Universiti Teknologi MARA
Cawangan Melaka

In partnership with
Tadulako University

i-JaMCSIIX
2023

EXTENDED ABSTRACT BOOK

Publication Date: 30 March 2024
ISBN: 978-967-15337-0-3

https://jamcsiix.uitm.edu.my

i-JaMCSIIX 2023

INTERNATIONAL JASIN MULTIMEDIA & COMPUTER SCIENCE INVENTION AND INNOVATION EXHIBITION (I-JaMCSIIX) 2023

EXTENDED ABSTRACT

ISBN: 978-967-15337-0-3
i-JaMCSIIX
Universiti Teknologi MARA Cawangan Melaka Kampus Jasin 77300, Merlimau, Melaka

Web: https://jamcsiix.uitm.edu.my

In partnership with
Tadulako University

ORGANIZING COMMITTEE

PATRON	PM DR ISMADI MD BADARUDIN
ADVISOR I	TS DR JAMALUDDIN HJ JASMIS
ADVISOR II	DATO' DR MOHD HAJAR HASROL JONO
PROGRAM DIRECTOR	**DR. NUR SUHAILAYANI SUHAIMI**
DEPUTY DIRECTOR	TS DR NURUL HIDAYAH BINTI MAT ZAIN
SECRETARY I	**ANIS SHOBIRIN ABDULLAH SANI**
SECRETARY II	FAIQAH HAFIDZAH HALIM
TREASURER I	**SITI AISYAH ABD KADIR**
TREASURER II	UMMU MARDHIAH JALIL
PUBLICATION	**NURBAITY BINTI SABRI** DR. SITI FEIRUSZ AHMAD FESOL DR. AHMAD FIRDAUS BIN AHMAD FADZIL SITI NURAMALINA BINTI JOHARI ROSNIZA ROSLAN
JURY	**Ts DR. ALYA GEOGIANA BUJA** NORBAHIYAH AWANG Ts. DR. NOR AFIRDAUS ZAINAL ABIDIN DR. RAIHAH AMINUDDIN NOOR AFNI DERAMAN
REGISTRATION	**SITI FAIRUS BINTI FUZI** BUSHRA BINTI ABDUL HALIM NORDIANAH BINTI JUSOH@HUSSAIN AINON SYAZANA BINTI AB HAMID SITI NURSYAHIRA BINTI ZAINUDIN
SYSTEM	**FADILAH EZLINA SHAHBUDIN** HAJAR IZZATI MOHD GHAZALLI FADHLINA IZZAH SAMAN NOR AZIDA MOHAMED NOH
INVITATION AND PROMOTION	**SHAHITUL BADARIAH SULAIMAN** IZNI SYAMSINA SAARI NOR ADILA KEDIN

	ADI HAKIM BIN TALIB
	MOHD AMIRUL BIN ATAN
MULTIMEDIA	**Ts. NURUL NAJWA ABDUL RAHID@ABDUL RASHID**
	NOOR ASHITAH ABU OTHMAN
	ANWAR FARHAN ZOLKEPLAY
AWARD	**ANITA BINTI MOHD YASIN**
	NURUL EMYZA ZAHIDI
	FATIMAH HASHIM
	SITI RAMIZAH JAMA
	DR NURUL HUDA NIK ZULKIFLI
	MARIATHY BINTI KARIM
CERTIFICATE	**KHAIRUL NURMAZIANNA ISMAIL**
	NUR NABILAH ABU MANGSHOR
	ZUHRI ARAFAH ZULKIFLI
	HAZRATI ZAINI
INTERNATIONAL RELATIONS	**Ts. DR. SITI RAHAYU ABDUL AZIZ**
	ALBIN LEMUEL KUSHAN
	SHAHADAN SAAD
LIAISON OFFICER	**SYAFNIDAR ABDUL HALIM**
	AJK WAKIL UNTAD
SPONSORSHIP	**ANIS AMILAH SHARI**
	MOHD RAHMAT MOHD NOORDIN
	DR YUZAIMI YUNUS
	DR SURYAEFIZA KARJANTO
SECRETARIAT & APPRECIATION BANQUET	**RAIHANA MD SAIDI**
	NUR SYUHADA BINTI MUHAMMAT PAZIL
	ANIS AFIQAH SHARIP
	SITI MAISARAH MD ZAIN
	HAZWA HANIM MOHAMED HAMZAH

UNTAD'S COMMITTEE FOR I-JAMCSIIX 2023:

PROF. IR. MARSETYO, M.AG., PH.D.

PROF. I WAYAN SUDARSANA, S.SI., M.SI.

PROF. JUNAIDI, S.SI., M.SI., PH.D.

ELISA SESA, S.SI., M.SI., PH.D.

