

**INDUSTRIAL TALK 2 – NALI SYMPOSIUM**

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# INTRODUCTION

An industrial visit report had made for the public conference of the industrial talk in NALI Symposium. The aims and objectives of the report are to do a reflection after known their study works on the new technology and invention in learning and teaching in NALI. The information are obtain from exhibitors and the public talk and the new technology and invention in learning and teaching are be discussed. Six booths had been visited and the exhibitors are interviewed to get information of the exhibition contents. Six booths visited which is:

Booth 51 about community-based learning outcomes of the program KEMBOJA 2.0,

Booth 52 about Google application online classroom leadership, management and research,

Booth 53 about adapting gamification approach in MOOC to improve user engagement

Booth 54 about the goReason, an online collaborative learning system for reasoning skills

Booth 55 enhancing construction technology courses using mobile augmented reality

Booth 56 about the innovation-based learning conceptual model

The trend in NALI had been note and our reflection to the task had been made. Some methods had been used such as asking question to the exhibitors to find out more about innovation and invention in NALI to support our reflection in this report.

## Background of New Academia Learning Innovation (NALI) 2018

New Academia Learning Innovation Model is a framework comprising student-centred and blended learning philosophy, multiple learning modes and materials towards achieving entrepreneurial academia. In comparison to traditional teaching such as face to face learning, the concept of blended learning is emphasized in this model. Blended learning is a combination of active and systematic strategy with the use of digital teaching materials in class. This encourages better and more meaningful learning experience. Entrepreneurial Academia is the outcome of New Academia Learning Innovation Model which has 2 modes namely **learning mode** and **learning materials.** Learning mode are refer to the pedagogy and andragogy such as case study teaching, problem-based learning, scenario-based learning, peer instruction. Whilelearning materials are refer to the digital resources such as UTM open courseware (OCW), UTM MOOC, UTM e-Learning and STEMazing UTM

There are 4 objectives of NALI is established. First objective is to align UTM teaching and learning models, activities, materials, environments and systems with Malaysian National Higher Education Strategic Plan, needs of employers and requirements of accreditation bodies. Second objective is to emulate best teaching and learning practices from the World’s best universities. Third objective is to develop UTM own identity related to teaching and learning models, activities, materials, environments and systems. The last objective is to create meaningful and interactive learning activities, materials, environments and systems appropriate to UTM Graduate Student Attributes. The NALI plan is in the line with the National Higher Education Strategic Plan (PSPTN). It is now reached to the Phase 2, which is phase of enhancement and empowerment. At this phase, NALI are focusing on improving the quality of teaching and learning with the implementation of Student-centred teaching methods.

## Trend of NALI 2018

New Academia Learning Innovation (NALI) 2018 is a celebration for innovative teaching and learning practices. It was held at Dewan Sultan Iskandar, UTM Johor Bahru at 25th and 26th September 2018. The program of the days included the exhibition and competition, symposium, colloquium, talk and the workshop. There are also the Stem-Mate Competition and STEMazing Race & Run held on that days. The exhibition are opened at 8.30 am at the first day of the NALI 2018. There are a keynote session by Prof. Dr. Mushtak Al-Atabi, CEO and Provost of Heriot-Watt University Malaysia at 11am on that day. He was giving the talk with title Education 4.0: A New Paradigm of Innovation. Another talk was given at 11.40 am about Uberizing Quality Education by Prof. Ir. Dr. Zainuddin Abdul Manan. The speech also given by guest of honour, Datin Paduka Ir. Dr. Siti Hamisah Tapsir, Director General for Higher Education, Ministry of Education Malaysia. The exhibition on the first day are end at 5pm.Then, the exhibition are continues at 8.30am of the next day. The talk A Future Ready Curriculum Framework For Academic Programme Transformation was given by Prof. Dr. Rose Alinda Alias from Azman Hashim International Business School. Another talk was given by Anssi Ikonen from Metropolia University of Applied Sciences, Finland about 21st Century Teaching and Learning.At 10.20am, two parallel workshop were conducted, one is carry by Assoc. Prof. Dr. Wan Zuhainis Saad, director of Academic Development Management Division (BPPA), Ministry of Education Malaysia about Immersive Learning Through Cybergogy, another is carry by Assoc. Prof. Dr. Kumar Laxman from Faculty of Education in University of Auckland about Transforming Learners in the Digital Era: Mobile Learning as a Pedagogical Tool in the Educational Eco-System. Finally at 5pm of the 26th September, the NALI 2018 was end.

