



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

ASSIGNMENT 1: REPORT ON VISIT TO NALI 2023
TECHNOLOGY AND INFORMATION SYSTEM SECP1513-06
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Reflections on NALI 2023 Visit by Intan Serina binti Anuar Mus (A23CS0085)

NALI 2023 or New Academia Learning Innovation 2023 was held at Dewan Sultan Iskandar located in UTM Johor Bahru from 6 to 8 November 2023. The first NALI was organized in 2018. NALI is known as an annual symposium organized by Universiti Teknologi Malaysia (UTM) through the Center for Advancement in Digital and Flexible Learning (UTM CDex). NALI also is a framework to promote innovative teaching and learning practices in the education field. It comprises a student-centered and blended learning philosophy, various learning modes and materials to be used towards achieving a whole new level of educational academia in the entrepreneur aspect.

During my recent NALI visit, I got to see a lot of booths that shared various kinds of knowledge in multiple fields which are education, business, innovation, science, robotics and much more. Most of the students visited these booths and the presenter explained and shared their booths' specialties and other pieces of information in detail. In my opinion, it is fascinating to know the thoughts and behind processes of how they prepared their booths, and how their creations can give benefits to the students as well as the teaching side.

The booth that I chose during my NALI visit was titled The Development Of E-Bike Tracking System for Bike Sharing in Promoting Transport Resilience. As a growing global concern, air pollution has been caused by the widespread use of motorbikes and cars, as well as smoke from open burning and industrial factories. In Malaysia, this problem has been particularly pressing since decades ago. However, sustainability organizations like Universiti Teknologi Malaysia (UTM) Sustainability have been taking a significant step to help overcome this problem. The introduction of E-Bike is a solution to achieving a green, sustainable and pollution-free mode of transportation. UTM also has been providing other alternatives and ways such as car-free days and actively encourages the use of E-Bikes within the community of the campus. Other than providing an efficient way of transporting from one place to another, E-Bike is also a proactive way to combat air pollution and help contribute to achieving a greener campus environment.

Nonetheless, there has been a problem that UTM Sustainability faced in handling the E-Bikes, which is the trouble of tracking the location of these vehicles after they are used by the users. This results in difficulties for the UTM community members to know the exact location they need to go in able to use the E-Bike.

An innovation has been introduced to overcome the problem, which is assembling a location tracking system in each of the E-Bike. The location tracking system has an embedded positioning system consisting of a GPS receiver, GPS modem and microcontroller. The GPS satellites help to send real-time latitude and longitude data to the GPS data receiver which then the information will be processed by the microcontroller and be sent to the GPS modem. This GPS modem will update the location of the E-Bike to the end users' application maps.

As a result, the android application of the E-Bike Tracking System allows the UTM E-Bike management staff to manage the rental system efficiently and allows the UTM community members to locate the E-Bike stations around the campus and the availability of the vehicles in each station for they to use.

Additionally, the UTM sustainability organization is also aiming to upgrade and improve the system by adding the capabilities to detect and send an alert if the E-Bike vehicles go outside the allowed range areas. Nonetheless, this E-Bike system can promote a more sustainable, free-pollution and healthy lifestyle.


These kinds of programs definitely help the students, because they share new and detailed knowledge with us, as it can also be practiced in our daily lives. There are a few other booths that I visited that explained about topics related to how augmented reality (AR) can be used in class, to give students a whole new experience of learning. Other than that, some other booths shared how applications like KAHOOT! and Quizizz can be used to create quizzes, as well as make your own studying materials like flashcards and interact with other students around the world. These activities do impact the outcomes of the course and subjects because now students know other fun ways to learn and study instead of using conventional and boring ways.

I feel like my recent visit to NALI 2023 helped me to learn something impactful and learn new things for my course materials that I never knew before, because of the detailed

explanations from the presenters. All of the presenters were approachable and very enthusiastic in explaining and answering my questions about their booths. The activities do give sparks to the students because of the well-structured and colorful posters, which made it easy for us to learn about the new things that are relevant to our lives.

