

13th International Malaysian Educational Technology Convention (IMETC) 2019

26-28 August 2019

By: Centre for Instructional Technology and Multimedia (CITM), Universiti Sains Malaysia
(USM)

Abstract Book



ABSTRACT BOOK

13TH INTERNATIONAL MALAYSIAN EDUCATIONAL TECHNOLOGY CONVENTION (IMETC 2019)

26th - 28th August 2019

CENTRE FOR INSTRUCTIONAL TECHNOLOGY AND MULTIMEDIA
UNIVERSITI SAINS MALAYSIA

strategic partners:



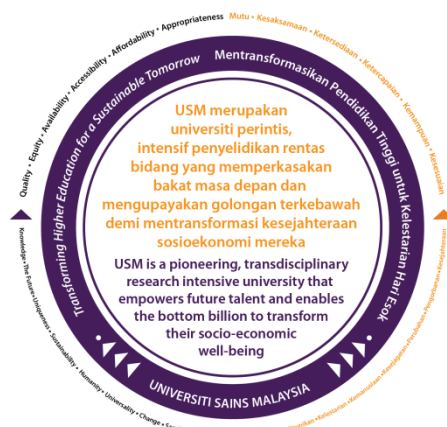
MINISTRY
OF EDUCATION
MALAYSIA



ASSOCIATION FOR
EDUCATIONAL
COMMUNICATIONS &
TECHNOLOGY

PENANG 2019
IMETC
International Malaysian Educational Technology Convention

UNIVERSITI SAINS MALAYSIA (USM)



Established as the second university in the country in 1969, Universiti Sains Malaysia (USM) was first known as Universiti Pulau Pinang. In 1971, USM moved from its temporary premises at the Malayan Teachers’ Training College, Bukit Gelugor to the present 416.6 hectare site at Minden, approximately 9.7 km from Georgetown.

USM offers courses ranging from Natural Sciences, Applied Sciences, Medical and Health Sciences, Pharmaceutical Sciences to Building Science and Technology, Social Sciences, Humanities, and Education. These are available at undergraduate and postgraduate levels to approximately 30,000 students at its 17 Academic Schools on the main campus in the island of Penang; 6 Schools at the Engineering Campus in Nibong Tebal (approximately 50km from the main campus); and 3 at the Health Campus in Kubang Kerian, Kelantan (approximately 300km from the main campus).

USM also has 17 dedicated research centres for a wide range of specialisations which include archaeology, medicine and dentistry, molecular medicine, science and technology, Islamic development and management studies, and policy research and international studies. It also provides consultancy, testing, and advisory services to the industry under the ambit of USAINS Holdings Sdn Bhd, the University’s commercial arm.

Since the beginning, USM has adopted the School system rather than the traditional Faculty system to ensure that its students are multi-disciplined from their exposure to other areas of study by other Schools. It also encourages students to be active in extra-curricular activities given the myriad of clubs and societies available.

As a Research Intensive University recognised by the Ministry of Higher Education Malaysia (MOHE) in 2007, USM offers educational and research opportunities to students and staff. In 2008, USM also became the first university in the country to be selected by the Malaysian government to participate in the Accelerated Programme for Excellence (APEX), a fast-track programme that helps tertiary institutions achieve world-class status.

Vision

"Transforming Higher Education for a Sustainable Tomorrow"

Mission

USM is a pioneering, transdisciplinary research intensive university that empowers future talents and enables the bottom billions to transform their socio-economic well-being.

Value

Quality, Equality, Availability, Accessibility, Affordability, Appropriateness

Thrust

Knowledge, The Future, Uniqueness, Sustainability, Humanity, Universality, Change, Sacrifice, Wellness

META PRESIDENT FOREWORD



I wish everyone a warm welcome to the 13th International Malaysian Educational Technology Convention 2019 (IMETC2019). For this year, a number of different organisations have come together to plan and execute this auspicious conference, with a hope that the conference will reach out to a greater audience from diverse backgrounds. Teams from Malaysian Educational Technology Association (META), Resource and Educational Technology Division (BSTP), Ministry of Education Malaysia and Centre for Instructional Technology and Multimedia (CITM), USM have banded together and planned this prestigious event, and this year, Universiti Sains Malaysia (USM), Penang, Malaysia agrees to be the host.

This year's theme entitled 'Inclusivity in the 21st Century's Technological Teaching and Learning Environment' is seen as timely, necessary, and consequential, as it envisions educators' vital role in the future of learning. Technology alone is not enough to enhance students' learning. This little fact has been largely recognised by educators and in recent times, we have seen an influx of initiatives carried by educators and governments around the world, providing instructive trainings and workshops to foster creativity and innovation in using technology, to not just deliver knowledge, but to also democratise the process of delivering the knowledge to a whole new level.

I hope this convention can be a beacon, to highlight the dire needs of all the stakeholders in the education system worldwide, to congregate, learn, and share their ideas, innovations, best practices which will be elemental in optimizing the efficiency and efficacy of future learning. We would like to show our appreciation to all collaborating partners, organisations, keynote speakers and individuals who have made this convention possible.

We look forward to meet everyone again at IMETC 2020.

Thank you.

ASSOCIATE PROFESSOR DR. MAHIZER HAMZAH
PRESIDENT
MALAYSIA EDUCATIONAL TECHNOLOGY ASSOCIATION (META)

CHAIRMAN FOREWORD



Assalamualaikum Warahmatullahi Wabarakatuh and Good Day.

On behalf of the Malaysian Educational Technology Association (META), Centre for Instructional Technology and Multimedia (CITM), and The Association for Educational Communications and Technology (AECT), I welcome you with great pleasure to the International Malaysian Educational Technology Convention (IMETC2019), an avenue for researchers, industry specialists, practitioners and educators worldwide to gather together to share valuable research ideas and experiences in the field of educational technology. It is our honour to host such event with distinguished keynote speakers as well as participants from Malaysia, Thailand, Indonesia, Nigeria, Holland, and USA.

The success of this conference depends on the effort and expertise of researchers in the field of educational technology who have written and submitted papers on various topics, which were in line with the conference's theme. I therefore invite you take full advantage of the conference and build networking with fellow researchers as well as engage in an open and constructive dialogue about the creative and innovative use of educational technology. May this conference be a stepping stone for more collaborative research between universities and countries in the future.

I welcome you to Universiti Sains Malaysia (USM), the only Accelerated Programs for Excellence (APEX) government funded autonomous university in Malaysia. The year of 2019 is the year where USM celebrates its 50th anniversary. Please take the opportunity to explore around campus and appreciate the many sights and diversity of this university in a garden. I sincerely hope that all of you will enjoy the conference at USM. I wish you every success with this enlightening conference and I look forward to learning about the interesting debate.

Praise is also deserved for the reviewers who have invested significant time in assessing multiple papers to hold the standard and quality of this conference. Additional thanks to our strategic partners and sponsors for your contribution.

Last but not least I would like to take this opportunity to thank Vice Chancellor of USM, META, AECT, Ministry of Education, BSTP (Bahagian Sumber dan Teknologi Pendidikan), Penang State Education Department, conference committee members, attendees, speakers, presenters and our sponsors for their enthusiasm and commitment in making this IMETC2019 a reality.

ASSOC. PROF. DR. WAN AHMAD JAAFAR BIN WAN YAHAYA
IMETC2019 CHAIRMAN
DIRECTOR
CENTRE FOR INSTRUCTIONAL TECHNOLOGY AND MULTIMEDIA
UNIVERSITI SAINS MALAYSIA



INTERNATIONAL MALAYSIAN EDUCATIONAL TECHNOLOGY CONVENTION (IMETC2019)

INTRODUCTION

2019 International Malaysian Educational Technology Convention (IMETC2019) is an international academic conference organised by the Malaysian Educational Technology Association (META) and Centre for Instructional Technology and Multimedia (CITM), Universiti Sains Malaysia to be held at Dewan Persidangan Universiti (DPU), in the main campus of Universiti Sains Malaysia, Penang, Malaysia on 25-28 August 2019. The IMETC2019 conference provides opportunities for researchers, practitioners, educators, and educationists for the worldwide dissemination and sharing of ideas for research in the field of educational technology.

ABOUT IMETC CONFERENCE

Technological advances have steered the reach of education beyond the norms of traditional classroom. The facets of learning can be delivered and attained at anywhere and anytime. This is more relevant with the students from the Generation-Z whose life is entangled with technology every day. Thus, the potential of technology in education is endless if harnessed systematically. However, the inclusivity of technology can only be successful if the divide between the urban and rural population can be reduced. Therefore, through IMETC2019, the creative and innovative use of educational technology can be further explored by educationists, instructional designers, technologists, digital media designers, multimedia developers, and educationists to help bridge these gaps.

CONFERENCE OBJECTIVES

Inclusivity in the 21st Century's Technological Teaching and Learning Environment:

- To promote innovative development of theoretical knowledge, conceptual research, and professional knowledge in the 21st century Technological Teaching and Learning Environment
- To study and explore further the state-of-the-art educational technology for learning and teaching in various learning institutions.
- Providing a stage for direct discussion and exchange of idea as well as networking opportunity for collaboration amongst researchers, developers, technologist, and educationists in Malaysia and beyond.

CONFERENCE SUB-THEME

IMETC2019 brings an opportunity to discourse about innovative ideas on educational technology challenges and prospects in the context of education. IMETC 2019 consists of four theme-based tracks. Participants' manuscripts will be submitted in one of the following conference tracks. For manuscripts that potentially fall under multiple tracks, the manuscript will be positioned by the conference organiser under the best-fitting track:

Theme 1: General Issues in Education

Sub-theme

- Primary education
- Secondary education
- Tertiary education
- Distance education
- Blended learning
- Education and Globalization
- Barriers to Learning
- Digital divide and access to internet
- Impact of Education on Development
- Impact of Crisis on Education
- Ethical issues in Education
- Education in a multicultural society

Theme 2: Technological

Sub-theme

- Small media, big media
- Emerging technologies
- Collaborative support
- Learning management system (LMS)
- Learning Activity Management System
- Managed learning environments (MLS)
- Virtual learning environments (VLE)
- Web 2.0 Tools & applications
- Artificial intelligence
- Next Generation Classroom

Theme 3: Curriculum Development

Sub-theme

- E-learning models
- Technogogy
- Pedagogical strategies
- Game based design
- Gamification
- Ubiquitous design
- Web tools
- Repositories
- Experiences in STEM Education

Theme 4: Instructional Design

Sub-theme

- Designing learning settings
- Creating learning courses
- Designing learning tasks
- Learning and cognitive styles
- Student Centred Learning (SCL)
- Personalised Learning Environment (PLE)
- Moderating, tutoring & facilitating
- Web 2.0 tools

COMMITTEE MEMBERS

Convention Chair:
Assoc. Prof. Dr. Wan Ahmad Jaafar Wan Yahya

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Dr. Mageswaran Sanmugam

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Mr. Mohammad Faiz Isahak

Media & Documentation:
Mdm. Zunairah Mokhtar and CMP Team

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Mdm. Rozita Ilamdin
Mr. Abd Haris Harun

Technical:
Mdm. Norazrina Mohamad &
Technical Team

Exhibition:
Mr. Abd Haris Harun
Mr. Norazam Ariffin
Mdm. Rozita Ilamdin
Dr. Mageswaran Sanmugam

Protocol/Gala Dinner:
Dr. Nurullizam Jamiat

Launching Gimmick:
Dr. Reem Baragash

Sponsorship & Contribution:
Dr. Nur Azlina Mohamed Mokmin
Mdm. Norazrina Mohamad

KEYNOTE SPEAKER



DR. TREY MARTINDALE

Dr. Trey Martindale is a professor of instructional design and technology with Mississippi State University, and an expert in e-learning. He works with talented graduate students to investigate the effectiveness of online learning environments. His research has been funded by the U.S. Department of Defence, the U.S. Department of Education, IBM Corporation, the State of Tennessee, the State of Florida, Microsoft Corporation, the Centers for Disease Control and Prevention, and other agencies.

