, 1, 20201109:96-105
doi: https://doi.org/10.33093/ijcm.2020.X1.9

Published by MMU PRESS. URL: https://journals.mmupress.com/index.php/ijcm

Introduction

The development of information technology catalyses the growth of online educational programs which transforms the conventional system of education (Sher, et al., 2009). One of the developments of information technology is the utilization of internet as a part of education i.e. e-learning. E-learning is aweb-based learning ecosystem which integrates participants with technology and processes (Alraimi, et al., 2015). Numerous higher education institutions (HEIs) in Malaysia initiated e-learning because of its effectiveness as an alternative approach to the classroom teaching method of spreading information (Masrom et al., 2008). The teaching and learning environment is embracing a number of innovations and some of these involve the use of technology through blended learning. This innovative pedagogical approach has been embraced rapidly though it goes through a process (Kintu et. al, 2017). Adoption of Blended Learning (BL) in delivering contents on higher education are considered as the "new normal" (Charles et al, 2013) and happens across the globe. It coalesces around access, success, and students' perception of their learning environments (Dziuban et al., 2018). The 2017 New Media Consortium Horizon Report found that blended learning designs were one of the short term forces driving technology adoption in higher education in the next one to two years (Adams Becker et al., 2017).

Literature Review

BL is an approach that integrates online and face-to-face method of instructions which is defined as an integration of conventional classroom teaching with a combination of media, tools and teaching methods in web-based environment settings (Graham et al., 2006; Sabri et al., 2010). The approach is flexible and includes provisioning of online content for individual learning combined with in-class discussion (Tune et al., 2013) or mostly consisting of online studies with only an initial face-to-face meeting with a lecturer and peers (Myroslava et al., 2016). BL is considered as effective as traditional learning (Frehywot et al., 2013) and also has the advantage of built in flexibility (Rowe et al., 2012), increased self-directions (Lotrecchiano et al., 2013) and higher engagement with course materials (Francis et al., 2013). BL has the potential to improve academic achievement by combining structured and unstructured learning, individual and group learning, face-to-face and online learning, self-directed and instructor-director learning, surface and deep learning, and context based and non-context-based learning (Hossein et al., 2019). BL also aims at using modern technology in teaching without abandoning the usual educational situation and classroom attendance. It focuses on direct interaction in the classroom through the use of modern communication mechanisms, such as

computers, networks, and internet portals (Thelal et al., 2018). An added advantage of using technology-enhanced teaching method is linking universities globally and supporting internationalization (Bollinger et al., 2011).

Being one of the competitive HEIs in Malaysia, Universiti Tenaga Nasional (UNITEN) has been implementing BL approach since 2016. Thirty-six pilot courses have been selected, along with the appointment of forty-nine pilot lecturers. These pilot courses and lecturers were involved since the early phase back in 2016 to give awareness of BL to the students. Four levels of BL were established by the BL Committee, Teaching and Learning Centre (TLC), UNITEN to measure the appropriate levels of implementation by lecturers as depicted in Table 1.

Table 1 Levels of Blended Learning (BL) implementation in UNITEN

Level	Explanation
1: Technology-aided Learning	To use technology as content repository by utilizing Learning Management System (LMS) to disseminate information and materials.
2: Enhanced Learning	To accomplish Level 1 and continue to enhance their teaching and learning process by utilizing technology.
3: Flipped Teaching and Learning	To employ flipped teaching or learning and promote higher order thinking.
4: Adaptive Learning	To personalize tracks for students with various academic background and learning dispositions.

Changes in science and technology guide in many new teaching and learning methods, such as e-learning and BL particularly in research and self-development areas (Thelal et al., 2018). However, BL implementation awareness may be dependent on many other factors and among them are student characteristics, course design features and learning outcomes (Mugenyi et al., 2017). The successfulness of blended learning depends on various aspects such as quality of the course materials, mindset and ability of the students to learn in interactive learning environments (Kavitha et al., 2018). This study focused on the investigation of students' awareness towards BL implementation and measuring their level of satisfaction on the courses they had registered. The BL strategy has enabled students to focus on learning process, contributing to the betterment of the learning process (Saad et al., 2019).

Case study has been long used in formal studies as early as half a century ago (Harrison et al., 2017). Employing holistic and thorough research is the bread and butter of case study. There are no single case study approaches that work specifically with specific research study. Outcome or information that could be extracted as an end result is what matters most. Program Implementation Case Study is a type of case study that targets on gauging of performances of programs (Hayes et al., 2015). Existence of huge data reservoir ensures the success of the study. Setback and triumphal parameters are identified through conducting Program Implementation Case Study, and it ensures future implementation of programs to significantly improve. Comprehensive decisions of choosing location, information gathering and accurate reporting assure research's best interest.

