INDUSTRIAL VISIT REPORT

ON NALI 2019

Presented by :

Wan Ahmad Amirul Iman Bin Wan Ahmad Yusmi (*Leader*)

Ayu Nazira Binti Azharudin (*Member*)

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Chiam Wooi Chin (*Member*)

Submitted to :

Dr. Sarina Binti Sulaiman

College : Universiti Teknologi Malaysia (UTM)

Faculty : Engineering

School : Computing

Subject : Technology & Information System

Subject code : SECP1513 - 07

Event :-

Name : New Academia Learning Innovation (NALI) 2019

Date : 18 / 9 /2019

Place : CONVENTION HALL,

FACULTY OF BUILT ENVIRONMENT AND SURVEYING (FABU)

UTM Johor Bahru

INTRODUCTION

NALI 2019 had bought by UTM Academic Leadership (UTM Lead) and in collaboration with School of Education, Faculty of Social Sciences and Humanities, Faculty of Built Environment, Surveying and Persatuan Guru STEM Malaysia and Malaysian Higher Education Teaching and Learning Council (MAGNETIC).

The objectives of this event is :-

- To involve NALI's research in teaching and learning with exhibitions and competition

- To create a program where sharing of research and innovation in teaching and learning will happen.

- To enhance educators' ability to practice teaching and learning in 21st Century through the NALI program

- To help STEM educators become more aware of NALI in their lifestyle

The people who involve in this event are :

- Prof. Dato' Dr. Ahmad Nazri Muhamad Ludin (**UTMLead Director**)
- Prof. Dr. Khairiyah Binti Mohd Yusof
- Prof. Dr. Rose Alinda Binti Alias
- Assoc. Prof. Fatimah Binti Puteh
- Dr. Adibah Binti Abdul Latif
- Prof. Ir. Dr. Zainuddin Bin Abdul Manan

  Deputy Vice Chancellor (**Academic & International**)

EVENT SCHEDULE

Date : 18 / 9 / 2019

Time	Activity
8:00am - 8:30am	Participant Registration
8:30am - 9:00am	Briefing to all NALI2019 Juries
9:00am - 9:30am	0pening Ceremony by Prof. Dato' Dr. Ahmad Nazri Muhamad Ludin (UTMLead Director)
9:30am - 10:30am	Forum 'Rejuvenating University Teaching & Learning Practices' paneled by ✧ Prof. Dr. Khairiyah Binti Mohd Yusof ✧ Prof. Dr. Rose Alinda Binti Alias ✧ Assoc. Prof. Fatimah Binti Puteh ✧ Dr. Adibah Binti Abdul Latif
10:30 am - 1:00 pm	JUDGING SESSION

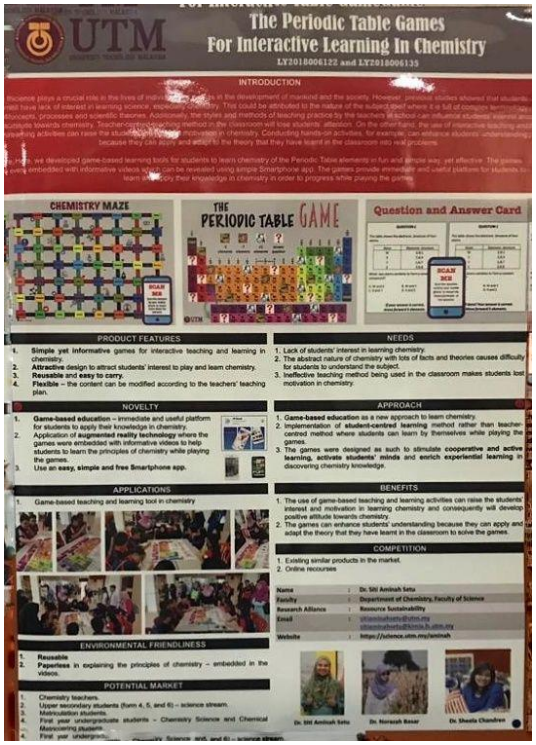
1:00 pm - 2:30 pm	Lunch Break
2:30 pm - 3:00 pm	Keynote Speech by Prof. Ir. Dr. Zainuddin Bin Abdul Manan Deputy Vice Chancellor (Academic & International)
3:00 pm - 4:30 pm	Closing and Awarding Giving Ceremony by Prof. Ir. Dr. Zainuddin Bin Abdul Manan Deputy Vice Chancellor (Academic & International)
5:00 pm	Program Ends