Dr. Trey is a former faculty member of the Institute for Intelligent systems - an interdisciplinary group of research scientists in linguistics, cognition, computer science, engineering, and e-learning, designing the learning systems of the future.

As an active consultant, Dr. Trey assists organizations with issues related to e-learning workforce training and performance. Recent clients include FedEx, the University of Memphis, the University of Mississippi, and Cengage / Wadsworth Publishing.

Dr. Trey serves on the editorial board of three national/international scholarly journals, and has served three elected terms on the Board of Directors for the Association for Educational Communications and Technology. He lives with his family in Starkville, Mississippi, USA.

Specialties: E-learning, instructional design, instructional development, performance improvement.

KEYNOTE SPEAKER



MR. ADAM BRIMO

Adam Brimo is the Founder and CEO of OpenLearning. He is listed in the 2017 Forbes 30 Under 30 Asia for Consumer Technology and in The Pearcey Foundation 2018 NSW Tech Entrepreneur Hall of Fame. In 2012, Adam joined David Collien and world-renowned Professor Richard Buckland to found OpenLearning.com, a lifelong learning platform with over two million students that prepares learners for the future of work. Through partnerships with top universities and government agencies in Australia and Malaysia, strong network effects, novel implementation of social constructivist educational theory and an integrated AI-powered education to employability pathway, OpenLearning is at the forefront of a new wave of education delivery.

Adam holds a Bachelor of Engineering (Software) and Bachelor of Arts (Politics) from the University of New South Wales, Australia. He completed his honours thesis at UNSW in partnership with National ICT Australia (now Data61) and received the prestigious UNSW Alumni Graduated Award in 2011.

Adam started his career at Macquarie Bank as a Software Engineer and Analyst in the Fixed Income, Currencies and Commodities Group, and at Westpac Institutional Bank as a Senior Software Engineer. He led the successful Vodafail consumer activist campaign in 2010-2011, which resulted in nationwide media coverage, an ACMA inquiry and a \$1bn network upgrade for Vodafone's Australian business. Adam was named the Consumer Activist of the Year in 2011 by Choice Magazine for his transformative impact on the telecommunications sector in Australia.

Adam is a respected figure in the Education Technology industry, and has been invited to speak at international events such as the Petrosains Ascend Series in Kuala Lumpur, Global Ventures Summit in Jakarta, and Australian Financial Review's Higher Education Summit in Sydney. He shares his thoughts on emerging online education trends, the usage of technology in providing quality education at scale, and graduate employability at the cusp of Industry 4.0.

KEYNOTE SPEAKER



MDM. HAJAH RAFAEH

Mdm Hajah Rafeah is the Principal (Grade: DG 54) at Sekolah Menengah Sains Pokok Sena, Kedah, Malaysia. She has been in the teaching field for more than three decades. Her career encompassed teaching stints in the following schools:

Sekolah Menengah Sains Teluk Intan (from 1986-1995)
Sekolah Menengah Sultan Abdul Halim (from 1995 -2009)
Sekolah Menengah Sains Kubang Pasu (from 2009-2018)
Sekolah Menengah Sains Pokok Sena (from 2018 onwards)

She has B.Sc.Ed (H) from University Malaya; majoring in Physics and minor in Mathematics.

She was also chosen as the Teacher Trainer for PPSMI (Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris)

KEYNOTE SPEAKER



DR. HENNY VAN DER MEIJDEN

Dr. Henny van der Meijden obtained her PhD in Social Science at Radboud University Nijmegen, The Netherlands, in 2005. The focus of her PhD research was on “Computer Supported Collaborative Learning”. She published in national and international journals. Recently she published a study on the effects of typing skills of elementary school children on spelling and creative writing on the computer. She is a lecturer and researcher at Radboud University, at the Department of Educational Sciences. Her teaching subjects are ICT in education and Coaching of educational professionals. She is also the coordinator for internationalization for Educational Sciences. She visited several times Malaysia as visiting lecturer of Universiti Teknologi Malaysia (UTM) in Johor Bahru.

WORKSHOPS AND BEST PRACTICES SPEAKERS

IMETC features one day Workshops and Best Practices on first day and final day of the conference (28th of August 2019) , several educational practitioners were invited to give a sharing session about the best practices aspects of the teaching and learning process in schools. The educational experts are:

WORKSHOP SPEAKERS



Dr. Mohd Hafiz Md Hanif
Universiti Pendidikan Sultan Idris



Dr. Mageswaran Sanmugam
Universiti Sains Malaysia



Mdm. Fadzliaton binti Zainuddin
Penolong Pengarah (Ketua Unit)
DG 48, Bahagian Sumber dan
Teknologi Pendidikan



Mr. Sarvana Prelathan
Persatuan Teknologi Pendidikan
Malaysia - Malaysian Educational
Technology Association (PTPM-
META)

BEST PRACTICES SPEAKERS



Mr. Kamarulzamri Bakar
Sekolah Menengah Sains Tuanku,
Jaafar, Kuala Pilah, Negeri
Sembilan



Dr. Najihah Mustaffa
Sekolah Menengah Sains Tapah,
Perak



Dr. Salihuddin Md Suhadi
Sekolah Menengah Sains Batu
Pahat, Johor



Mr. Poobalan Perumal
Sekolah Jenis Kebangsaan (Tamil)
Mak Mandin, Penang

**INTERNATIONAL MALAYSIAN EDUCATIONAL TECHNOLOGY CONVENTION
VENUE: DEWAN PERSIDANGAN UNIVERSITI, USM
TENTATIVE PROGRAMME**

PRE-CONVENTION WORKSHOP (SUNDAY, 25 AUGUST 2019)		VENUE
08:00 – 09:00 am	Registration (Foyer PTPM)	CITM / PTPM
09:00 – 10.30 am	Workshop 1 (Mohd Hafiz Md Hanif, PhD) Workshop 2 (Mageswaran Sanmugam, PhD)	Comp Lab 1 and 3
10:30 – 11:00 am	Coffee Break	Dining Room
11:00 – 12:30 pm	Workshop 3 (Pn. Fadzliaton Bt. Zainuddin) Workshop 4 (Mr. Sarvana Prelatha)	Comp Lab 1 and 3
12:30 – 02:00 pm	Lunch Break	Dining Room
02:00 – 03:30 pm	Workshop 1 (Mohd Hafiz Md Hanif, PhD) Workshop 2 (Mageswaran Sanmugam, PhD)	Comp Lab 1 and 3
03:30 – 04:00 pm	Coffee Break	Dining Room
04:00 – 05:30 pm	Workshop 3 (Pn. Fadzliaton Bt. Zainuddin) Workshop 4 (Mr. Sarvana Prelatha)	Comp Lab 1 and 3

CONVENTION DAY 1 (MONDAY, 26 AUGUST 2019)		VENUE
08:00 – 09:00 am	Registration Arrival of participants/guests	Lobby
09:00 – 10:00 am	<ul style="list-style-type: none"> • Arrival of VIPs • The singing of the National Anthem “<i>Negaraku</i>” • The singing of the USM official song “<i>Menara Ilmu</i>” • Welcoming Remarks • Du’a Recitation • Welcoming Speech by the Chairman of META • Ice-breaking Session 	Grand Hall
10:00 – 10:30 am	Photography Sessions and Exhibition Visit	DPU Corridor
10.30 – 10:45 am	Coffee Break	Dining room
10:45 – 11:45 am	Keynote Speaker 1 (Trey Martindale, PhD)	Grand Hall
12:00 – 01:00 pm	Parallel Presentation 1	Room 1 and 2
01:00 – 02:00 pm	Lunch	Dining room
02:00 – 03:00 pm	Keynote Speaker 2 (Adam Brimo)	Grand Hall
03:00 – 03:30 pm	Coffee Break	Dining room
03:30 – 05:00 pm	Parallel Presentation 2	Room 1 and 2

GALA DINNER (Monday, 26 August 2019)

VENUE

07:30 – 08:00 pm	Arrival of Honoured Guests	Anjung Jannatun
08:00 pm	<ul style="list-style-type: none"> • The singing of the National Anthem “<i>Negaraku</i>” • The singing of the Penang State Anthem “<i>Untuk Negeri Kita</i>” 	

IMETC2019

08:00 pm	<ul style="list-style-type: none"> • The Singing of the USM official song “<i>Menara Ilmu</i>” • Video presentation entitled “USM Transformation” • Welcoming Remarks • Du’a Recitation • Welcoming Speech by the Chairman of the IMETC2019 • Speech by Vice Chancellor of USM • Opening Speech by the Chief Minister of Penang • Launching Gimmick • Presentation of Mementos 	Anjung Jannatun
08:30 pm	Commencement of the Gala Dinner	
08:30- 10:00 pm	Gala Dinner Entertainment / Karaoke	
09:30 pm	Best Paper Award (Presented by the Chief Minister of Penang)	
09:35 pm	Keynote Speakers’ Recognition (Presented by the Vice Chancellor of USM)	
09:45 pm	Photography Session with the VVIP	
10:00 pm	Gala Dinner Ends	

CONVENTION DAY 2 (TUESDAY, 27 AUGUST 2019)		VENUE
08:00 – 09:00 am	Registration	Lobby
09:00 – 10:00 am	Keynote Speaker 3 (Mdm. Hajah Rafeah)	Grand Hall
10:00 – 10:30 am	Coffee Break	Dining room
10:30 – 12:00 pm	Parallel Presentation 3	Room 1 and 2
12.00 - 01.00 pm	Keynote Speaker 4 (Henny Van der Meijden, PhD)	Grand Hall
01:00 – 02:00 pm	Lunch	Dining room
02:00 – 03:00 pm	Plenary Talk by Ismail Zain, PhD.	Grand Hall
03:00 – 03:30 pm	Coffee Break	Dining room
03:30 – 05:00 pm	Parallel Presentation 4	Room 1 and 2
05.00 – 07:00 pm	META/PTPM Meeting	Grand Hall