In conclusion, the NALI 2023 program is able to open my eyes to a whole new experiences and knowledge, which is there are E-Bike system provided in the UTM campus that students can use to go to the place they desire easier and at the same time contributing to a greener environment and preventing the worsening of air-pollution.

POSTER OF THE BOOTH



UTM NALI 2023
NEW ACADEMIA LEARNING INNOVATION 2023

RESILIENCE EDUCATION FOR FUTURE-ORIENTED QUALITY GRADUATE

The Development of E-Bike Tracking System for Bike Sharing in Promoting Transport Resilience

Authors: Raja Zahilah, Omar Alshobaki, Nur Haliza Abdul Wahab, Farkhana Muchtar, Piraveen Ashwinath, Rasydan Said

INTRODUCTION



Air pollution is a growing global concern, exacerbated by the widespread use of polluting transportation modes such as cars and motorbikes. In Malaysia, this issue is particularly pressing (Wang et al., 2015). However, organizations like Universiti Teknologi Malaysia (UTM) Sustainability are taking significant steps to address it. A standout solution is the introduction of E-Bikes, a green and sustainable mode of transportation. UTM promotes sustainability through initiatives like car-free days and actively encourages the use of E-Bikes within the campus community. These E-Bikes offer not only convenient transportation but also a proactive way for the UTM community to combat air pollution and contribute to a greener campus environment.

PROBLEM STATEMENT

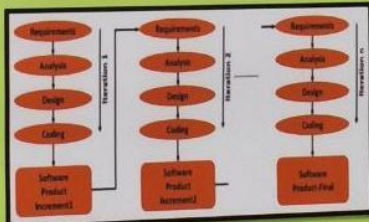
UTM staffs responsible in handling the E-bikes are facing difficulties in tracking the location of these E-Bikes after it is used by the users.

OBJECTIVE

Create an E-bike Tracking System that uses a combination of Internet of Things (IoT), Global Positioning System (GPS), and Global System for Mobile Communication (GSM) technologies to track the E-bike location in real-time.

METHODOLOGY



HARDWARE

- Computer
- Android Smart Phone
- Linkit One
- Battery Polymer Li-Ion

SOFTWARE

- Operating System (OS)
- PubNub Publish/Subscribe API
- Android Development Tool Kit
- Google Maps API
- Arduino IDE
- MySQL

INNOVATION

- The location tracking system has an embedded positioning system consisting of GPS receiver, GSM modem and microcontroller
- GPS satellites send real-time latitude and longitude data to the GPS receiver. Then, the microcontroller processes this information and sends it to the GSM modem.
- The GSM modem will update the end users' application maps.

RESULT

The E-Bike Tracking System is an android application, which allows UTM E-Bike management staff to manage the E-Bike rental system and allows the UTM community to locate the E-Bike stations around the campus and check the availability of the E-Bike in each station.

FUTURE DIRECTION

- The E-bike may be improved by adding geofencing capabilities to the system such that it can send an alert whenever the bicycle goes outside the allowable range area.
- Bike sharing can promote a sustainable environment, healthy lifestyle, and transport resilience to any community which committed to using bicycles (CLC, 2017; Cheng et al, 2022). Thus, the E-Bike Tracking System can be used as a tool to support it.

Reflections on NALI 2023 Visit by Tan Kegin (A23CS1084)

New Academia Learning Innovation (NALI) is an annual knowledge sharing event organized by Universiti Teknologi Malaysia (UTM), through Center for Advancement in Digital and Flexible Learning (UTM CDex). NALI is a framework to promote innovative teaching and learning practices in education. It comprises student-centered and blended learning philosophy, multiple learning modes and materials towards achieving entrepreneurial academia. The first edition of NALI was organized in 2018.

Based on my visit to NALI, there are a lot of booths that cover a large area or base of knowledge such as employment, app development, environment, education, services, business and so on. Students can get to know better in these areas by visiting the booths or asking questions to the presenter. The title of the poster that I chose is Learning Commercial Law Using KAHOOT! For Non-Law Background Students. I was attracted by the eye-catching graphics, clear text and well-structured layout of the poster. From the poster and explanation of the presenters, KAHOOT! is a game-based student response system. KAHOOT! has been used in teaching and learning sessions, especially in online classes. The objectives of KAHOOT! are to improve the quality of classroom learning as compared to traditional classrooms, enhance classroom engagement, motivation, reduce distractions and overall learning experiences. In today's technology-driven world, people usually easily get distracted by using digital devices.