EXHIBITION CONTENT

THE PERIODIC TABLE GAMES for INTERACTIVE LEARNING IN CHEMISTRY**T**

Since Chemistry is regarded as a difficult subject for most student especially students in secondary school, so, students lack interest in study Chemistry. The Periodic Table Game has been introduced for students to learn the chemistry of the Periodic Table element through entertainment. The learning content can be modified according to the teaching plan throughout this game which is simple yet interactive and flexible. The game-based teaching and learning activities can attract students to activate their minds when study Chemistry. This Periodic Table Game has shown some improvement in most of student motivation in learning Chemistry because can increase their exam's results. Students find it is difficult to remember each of the elements by only depending periodic table, by using this Periodic Table Game students will remember all the elements quickly in an effective way.

Hopefully, this Periodic Table Game can attract students to learn Chemistry in a new perspective that periodic table are not hard to memorize it. This game can helps especially secondary teacher to reduce their effort on how to help student who not interested in studying Chemistry. This is because teachers sometimes struggle to making their students understand Chemistry. This game totally can improve students achievement in Chemistry by having a test after playing this game. Periodic Table Game also can bring students together as it will make students will be more friendly and communicate with each other. This will improve their social skills and helps them to be more confident in talks to people in the future. Periodic Table Game also can increase their spirit to win and competitiveness as they compete with each other in this game.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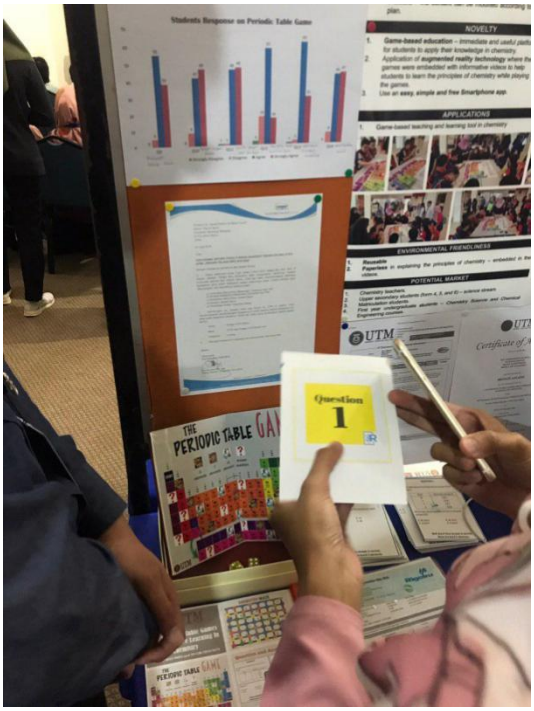
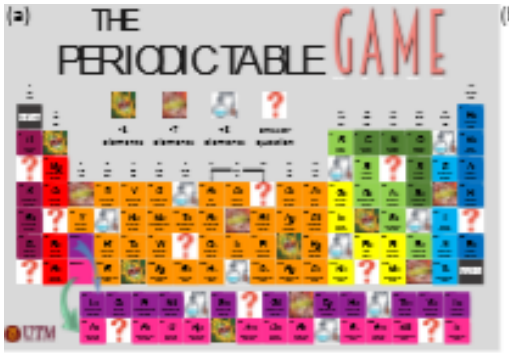
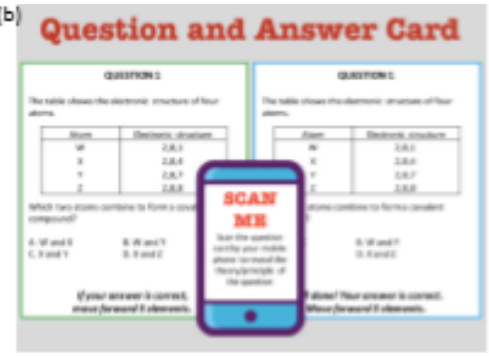
The Periodic Table Games
For Interactive Learning In Chemistry
LY2018006122 and LY2018006135
INTRODUCTION
CHEMISTRY MAZE
THE PERIODIC TABLE GAME
Question and Answer Card
PRODUCT FEATURES
1. Simple yet informative games for interactive teaching and learning in chemistry.
2. Attractive design to attract students' interest to play and learn chemistry.
3. Reusable and easy to carry.
4. Flexible – the content can be modified according to the teachers' teaching plan.
NEEDS
1. Lack of students' interest in learning chemistry.
2. The abstract nature of chemistry with lots of facts and theories causes difficulty for students to understand the subject.
3. Ineffective teaching method being used in the classroom makes students lose motivation in chemistry.
NOVELTY
1. Game-based education – immediate and useful platform for students to apply their knowledge in chemistry.