CONVENTION DAY 3 (WEDNESDAY, 28 AUGUST 2019)		VENUE
08:00 – 08:30 am	Registration	Lobby
08:30 – 09:15 am	Best Practices 1 (Mr. Kamarulzamri Bakar) Best Practices 2 (Najihah Mustaffa, PhD)	Room 1 and 2
09:15 – 10:00 am	Best Practices 3 (Salihuddin Md Suhadi, PhD) Best Practices 4 (Mr. Poobalan Perumal)	Room 1 and 2
10:00 – 10:30 am	Closing Ceremony: <ul style="list-style-type: none"> • Arrival of Guest • The singing of the National Anthem “<i>Negaraku</i>” • The singing of the USM official song “<i>Menara Ilmu</i>” • Closing Ceremony Speech by the Chairman of the IMETC 2019 • Playback Montage IMETC 2019 	Grand Hall

	<ul style="list-style-type: none"> • Photography session End of IMETC 2019	
10:30 – 11:00 am	Coffee Break & Distribution of Certificate	Dining Room & Lobby

<i>Paper ID</i>	1
<i>Authors</i>	Norhasimah Binti Mohd Yusof and Maizatul Hayati Binti Mohamad Yatim
<i>Affiliation</i>	Universiti Pendidikan Sultan Idris, Malaysia
<i>Title</i>	The Effectiveness Of Using The Plickers Application On Student Interests And Achievement In The Learning Of Form Two Science Subjects On Ecosystem Topics
<i>Abstract</i>	<p>This study aimed to determine the effectiveness of using the Plickers application on the interests and achievement of students in the topic of the ecosystem for form two Science subjects in a secondary school in Ipoh. The design of this study is a quasi-experimental type with pre-test and post-test. Two types of instruments used were a questionnaire to measure the student's interest in the Plickers application as well as pre-test and post-test formative formats comprising 30 multiple choice questions to measure student achievement in ecosystem topics. The sample of the study consisted of two classes of form two students (N = 64) selected by purposive sampling. The two classes are used as treatment groups and control groups. Pre-test was conducted before teaching and learning. This study involved a teacher who taught the treatment group using Plickers application technology while the control group with traditional methods. Teaching and learning for both groups lasted for six weeks and followed by post-test. Descriptive analysis using t-test was used to obtain mean values, standard deviations and significant studies. The findings of the study show the mean of achievement in post-test for treatment group and the control group. Questionnaires will show interest in the use of Plickers applications in science subjects. Implications of this study will enable students and teachers to apply the application of Plickers in continuous teaching and learning. The effectiveness of the Plickers app can be seen whether it is possible to improve student achievement and to attract students' interest to study science.</p>
<i>Keyword</i>	Plickers, interests, achievements, science

<i>Paper ID</i>	2
<i>Authors</i>	Norazla Mustafa, Mohd Nihra Haruzuan Mohamad Said, Zaleha Ismail, Zaidatun Tasir and Mageswaran Sanmugam
<i>Affiliation</i>	Kementerian Pendidikan Malaysia, Universiti Teknologi Malaysia, Universiti Sains Malaysia, Malaysia
<i>Title</i>	The Impacts Of Stem Integration Approach Towards Mathematical Problem Solving Among Form Four Students
<i>Abstract</i>	<p>Problem solving is a key aspect in the integration of STEM, hence, this paper developed a framework on problem solving processes through an Integrated STEM, specifically for Mathematics. This quasi-experimental study involved 40 Form Four students. The mathematical problem-solving learning phase based learning group via Integrated STEM (FPMSTEM) applied learning modules that focused on elements in problem solving and engineering design phases. The problem solving phase comprised understanding the problem, devising a plan, carrying out the solution and looking back whereas the engineering design phase consists of asking, imagining and planning as well as creating and improvising. Qualitative data from the mathematics tasks, task-based interview and students' reflection transcripts were used to explore the mathematical problem solving processes as well as the engineering design processes of six participants from the FPMSTEM group. The data were analysed using content analysis method. The results of the qualitative data of the FPMSTEM students were used to develop a framework for mathematical problem solving processes through Integrated STEM. The framework can be used as a guide for teachers to improve the effectiveness of mathematical problem solving learning.</p>
<i>Keyword</i>	Mathematical Problem Solving, Integrated STEM, learning, Framework

<i>Paper ID</i>	4
<i>Authors</i>	Abdullahi Abubakar Yunusa and Irfan Naufal Umar
<i>Affiliation</i>	Usmanu Danfodiyo University Sokoto, Nigeria; Universiti Sains Malaysia, Malaysia
<i>Title</i>	The Role Of Quality Factors, Interaction and Motivation On Satisfaction And Perceived Learning In E-Learning Environment
<i>Abstract</i>	The ubiquity of the internet has culminated in the innovative transmission of knowledge through electronic medium across the educational landscape in the world. E-learning represents a major paradigm shift in the educational delivery process with scalability and flexibility as its strongest affordances. Recognizing the potentials of e-learning institutions in different contexts are leveraging these potentials to increase access and improve the quality of education. This paper presents an empirical study to evaluate the effectiveness of an Open and Distance e-Learning environment in Nigeria through the lens of an integrated theoretical framework which comprised of Delone and McLean Information System success model (D&MIS), Theory of Transactional Distance (TTD) and Self Determination Theory (SDT), A convenience sampling technique was used to gather data from 350 students offering different courses in Bachelor's degree program in education using an online/offline survey instrument. The model will be tested against the hypotheses using correlation and regression analysis in the Partial Least Square-Structural Equation Modelling (PLS-SEM) software (Smart PLS 3.2.8). These measurements will confirm or disprove the hypotheses and explain the degree of variance in the proposed model. Findings from the research are proposed to guide decision making on curriculum and learning designs that could lead to increased access and quality e-learning in Nigeria. The study is an excerpt of a PhD research in progress.
<i>Keyword</i>	Quality factors, Interactions, Satisfaction

<i>Paper ID</i>	5
<i>Authors</i>	Najihah Mustaffa, Mageswaran Sanmugam, Zaidatun Tasir, Mohd Nihra Haruzuan Mohamad Said and Zaleha Ismail
<i>Affiliation</i>	Sekolah Menengah Sains Tapah; Universiti Sains Malaysia; Universiti Teknologi Malaysia, Malaysia
<i>Title</i>	Frameworks Of Algebraic Thinking For Secondary School Students In Learning Algebra: A Review Paper
<i>Abstract</i>	Algebraic thinking is a vital skill that should be mastered by students at an early stage before learning algebra. However, algebraic thinking is not emphasized in learning algebra. The major concern of algebraic thinking is the transition from arithmetic to algebra. The development of algebraic thinking requires the students to analyze the relationships, noticing the structure, explore patterns, justifying, predicting that is beyond of arithmetic and computational fluency. There are frameworks of algebraic thinking that have been implemented solely in schools. These frameworks are to identify and explain the way students think algebraically in learning algebra. However, the frameworks are only to identify the characteristics of algebraic thinking among the students. In order to understand algebra, the students should be acquainted with the way of learning algebra. In a nutshell, mathematics teachers should have alternative methods in teaching algebra; for example, by conducting real-life activities to diminish the disconnection of arithmetic with algebra. Another strategy, as indicated by the literature, is to use Problem-based learning (PBL), an approach that focuses on the development of thinking. This method has been perceived to be able to facilitate students' knowledge construction and reasoning skills because it uses real-world problems as the starting point in the learning process. Based on the previous literature, Problem-based learning would enhance cognitive and affective domain in the process of learning. Does Problem-based Learning really work in enhancing algebraic thinking?
<i>Keyword</i>	Problem-based Learning (PBL), Algebraic Thinking, Algebra, Schools

<i>Paper ID</i>	6
<i>Authors</i>	Wan Ahmad Jaafar Wan Yahaya and Khairulnisak Mohamad Zaini
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	The Effects Of A Mobile App With Tutorial Learning Strategy In Reducing Anxiety
<i>Abstract</i>	Islamic funeral is one of the topics in the syllabus of Islamic Education and is considered as Fard Kifayah. It is also the ultimate duty and responsibility of the living person towards the dead. However, not everyone has the knowledge of Islamic funeral and fears to take part in the activity and is afraid of seeing the deceased. This fear comes from the perception that the face of the deceased is scary and horrifying and assumes that the dead will haunt the living. Thus, a mobile app based on a tutorial learning strategy was designed and developed to reduce students' anxiety and also helps in teaching and learning for the topic of Islamic funeral. A total of 120 students from four secondary schools in Penang were employed as samples. This study uses quasi-experimental design with pretest and posttest and the instrument used was adapted from State-Trait Anxiety Inventory (STAI). Overall, this study found the use of tutorial learning strategy can help in reducing student's anxiety and also helps in teaching and learning sessions for the topic of Islamic funeral. The implications of this study indicate that the students' anxiety in the learning process has been reduced by using a mobile app developed towards the topic.
<i>Keyword</i>	Tutorial Learning Strategy, Anxiety, Mobile App, Islamic Funeral

<i>Paper ID</i>	7
<i>Authors</i>	Keri Duncan
<i>Affiliation</i>	Gwinnett County Public Schools / Lilburn Elementary, United States
<i>Title</i>	Examining the Effects of Immersive Game-Based Learning on Student Engagement and the Development of Collaboration, Communication, Creativity, and Critical Thinking
<i>Abstract</i>	This is a mixed-methods, sequential, explanatory study that examined student engagement and the development of 21st-century learning skills of collaboration, communication, creativity, and critical thinking for students who used immersive game-based learning activities using BOEDU strategies compared to students who used traditional small group methods. Student engagement scores nationally and at the study site were less than 50% which show a need to increase student engagement in learning. Different strategies are available to increase student engagement. This study examined the effects of a relatively new immersive game-based learning using BOEDU strategies on student engagement and the development of collaboration, communication, creativity, and critical thinking. The researcher studied students who learned in an immersive game-based learning environment through BOEDU strategies, an escape room for the classroom, with students who learned through traditional classroom instructional strategies. Students in both groups took a survey to measure student engagement and another survey to measure the development of 21st-century learning skills. Data from the EvsD survey revealed the focus group participants by analysing the scores on the engagement versus disaffection survey to find students at the extremely engaged or extremely disaffection ends of the scale. The qualitative data were then analysed to determine the motivational engagement triggers for Grade 3 students in immersive game-based learning environments. The quantitative results showed no significant results for engagement, development of 21st-century learning skills, or correlation between engagement and 21st-century learning skills of students who participated using BOEDU strategies versus students who did not participate in BOEDU strategies. The qualitative results showed teamwork, challenge, and fun as the most frequent themes of motivational engagement triggers. The students who participated in the focus group interviews, both the engaged students and the disaffection students, stated they enjoyed this method of learning and wanted to do it more often.
<i>Keyword</i>	Game-based learning, Immersive Learning Environments, 4Cs of Learning, Curriculum Development, Critical Thinking, Creativity, Collaboration