# CONTENTS OF THE EXHIBITION

## Community-Based Learning Through The Cambodian Community Sustainable Tourism Project 2.0

The Cambodian Community Sustainable Tourism Project 2.0 is a Sustainable Development Program with Cambodian Village Community based on Design involving students from Universiti Teknologi Malaysia with academics through this Service Learning program. The program involved 4 humanitarian projects for community development. The object of the program is to develop a sustainable cultural village that takes into account local issues and issues. Additionally, this project was developed to identify the local needs and thus develop a conducive sustainable community life and become a model of the development of other villages in Cambodia. Subsequently, the program undertakes comprehensive development activities of development activities covering the aspects of infrastructure development and the environment, education, economy and health. The findings of student reflection on programs conducted with the community are acquired through small group interviews in various aspects. In the context of teaching relationships, it is more conceptually clear to practical, unexpected experiences and requires logical action and creative thinking beyond the actual issue or context. In community integration, sharing of knowledge from expert and community expertise is indispensable and the need for mutual discussions and consensus on project implementation. In community participation, it can work together with the community and their openness in the acceptance of new and interconnected things and familiarity in carrying out new things together. In the community's action, the need to share knowledge according to the needs of the community, the transfer of knowledge and cultural change in the learning of new knowledge.The idea design for the implementation of the Cambodian 2.0 Travel Sustainable Tourism Project through UTM student Servus learning is based on Community-Based Learning strategies that refer to the various teaching methods and programs used by educators to link what is learned in the classroom to the surrounding community real. Generally, Community Based Learning is a teaching practice that combines student volunteering, experiential learning and curriculum for academic credits. Community-based learning is also driven by the belief that all communities have an intrinsic asset and educational resources that educators can use to enhance the learning experience for students.

## Google App: Online Classroom

21st Century Learning is a shift from the traditional teacher-centered mechanism into a modern student-centered approach. A learning environment must be designed in such a way that it addresses the individual needs, interests and challenges of learners in the 21st century. As the modern nowadays became more advanced and until now, the technology became more sophisticated, the way of thinking for the new generation nowadays also become more advanced and try to do something new that never tried before by other people. It is important to bridge the gap between those faculties who see themselves as “digital natives” and the student who are “digital techies”.

The objectives for this program is to explore and describe the first-hand experiences of learners engaged in the integration of online classroom in a trial-run for leadership, Management and Research concepts. Besides that, the other objectives is to postulate an innovation which is personalized, creative and collaborative student-centered model in learning. The themes for this program is Something new, Stressful yet convenient, stimulates learning, setbacks and stepping stone to greatness.

The conclusion is full engagement of students in the use of online classroom demonstrated a meaningful learning and thus created an impact to the student’s lifelong learning experiences beyond the classroom. Such innovative model paves the way of students to their journey in education, empowerment and transformation triad as they are gearing towards the 21st century challenges in education. It is recommended that teachers shall shift from traditional to innovative model, students must gear up and engage for greatness while exploring talents, skills and values and to survive in the 21st century and higher education institutions shall recognize the need to invest in transforming learning environment with technological tools towards a digital era.