In this NALI program, students can get a bunch of benefits as this program gives students a chance to learn something new such as problem-solving, positive thinking, emotional regulation, social skills, and coping mechanisms. In the chosen booth, students who are interested in studying law but do not have any basic knowledge of it can use KAHOOT! as a study tool to enhance their understanding of laws. This platform brings time efficiency and cost-efficiency. This is so because students do not need to register for a fee-paying course that is related to law. Students can also access to this platform whenever they want as it is an online platform.

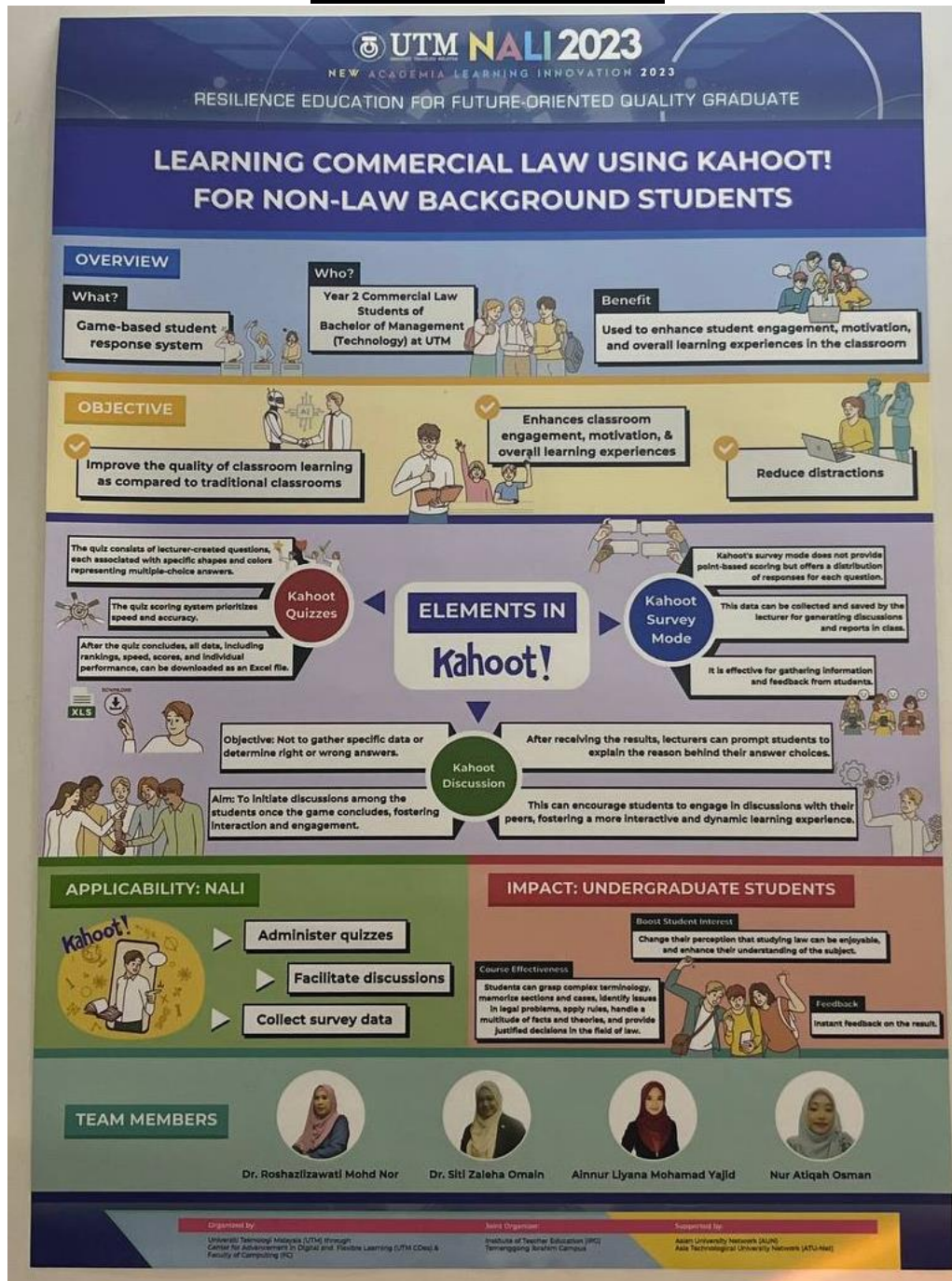
These activities that are held in NALI do impact the outcome of the course as each booth gives very detailed knowledgeable information to students. For instance, in the booth that I had