<i>Paper ID</i>	8
<i>Authors</i>	Salihuddin Md Suhadi and Mageswaran Sanmugam
<i>Affiliation</i>	Kementerian Pendidikan Malaysia, Universiti Sains Malaysia, Malaysia
<i>Title</i>	Potensi kaedah sokratik atas talian dalam Penguasaan subjek STEM
<i>Abstract</i>	Kebolehan pelajar berfikir secara optimum berupaya menyelesaikan masalah yang bukan lazim. Pelajar juga mampu berfikir diluar kotak bagi mencari pelbagai jenis penyelesaian untuk sebarang permasalahan. Isu sejak kebelakangan ini ialah pelajar lingkungan umur 13-17 tahun di Malaysia tidak dapat menguasai soalan-soalan yang berkaitan dengan subjek STEM berikutan soalan-soalan yang dikemukakan merupakan soalan yang memerlukan pemikiran aras tinggi. Bagi meningkatkan kognitif pemikiran pelajar secara optimum dalam zaman serba canggih ini, medium teknologi seperti pembelajaran atas talian merupakan pendekatan yang serba mudah diakses dalam melaksanakan kaedah pembelajaran sama ada dalam kelas ataupun di rumah. Kertas konsep ini akan menganalisis hubungan kajian-kajian lepas berkaitan dengan pengaplikasian teknologi dalam sesebuah kaedah pembelajaran dengan subjek STEM, khususnya melihat kesan pembelajaran kaedah sokratik dalam talian. Berdasarkan kajian-kajian terdahulu, kaedah Sokratik dilihat mampu mengoptimumkan kognitif pemikiran pelajar untuk menguasai subjek sains, iaitu salah satu cabang subjek didalam STEM, oleh itu, dapatan kertas konsep ini akan dapat mengaplikasikan kaedah sokratik secara dalam talian untuk cabang lain dalam STEM seperti matematik dan kejuruteraan.
<i>Keyword</i>	Teknologi Pendidikan, Pembelajaran Sokratik, STEM, Pembelajaran Sekolah Menengah

<i>Paper ID</i>	10
<i>Authors</i>	Bavani Raja Pandian and Dr Hema Subramaniam
<i>Affiliation</i>	Universiti selangor, Malaysia
<i>Title</i>	Usability Study in Moodle LMS at Higher Learning Institution
<i>Abstract</i>	Learning Management System (LMS) is a web-based information system created to encourage learning process among students in higher institution. It's allowed the students to download the lecture notes, tutorials and assignment of their modules. However, the use of LMS by student is limited in terms of usability. The aim of this research is to identify the usability issues in Moodle Learning Management System. Response from 30 respondents at a University Selangor are obtained. Finding shows that, almost 25 respondents are having difficulties in accessing the Moodle LMS due to poor navigation and some other circumstance. The study shows that implementation of poor testing approach had contributed to these situations. The contribution of this research is to motivate students to utilize LMS in order to enhance the effective learning result by experiencing different learning styles.
<i>Keyword</i>	Learning Management System, Usability, Testing, Moodle

<i>Paper ID</i>	11
<i>Authors</i>	Kien Tsong Chau, Farra Zulaikha Binti Abdul Razak, Nawal Insyirah Binti Rosle, Nur Atikah Binti Mohd Sharohuddin and Nur Muzfirah Binti Mazni
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Malaysian Animation; A Case Study of Races Perceptions of Upin and Ipin Animation.docx
<i>Abstract</i>	Upin & Ipin animation has been watched by Malaysian with different races for a decade now, mostly Malays. Culture, language and religion are shown in the animation and this research is to find out whether this animation is actually accepted by all community who come from different backgrounds like Chinese, Indian and other races. This research has recruited 120 respondents from all age range especially teenagers and young adults. Overall, the finding of the research concluded that most Malaysians are interested in Upin & Ipin animation.
<i>Keyword</i>	Animation, perception, Upin, Ipin

<i>Paper ID</i>	12
<i>Authors</i>	Kien Tsong Chau, Danial Aizat Bin Zainuddin, Siaw Kiong Ling, Li Min Ng and Jiaqi Yang
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	The Perception Of Teachers Towards Smart Board: A Case Study In SJK(C) Teok Chee
<i>Abstract</i>	<p>SMART Board is a brand of interactive whiteboard manufactured by SMART Technologies. Basically, SMART Board is used for education as it is usually located in the classroom, lecture hall, meeting room and viva room. SMART Board was used with an LCD panel and a computer running integrated programs. It allows user to project an image and ‘interact’ with it by writing on it or moving it around by using fingers. Malaysia started to implement the used of SMART Board when the Minister of Education kick started with the SMART School program in 2000 for achieving 2020 Vision. Hence, to visualize this project, government brings in SMART Board to every school in Malaysia. However, the project has faced a lots of obstacles which led to project postponed. The teachers are reluctant for the transformation and are not prepared to teach in using SMART Board. They also worry the insistence on the use of ICT in teaching increase the amount of work. Cost is also one of the major obstacles. The price of a SMART Board is in the range of RM4,000 to RM8,000. The limited budget districted government to fully develop the transformation. Those previous researches will help in our research as our main direction is to identify the real benefits and limitations of using SMART Board in the view of teachers. In addition, this research also collect the perception of teachers towards SMART Board. In order to complete this research, we have chosen Sekolah Jenis Kebangsaan (Cina) Yeok Chee as our targeted school. SJK (C) Yeok Chee is one of the developing school in Baling, Kedah. It is also one of the school that under observation by the government in SMART School project.</p>
<i>Keyword</i>	Smart board, Primary School, perception

<i>Paper ID</i>	14
<i>Authors</i>	Norhayati Mohd Ali
<i>Affiliation</i>	Universiti Putra Malaysia, Malaysia
<i>Title</i>	Class and Sequence Diagram Tool to Support Learning Activity in Software Modeling.
<i>Abstract</i>	<p>The Unified Modelling Language (UML) is the standard formalism for software analysis and design. A good knowledge of UML is required in order to perform the software modelling task. However, novice developers and students encounter difficulties in performing the software modelling task using UML. Most modelling tools do not provide the functionalities to check whether the models/diagrams created by users are valid and correct models/diagrams. Thus, we propose a learning tool that could support the students and novice developers in performing the software modelling task. The aim of this paper is to describe the development of the learning tool known as Class and Sequence Diagram (CSeqD) tool. This learning tool provide an automated checking and assessment of UML class and sequence diagram errors constructed by users. A list of diagram errors is presented for users to do design/model corrections. We believe that the CSeqD tool will benefit the students and novice developers in the software analysis and modelling task via self-learning approach.</p>
<i>Keyword</i>	Learning tool, software modelling, Unified Modeling Language, Self-learning, Class Diagram, Sequence Diagram

<i>Paper ID</i>	15
<i>Authors</i>	Ro'Azeah Md Napeah, Wan Ahmad Jaafar Wan Yahaya and Siti Nazleen Abdul Rabu
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	The Effects of using Signaling Principle in Mobile Application on Malay Language for Linus Pupils in Primary School Study
<i>Abstract</i>	Every student should master the reading skills to expedite the process of learning in school. The issue of Linus pupils in Malay language literacy of primary school is incessant. Thus, this study focuses on the effect of using signalling principle in the mobile application to indicate the level of reading proficiency through three constructs of the Linus contents in the Malay language. The quasi-experimental study with pre-test and post-test was used to evaluate the effectiveness of mobile application in the Malay language. The samples consisted of 30 respondents of Linus pupils from Grade One primary school. The findings showed that the reading level of the Linus pupils had increased using a new approach through the mobile application. This study concludes that mobile application used in school, especially for Grade One Linus pupils enhanced their reading literacy. It would be the case that the use of signalling principle can reduce the cognitive load in the learning process which enables the pupils to understand the learning contents and make learning more effective.
<i>Keyword</i>	Malay language literacy, Linus, Three constructs, Linus pupils, Mobile learning

<i>Paper ID</i>	16
<i>Authors</i>	Chinda Bunting and Mariam Mohamad
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Authentic Learning Strategies In Mobile Cloud Computing Environment: Can It Be Made A Reality?
<i>Abstract</i>	Cloud computing, a promising computing paradigm, is undeniably one of the hottest trends in technology today. It is instrumental to the education domain while at the same time supportive in most areas of work and life. It has been around for ages in the field of education, and it has been used widely in higher education for a variety of functions, but little is known about its utilization in primary schools, specifically in Malaysian context. This paper discusses the viability of providing mobile cloud computing environment for the teaching of writing in Malaysian primary school classrooms, while integrating Authentic Learning Strategies. It illustrates the Authentic Learning Strategies that is proposed to be integrated into the teaching of writing. This paper looks into affiliated studies from Malaysia and around the globe. Before concluding the paper, the challenges and issues in the attainment of Authentic Learning Strategies in a mobile cloud computing environment are discussed. In a nutshell, there are possibilities to shape up writing lessons in Malaysian primary schools within a mobile cloud computing environment if the various challenges that clouded the implementation are addressed.
<i>Keyword</i>	Authentic Learning Strategies, mobile cloud computing environment, writing, young learners

<i>Paper ID</i>	18
<i>Authors</i>	Nor Dlyian Fazlina Fazlishah, Hannyzzura Affal, Nor Aniza Abdullah and Mas Idayu Md Sabri
<i>Affiliation</i>	University of Malaya, Malaysia
<i>Title</i>	Analysing potential gamification design for learning management system to improve lifelong learning experience
<i>Abstract</i>	Lifelong learning is defined as the process of which individuals acquire knowledge, experience, and improve skills, either in one or more than one specific field throughout their lifetime with the help of external and internal support. High dropout rate among lifelong learners is the current issue that needs to be addressed. One of the proposed techniques to manage this attrition issue among lifelong learners is by the implementation of gamification within the Learning Management System (LMS) in the hopes that this method is able to motivate and engage these students and keep them interested and motivated until they have completed their study. Literature reviewed, data collected through questionnaire surveys, and focus group interview among diploma students from University of Malaya Centre for Continuing Education (UMCCED) is aimed to investigate the limitations of the current LMS and will then identify the ideal gamification design technique to be implemented that can encourage learners' motivation and engagement. Therefore, the aim of this paper is to identify suitable gamification techniques and propose a design of a gamified LMS which will aid in improving student's learning experience in order for them to keep pursuing education/learning.
<i>Keyword</i>	Lifelong Learning, Gamification, Learning Management System, Gamified Design, Higher Education