MUKRIM, M.ED., PH.D.

ZARKIANI HASYIM, S.PD., M.ED.

DR. HJ. ANI SUSANTI, M.SI.

DR. ISKANDAR, M.HUM.

DR. IR. ROIS., MP.

SYARIFUL ANAM, S.SI., M.SI., PH.D.

DR. NAHARUDDIN, S.PD, M.SI.

DR. DRG. ELLI YANE BANGKELE, M.KES.

HERMAN, SKM., M.MED.ED.

DR. IR. SAMLIOK NDOBE, M.SI.

DR. RAHMAT BAKRI, S.H., M.H.

DR. HAERUL ANAM, SE., M.SI.

DR. IR. BAKRI, S.T., PG. DIPL. ENG., M.PHIL.

DR. IR. MUHAMMAD YAZDI PUSADAN, S.KOM., M.ENG.

IR. SYAIFUL HENDRA, S.KOM., M.KOM.

RIZANA FAUZI S.T., M.T.

MOHAMMAD FAJRI, S.SI., M.SI.

NURUL FISKIA GAMAYANTI, S.SI., M.SI.

DR. NUR'ENI, S.SI., M.SI.

IMAN SETIAWAN, S.SI., M.SI.

FADJRIYANI, S.SI., M.SI.

LIST OF SPONSORS

External Company Sponsors

Klinik Dr Jamaluddin
Klinik Mawar Jasin
Nasi Ayam Ala Cina Zul
ADS Oasis Enterprise
Noorys Enterprise
Che Ramli bin Che Ismail
Beria Maju Enterprise
Rintiz rezeki
H&K food cafe
HS Gerak Wawasan

Individual Sponsors

En. Muhammad Hanif bin Abdul Aziz
Nor Suhaida binti Karjanto

Table of Contents

Universiti Teknologi MARA Cawangan Melaka
i-JaMCSIIX 2023
International Jasin Multimedia & Computer Science Invention and Innovation Exhibition
In Partnership with: Tadulako University

Hana's Map

Nor Suhana binti Sejarta[1], Muhammad Nasrul bin Abu Bakar[2], Aizul Adam bin Azham[3], Nur Fazilah binti Nazli[4] and Muhammad Al-Hadi bin Zakri[5]

[1,2,3,4,5] Sekolah Kebangsaan Merlimau, Melaka

sayyidraqib@gmail.com[1], nasrullah272@gmail.com[2]

***Abstract*—The Ministry of Education Malaysia (KPM) has introduced the i-Think Mind Map as a 21st-century learning technique aimed at encouraging students to engage in critical thinking and gain a deeper understanding. However, challenges have been identified in past studies, particularly regarding students' attitudes towards Science education. Negative attitudes such as a lack of interest can hinder students' progress and their willingness to think critically (KBAT). Studies have shown that some students tend to memorize concepts or facts without engaging in deeper thinking. Research findings indicate that this situation requires teaching aids to stimulate students' cognitive development. Therefore, Hana's Map has been designed to help improve students' understanding of Science subjects and increase their interest. The development process of Hana's Map follows the ADDIE Model, which involves five phases: analysis, design, development, implementation, and evaluation. Hana's Map was provided to 10 respondents consisting of Year 5 and Year 6 students studying Science subjects. The findings show a 43% improvement in the Pre-test compared to the Post-test after using Hana's Map. Furthermore, through interviews, it is evident that they are becoming more interested in learning Science and are able to enhance their understanding. Overall, the use of teaching aids such as Hana's Map can enhance students' understanding and High-order thinking skills in Science subjects, thereby supporting 21st-century education and students' development in schools.**

***Keywords*—21st-century Education, Science and Technology, Teaching Aids.**

I. INTRODUCTION

The education system is one of the fields that significantly contributes to the country's development. Developing world-class human capital and social mobility are the primary agendas in the field of education in Malaysia. In connection with this, the Ministry of Education in Malaysia (MOE) has introduced various approaches in the teaching and learning system. This is because effective education can produce a first-class and globally competitive society. One of the approaches emphasized for all teachers at every school level is the i-Think Mind Map. This approach is one of the 21st-century learning techniques. The use of i-Think Mind Maps in the teaching and learning process is a teaching technique introduced to encourage students to think and focus more on understanding the topics they are learning [1]. Each mind map has a tailored thinking process based on the topic or subject matter. i-Think Mind Maps also help students stimulate active thinking. This method indirectly develops potential and nurtures creative and innovative human capital capable of high-level thinking while achieving the goals of the National Education Philosophy [2].