## Adapting Gamification Approach In Massive Open Online Courses To Improve User Engagement

A massive open online course (MOOC) is an online course aimed at unlimited participation and open access via the web. It is making up for the lack of the traditional education since giving the flexibility for student to get their high level education by listen to the speeches and learn to the courses that had posted to MOOC. However, it though that the courses offered are not engaging to force the student to stay with their courses. To solve this problem, there are several initiative such as synchronous chat and enabling method. The gamification of online learning is another research that trying to increase the engagement of students to the online learning courses. Gamification is the application of game-design elements and game principles in non-game contexts, in this case game design elements will be applied into the online courses to improve the effective of learning in MOOC. The ways gamification applied in MOOC are by achievers and schedule reward. To test whether the implementation improve student engagement towards the course the research are started by finalized the objectives, aim, and scope, identified the problems with student engagement in online learning. The information of related previous work done was be collected. Then the research progress to the development phase which the gamification elements were selected and implemented in the Web Programming course. The gamification elements selected for the course were **onboarding phase**, **rewards**, and **leaderboard**. The onboarding phase was to help students during their first time in signing up the course, knowing and understanding the course interfaces and what do they need to do to earn badges and certificate. For the reward, there were two different rewards given in course. The first reward was the badges and the second reward was KFC vouchers. The badges were given through the kudos earned or through the completion of selected activities. The vouchers were given to selected students which were able to complete hundred percent completion rate. The final phase was the **evaluation phase**. Data were gathered through the analytics results provided by OpenLearning – one of the MOOC platform that was used to deploy Web Programming course. The data gathered were used to analyse through three different measurement to determine whether the gamification elements improve 3 student engagement.From the results, the engagement student in OpenLearning platform and the completion rate of students were seen to be increased after applied gamification elements in the online learning courses. Hence, this research yield a conclusion that adapting gamification help in improving student engagement towards the course based on higher completion rate made by the group of students with gamification elements.

## goReason: An Online Collaborative System For Reasoning Skills

GoReason online collaborative is a computer-based learning environment which was developed for a specific purpose of improving students’ reasoning skill with a set of peer scaffolding guidelines within a collaborative learning environment. GoReason offers web 2.- features for students to collaborate among their group members and gives opportunity to students to justify and elaborate their ideas with the assistance of scaffolding by peers that has been embedded to the discussion forum page. This special feature can inculcate the students-centered learning environment since peers and web-based system plays important role through the learning process compared to teachers. GoReason also has other interesting features including group assignment, collaborative report, multimedia content and assessment. The objective of goReason is to enhance students’ reasoning skills through online collaborative learning environment with the aid of scaffolding. The originality or novelty from goReason are collaborative report where is collaborative writing can be carried out through the goReason system. Next, is group assignment, goReason system will assign students to group based on their individual learning performance. Other than that, is peer guidance which is goReason will provide automated guidance to the role student play in the group. Besides that, system review, which that goReason allows teachers to directly assess students’ collaborative work. In addition, goReason have integrated peer scaffolding in web-based learning.

## Innovation-Based Learning (IBL) Conceptual Model

This research of Innovation-Based Learning (IBL) conceptual model explain the development of IBL conceptual model and how it accommodates in teaching and learning practical-based to produce innovative products and report result of the IBL application from the experience of 30 final year students who enrolled the course.

Objectives of this project is to develop the IBL conceptual model and report result of the implementation of IBL conceptual model from the experience of 30 final year students who enrolled the Food Technology course. The IBL conceptual are divided into four phases: preparation, delivery, outputs/outcomes and reflection. The **preparation phase** is conducted before the course commences. Two aspects to be prepared are knowledge for technical content of the course, pedagogical aspect of student-centred learning and knowledge about innovation process. This followed by preparing teaching materials. The **delivery phase** consists of seven stages of teaching and learning activities which are introduction to the course, problem identification, assessment and product commercialization. The **outputs** of the IBL are in a form of innovated food product, IP certificates product commercialization, certificate of preparation in innovation exhibition and award for innovation competition. The outcomes of overall learning process adapting the IBL teaching strategy are in-depth understanding of the course technical content and generic skills. The **reflection phase** is the phase where students reflect their one semester experiential learning of the course, give suggestion for CQI of the course and make peer assessment for learn work skills. As the innovative, the IBL conceptual model combines the approach of problem-based learning, project-based learning, project-oriented problem-based learning, and R&D. Besides that, the model has been applied for more than eight years in teaching undergraduate course (Food Technology and Invention and Fashion Design) for Bachelor Degree of Technology with Education (Living Skill). It is giving the impact to the teaching strategy that forced students to apply their prior knowledge, life experience and knowledge and skill of subjects offer the students with in-depth understanding of technical content knowledge and improve their generic skills like communication skills, creative thinking and problem solving, team working skills, entrepreneurship skill, time management skills to produce the innovative products. IBL conceptual model can be used to conduct training that having similar intention which are innovation and commercialization. Innovative food products that produced through IBL strategy can be commercialized after further R&D. Some example of products they had made were including the dried cendol, the grass jelly powder, cordial drink of asam gelugur, and the dragon fruit powder. These product had their benefit in the storability, convenience, and some of them have their medical value in health of eating habit.