<i>Paper ID</i>	19
<i>Authors</i>	Muhammad Izzat Azri Zainal Abidin and Mohammad Nizam Ayub
<i>Affiliation</i>	University of Malaya, Malaysia
<i>Title</i>	Comparative study in Improving Attention Span for ADHD using Brain-Controlled Interface (BCI) Methods.
<i>Abstract</i>	Attention Deficit Hyperactivity Disorder (ADHD) is a prominent mental disorder among children. ADHD affects the patient's ability to control their impulses, maintain focus and attention, or makes them hyperactive. Treatments for ADHD in children includes behavioral and medications. Recently, the use of games as therapy has started emerging. Particularly serious games, which have educational aims besides entertainment. Moreover, the use of Brain-Controlled Interface (BCI) in conjunction with serious games could be used as therapy for ADHD patients. The use of Electroencephalography (EEG)- Based BCI is popular in commercial use, due to its simplicity and is cheaper to run. EEG signal is acquired from the electrical activity of the brain which could be obtained non-invasively (no surgery required) from the scalp with the aid of electrodes. The EEG signals are then filtered and processed through the BCI software and its outputs could be channeled to other devices or programs, such as games. Several BCI methods exists in acquiring the signal from EEG devices. By studying the characteristics and behavior of ADHD patients, this research aims to determine which BCI methods is suitable for educational game that matches the patient's characteristics and assist them to improve their attention span, and one which is easy to use for both the patients and their teachers/facilitators.
<i>Keyword</i>	ADHD, Brain Computer Interface, Serious Games, Attention span, Electroencephalography

<i>Paper ID</i>	20
<i>Authors</i>	Ghazi Alrakas, Mona Masood and Alaa J. Kadi
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	The Effects of Adopting Tablets on Students' Engagement: A Systematic-Bibliometric Study.
<i>Abstract</i>	Students' engagement in the educational process is considered to be one of the most important elements that contribute to uplifting the level of students' outcome and enhancing their performance. This Systematic-bibliometric paper will address all the articles published in SCOPUS that have the keywords "students engagement" in their title, and the keyword "Tablets" in any part of the article. The aim of this study is to present the bibliometric aspects of most cited or productive articles, authors and journals, as well as a systematic review of the content of these articles in identifying the most used independent, dependent, moderators and mediator variables that are used frequently with the Students' engagement in the education process using tablets as a motivating and assisting devices.
<i>Keyword</i>	Engagement of the students, Tablet PCs, Bibliometric study, Systematic review.

<i>Paper ID</i>	21
<i>Authors</i>	Norfaiza Mohd Zuki, Hafsa Taha and Che Soh Said
<i>Affiliation</i>	Universiti Pendidikan Sultan Idris, Malaysia
<i>Title</i>	i-Think Virtual Classroom in Electrochemistry: Effect on Higher Order Thinking Skills and Interest among Students with Low and High Spatial Ability
<i>Abstract</i>	The purpose of the study was to investigate the effect of i-think virtual classroom (iTVC) in electrochemistry on students' higher order thinking skills (HOTS) and interest among students with low and high spatial ability. This study employed the quasi experimental design which involved 60 form four students in a secondary school in Kuantan. 30 students (control group) learnt via conventional virtual classroom (CVC) while another 30 students (treatment group) learnt via iTVC. The Mind Challenge test showed significant difference in HOTS between low spatial ability (LSA) students for treatment and control groups. LSA students in iTVC performed better in post-test compared to the LSA in CVC group. Results also revealed high spatial ability (HSA) students had higher interest compared to LSA students. The mean score of HSA students in arousal, pleasure and competence dimensions were also higher than LSA students' through iTVC. The iTVC has increased the interest of both LSA and HSA in electrochemistry.
<i>Keyword</i>	virtual classroom, i-think learning tool, spatial ability, higher order thinking skills, interest

<i>Paper ID</i>	22
<i>Authors</i>	Norfaiza Mohd Zuki, Hafsa Taha and Che Soh Said
<i>Affiliation</i>	Universiti Pendidikan Sultan Idris, Malaysia
<i>Title</i>	Development of Virtual Classroom Based On I-Think Learning Tools – Need Analysis
<i>Abstract</i>	This need analysis aims to develop an i-Think Virtual Chemistry Classroom (iTVC) for form four electrochemistry topics. Ten chemistry teachers as well as thirty secondary school students were involved in this study. Instruments employed were two sets of questionnaires for both teachers and students. Data were analysed using descriptive statistics to gauge the teacher and student's needs of virtual classroom. Results showed software used must create enjoyable and fun learning, provides student-student interactions as well as teacher-student interaction and digging students' higher order thinking skills (HOTS). I-Think is one of learning tools used in this study to developed thinking skills via virtual learning. The low spatial ability student is focused in this study to enhance their high order thinking skill (HOTS). This is because the percentage of low spatial ability is higher than high spatial ability students. The findings are expected to provide valuable information to educators as well as developers of multimedia software in creating appropriate virtual classroom. This research will encourage teachers to maximize the usage of Virtual Learning environment (Frog VLE) as one of 21st century learning platforms and i-Think learning tools in enhancing students' HOTS.
<i>Keyword</i>	Virtual Classroom, i-Think learning tool, higher order thinking skills, electrochemistry, Spatial ability

<i>Paper ID</i>	23
<i>Authors</i>	Norfaridatul Akmar Binti Hasim, Mohd Mustamam Bin Abd Karim and Nurulhuda Binti Abd Rahman
<i>Affiliation</i>	University Pendidikan Sultan Idris, Malaysia
<i>Title</i>	Dioramas In Physics: The Effects On Students Motivation
<i>Abstract</i>	Electricity is found to be a boring topic to learn. Research showed that the material from game based learning can help students to visualize and hence enhance students' understanding in learning abstract electric circuits subjects. As a result, PhyKER Games with dioramas was developed in order to assist students enjoy in the learning of the Electricity topic. Besides electrical components, there are some other dioramas accessories such as cars, lamp posts, grass, roads and trees were added in PhyKER Games. The Intrinsic Motivation Inventory (IMI) is a multidimensional measurement device intended to assess students' subjective experience related to a target activity in laboratory experiments. One of them is interest/enjoyment. Research done on 30 students in one class then compare students inter-est/enjoyment after use PhyKER Games by using Paired Sample T-Test analysis. The results showed PhyKER Games is effective to improve the students interest/enjoyment in electric circuits subjects. It is hoped that the PhyKER Games would be able to assist students in the learning of Electricity in terms of concept understanding and motivation level.
<i>Keyword</i>	Game based learning, dioramas, The Intrinsic Motivation Inventory (IMI)

<i>Paper ID</i>	24
<i>Authors</i>	Mohd Hafiz Shafiq Zulkifli and Mariam Mohamad
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Preliminary Study Of M-Learning Module Design In History Subject For Lower Secondary School In Malaysia: A Delphi Study
<i>Abstract</i>	In order to provide human resources that meet the requirement of Industrial Revolution 4.0, changes in teaching and learning should be considered. The presence of innovation in teaching in 21st Century Learning is now accelerating the development of technology, especially in Mobile learning in educational institution today. M-Learning is one of the phenomena in education by using mobile devices as a learning platform in both universities and schools. Along with the advanced technology nowadays, teaching and learning in History subject should be given a new chance to support 21st Century Learning. Therefore, the purpose of this study is to create a curriculum's guidelines for History subject specifically for Form 1 students. Delphi's method was selected for this study with the support of Educational Studies and Instructional Technology experts. It is hoped that this study will inspire History's teachers and Ministry of Education Malaysia to implement mobile learning in this subject to support the 7th shift The Malaysia.
<i>Keyword</i>	Teaching and learning module, History, 21st Century Learning, Delphi Method

<i>Paper ID</i>	25
<i>Authors</i>	Norfaridatul Akmar Binti Hasim, Mohd Mustamam Bin Abd Karim and Nurulhuda Binti Abd Rahman
<i>Affiliation</i>	Universiti Pendidikan Sultan Idris, Malaysia
<i>Title</i>	Development of PhyKER Games and Its Effect On Students' Achievement
<i>Abstract</i>	The Ministry of Education Malaysia (MOE) is enhancing efforts to ensure more students engage in science stream in schools in the future. Teachers should make science learning fun to foster students' interest in Science, Technology, Engineering and Mathematics (STEM). Physics Kits Electricity Research Games (PhyKER Games) is a game based learning that be implemented as supporting materials in the electric circuits subjects. A total of 60 students have participated in this research. Electrical Experiment Book (EEB) is used to obtain data about the effect on students' achievement through inference, hypothesis, aim, controlling variables, material, arrangement, procedure, table (interpreting data), analysis data (with drawing a graph) and conclusion. By using Levene's test the significant is more than 0.05 to proven that both groups are coming from the same population. The t test analysis indicated that there is a significant difference in the score mean achievements in the post test. Results revealed shows that the treatment group obtained significantly higher mean post test score than the control group. The mean scores between treatment group (M=7.47, SD=1.306) and control groups (M=4.83, SD=1.020) respectively. Therefore games based learning through STEM is seen to have a more com-prehensive impact in schools.
<i>Keyword</i>	STEM, PhyKER Games, Science process skills

<i>Paper ID</i>	27
<i>Authors</i>	Siti Nazurah Hashim, Mona Masood and Mohd Razif Mustapha
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Learning The Osi Layer Among Polytechnic Students: The Possibility Of Using An Immersive Virtual Reality Environment
<i>Abstract</i>	Open System Interconnection (OSI) Layer is one of the topics which involve abstract concepts in the computer network course. For this study, we identified 64 polytechnic students in the northern region of Malaysia who lack the ability to visualise the real world process of the OSI Layer because of its abstract concept. Students have the difficulty to visualise mainly due to their level of spatial visualisation ability to imagine the real scenario. To overcome this problem, the use of three dimensional (3D) graphic simulation which is presented in an immersive Virtual Reality (VR) environment is proposed. This may engage and clarify the abstract topic accordingly to improve the student's understanding and achievement in the classroom. Therefore, in this paper, we discuss the idea of using an immersive VR based learning environment which is able to provide promising learning materials that attract students with different spatial abilities. Overall, the use of 3D graphic simulation in an immersive VR environment heightens students' spatial visualisation ability (SVA) that we can benefit from this innovative learning and teaching method as compared to the 2D animation and video learning methods.
<i>Keyword</i>	Abstract Learning, immersive VR, spatial visualisation ability

<i>Paper ID</i>	28
<i>Authors</i>	Yun Yi Tan and Mohammad Dzulsyafiq Mohammad Yusoff
<i>Affiliation</i>	Universiti Sains Malaysia, Universiti Malaysia Kelantan, Malaysia
<i>Title</i>	PLAYER-CENTRED DESIGN PROCESS FOR GAMIFICATION
<i>Abstract</i>	The game industry today is now one of the forms of entertainment that is growing rapidly. With the emergence of various mobile devices and game consoles, they are appeared to be available to all groups of target audiences. However, game players are not all the same and are different in their preferences especially on the pace and style of gameplay. With the player-centred approach, developers are able to produce games with enhanced the gameplay experience for the target audiences such as creating appropriate challenge level for smoother learning curve. Yet relatively little research has been conducted about how the player-centred approach is being applied specifically in teaching the development of gamified applications in higher learning institutions. Hence, this paper attempts to explore the implementation of player-centred approach in an undergraduate game design learning course taught at a local higher learning institution. Using case study methodology, three different data collection methods were used: in-class observations, lesson plans and in-depth interviews. Being exploratory in nature, this paper attempts to identify the important stages in the process of designing player-centred gamified applications based on findings from the three case studies conducted. Also discussed in this paper are the techniques that are appropriate when learning how to develop such gamified applications.
<i>Keyword</i>	Gamification, player-centred approach, game design, design learning