The problems that have existed and were identified from previous studies are the students' attitudes towards learning. Attitude is crucial in determining the effectiveness and success of a student in learning Science. Students with a negative attitude towards Science, for example, lack of interest, may lead to their failure in Science [3].The negative attitude in a student also makes them reluctant to think. This was demonstrated in the study by Dunlosky et al., which stated that students tend to think less and simply memorize concepts or facts provided by teachers or in textbooks [4]. In addition, knowledge in using skills and approaches such as Higher-Order Thinking Skills (KBAT) in the teaching and learning of Science is crucial to ensure that knowledge can be effectively conveyed. However, the findings of Tengku Fairus' study indicate that the classroom teaching and learning process is still at a low level, which does not adequately support students' mastery of thinking skills [5]. Therefore, Science teachers need to be creative in using thinking tools such as Mind Maps (i-Think) in the classroom.

Therefore, to enhance students' higher-order thinking skills and their interest in the subject of Science, we have developed Hana's Map, which is an innovation based on the previous i-Think Map. The previous i-Think Map had awarded the second place in the i-Think Map Competition at the State Level STEM Carnival in 2021. However, the use of a 2D format was seen as less appealing to students. Therefore, in 2022, Hana's Map was innovated into a 3D format to be used as a Teaching Aid (BBM) in Science subjects. Due to this innovation, Hana's Maps received a Silver Medal in the UUM Education Innovation Competition (PIP). Today, several improvements have been made to Hana's Map to make it more practical. Firstly, Hana's Map can now be used in English, as opposed to only being available in Malay as it was before, to meet the needs of schools implementing the Dual Language Program (DLP). Secondly, several types of mind maps have been added, making a total of 6 different mind maps that can be used using Hana's Map.

II. MATERIALS

A. About Hana's Map

Hana's Map is created using recycled files. These files are wrapped and decorated with colorful wrapping paper. Next, the students create their mind maps using Microsoft PowerPoint. Afterward, they print the mind map on A4-sized paper. The circle in the map has a sticker to stick with the answer. The front cover of Hana's Map is adorned with felt fabric to make it more attractive for students to use.

Fig. 1 : The Process of Designing Hana's Map

B. Use of Hana's Map

Hana's Map can be utilized during teaching and learning sessions. Students will get Hana's Map to accomplish the tasks provided by the teacher, which involves filling in the spaces in the thinking map related to the topic. The teacher will present the correct answers using Microsoft PowerPoint on a slide at the front of the classroom, enabling students to check their answers.

C. Advantage of Hana's Map

Hana's Map is light, easy to carry and friendly for students to use. In addition, it is very suitable for use in PdPc covering differentiated learning. It is also an interesting Science recreation tool suitable for use by all ages.

III. METHODS

The ADDIE model was chosen as a guide to develop Hana's Map systematically according to regular processes. ADDIE is an acronym for describing the main sections and steps to follow, namely analysis, design, development, implementation and evaluation. The development process of the teaching aids involves five phases, namely the process of analyzing at an early stage, the process of designing teaching aids, developing teaching aids and planning activities, and finally the evaluation process of the entire Hana's Map. This model was chosen because it emphasizes repetition for each phase. Each phase is also connected to each other. If the phase cannot be properly implemented, the process can be repeated until it is completed.

Fig. 2 : ADDIE MODEL

A. Analysis

In this phase, the need to develop Hana's Map is examined based on the analysis of documents from Year 5 and Year 6 students' work. Additionally, several interviews are conducted to identify matters that require attention. At this stage, objectives, problem statements, and the environment are studied to understand the project's goals.

B. Design

Design is the second stage in the ADDIE model, which at this stage covers technical design requirements such as Hana's Map board sketches, language usage and easy ways for students to use it. At this stage, the structure and flow of Hana's Map should be clearly defined, including the framework, objects, icons, and layout.

C. Development

During the development phase, Hana's Map is designed, taking into consideration various aspects such as materials, costs, and suitability. The layout of the mind map is created by students in the form of an i-Think map. Furthermore, the use of recycled materials, such as files, is aimed at reducing costs and making the materials colourful to attract the students' interest. The design process is guided by the KEMAS Training Centre.

D. Implementation

In this phase, Hana's Map has been utilized by Year 5 and 6 students for the subject of Science. Several units of Hana's Map are used by students to reinforce their understanding and solidify science concepts. Teachers also present the maps using PowerPoint as a teaching aid in front of the class.

E. Evaluation

During the evaluation phase, post-tests are conducted to assess the progress of students' knowledge and understanding. Students are also evaluated through exercises in the textbooks to explain scientific concepts such as classification, relationships, and characterization. Additionally, interviews with students who have used Hana's Map are also conducted to gather feedback from them.

IV. RESULTS AND FINDINGS

The test was conducted to 10 student as a respondent to evaluate the Hana's Map. The findings of the survey are presented and discussed under two sections as below.

