

**SERIES 1**

# **EMPOWERING INNOVATION POST-PANDEMIC**

**Editor  
Faridah Pardi**



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**Post-Pandemic**  
**(Series 1)**

## **CHAPTER COMPILATION**

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# FOREWORD

All praise and thanks are due to Allah the Most Merciful and the Most Gracious for His abundant blessings, under which the International Invention & Innovative Competition (InIIC) Series 1/2023 was successfully organized virtually. It is with immense gratitude that we announce the results of this momentous event, which took place on the 24th of June 2023. Our heartfelt congratulations go out to all the deserving winners who have showcased exceptional talent and ingenuity.

Within the pages of this book, 'Empowering Innovation Post-Pandemic (Series 1)', lies a treasure trove of knowledge and inspiration. This collection of essays comprises the invaluable contributions of the participants of InIIC Series 1/2023, encapsulating their visionary ideas and ground-breaking discoveries. With ten enriching chapters dedicated to innovation, this compilation serves as a beacon of enlightenment for both practitioners and academics alike, offering an innovative source and a point of reference to nurture and enhance creativity. We extend our sincere appreciation to all the authors who have generously shared their time, thoughts, and ideas in shaping the content of this book.

It is our earnest hope that 'Empowering Innovation Post-Pandemic (Series 1)' will serve as a catalyst for transformative ideas within your own endeavours. May it kindle the flames of creativity and kindle the spirit of innovation as you embark on the path of designing new products, systems, and solutions. Let this book be your guide, igniting the spark of inspiration and propelling you towards ground-breaking achievements.

Editor

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## Chapter 1

# A Study of Leaders' Views of MySkillScan: A Self-Assessment Tool in Education Management

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### ABSTRACT

Self-assessment is a valuable tool for educational leaders to identify areas of strength and areas that need improvement. This process involves examining various aspects of educational management, such as planning, understanding the psychology of students and teachers, self-organization and time management, coordination of organisational activities, impact on student experience and learning outcomes, motivation and professional development of teachers, team building, and leadership skills. This innovation self-assessment presents a scale for evaluating an educational leader's level of competency, which includes five levels of proficiency, from no experience to exceptional expertise. An interactive spider web visualisation will be created based on leaders' responses that allows them to assess their skills and competencies in various aspects of educational management. It was developed and tested quantitatively with a select group of leaders. The results showed that it was effective in helping them gain valuable insights into their skills and competencies, and identify areas for further development. In line with that, it provides a starting point for educational leaders to identify their strengths and weaknesses in this area and to develop strategies for enhancing their educational management skills and help leaders become more effective in their role and improve overall educational outcomes. Based on the positive feedback received from the testing group, this self-assessment tool is now being considered for wider implementation in educational management practices.

**Key Words:** MySkillScan, Educational Management, Innovative Self-Assessment

## 1. INTRODUCTION

Innovative self-assessment is a powerful tool that educational managers and leaders can use to improve their effectiveness and the performance of their institutions. By using self-assessment, leaders can gain a better understanding of their strengths and weaknesses, identify areas for improvement, and develop effective strategies to achieve their goals (Cuseo, 2015). In this response, the benefits of innovative self-assessment for educational management and leadership should be explored to provide references to support its use. Innovative self-assessment provides a range of benefits for leaders. First, it can help to identify areas where individuals or organizations may be struggling, and provide a roadmap for improvement. Self-assessment can also be used to identify key competencies that leaders need to develop in order to be successful (Herrity, 2022).

In addition, innovative self-assessment can provide a valuable means of gathering feedback and insights from stakeholders, such as students, teachers, and parents. This feedback can help the leaders to better understand the needs of their stakeholders and make more informed decisions. Finally, self-assessment can promote ongoing learning and development by encouraging individuals to reflect on their experiences, successes, and failures. This reflective process can help individuals to identify opportunities for growth and develop strategies for continuous improvement (Yan & Carless, 2022).

## 2. LITERATURE REVIEW

Innovative self-assessment has gained significant attention in the literature as a means of enhancing learning outcomes and promoting critical thinking. Several studies have focused on the development and implementation of innovative self-assessment techniques and their impact on various educational contexts. Leaders are accountable for creating and realising the vision by encouraging adherents to work towards the accomplishment of a shared objective (Church & Rotolo, 2015). Effective leaders must be able to conduct an accurate assessment of their assets and weaknesses and effectively address them. By implementing corrective measures, they should bolster their strengths and overcome their weaknesses. Self-aware leaders are able to assess their professional and personal development and identify areas for improvement. They can create a plan of action for the future and identify the development areas that will determine their future growth prospects and aid them in attaining professional success.

Successful leaders must possess exceptional emotional and personal characteristics, such as diplomacy, leading by example, and empathy. Inspirational leaders place a heavy emphasis on developing their interpersonal and emotional skills in order to obtain acceptance as leaders. Overall, the literature suggests that innovative self-assessment techniques have the potential to enhance learning outcomes and promote critical thinking in various educational and professional contexts. The studies discussed in this literature review highlight the importance of innovative self-assessment tools, such as self-reflection, peer evaluation, open communication channels, and continuous feedback, in enhancing skills and promoting innovation. These provide useful

insights for educators, professionals, and researchers interested in developing and implementing innovative self-assessment, especially for leaders.