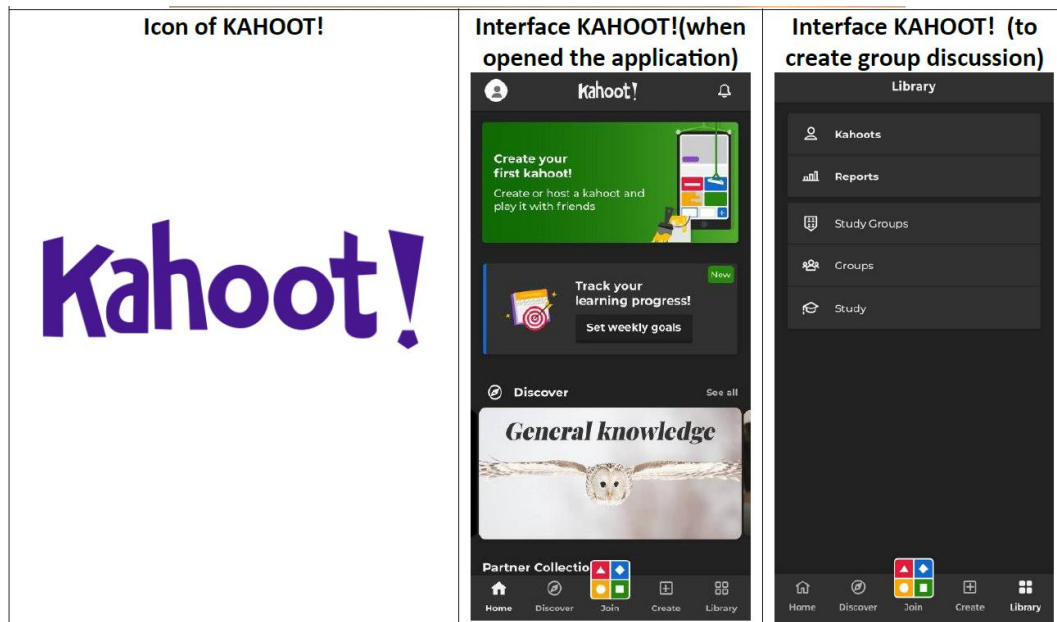
visited, KAHOOT! can also be used as a tool for discussions and surveys which I always thought that it is just a tool for creating quizzes. Therefore, I learned that KAHOOT! could be the connection for me and my peers to communicate with each other.

The activities in NALI 2023 do spark excitement in the students because the activities held are relevant to student's lives. For example, there is one booth titled Making Use of Transformative Learning Theory to Improve Students' Adaptability Skills which I think sparked the students most. This is because students can learn life skills when they are moving out of their comfort zone, especially first-year students who just got into the university. By visiting this booth, students can be more independent and self-sufficient.

I feel that the visit to NALI 2023 and the interview sessions helped me learn the course material better. This is because the expert presenters explained well and detailed the material which enhanced my understanding. The presenters were approachable, friendly, and willing to answer every question that I asked. Besides that, visiting NALI 2023 provides with a firsthand look at the practical applications of the course material. This could include laboratory work, simulations or real-world examples that help students to know more about the theoretical concepts. In conclusion, program NALI 2023 has opened my eyes to the detailed usage and information of KAHOOT! and enriched my learning experiences.