2. Application of augmented reality technology where the games were embedded with informative videos to help students to learn the principles of chemistry while playing the games.
3. Use an easy, simple and free Smartphone app.
APPROACH
1. Game-based education as a new approach to learn chemistry.
2. Implementation of student-centred learning method rather than teacher-centred method where students can learn by themselves while playing the games.
3. The games were designed as such to stimulate cooperative and active learning, activate students' minds and enrich experiential learning in discovering chemistry knowledge.
APPLICATIONS
1. Game-based teaching and learning tool in chemistry
BENEFITS
1. The use of game-based teaching and learning activities can raise the students' interest and motivation in learning chemistry and consequently will develop positive attitude towards chemistry.
2. The games can enhance students' understanding because they can apply and adapt the theory that they have learnt in the classroom to solve the games.
COMPETITION
1. Existing similar products in the market.
2. Online recourses
Name : Dr. Siti Aminah Setu
Faculty : Department of Chemistry, Faculty of Science
Research Alliance : Resource Sustainability
Email :
Website : https://utmcr.utm.my/aminah
ENVIRONMENTAL FRIENDLINESS
1. Reusable
2. Paperless in explaining the principles of chemistry – embedded in the videos.
POTENTIAL MARKET
1. Chemistry teachers.
2. Upper secondary students (form 4, 5, and 6) – science stream.
3. Matriculation students.
4. First year undergraduate students – Chemistry Science and Chemical Maincoring students
Dr. Siti Aminah Setu
Dr. Norasah Basar
Dr. Sheela Chandren


Students Response on Periodic Table Game
NOVELTY
APPLICATIONS
ENVIRONMENTAL FRIENDLINESS
POTENTIAL MARKET
Question
1
THE PERIODIC TABLE GAME

(a)



(b)



(c)

The Periodic Table Game

How to play the game:

1. The game was designed based on the Snake and Ladder game but used the Periodic Table as the play board.
2. The game can be played in group or individual. Each player will be given a counter.
3. To determine the turn, each player should throw a dice. The turn is determined from the highest number shown on the dice.
4. The game starts at the "**START**" box and ends at the "**FINISH**" box. Move forward according to the proton number of the element in the Periodic Table.
5. The player needs to throw the dice to move forward. Move according to the number shown on the dice.
6. If the counter lands at these box, follow the following instructions:

Oh no! Your experiment went "POP".
Go backward 3 elements.

Oh no! Your experiment went "BANG".
Go backward 5 elements.

Yes.! Your experiment went well.
Move forward 5 elements.

IQ test.
Pick a card and answer a question.