<i>Paper ID</i>	29
<i>Authors</i>	Nur Azlina Mohamed Mokmin and Mohamad Ikram Mohd Farzee
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Augmented Reality Information for Food (ARIF): Design and Development
<i>Abstract</i>	Obesity is one of the driven factors for non-communicable diseases around the world. Lack of physical activity and a lot of unhealthy food intake can lead to obesity. The utilization of technologies that facilitate fitness activities and control the food intakes as one of the methods to reduces the obesity rates. Thus, this study discussed the design and development of an Augmented Reality app that augmented the information of the food and drink that are popular among Malaysian. The app coined as Augmented Reality Information for Food (ARIF) has been successfully deployed to the App Store. The user satisfaction survey is done using an interview method to know the usefulness of the app and user satisfaction. The result shows that most of the respondents satisfied with the function of the app. Nevertheless, the result also shows that most of the respondent requested additional function and food information. It can be concluded that this app can augment food information but many more improvement can be added to the developed app.
<i>Keyword</i>	Augmented Reality, Food, Malaysian Food, Fitness, Application, Mobile

<i>Paper ID</i>	30
<i>Authors</i>	Abudhahir Buhari, Tadiwa Elisha Nyamasvisva, Fares Anwar Salem and Hafiza Ahmad
<i>Affiliation</i>	Infrastructure University Kuala Lumpur, Malaysia
<i>Title</i>	A hybrid mapping techniques to map undergraduate IT programs towards commercialisation outcomes: A conceptual framework on development of commercialisation oriented course curriculum (COCC).
<i>Abstract</i>	Malaysia has internationally recognised information technology intensive universities and colleges which generate considerable graduates. However, relatively few of these institutions' course curriculum seem to reach the market place. This may be attributable to poor awareness, understanding and exposure to the concepts of technology commercialisation and entrepreneurship, which lead to a weak culture of innovation. In this paper, we propose a conceptual framework to design and develop commercialisation oriented course curriculum. In this process, every individual course focus on technology commercialisation. The course curriculum developed on the basis on various aspect of commercialisation's ecosystem i.e. idea valuation, IP protection, the technology due diligence process, methods of market research and technology-based new venture creation. We a proposed few mapping techniques to map the course learning outcome to commercialisation based outcomes. Further, a short guideline is discussed on the development of assessment and evaluation methods. This proposed curriculum is to design and specify coherent, integrated, meaningful learning experiences, within the general structural and administrative bounds of a course that build towards the market oriented graduate qualities.
<i>Keyword</i>	course curriculum, commercialisation, IT courses

<i>Paper ID</i>	31
<i>Authors</i>	Fengfeng Du
<i>Affiliation</i>	East China Normal University, China
<i>Title</i>	Research on Gamification-based Collaborative Programming Process Design——Take the MINECRAFT Game as an Example
<i>Abstract</i>	In recent years, programming education has received more and more attention, and it has gradually become the content of learning in the information technology classrooms of primary and secondary schools. But the complexity of the programming language combined with the tedious programming itself makes programming a difficult skill for beginners. Game-based learning sees games as part of learning, making learning more interesting. This study takes the 3D game MINECRAFT as the research object, analyzes the game-based learning and gamification programming, and designs the learning process framework of gamification collaborative programming based on MINECRAFT environment. Based on this framework, Python programming is used as an example to design learning activities. And carry out empirical research to understand students' attitudes towards gamification collaborative programming and to test the feasibility and effectiveness of the framework designed by the Institute. The study found that the gamification collaborative programming activities under this framework have an impact on the basic programming skills of learners and the development of collaboration, creativity and design thinking.
	Game-based Design, Gamification Programming, MINECRAFT, Collaboration Ability, Creative Ability

<i>Paper ID</i>	32
<i>Authors</i>	Sarvana Prelatha
<i>Affiliation</i>	PTPM-META, Malaysia
<i>Title</i>	Artificial Intelligence in Education, Myths vs Reality
<i>Abstract</i>	The emergence of new technological advancement has made humans to become aware that they can change their lives through the use of machines in their everyday lives. They seek the help of machines to solve problems such as in medical procedures, in movie making, hologram and so forth. Teachers have also started to trust that machines can help to overcome challenges they are facing in classrooms and have since started using machines to help them in teaching and learning. In Japan, robots are used to teach English to young learners, learning English. Though the use of Artificial Intelligence is still limited in Malaysian classrooms, still many teachers believe that it can create a global classroom concept and ‘unbundling universities’ concept that can change the way how we teach and learn. Many educators believe that the use of Artificial Intelligence such as robots in classrooms and the use of robots in marking questions exam papers can reduce their burden. In China, robots are now being used to conduct lessons in classrooms and Finland is experimenting using robots in classrooms. Many countries have embarked on a journey to digitalise classrooms and robotise learning. This paper seeks to compare and contrast the practicality of using AI in education and at the same time looks at the reality of how AI could solve educators' challenges in classrooms in both young and adult learners.
	Artificial Intelligence, Education, Myths, Reality, Robot teachers

<i>Paper ID</i>	33
<i>Authors</i>	El Gamillo Habibun Tan
<i>Affiliation</i>	Bahagian Teknologi Pendidikan Negeri Terengganu, Malaysia
<i>Title</i>	Aplikasi Pendidikan: Trend Pendidikan Guru Masa Kini (Educational Applications: Current Teacher Education Trend)
<i>Abstract</i>	Aplikasi pendidikan yang terdapat dalam gajet mahupun telefon pintar kini sudah menjadi satu trend dan alat yang dapat membantu proses pembelajaran dan Pemudahcara (PdPc). Guru-guru kini sudah mula mempelajari dan menerokai pelbagai aplikasi yang terdapat di sistem operasi Android mahupun iOS. Sejar dengan pelaksanaan Pembelajaran Abad Ke21 telah menjadi satu isu yang hangat dalam dunia pendidikan kerana ia dilihat mampu memenuhi keperluan pendidikan pada masa kini, di samping membawa perubahan baru dalam dunia pendidikan. Guru-guru sudah mula mengorak langkah dan mencari inisiatif untuk memastikan proses PdPc dapat dijalankan dengan lebih menarik dan berkesan. Dengan penawaran pelbagai aplikasi secara percuma mahupun berbayar dalam sistem operasi Android atau iOS, aplikasi pendidikan seperti kahoot, quizziz, jamboard, google keep, Keynote, pages dan pelbagai aplikasi yang lain ini mempunyai kelebihan bukan sahaja memudahkan proses PdPc bahkan meningkatkan minat para pelajar untuk mempelajari sesuatu pelajaran. Di samping guru dan para pelajar mempunyai masa yang lebih fleksibel untuk penyampaian dan pemahaman sesuatu pelajaran. Natiyahnya, melalui dapatan ini diharapkan ia memberikan pendedahan kepada warga pendidik dan pelajar secara umumnya betapa bermanfaatnya aplikasi pendidikan ini jika digunakan dengan berkesan.
<i>Keyword</i>	Educational Application, 21st Century Learning, PdPc, Android, iOS

<i>Paper ID</i>	34
<i>Authors</i>	Nurullizam Jamiat and Nur Aadila Ahmad Razi
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Augmented Reality Research Trends in Early Childhood Education
<i>Abstract</i>	This paper reports the current trends and future studies that should be conducted on augmented reality (AR) in early childhood education. The main findings showed that most of the studies explored the use of AR for teaching children to identify alphabets and reading. It is proposed that AR should also be used to teach other subjects such as science and art. In addition, it was found that only one study conducted a mixed-method research design to explore children's attitude and ability to read after using AR book. To further enrich the understanding on the use of AR in early childhood education, it is recommended that more mixed-method studies should be conducted. It is important to note that since the target participants are children, the qualitative part of mixed-method research design will enable researchers to get a deeper understanding on the use of AR on children's well-being. Furthermore, it is suggested that future research should report the challenges on applying AR in early childhood education that could be the leading light of limited studies conducted in this level of education area.
<i>Keyword</i>	Augmented reality, Early childhood education, Research trends, Future research recommendation

<i>Paper ID</i>	35
<i>Authors</i>	Surapon Boonlue
<i>Affiliation</i>	KMUTT, Thailand
<i>Title</i>	The Development Of Creation Intervention's Ability Through Teaching And Learning Focusing On Innovative Thinking On Cloud Computing
<i>Abstract</i>	The ability to create new inventions is crucial to the employment in the 21st century. It is required because of its importance for building and developing the society in the next decade. the research aims to 1. Study the guidelines for developing teaching model focusing on developing students' ability in creating invention 2. Study the students' ability in creating invention 3. Study students' sanctification toward the learning. Research instruments consist of 1. Social network and media on cloud computing 2. Students' achievement evaluation form 3. students' sanctification evaluation form. the results found that 1. The teaching model consists of 5 components and 3 steps. 2. The students' ability in creating invention score was very high. 3. The students' sanctification level was high.
<i>Keyword</i>	innovative thinking, cloud computing, intervention's ability

<i>Paper ID</i>	36
<i>Authors</i>	Ismail Zain
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Education 4.0: A Need For Unpacking The Curriculum In Designing Instruction For Best Classroom Practices
<i>Abstract</i>	Education 4.0 is a school of thought that encourages non-traditional thinking. It responses to the 21st-century learning where knowledge and skills acquired, not just for certification purposes, but solutions to the future employability issues establishing a globally competitive learner in solving problems, making decisions and creating new ideas towards nation building. Teachers need to unpack the curriculum in designing their instruction in an innovative, systematic and professional manner with pedagogical approaches based upon "learner-centered approach", creating a much better learning experience, skills, and knowledge both in the classroom and online, while preserving one's cultural heritage that guides learners to be more decent, responsible, respectable, rational and intellectually smart individual. However, in instructional practices (i) Do we design our instructions following the learner's profiles and aspirations in fulfilling the different group abilities? (ii) Do we really design our instructions according to the needs of the current 21st-century learning? (iii) Does our planning provide learners information in preparing them for the IR4.0? Perhaps The Collaborative Instructional Design System presented as a concept paper with the aim of providing teachers a flexible instructional online planning tool could answer the above problem statements and as an option in fulfilling the above needs.
<i>Keyword</i>	Instructional Design, Collaborative Instructional Design System, An Integral ASIE ID Model

<i>Paper ID</i>	37
<i>Authors</i>	Reem Baragash
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Learning Delivery Modes Framework For Investigating Engagement In Blended Learning Environment
<i>Abstract</i>	In the blended learning environment, students engage in two or more of the three delivery modes, which are the face to face (F2F) learning, the LMS-based learning, the web-based learning (WBL) and through three different learning approaches, which are individual, collaborative, and instructor-led learning. Due to this complexity, there is a need for framework of learning delivery to investigate the influence of engagement in different blended learning modes, and to get the full picture of what is going on in providing learning experiences, which may evaluate the quality of e-learning programs. The purpose of this paper is to propose a framework based on typical course description in blended learning context and the model of online learning. This framework could be tested on universities that used blended learning method and investigates engagement in the three learning delivery modes, to question the quality of the learning from this approach in higher education. Using this framework, institutions could gain a fuller picture of their blended learning implementation to assess student's engagement and refine their strategies and advance their blended learning method.
<i>Keyword</i>	Blended learning, framework proposal, engagement, web-based learning, LMS-based learning, higher education