Methodology

The research employs Program Implementation Case Study with a quantitative approach where students' perception on blended learning was treated as variables that can be measured by a questionnaire. Distribution of questionnaire was done without compromising respondents' private information and locality. As a matter of fact, target audience was strictly defined as undergraduates. To ensure conformance and impartiality, respondents had been made aware that the integrity of all the information are uncompromised, and in no way would be relatable to them as individuals. A set of questionnaire was created by online platform, and was segregated to the respondents through the blasting of e-mail. Detailed instructions were also incorporated on the notification e-mail. Responses shall then be recorded and kept confidential. The questionnaire has two different formats (a yes /no format, and a four-point Likert-scale format) provided as response options. In Yes / No format, items are answered (0) False and (1) True. In a four-point Likert format, items are answered (1) Strongly Disagree, (2) Disagree, (3) Agree and (4) Strongly Agree. Online questionnaire were given to students with four sections which are Demographic, Awareness, Satisfaction and Suggestions on Blended Learning. Data obtained were analysed using IBM SPSS Statistics to check its reliability using Cronbach's alpha test. Reliability of the data refers to the consistency of responses. In order to assess the reliability of this questionnaire, Cronbach's alpha coefficient was calculated resulting in scores that were all at least 0.7, showing that the reliability level of the questionnaire utilized for this research was consistently high.

Results

Section A: Demographic

Data gathered from a sample of 489 undergraduate students from three main programs offered which are foundation, diploma and bachelor degree. Respondents are 331 male student (68%) and 158 female students (32%) from all four main colleges in UNITEN as shown in Table 2. The colleges are College of Engineering (33% respondents), College of Foundation and Diploma Studies (27%), College of Computer Science and Information Technology (27%) and College of Business Management and Accounting (13%). Majority of the respondents are bachelor degree students (60.3%), followed by foundation (23.5%) and diploma students (16.2%).

Table 2 Sample demographic

Gender	**N**	**%**
Male	331	68%
Female	158	32%
Total	**489**	**100%**
Colleges		
College of Engineering	159	33%
College of Foundation and Diploma Studies	131	27%
Computer Science and Information Technology	133	27%
College of Business Management and Accounting	66	13%
Total	**389**	**100%**
Instruction level		
Foundation	115	24%
Diploma, 1st Year	24	5%
Diploma, 2nd Year	21	4%
Diploma, Final Year	34	7%
Degree, 1st Year	82	17%
Degree, 2nd Year	114	23%
Degree, 3rd Year	47	10%
Degree, Final Year	52	11%
Total	**489**	**100%**

Section B: Awareness on Blended Learning

Based from the results, the majority of students are aware that UNITEN is implementing BL concept (36% fully aware, 47% aware, somehow aware 13% and not aware at all, 4%). Conventionally, the course

resources such as lecture notes and tutorial questions are shared through dissemination of hard copy documents between lecturer and students. With the usage of Learning Management System (LMS), lecturer can disseminate course resources online prior to the first day of the semester. As shown in Table 1, Level 1 of BL is for the lecturer to use technology as content repository by utilizing LMS to disseminate information and materials.

At the moment, the majority of the selected courses in UNITEN are currently implementing Level 2 of BL which is up to enhanced learning level. This result shows that BL implementation on the courses offered up until Level 2 BL is well introduced to the student. Some of the UNITEN lecturers have already move into Level 3 of BL which is flipped teaching and learning. This flipped teaching or flipped classroom emphasizes that each lecturer will provide their students with online content for individual learning combined with the discussions in class (Tune et al., 2013). Nevertheless, lecturers are advised to mention BL approach in teaching during the early semester as some students have never experience BL approach before.

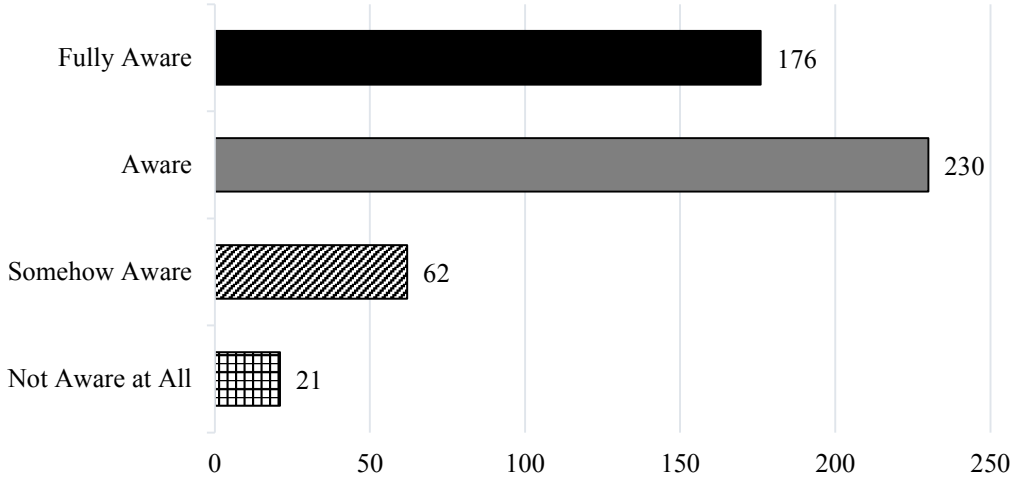

Figure 1 Student's Awareness on the Implementation of Blended Learning in UNITEN

Section C: Satisfaction on Blended Learning

Based on the result, majority of the students show satisfaction on BL implementation. There are ten queries related to Satisfaction section as listed in Table 2, which are:

Table 2 Questionnaire items

Items of Online Questionnaire For Blended Learning Satisfaction In UNITEN
"Blended learning has helped me in:"
1. managing my time better.
2. understanding course material and objectives.
3. effectively reinforced what I was learning in the face-to-face sessions of this course.
4. effectively reinforced what I was learning via the online components of this course.
5. improving my overall grade CGPA
"Overall I think that:"
6. UNITEN provides variety of sources (Blended learning approaches) other than lectures that are necessary for students to succeed in their study.
7. I prefer Blended Learning compared to Traditional or Conventional approaches.
8. my lecturer(s) is /are knowledgeable and skilled in implementing Blended Learning approaches in their teaching and learning processes.
9. UNITEN should continue with the Blended Learning approaches in some of the courses
10. Blended Learning approaches is useful for the current population of students (Gen Z)

Table 3 shows the frequency distribution on student's satisfaction on BL implementation.

Table 3 Student's satisfaction on Blended Learning (BL) implementation

Items	**FD***		**%**	**Items**	**FD***		**%**
Item 1	SD	17	3.48	Item 6	SD	17	3.5
	D	22	4.5		D	31	6.3
	A	328	67.08		A	332	67.9
	SA	122	24.95		SA	109	22.3
Item 2	SD	20	4.1	Item 7	SD	18	3.7
	D	13	2.7		D	48	9.8
	A	329	67.3		A	289	59.1
	SA	127	26		SA	134	27.4
Item 3	SD	17	3.5	Item 8	SD	22	4.5
	D	28	5.7		D	26	5.3
	A	320	65.4		A	298	60.9
	SA	124	25.4		SA	143	29.2
Item 4	SD	22	4.5	Item 9	SD	20	4.1
	D	16	3.3		D	10	2
	A	328	67.1		A	297	60.7
	SA	123	25.2		SA	162	33.1
Item 5	SD	22	4.5	Item 10	SD	20	4.1
	D	33	6.7		D	17	3.5
	A	320	65.4		A	290	59.3
	SA	114	23.3		SA	162	33.1

**FD = Frequency Distribution, SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree*

Of all queries, majority of the students are satisfied with BL implementation in UNITEN.

Section D: Suggestion on Blended Learning

Students these days are living their life on the fast lane. The younger generation's attention span has been reducing over the years where they get bored easily and their focus towards information presented can be shifted within a split second. The way they captured information through their brain is different in which they prefer to learn things interactively. As such, there are several suggestions made by the students themselves on how to improve blended learning in UNITEN so that the BL model will be more effective to them. Some of the suggestions stated that educators need to provide a clear explanation about BL since it is still new in Malaysia and only been applied by a few educators in their teaching. If the concept has been familiarized to students, then BL can easily be adapted by educators in their own technology turf.

Software changes rapidly, so it is important for lecturers to set up a standard on software that are of good usability to the students. BL can be implemented via usage of several applications readily downloadable via Apple's App Store or Google's Play Store to their mobile devices or gadgets where they will be able to create numerous exciting and fun games in their class session i.e. Kahoot. To make BL really works, lecturers need to use all resources available including adapting students' ability to suit different needs and learning capability. Most of the students have their own creativity and BL is the medium where students can express their ideas. The idea is to get them to devise a creative solution to a real-world problem. Furthermore, students proposed lecturers to produce more online educational games via BL instead of a formal teaching method. In addition, besides implementing blended learning in class, students can share ideas actively in class instead of looking and copying lecture notes without giving any fresh and creative ideas in class. Hence, they can learn in fun and exciting ways as compared to boring, traditional ways. Lecturers can give some token or extra marks to those who manage to complete their task successfully.

Discussion and Conclusion

Majority of the students are aware of UNITEN's BL implementation. BL has been implemented at all levels of study (foundation, diploma & degree), at different BL level (Level 1, Level 2 & Level 3), and across different subjects. Majority of the students give positive feedback on the implementation of BL in their courses. UNITEN & the academic staff provide various learning resources to support teaching and learning which includes Blended Learning. Majority of students responded with the perception of agreeing that BL has helped them in their studies, mainly in increasing CGPA, better time management and reinforcing their learning. The suggestions obtained from this research can be used to improve the BL implementation in the future.

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Acknowledgements

We are thankful to TLC, UNITEN and Innovation & Research Management Centre (IRMC), UNITEN for their support in assisting us in data collection and completion of this paper.

Authors' Bio

Mr Rahmat Bin Abdul Wahid has been teaching Physics for more than five years for foundation and diploma students in Universiti Tenaga Nasional. He graduated from Universiti Teknologi Malaysia with Master of Science (Physics) in 2014 and Bachelor Degree of Science (Physics) in 2010. His research works are collaborative efforts with various expertise in the field of teaching and learning, statistics, computer science, information technology and engineering. His research focuses mainly on Blended Learning implementation, evaluation of assessment and collaboration learning.

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