POSTER OF THE BOOTH





Reflections on NALI 2023 Visit by Lim Xin Rou (A23CS0240)

The annual NALI knowledge-sharing event is organised by Universiti Teknologi Malaysia (UTM) in partnership with the Centre for Advancement in Digital and Flexible Learning (UTM CDex). NALI is also known as New Academia Learning Innovation, which is a framework to promote innovative teaching and learning practises in education. It consists of many learning modalities, a blended learning philosophy that prioritises the requirements of the student, and instruments for accomplishing entrepreneurial academia. The first edition of NALI was organised in 2018.

The UTM NALI 2023 has brought forward a trending project regarding an engaging immersive design pedagogy which is a teaching integration with VR that can benefit future architects. The Archvision VR Project has been initialized to fulfill the requirements for innovation and adaptability in architecture and it's highly influential in effective spatial design comprehension for students. Also, this project can help to overcome architecture students' reliance on 2D resources which causes shortcomings in understanding spatial content and design integration. Archvision VR recognizes the importance of case studies for architecture students as it is believed that case studies fundamentally aid in project reference and inspiration. Many architecture students confront difficulties in grasping spatial context and interplay in chosen case studies. Besides, they faced hindrances in integrating crucial elements like site context, user experience, and neighborhood dynamics.



The Archvision VR project aims to leverage VR technology to revolutionize architectural education, transform the learning experience beyond 2D illustrations, and assist architecture

students in comprehending spatial design. The Archvision VR project proposed 3 kinds of VR types in architecture: non-immersive VR, fully immersive VR, and Semi-Immersive VR. Non-immersive VR is the existing method in Architecture Design Pedagogy. By employing fully immersive VR, students could virtually visit case studies using a VR headset and Wonder App, which eventually enhances their understanding of architecture's interaction with context for meaningful designs. With semi-immersive VR, students experience their design concepts using the Virtuals set. It helps to improve spatial relationship understanding and user experience in design.

The prime aim of this Archvision project is to enhance the pedagogical approach in architectural education by introducing immersive VR experiences. The Archvision VR project has a few imperative objectives to declare. Firstly, The project develops a user-friendly VR platform tailored for architectural education by combining Oculus VR hardware with specialized applications like Wander to create an intuitive and immersive learning environment. The second is to enhance students' understanding and visualization of 3D architecture design by fostering their understanding of spatial relationships and form-making. Last but not least is to prepare architectural students for the Industrial Revolution 4.0 and the demands of the global economy with 21st-century teaching and learning. The Archvision VR project stands out by its innovation to foster creativity by allowing exploration and viewing designs from multiple perspectives. The Archvision VR project is sponsored by the grant UTMER 2021, which is the adoption of virtual reality technology in Architectural Design Studio in Malaysia. The innovativeness of this project is also a highlight in the NALI exhibition. First of all, this project encourages active student engagement in the learning process that leads to deeper comprehension and retention of architectural principles and design concepts. Also, it provides a platform for architecture students to apply their knowledge practically. Students get to apply what they've learned by using VR tools to experience their design. This practical application helps to bridge the gap between theory and real-world practice.

Explicitly, the Archvision VR project aligns with NALI's goal, which is to promote innovative teaching and learning practices in education. The Archvision VR project applies the heutagogy concept that invigorates students to self-explore building case studies using Virtual Reality(VR), whether fully immersive with headgear or semi-immersive, enables detailed

exploration of spatial design, facades, materials, and construction methods, enhancing their understanding of specific building types effectively. Worth note taking is that the Archvision VR project has a few commercialization potentials which are students's experts for VR Training Workshop and Seminar, Virtual Tours for Real Estate, Commercial collaboration for VR Design Tools, and Architectural Visualization Services.

Reflection and Conclusion

The Archvision VR project has a prime aim to benefit students in the architectural field and design by integrating the technology and VR that encourage visualization skills and creativity of students in this program. For instance, VR allows students to immerse themselves in 3D models of architectural designs. This immersive experience can provide a better understanding of spatial relationships and the overall design concept.

Explicitly, the Archvision VR project is closely related to the architecture courses. The Archvision VR project gives a prospective future to the field of Architecture field by improving the quality of education in Architecture courses. This can highly enhance and foster the skills needed for future work entry requirements among architecture students.