7. To answer the question – pick 1 question card (green card) from the top and answer the question within a given time (for example 1 minute). Meanwhile, the other player check the answer through the answer card (blue card).

Example of Question card

Example of Answer card

9. If the answer given is correct, the player will be awarded a few steps forward (please refer to the answer card). If the answer given is wrong go backward 3 elements.
10. The first player reaches the "FINISH" box is the winner of the game.

(d)

AVRM : AUTOMOBILE VIRTUAL REALITY MODULE

This project exploits a VR stimulation solution for the automobile courses in the vocational education and training area. This virtual reality cultivates and trains students about the automobile modules. The automobile virtual reality module is using conventional method that associated with high operational cost and insufficient materials. It also has saturated learning method for the students. The government and industry demand needs IR 4.0 and better-skilled graduates. This automobile virtual reality module has scenario-based approach which is the industry problems. Besides, this module prefer student edutainment so that students nowadays more likely to involve in this courses. Moreover, this AVRM would introduce interactive learning for the students. This module presents local talents and development to the country. The automobile virtual reality cost effectively and has longer life cycle. It also has minimum safety risk because of the supervision of this module. Furthermore, it is environmentally friendly due to the attention of the people to the issue of environmental conservation. The augmented reality which is a research offset of virtual reality field had compete with the virtual reality. Other than that, the social media that progressive nowadays which they share their information in virtual communities had successfully impact the virtual reality.

I think the innovation had successfully helped the students and kids in the 21st century to gain a variety of knowledge and possess many kinds of skills that they unable to get in the school. This innovation makes the students yearn for the types of career and opportunity which the module and courses provided in the NALI. In addition, the motivation of the innovation for teaching and learning is for students to know a lot of knowledge out of class and learn from the experiences by taking part in the teaching courses and learning services in NALI.