<i>Paper ID</i>	38
<i>Authors</i>	Jeya Amantha Kumar, Mageswaran Sanmugam, Li Min Ng, Yie Darren Lim, Elis Zulaikha Badrul Hisham, Siaw Kiong Ling, Jia Qi Yang and Khairulnisak Mohamad Zaini
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	The Design And Development Of “Hang Tuah : Laksamana Melaka” : A History Multimedia Application For Primary Students In Malaysia
<i>Abstract</i>	The aim of this study was to design and develop a multimedia application for a history topic depicting the story of the legendary “ Hang Tuah: Laksaman Melaka”. The application is aimed for primary school students and was developed based on multimedia and game-based principles that applied the concept of edutainment by integrating digital storytelling based on comic and interactivity concepts. The application was developed using Articulate Storyline 3 and was targeted as students aged 10 years old. We observed that through the application of digital storytelling, and innovative classroom assessment, the concept of blended learning may be successful for primary school.
<i>Keyword</i>	Digital storytelling, History education, Edutainment, Game-based Learning, Malaysia, Primary School

<i>Paper ID</i>	39
<i>Authors</i>	Rotimi-Williams Bello and Auwal Shehu Ali
<i>Affiliation</i>	University Science Malaysia, Malaysia; Bayero University, Kano, Nigeria
<i>Title</i>	Combining Traditional Face-to-Face Classroom Practices with Computer Mediated Activities for Meaningful Learning Experience
<i>Abstract</i>	Literacy is defined as the ability to read and write; and these reading and writing must come by learning, and learning, by teaching. But, for a meaningful teaching and learning to be experience, combining traditional face-to-face classroom practices with computer mediated activities is not debatable in that, such blended approach will go a long way in reducing the challenges mitigating the zeal towards teaching and learning. Today, there are various available instructional materials that are computer-aided for teaching and learning purposes, which in the past were made of poisonous materials that pose danger to the life of both the teachers and the learners. Apart from all these known facts; two good heads (synergizing traditional face-to-face classroom practices with computer mediated activities) are better than one (sum of their individual effects), so says an adage. In this paper, we set the following as the objectives: 1) to review some learning technologies that are related to blended learning technology; 2) to describe the blended learning models; and 3) to discuss both the advantages and the disadvantages of blended learning. The blended learning principle was mathematically interpreted.
<i>Keyword</i>	Computer literacy, Teaching and learning, Blended learning, Classroom, VLE

<i>Paper ID</i>	40
<i>Authors</i>	Mageswaran Sanmugam, Jeya Amantha Kumar, Fatini Mohd. Zamzuri, Nur Farah Izzati Abd Razak, Nur Izzati Sahidi, Nur Muzfirah Mazni, Nur Sarah Rosman and Khairulnisak Mohamad Zaini
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Design and Development of a Game-Based Approach into Learning Science Among Primary School Students in Malaysia
<i>Abstract</i>	This study was aimed to look at the design and development of a game-based approach in learning the subject of Science among Primary school students in Malaysia. Using elements from both game-based learning and digital game-based learning, a learning method was devised for learning a sub-topic; The Universe. The design incorporated QR-Technology as a supportive element in the learning activity as well as the incorporation of card-play and board game type activity in undertaking the learning tasks. The application was targeted for primary school students and was intended to supplement and strengthen the interest and understanding of students. The game play method also intends to expose self-directed learning triggered by the game-based approach. The design and development phase of the game-based learning in learning science, identified several steps in ensuring the using the game-based approach in learning the topic, will not only attract the interest of students in learning this subject but also trigger the fun elements in learning this subtopic thus creating a flow which encourages a self-directed learning among the primary school students.
<i>Keyword</i>	Game based learning, science education, edutainment, primary school education, QR Technology

<i>Paper ID</i>	42
<i>Authors</i>	Basuki Wibawa and Seipah Kardipah
<i>Affiliation</i>	Universitas Negeri Jakarta, STIE Muhammadiyah Jakarta, Indonesia
<i>Title</i>	Flipped-Blended Learning Model and Problem Based Learning Strategies to enhance Students' Computer Skills
<i>Abstract</i>	This quasi-experimental study aimed at looking into the effectiveness of PBL (problem-based learning) in Flipped-Blended learning environment for improving the performance in Computer Application Course of Bachelor of Economist first year students at Muhammadiyah School of Economic Jakarta, Indonesia. The respondents of this research were the two groups who was enrolled in Computer Application Course. There were 48 student respondents composed of 24 in the experimental group and 24 in the control group. Findings showed that there were significant differences in the Computer Application Course's performance in the post test of experimental and control groups, indicating an improvement due to the treatment of the instructional model. In addition, students were challenged and motivated by difficult tasks. This strategy also guides and frees up the time in the classroom. It's enhancing the efficiency and performance of the students.
<i>Keyword</i>	Flipped-Blended Learning, Problem Based Learning, Computer Skills, College Students

<i>Paper ID</i>	43
<i>Authors</i>	Siti Nazleen Abdul Rabu and Nor Shahida Badlishah
<i>Affiliation</i>	Universiti Sains Malaysia
<i>Title</i>	Levels Of Students' Reflective Thinking Skills In A Collaborative Learning Environment Using Google Docs
<i>Abstract</i>	The purpose of this study is to investigate the frequency and levels of reflective thinking skills occur in a collaborative learning environment utilizing Google Docs. As Google Docs are gaining popularity in aca-demia, this platform was used as a cloud-based notebook for the students' collaborative and interactive learning experience that involved a total of 25 students from the Bachelor's degree in Education who en-rolled in Digital Audio and Video Production course. This cloud-based online collaborative writing tool has been incorporated with summary writing and peer interaction activities in order to develop students' reflect-tive thinking skills. Students' reflective thinking were coded based on three levels of reflection namely low reflection (LR), medium reflection (MR) and high reflection by adapting the reflective thinking model of Boud et.al. (1985) adapted by Wong et.al. (1995). The findings revealed that the level of LR was identified as the dominant level of reflective thinking engaged among students followed by HR level. Content analysis of data suggests that students are more comfortable showing self-expression through behaviours compared to sharing their experiences and existing knowledge. This study indicated that although the patterns that emerged imply that the reflective thinking skills level among students is still low, most of the pre-service teachers did at least achieved higher frequency of high level of reflection compared to medium level of re-flection. Thus, the probability of students to frequently interact in low reflective thinking level has been proven able to encourage students to achieve a higher level of reflection.
<i>Keyword</i>	reflective thinking, Google Docs, collaborative learning environment, reflection, reflective writing

<i>Paper ID</i>	44
<i>Authors</i>	Yunea Kusuma Winanti, Hartati Muchtar and Robinson Situmorang
<i>Affiliation</i>	Universitas Negeri Jakarta, Indonesia
<i>Title</i>	The Development Of Interactive Multimedia Based Learning Model To Stimulate English Communication Skills Of The Kindergarten Students
<i>Abstract</i>	The role of English language is dominant that cannot be separated from the daily life. The aim of the research is to fulfill the needs of the young learners particularly the kindergarten students to be able to communicate well in English. As the language is not the mother tongue, non-native students tend to encompass difficulties learning and using the language. As a result, a new strategy has to be implemented in the learning process in a way how the language should be creatively taught. The research presents an interactive multimedia based learning model to stimulate English communication skills of the kindergarten students and to improve the existing instructional model so that it will be more effective, efficient, and fun. The researcher developed a set of instructional materials that was evaluated by experts, teachers and students. A total of 42 kindergarten students from The Islamic Kindergarten Bait Al Falah Pondok Ranji Ciputat Jakarta participated in this research. Using the interactive multimedia as a media platform and adopt the Creative-Play Curriculum Model to enhance the learning process under learning strategy that consists of six steps: 1) introduction, 2) group formation, 3) warming-up, 4) main activities, reinforcement and 6) feedback. Through paired t test showed sig. 0,004 < 0,05 that is t score 15.254 > t (0.05;2) score 6.965 meaning t-test 15.254 > t table = 6, 965 indicates that the significant difference on pre-test and post-test of the effectiveness of the interactive multimedia model. The results represented that not only the interactive model improve the kindergarten students English skills communication but also the students' performance and motivation towards learning the language.
<i>Keyword</i>	English, Interactive Multimedia, Learning Strategy, Creative-Play Curriculum Model

<i>Paper ID</i>	45
<i>Authors</i>	Anirut Satiman and Paripat Nusrikaew
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	The Development of Learning Activities by using Online Open Educational Resources in Science Subject to Enhance Information Literacy, Collaborative Learning and Science Project of Secondary School Grade 9 Students
<i>Abstract</i>	The purposes of this research were 1) to design and develop of learning activities by using online open educational resources (OER) in science subject website for secondary school grade 9 student. 2) to study students collaborative learning by using online open educational resources (OER) in science subject. 3) to study students information literacy by using online open educational resources (OER) in science subject. 4) to study science project work of students by using online open educational re-sources (OER) in science subject. The simple use in this study was 78 secondary school grade 9 students at The Demonstration school of Silapakorn University by simple random sampling. The instruments used in study wear 1) structured interview form 2) learning activities and Lesson plan 3) online open educational resources (OER) website 4) evaluation form of students collaborative learning 5) evaluation form of students information literacy 6) evaluation form of student science project. The statistics used in the study wear percentage, average score and standard deviation. The results of this research wear as follows 1) The design and develop online open educational resources in science subject website for secondary school grade 9 student was evaluated and approved by 6 experts has a quality at the level of "high". 2) The students collaborative learning who studied through online open educational resources in science subject website was at the level of "good". 3) The students information literacy who studied through online open educational resources in science subject website was at the level of "good". 4) The students science project work who studied through online open educational resources in science subject website was at the level of "very good".
<i>Keyword</i>	pen educational resources, online OER, information literacy, science project work

<i>Paper ID</i>	46
<i>Authors</i>	Abdul Hadi Mat Dawi, Yahya Osman, Zulkufli Mahayuddin and Zain Hazmi Zain Baharin
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Cloud-Based Tools And Applications In Enhancing Deep Learning Progression Among Pre-Service Teachers
<i>Abstract</i>	This study was conducted to identify the cloud-based tools and applications in enhancing deep learning progression among pre-service teachers of Teacher Education Institute (Institut Pendidikan Guru, IPG). The study employed mixed method research design, namely a sequence of explanatory design. A total of 22 IPG Ipoh pre-service teachers were involved in this study. The research instruments were the questionnaire and the semi-structured interview protocol. Descriptive statistics analysis and interview transcript coding were used to analyse the data. The findings showed high score of engagement in the learning (Min = 5.72, SD = 0.72), moderate score of enhancement of the learning goals (Min = 4.14, SD = 2.21), and low score of extension of the learning goals (Min = 1.65, SD = 1.86). The data obtained from interviews showed that the pre-service teachers with high score (green light level) in all three components of the Triple E Framework had potential to achieve the developing and accelerating level in leveraging digital dimension of deep learning progression rubric. The results revealed that the leveraging cloud-based tools and applications must always meet all the three components of the Triple E Framework in order to achieve deep learning
<i>Keyword</i>	Deep Learning, Cloud-based tools, Leveraging Digital, Tools and applications, Triple E Framework