In my point of view, I think visiting NALI 2023 is a great opportunity to widen my horizon regarding how ICT can bring benefit to the education sector. It inspires me to expand my knowledge in this field so that maybe one day in the future, I can utilize the knowledge I've

learned and apply it to solve real-world problems and improve the system of certain aspects. For instance, during the NALI visit, I got the chance to learn how the Archvision project works.

Do the activities spark excitement or interest in the student? Yes, certainly! Activities like VR can spark architecture students to get involved in case studies more often and inspire them to build more projects based on imagination and creativity that can be manifested through the VR application.

I feel that visiting NALI 2023 helped me to learn something other than the course material. It's undeniable that this visit truly let me experience the prowess of ICT in the educational sector. However, I believe, NALI is just the tip of the iceberg. ICT can spark more innovations in many other sectors and bring advancement in a variety of sectors. Normally, in class, we will learn more about the theory part but during the NALI visit, I got to know the application part of the knowledge we have learned. It requires creativity and innovative ideas to apply knowledge in life.

In conclusion, it's worth visiting NALI 2023 and it's my honor to enjoy this opportunity. During the NALI visit, I found a lot of interesting topics and innovations regarding ICT in innovative education. I feel so sophisticated about the vast ideas ICT can provide. The project that I have the most interest in is the Archvision VR project. This is because I've always been curious about VR and I like the idea of integrating VR in architecture projects. This is because I



know architectural students need the imagination to create their desired outcomes. After the utilization of VR, architecture students get to design their project or product in their own virtual space, which creates flexibility and creativity in this field. Hence, I think that NALI 2023 is one of the best exhibitions that I've been to so far that motivated me to learn more about ICT and hope to contribute to society one day by applying my knowledge.

Poster of the booth



Reflections on NALI 2023 Visit by Uthayadarshni A/P Prakash (A23CS5047)

NALI, which also stands for New Academia Learning Innovation is an annual event organized by Universiti Teknologi Malaysia (UTM), through Center for Advancement in Digital and Flexible Learning (UTM CDex). In my opinion, this NALI event had organized a lot of booths to give the learners' an opportunity to widen their basic knowledge about certain programs. They had incorporated blended learning, adaptive learning technologies, virtual and augmented reality (VR/AR), project based and experiential learning. In this program visit, the students got had the opportunity to employ a combination of interviews with the program staffs, observation of program-related tasks, and a review of relevant documents such as the program manuals or brochures and also feedback from the participants.

Through this organization, I stumbled upon this interesting booth of a computer-generated simulation of an interactive 3D environment which is what it is called as Virtual Reality (VR). This interactive simulation gives opportunity to the users to explore and engage with virtual environments through specialized electronic devices such as VR headsets. Similarly, this booth had designed their own simulation called the UTM Virtual Lab. This Virtual Lab enables the educators to rethink their labs or traditional teaching methods by utilizing immersive online simulations, thus positively influencing students' learning and enhancing their abilities to address the real-world problems.

Moreover, this booth also gave the learner's an insight of the Massive Open Online Courses (MOOCs) and the Micro-Credential (MC). Micro- credentials and Massive Open Online Courses (MOOCs) are two prominent developments in modern education that are both advancing the development of learning paradigms. The (MOOCs) are online courses that are accessible for anyone who wishes to enroll for free. This course offers a cost-effective and adaptable means to gain new knowledges and skills that a learner needs to achieve. There are certainly many advantages of this Massive Open Online Courses and Micro-Credential courses. For example, students or learners have free access anytime and anywhere they are located, they also have free

online courses taught by professionals and interactive course materials. In addition, the students also have the chances to transfer their credit in UTM and earn certificates through these courses.

In order to meet the demands of a diverse and dynamic global workforce, MOOCs and micro-credentials together signify a shift towards more adaptable, accessible, and personalized learning experiences. MOOCs provide learners with access to a wide range of knowledge, while micro-credentials provide a targeted and effective means of acquiring and showcasing specialized abilities in the quickly evolving labor market of today.