## Enhancing Construction Technology Course Using Augmented Reality

Nowadays, the number of students pursuing science, technology, engineering and mathematics (STEM) related courses in higher education has greatly decreased in Malaysia. There are studies that had concluded that the decline is due to lack of motivation and the outdated method of engagement in the learning process. Furthermore, the difficulty to visualize and understand complex processes in STEM subjects are the main reason for the decreasing trend. To overcome this problem, proper execution and the incorporation of technology can enhance student’s quality of learning and suggested by previous researchers. Therefore, augmented reality (AR) was proposed to enhance the teaching and learning experience of construction technology which involves in the learning of construction processes and understanding the construction elements. The possibility to overlay media onto the real world for content consumption using smartphones and tablets devices will enable students to access information at anywhere and anytime. Hence, the main goal of this study is to execute and assess augmented reality-based teaching and learning tool higher education students in order to coin out whether augmented reality could enhance student’s quality of learning. AR can be defined as overlays artificial or virtual effects onto the real world using the computer generated graphics or 3D models.

### Discussion

|  |  |  |
| --- | --- | --- |
| Pre-test & Post-Test Results | Number of Students | Percentage (%) |
| Increase | 28 | 68.29 |
| Unchanged | 12 | 29.27 |
| Decrease | 1 | 2.44 |

Based on the results of the second phase, it shows that students could understand and visualise more with the help of 3D models projected by AR application. This confirms that AR images enhance the students understanding of the foundation and construction process. The results suggest that AR technology could enhance the understanding of construction technology course for quantity surveying students. Although it is difficult to visualise the construction process and the structure of the foundation, the students can illustrate and visualise it using AR technology. Moreover, with the implementation of AR in the syllabus, students who do not have the extensive field experience can understand and interpret the construction process and components of the construction elements. Even though site visits at construction sites could promote the students understanding, it is hard to conduct site visits that are tailored to the course outline.

# SUMMARY

Program NALI 2018 was held Dewan Sultan Iskandar UTM at 25th and 26th September 2018 and exhibition and talk had been conducted on the program. This report aims to do a review the study of the project of the exhibition by the participants on the new technology and invention in learning and teaching and gives the own reflection to the contents of the exhibition. It was observed that the research in the exhibition is constructive and very useful and we had learn something from their research.

## Reflection

From the exhibition of NALI 2018, we had learn the uses of ICT and digital technology in our education. The researches of online classroom, goReason and MOOC try to use internet as a platform for education. Using of internet as the platform of education had the advantage of lower down the barrier of student to get their higher education. The times and places will no longer be the resistance of student to study. It may also help to solved the problem of educational inequality in global and give all people the chance to study their subject with internet. Besides, digital technology such as AR was also a good tool for teachers to make students more understanding to the teachers’ teaching. Secondly, we had realised that innovation is possible to do. IBL try to make students learn through innovation. Students try to use their knowledge to make their own products. They inspired by combine the modern food industry technology and the local food culture to produce products such as powder or jelly made by our local fruits. The powder type products are good for storage. The raw materials are local and easy to obtain and these products have their market value that can compete to other. Finally, inspired by the project Lestari Komuniti Kemboja 2.0, we had realised that we should not forgot to feedback our social at the same time of study. Even they are only students they still try to do their best to work for improve the life of the rural residents. Study is not just to learn knowledge but also to build up ourselves in aspect of spiritual and to construct our society and country.

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