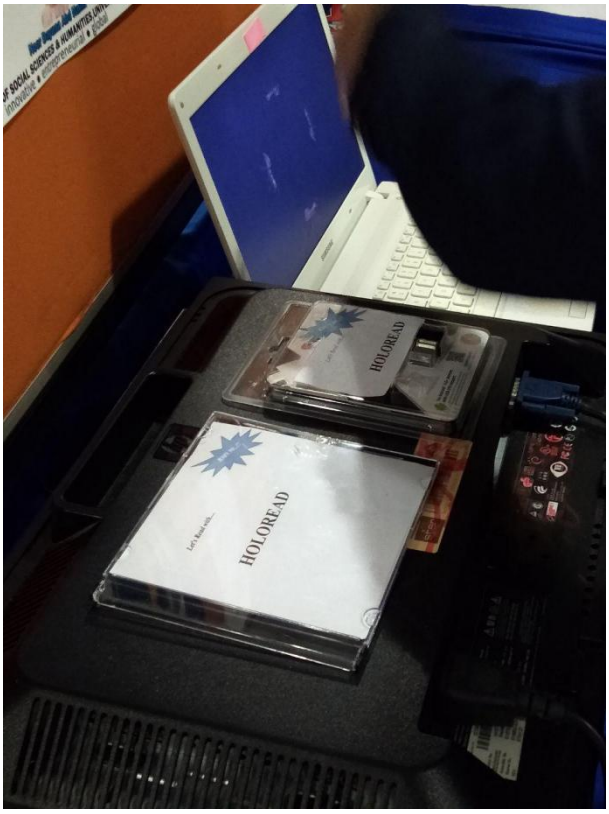

UTM
IntegrasiErat
AVRM: AUTOMOBILE VIRTUAL REALITY MODULE
(UTM copyrighted module)
This project develops a VR simulation solution for the automobile courses in the vocational education and training area. The virtual reality trains and teaches the student about automobile modules.
PRODUCT FEATURES
• A VR simulation solution related to automobile servicing and maintenance work processes
• VR program trains the student to dismantle and assemble a typical automobile system while teaches about the components, systems and operations
• Modules are based on academics & industry standards
NOVELTY
• Virtual platform for teaching and learning of automobile course in the market is not reliable & inaccurate
• Learning institutions have yet to use VR as part of their automobile training module
APPLICATIONS
• Automobile modules in TVET sector
• Product and service training in industry
• Material for STEAM
APPROACH
• Scenario-based approach: industry problems
• Student edutainment
• Interactive learning
NEEDS
• Conventional method is associated with high operational cost and insufficient materials
• Saturated learning method
• Government and industry demand: IR4.0, better-skilled graduates
BENEFITS
• Local talents and development
• Cost effective and longer life cycle
• Minimum safety risk and supervision
• Environmentally friendly
COMPETITION
• Augmented reality
• Social media
POTENTIAL MARKET
• TVET sector: more than 1,000 institutions in Malaysia under 7 ministries
• Car aftersales industry and workshops
• E-learning
everVR
Faster development cycle time
Fewer prototypes for design
Improve safety & compliance
More effective, interactive & immersive
VIZVR
Direct integration to CAD
VR with game engine
360 degree panorama
Stand-alone
Application simulator
VCLOUDVR
Easy to use
360 degree panorama
Web base
Mobile application
MEMBERS
FACULTY
Innovative . Entrepreneurial . Global

HOLOREAD: PYRAMID HOLOGRAM APPLICATION for PRESCHOOL CHILDREN'S LEARNING

HoloRead is used as a visualization tool in preschool children's learning and a pyramid hologram application which. The main aim of this project is to enhance their English literacy and make English learning interesting to students. HoloRead is a pyramid hologram application which based augmented reality technology (AR). This tool is using the three-dimensional (3D) concept. In this 21st century, Malaysia needs a new kind of method teaching and learning by using technology. This will helps preschool children find that learn are something fun while using HoloRead. These tools will give advantages for all government preschools in Malaysia to use these tools in their education systems. It is because the content of HoloRead is following the syllabus of National Preschool Curriculum Standard. HoloRead has four sub-apps, Sub-Apps 1 (Alphabet Sound), Sub-Apps 2 (Recognise Syllabe), Sub-Apps 3 (Enjoy Reading), Sub-Apps 4 (Amazing Phrases).

Hopefully, HoloRead will helps the future generation to be more interest in their studies as HoloRead is a brand new of teaching and learning ways for a 21st-century generation. Young kids nowadays spend their time mostly on gadgets or television. HoloRead will become an app that preschool children using it with under supervision teachers or parents guides. HoloRead will have animations with vibrant color, this will helps attraction from the children to be more interest in the learning compared to flashcards that are only printed without animation. Different from flashcard that only has a two-dimensional (2D) concept, HoloRead provides a three-dimensional (3D) concept. Preschool children can develop their imagination and creativity skills since three-dimensional (3D) concepts are way more real than two-dimensional (2D). With helps animation that also includes in HoloRead, children are capable of remembers it quickly as they are attracted to the animation.