In my opinion, visiting NALI 2023 and the interview sessions surely did help me to learn the course material better. Computing world can be described as a world of evolving through technologies and robots. I have learned that there is much more to computing world such that it plays a crucial role in addressing complicated challenges, propelling technological progress and molding the future societies. Owing to this program, I am very grateful that it has brought to my attention that this booth especially is one of the most essential parts in every student's life as they are providing free online courses where we can access from anywhere and anytime.

POSTER OF THE BOOTH.

MOOC and Micro-Credential @ UTM



Benefits

Massive Open Online Courses (MOOC)

- ✓ Free access anytime, anywhere
- ✓ Free online courses with professionals
- ✓ Credit transfer in UTM
- ✓ Interactive course materials
- ✓ Global student community
- ✓ Earn a certificate

Micro-Credential (MC)

- ✓ Affordable access anytime, anywhere
- ✓ Affordable online courses with professionals
- ✓ Credit transfer in UTM
- ✓ Interactive course materials
- ✓ Global student community
- ✓ Earn a digital badge and certificate

Introduction

Massive Open Online Courses (MOOCs) are online courses available for any person to enrol for free. It provides an affordable and flexible way to learn new knowledge and skills.

Micro-Credential (MC) courses are certification of learning for a smaller set of courses designed to provide learners with knowledge, skills, values and competencies in a narrow area of study or practice.



To find out the MOOC and MC courses that we offer, go to our e-catalogue by scanning the QR code below



or visit our platform directly at <https://mooc.utm.my/>

For more information contact us at

Center for Advancement in Digital and Flexible Learning (UTM CDex)
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DEMONSTRATION OF THE VIRTUAL LAB WORKS



Reflections on NALI 2023 Visit by Abid Humayraa binti Hardisura (A23CS0032)

As a start, NALI, stands for New Academia Learning Innovation, is an annual knowledge sharing event organized by University Technology Malaysia (UTM), through Center for Advancement in Digital and Flexible Learning (UTM CDex). NALI is also a framework to promote innovative teaching and learning practices in education. This program has lasted for 3 days which is from 6th November until 8th November.

NALI 2023's theme is Resilience Education for Future Oriented Quality Graduate. Resilience education teaches individuals skills and strategies to develop resilience, such as problem-solving, positive thinking, emotional regulation, social skills, and coping mechanisms. It aims to empower individuals to manage challenging situations and overcome obstacles, rather than feeling overwhelmed or helpless. By developing resilience through education, individuals can become better equipped to navigate life's challenges and reach their full potential.

I believe the activities can help students to explore more about ICT for learning and teaching. They will find many platforms related to it, whether it is a local platform or overseas platform, as long as it can be used globally. I am certain that these presentations and interviews will show the students that they actually many ways ICT can help them in learning their courses more.

The poster I chose when I visited NALI 2023 days ago is about Thai MOOC. Thai MOOC is A National Digital Learning Platform aims to empower sustainable lifelong learning, offering no-cost opportunities for students, education, lifelong learners, and the public to improve their knowledge, skills, and abilities.