<i>Paper ID</i>	47
<i>Authors</i>	Anishametra Saravanan Saravanan, Wardatul Hayat Adnan and Chan Choi Sim
<i>Affiliation</i>	UCSI University, Malaysia
<i>Title</i>	Celebrity Cosmetic Brand Content Analysis of Social Media Engagement: Consumer Perspectives
<i>Abstract</i>	The cosmetic industry has seen a volatile growth for the past few years. The growth of the industry is attributed to the rising aging population. Although many beauty multinationals are leading the forefront of the global cosmetics industry, the beauty standards by them set are usually Eurocentric in nature. Consumers are now The present study aims to gain a greater understanding on consumer perspectives the brand's social media engagement efforts with their followers on Instagram and Twitter as well as how the concept of social identity theory is applicable to Fenty Beauty's followers. The brand was able to reach out to their market and target audience by means of social media. Fenty Beauty obtains excessive organic reach complete product reviews posted by beauty influencers and fans of the brand. Despite being in its infancy stage, the brand has made plenty of ripples to change the industry for the better through its inclusivity approach. Qualitative content analysis was applied in the present study gain a better understanding of Fenty Beauty's social media engagement efforts with their followers. The research design implemented is adapted of Bales' Interaction Process Analysis (IPA) Model will be conducted to study how followers of the brand react to social media posts made by Fenty Beauty. Findings of the present study will be useful to cosmetic industry as it will proof the potential of social media as a powerful marketing tool.
<i>Keyword</i>	Celebrity cosmetic brand, Content analysis, Interaction Process Analysis (IPA) Model, Fenty Beauty, Social media engagement

<i>Paper ID</i>	48
<i>Authors</i>	Mona Masood and James Ussher
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Learning & Cognitive Style Flexing Instructional Framework
<i>Abstract</i>	Quality production of e-learning instructional delivery is the main goal in educational research. One of the core factors for the success of e-learning is attributed to learning and cognitive styles theories. While cognitive styles “The way individuals process information in learning situations” appear to be relatively fixed characteristics of individual Learners, learning style “The way individuals perceive information in learning situations” has been proving to be malleable. Learning style has become indispensable because, every individual has his or her own learning style, all learning styles have their strengths and weaknesses. Works under Learning and Cognitive Style Flexing Strategies (LCSFS) are relatively limited and have been overshadowed by the tailoring of learning, in a learner’s personal learning style. It is possible for learners to develop learning strategies (like Kirton’s ‘coping behaviours’) to enable them to make the most efficient use of their strengths and limitations of a particular learning and cognitive style. Felder and Brent (2005) observed other manipulative way of learning style information based on student’s awareness of exactly how they learn to exploit learning opportunities by applying strategies that produces qualitative learning outcome with their learning style. However, Kirton’s ‘coping behaviours’ approach, while been used in e-learning, is not strong on empirical evidence of its psychometric validity or effectiveness in improving Style flexing. Attention is drawn to his approach in this work, but an alternative, based on LCFS is proposed in this work, focusing strictly on strengthen of weaker learning style or cognitive style.
<i>Keyword</i>	Learning Style Model (LSM), Continuum Theory, Learning style Flexing (LSF), Translation Strategy (TS), Adoption Strategy (AS)

<i>Paper ID</i>	49
<i>Authors</i>	Muhammad Lulu Latif Usman, Fifing, Asep Adang Supriyadi and Rudy Agus Gumilang Gulthom
<i>Affiliation</i>	Indonesia Defense University, Indonesia
<i>Title</i>	Data Collection Application To Assist In Disaster Mitigation
<i>Abstract</i>	Information in disaster mitigation is one of the problems in disaster mitigation where technology becomes a means of information in disaster management. From the background of the problem, the need for an application as a means for various information in disaster mitigation can be a solution to assist disaster mitigation in Indonesia. The ability of this application can share information regarding the number of victims, logistics, and disaster relief funds. Information sharing can be done online or locally from the post to another refugee camp. The Reseach methods use the Software Development Life Cycles or SDLC system with the Waterfall Model. Waterfall Model has 4 phase following Requirement Analysis, System Analysis, Implementation, Verification, Maintenance. From the research, the victim data collection application can then help to collect data at the disaster site on a regular basis and can replace the previous conventional methods so that it can facilitate the disaster management agency (BNPB) in carrying out information to the community.
<i>Keyword</i>	Information, Disaster, Application

<i>Paper ID</i>	50
<i>Authors</i>	Irfan Naufal Umar and Mohd Hafiz Kamilin
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Learner characteristics, types of interaction and satisfaction in a Learning Management System environment
<i>Abstract</i>	This study aims to investigate learner characteristics, types of interaction and students' satisfaction level in using Learning Management System (LMS). It also attempts to identify which of these learner characteristics (self-directed learning, Internet self-efficacy, social presence, Internet anxiety, technological skills and personal innovativeness) and types of learner interaction (learner-learner, learner-instructor, and learner-content) are significant predictors of LMS satisfaction. A total of 322 students from a Malaysian pre-university college participated in this study. Data was collected using a questionnaire adapted from several previous studies. The finding indicates a high level of overall LMS satisfaction. The finding also uncovers significant, moderate and positive relationship between learner characteristics and LMS satisfaction as well as between types of interaction and satisfaction. In addition, while all three types of interactions were reported as significant predictors of LMS satisfaction, only three of the six learner characteristics (self-directed learning, Internet self-efficacy and social presence) were identified as the predictors. Self-directed learning and learner-content interaction were also found to be the two most important predictors of LMS satisfaction. Therefore, it is strongly recommended that any higher learning institutions to consider these factors in supporting the effective use of LMS.
<i>Keyword</i>	Learning Management System, Learner characteristics, online interaction, LMS satisfaction

<i>Paper ID</i>	51
<i>Authors</i>	Wan Ahmad Jaafar Wan Yahaya
<i>Affiliation</i>	Universiti Sains Malaysia, Malaysia
<i>Title</i>	Digital Persuader@PMLE (3-Dimensional) As Extended Of An Innovation Tool In Reducing Of Children Dental Anxiety
<i>Abstract</i>	The main persistence of this paper is to highlight an extended of an innovation that would benefit children in reducing dental anxiety. The Digital persuader@PMLE, namely as a Persuasive Multimedia Learning Environment is a multimedia edutainment courseware in the format of 3-Dimensional computer-animated graphic (DVD-based). It caters children dental anxiety by persuading and motivating the children to gain confidence in attending dental check-up. It is an application from a persuasive technology whereby the computer is used to change what people think, feel and do in a better way. Design strategies of this innovation are combining persuasive, visual realism and multimedia design strategies. A series of interviews been conducted as an evaluation method in assessing the effectiveness of the digital persuader@PMLE (3-dimensional) among the children who have feelings on dental anxiety. Results of the study showed that the interviews session had achieved positive effects on the reduction of children dental anxiety. It evidenced that the children have the interest to explore the 3-dimensional computer-animated graphic in the DVD-based.
<i>Keyword</i>	Digital Persuader, 3-dimensional, anxiety, multimedia design, persuasive technology

<i>Paper ID</i>	52
<i>Authors</i>	Nurul A'Syiqin Haris, Helmi Norman and Mohd Jasmy Abd Rahman
<i>Affiliation</i>	Ministry of Education Malaysia, Universiti Kebangsaan Malaysia, Malaysia
<i>Title</i>	Penerimaan Dan Kesiediaan Guru Terhadap Pengintegrasian Teknologi Digital Revolusi Industri 4.0
<i>Abstract</i>	The Industrial Revolution 4.0 (4.0 IR) has transformed the landscape of innovation in education. This study was conducted to identify the level of readiness and acceptance of teachers towards integrating digital technology of 4.0 IR in secondary education. This study is important because 4.0 IR needs a highly knowledgeable generation and able to face more complex and resilient new technological challenge not only as a technology user but to spark technology in parallel with Student Aspiration and Shift 7 in the Malaysia Education Blueprint 2013-2025 and also support 21st Century Learning. The study was a survey using a questionnaire as an instrument consisting of three parts. The sample consists of 81 secondary school teachers in Kuala Lumpur, Selangor and Negeri Sembilan. The sample was using a simple random. The findings were analysed using descriptive statistical analysis which involved mean score, standard deviation and percentages to see the readiness and acceptance of teachers in the integration of digital technology of 4.0 IR while inferential statistics involved the Mann-Whitney U test and Boxplot graph at significant level of $p < 0.05$ using the SPSS version 21. The findings show that the level of readiness and acceptance of teachers towards integrating digital technology of 4.0 IR in secondary education is at a moderate level and the findings show that there is no significant difference in the level of readiness of teachers as well as teacher acceptance towards the integration of digital technology of RI 4.0 in secondary education with school category. The implication of this study is to help stakeholders take the appropriate steps to help teachers in Malaysia to face the rapidly change of 4.0 IR digital technology.
<i>Keyword</i>	Industrial Revolution 4.0 (4IR), Secondary Education, teacher readiness, teacher acceptance

<i>Paper ID</i>	53
<i>Authors</i>	Mohd Hairil Fitri Jaafar
<i>Affiliation</i>	Bahagian Teknologi Pendidikan Negeri Johor
<i>Title</i>	e-RPH 4.0 - Dimensi Baru Penulisan Rancangan Pengajaran Harian
<i>Abstract</i>	Rancangan Pengajaran Harian ialah penulisan wajib bagi setiap guru sebelum sesi Pembelajaran dan Pemudahcaraan (PdPc) meliputi rangka pengajaran yang akan dilaksanakan dan sasaran pencapaian yang dijangkakan. Kaedah semasa penulisan RPH semasa ialah secara manual, iaitu guru-guru mencatatkan rancangan mereka di dalam buku Rancangan Pengajaran Harian sebelum setiap sesi PdPc dimulakan dan akan disemak juga secara manual oleh pentadbir sekolah pada hari akhir persekolahan setiap minggu. Seiring dengan perkembangan teknologi dan Revolusi Industri 4.0, terdapat keperluan untuk memindahkan kaedah manual ini kepada elektronik agar masa dan fokus guru dapat diuruskan dengan lebih efisien. Istilah e-RPH merujuk kepada kaedah penulisan RPH yang dihasilkan dengan menggunakan medium atau pelantar elektronik. Akses kepada e-RPH memerlukan komputer atau peranti yang bersesuaian.
<i>Keyword</i>	eRPH, Rancangan Pengajaran Harian Elektronik, AutoCrat, Aplikasi, e-RPH Generator