A. Respondents Demographics

Demographic information consists of respondents gender and age. The result of respondents gender as shown in the Fig.3

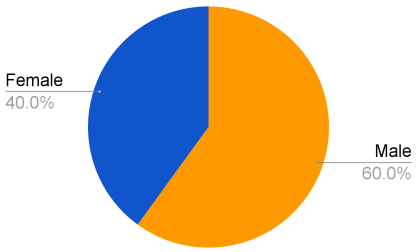

Fig. 3: Respondents gender

Fig. 3 shows the respondents gender. 60% (6 responses) were male while 40% (4 responses) were female children.

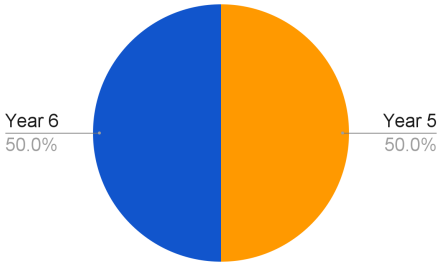

Fig. 4 : Respondents Class

Fig. 4 shows the class of the respondents. The results of the survey indicates 50% (5 responses) of the respondents was in Year 5 and another 50% (5 responses) of the respondents was in Year 6.

B. Respondents pre and post test result

Fig. 5 show the pre-test and post-test result. The pre-test conducted showed an average score for students below 50%. The highest score in the pre-test was 40%, and the lowest score was 20%. The minimum score for the pre-test was 30. On the other hand, in the post-test, there was improvement among all respondents. The highest score was 90%, and the lowest score was 50%. The minimum score for the post-test was 73. The difference between the minimum score in the pre-test and the post-test is -43.

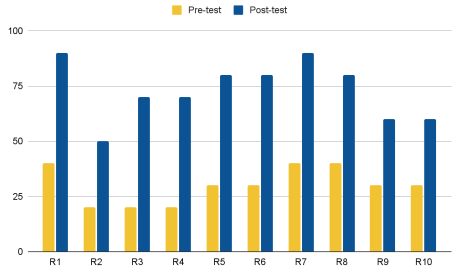

Fig. 5 : Pre-test and Post-test

C. Respondents semi-suctured interview

Based on the semi-structured interviews conducted with the respondents, it was found that all of them enjoyed using Hana's Map. Respondent R2 stated that they found it easier to understand using Hana's Map, while respondent R5 mentioned that they found it easier to classify information using Hana's Map. All respondents also agreed that Hana's Map could enhance their understanding, especially in the subject of Science.

V. CONCLUSIONS

In conclusion, Hana's Map can be used to enhance students' understanding and thinking skills. The use of teaching aids like this is crucial in helping students master the learning content. There was a significant improvement in students after using Hana's Map. As a suggestion for improvement, Hana's Map can be used for other subjects. Additionally, it can also be integrated using ICT and technology, such as mobile phone apps.

ACKNOWLEDGMENT

The author would like to express gratitude to the administration and Science Panel of SK Merlimau, the lecturers at UiTM Jasin, and the KEMAS Training Center for their assistance and support in making the implementation of Hana's Map a success.

REFERENCES

[1] Hyerle, D. & Yeager, C. (2007). A Language for learning: Thinking maps incorporated. North Carolina; Thinking Maps. Inc.

[2] Muhamad Sidek Said (2013). Transformasi minda: Program i-THINK akses kemahiran berfikir cara baru. Jurnal akademik IPG Kampus Sultan Mizan, Terengganu.

[3] Abu Hassan Kassim. (2003). Kurikulum Sains Sekolah Malaysia. Modul Pengajaran. Universiti Teknologi Malaysia: Skudai, Johor

[4] Dunlosky, J., Rawson, K., & Willingham, D. (2013). Improving Students' Learning With Effective Learning Techniques: Promising Directions From Cognitive and Educational Psychology. *Psychological Science in the Public Interest*, *14*(1), 4–58. https://doi.org/10.1177/1529100612453266

[5] Tengku Fairus Tengku Hassan. (2015). Tahap kemahiran guru bahasa melayu dalam menerapkan amalan kemahiran berfikir aras tinggi semasa pengajaran dan pembelajaran di bilik darjah. Kertas Projek Sarjana Pendidikan. Fakulti Pendidikan: Universiti Kebangsaan Malaysia.

i-JaMCSIIX 2023

PUBLISHED BY:
i-JaMCSIIX
Universiti Teknologi MARA Cawangan Melaka
Kampus Jasin
77300 Merlimau, Melaka

Tel: 062645000
Email: jamcsiix@uitm.edu.my
Web: https://jamcsiix.uitm.edu.my/