Learning via pyramid hologram
for preschool children
ABSTRACT
HoloRead is a pyramid hologram application which is based on AR technology. Hence, this learning tool provides 3D concept of objects to be displayed through a pyramid prism shape of reflective tool. To be highlighted, HoloRead has been developed in accordance with the National Preschool Curriculum Standard (NPCS). Specifically, there are four sub-applications of HoloRead: Sub-Apps I (Alphabet Sound), represent by animals based on alphabetical orders; Sub-Apps II (Recognise Syllable), represent animals, objects, and verbs according to rimes of single syllable word. Sub-Apps III (Enjoy Reading), represent by objects and simple sentences based on suggested high frequency words; Sub-Apps IV (Amazing Phrases), represent by animals and simple phrases. In addition, HoloRead emphasize on the use of appropriate font style and size for the entire apps to avoid the confusion among pre-schoolers. Thus, this study focuses on the effectiveness of HoloRead to enhance preschool children's literacy in English language.
OBJECTIVES
Design and develop HoloRead application with the integrated of appropriate theory, guideline, approach, and multimedia elements.
Introduce a new classroom learning tool in order to visualize an English learning in 3D concept for a better understanding.
Provide a new learning approach which is cooperative play activity to improve children's participation and engagement.
CREATIVITY
SUB-APPS I : ALPHABET SOUND
SUB-APPS II : RECOGNISE SYLLABLE
SUB-APPS III : ENJOY READING
SUB-APPS IV : AMAZING PHRASES
IMPACT TO STUDENTS' LEARNING
Provide a new 'learning through play' tools that can visualize a learning content in 3D with the integrated of multimedia elements (animation, sound, and real model)
Enhance pre-schoolers understanding through strengthening activity provided in HoloRead
Attract pre-schoolers interaction and attention throughout HoloRead learning session
INNOVATIVENESS
elephant
APPLICABILITY
Outcome-Based Education
Digital Resources
Student Centered Learning/
Teacher Centered Learning
COMMERCIALIZATION POTENTIAL
Have copyrights
Able to use without the internet connection.
Able to use in group (using pyramid prism for a better views), and for individual (without pyramid prism)
For teacher use in teaching and learning process
For student to learn in individual or group
For parents to help their children learn at home
NOVELTY
Integrated of several learning theories and principle:
- Cognitive Development Theory (Piaget, 1936)
- Learning through play (Isenberg and Quisenberry, 1988) via Characteristic of Play (NCCA, 2009) + Visualization Guidelines (Stemler, 1997)
- Cooperative play approach (Ahcay, 2016)


HOLOREAD
HOLOREAD

TRENDS IN NALI

In this era of advanced modern technology, NALI exhibition needs to have a direction to the innovation with modern science and technology and social media nowadays. With these, the teaching courses and learning services will be more successful and more suitable for today's students. The kids in the world today need to learn the knowledge of the new era so the NALI exhibition in the future has to change the kinds of innovation according to the trends of today's world.

NALI exhibition helping Malaysia Education Ministry to finds a new method kind of learning with an effective and interactive together along with the evolution of technology nowadays. NALI Exhibition also gives the public to be more creative for the best idea of making new methods in the future education era. Example, the old method kind of learning are 100% by using flashcard, books, and whiteboard but for future invention, the method will be using a mind map, video, and animation. Besides, NALI exhibition give more idea to teacher by increasing their teaching method based on 21st century learning introduced by Malaysia Education Ministry.

WORK PLAN

Name	Duty
Wan Ahmad Amirul Iman Bin Wan Ahmad Yusmi	Make front page, introduction, work plan and conclusion. Compiled all of the contents and edited the format of report. Plan to meet up for discussion.
Ayu Nazira Binti Azharudin	Make exhibition content for Periodic Game Table. Search for new information that can be added to report. Take same photo as prove that teamwork is happening.
Nuriana Najwa Binti Mohd Rauzi	Make exhibition content for Holoread. Edited the photos of poster and the exhibition booth.
Chiam Wooi Chin	Make exhibition content for Automobile Virtual Reality Module. Helped in content of trends NALI to be more precise.

CONCLUSION

There are many programs at NALI. Here we describe just three programs at NALI.

First and foremost, the Periodic Table game for interactive learning in Chemistry. This program provides more benefits to students who are take pure subject in their high school and more. How is it? The program makes it easy for students to remember important info by just playing games. For example, such as snakes and stairs, monopolies and others. Some of board of the game may include some brief information on Chemical elements such as physical and chemical properties.

Next, Virtual Automation Module (AVRM). this program helps students who are involved in automobile courses. Students can explore and practice their work safely. This program not only benefits students but also the institution. It's like the low cost of preparation for student practice. In fact, using a VR simulator is a great way for students to improve their skills.

Finally, HoloRead. This program is good for preschoolers as it uses 3D images of children to easily understand the information. So, we think this is a way for kids to develop their intelligence faster.

Hopefully all educators can apply the ways that NALI provides for their lifestyle so that they can increase total of successful student.

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