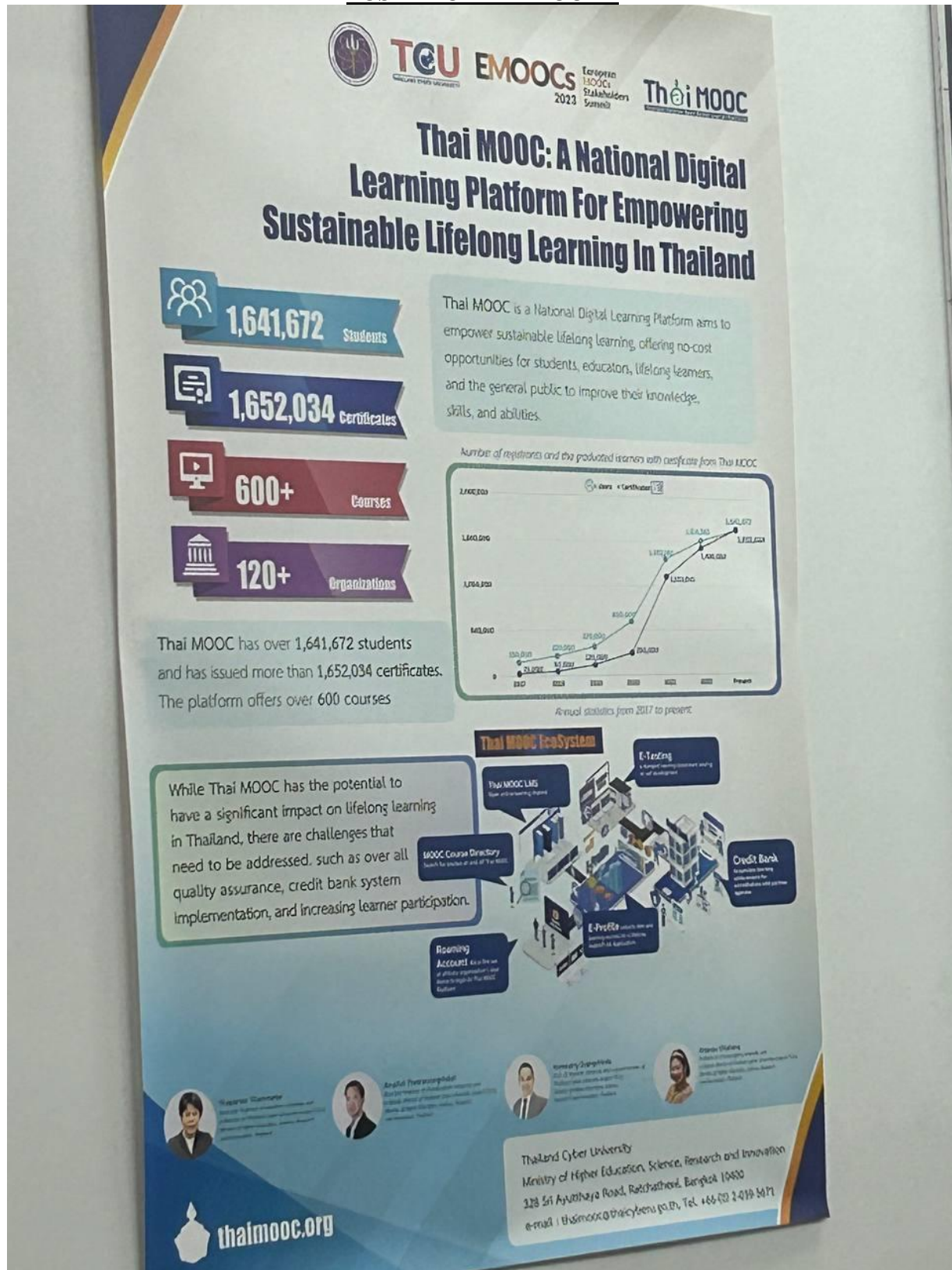
As for the poster I chose and the booth I visited, it shows that Thai MOOC has over 1,641,672 students and already offers over 600 countries. It was an impressive number to me because many students already used Thai MOOC as a platform for them to study and learn more about their courses. This proved that Thai MOOC is one of the main platforms used in Thailand in Learning and Teaching. This is a knowledge about ICT in learning and teaching in another country that I learned which proved me that it worked and helped the students.



I visited a booth which the courses are based in Thailand. When I interviewed the presenter, I was impressed knowing about their education platform system. I am sure that it interests the students because there were various of booth and talk about ICT for learning and teaching. It did excite me because I found that the booth, I visited which is Thai MOOC, is a domestic online course search system which facilitating the search of courses for students. All the names and information about the courses are stored in this system. Students can easily access online courses from various organizations just from a single window.

I really felt that visiting NALI 2023 and doing the interview sessions helped me learned the course material better because as for example, one of the course categories provided by Thai MOOC is computer and technology. By clicking on this category in the platform, I can find a lot of information about computer and technology from various organizations and institutions. After all, it is free for students to access anytime and anywhere which is no doubt, an advantage to the students who have access to internet most of the time.

POSTER OF THE BOOTH



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<https://utmcdex.utm.my/nali2023/>
- 2) Learning games: Make learning awesome! Kahoot! (2023, November 16).
<https://kahoot.com/>

Youtube Video Link



Link : <https://youtu.be/9tnTht3zuUY?si=JnibgHLfEzopPsyp>