### **3. METHODOLOGY**

#### **3.1. Research Questions**

In establishing the context for this study, the lack of research on leader self-assessment in schools was noted, and the objective of this study was to critically evaluate the perception of leaders towards this self-assessment tool. Therefore, this study responded to the following research question: What are leaders' perceptions about the MySkillScan in terms of its value, relevance, and content?

#### **3.2. Data Collection and Analysis**

In this study, a pilot group of ten school leaders with extensive experience were selected purposively and surveyed to gauge their perceptions regarding the effectiveness of MySkillScan. The questionnaire used for this purpose included six items that were adapted from the teacher self-assessment tool for English language teaching study conducted by Borg and Edmett in 2019. The participation of the school leaders in this study was completely voluntary, and the ethical considerations regarding their participation were clearly communicated to them. The collected data was analysed using descriptive statistics, and the results were recorded.

### **4. FINDINGS**

#### **4.1. Profile**

The findings presented here are based on a sampling of ten experienced school leaders. Of the ten participants who disclosed their gender, 80% were female and 20% were male. Participants served in both primary and secondary schools, as shown in Table 1. Their education management experience varied (see Table 2), with the largest group (5–10 years) comprising 60% of the sample.

**Table 1 Type of institution**

Primary	6	60%
Secondary	4	40%
Total	10	100%

**Table 2 Experience of Education Management as School Leader**

0-5 years	2	20%
6-10 years	6	60%
11-15 years	2	20%
More than 15 years	0	0%
Total	10	100%

#### 4.2. Leaders' views about the MySkillScan

The findings of the leaders' views were summarised in Table 3 and these are overall positive. Based on the findings, most of the leaders (90%) agreed that the MySkillScan was relevant to their context, clear, and a worthwhile activity (although 10% disagreed about the use of the MySkillScan). Furthermore, most of the leaders (90%) concurred that the MySkillScan encouraged them to seek out professional development activities and that they would recommend the SAT to a colleague. However, 10% of the participants disagreed. 90% of participants agreed or strongly agreed that the MySkillScan encompasses the majority of the skills, knowledge, and behaviours required of school leaders.

**Table 3 Leaders' views about the self-assessment tool (MySkillScan)**

Item	n	Strongly Agree	Agree	Disagree	Strongly Disagree
The self-assessment was relevant to my context.	10	3 (30%)	6 (60%)	1 (10%)	0 (0%)
The self-assessment was clear and easy to understand.	10	4 (40%)	5 (50%)	1 (10%)	0 (0%)
Completing the self-assessment is a worthwhile activity.	10	3 (30%)	6 (60%)	1 (10%)	0 (0%)
The self-assessment has encouraged me to look for further professional development opportunities.	10	4 (40%)	5 (50%)	1 (10%)	0 (0%)
I would recommend the self-assessment to a friend.	10	3 (30%)	6 (60%)	1 (10%)	0 (0%)
The self-assessment includes most of the skills, knowledge and behaviours that a school leader needs.	10	4 (40%)	5 (50%)	1 (10%)	0 (0%)

## 5. DISCUSSIONS

In the context of a growing global interest in leader quality and methods for evaluating it, leader self-assessment is acknowledged as a strategy that can enhance leaders' sense of agency and positively impact their professional development. While numerous frameworks for leader self-assessment in education management have emerged in recent years, analyses of their implementation and impacts remain scarce, limiting our understanding of their significance.

Self-assessment is an essential process in education that allows leaders to monitor and evaluate their own learning and performance (McMillan & Hearn, 2008). The results of a self-assessment can be used by students to identify their strengths and weaknesses and to develop strategies to improve their understanding and skills. When a

self-assessment is relevant to the student's context, it can provide a meaningful and valuable experience. In the context of school leadership, a self-assessment can be an effective tool for identifying areas of strength and weakness, setting goals, and developing strategies for improvement. The self-assessment tool should be clear and easy to understand, so that school leaders can complete it without confusion or frustration. If the self-assessment is a worthwhile activity, school leaders are more likely to engage with the process and take the results seriously.

The self-assessment can also encourage school leaders to look for further professional development opportunities, as it highlights areas where they may need to develop their skills or knowledge. As a result, school leaders may be more motivated to seek out additional training or to participate in workshops and conferences that can help them to grow and improve. When a self-assessment is effective, it can be a valuable tool for school leaders to use to identify areas for improvement and to develop strategies to enhance their skills and knowledge. If school leaders find the self-assessment to be relevant to their context, clear and easy to understand, and a worthwhile activity, they are more likely to recommend it to their colleagues [1]. In addition, if the self-assessment includes most of the skills, knowledge, and behaviors that a school leader needs, it can be a comprehensive and effective tool for professional development (McMillan & Hearn, 2008).

## **6. SUGGESTIONS**

Based on the findings of this study, one suggestion could be to further investigate the opinions of the 10% of participants who had a different opinion on some aspects of the MySkillScan. Understanding their perspective could provide valuable insights into potential areas for improvement or ways to address concerns that may be shared by other school leaders. Additionally, it could be useful to explore ways to increase the adoption of the MySkillScan among school leaders who may be less enthusiastic about the tool, as it appears to have a positive impact on those who engage with it.

## **7. CONCLUSION**

In conclusion, the MySkillScan can be a self-assessment tool for school leaders was generally well-received by the majority of participants. The tool was viewed as relevant, clear, and a worthwhile activity, and was seen as covering the skills, knowledge, and behaviors required of school leaders. Additionally, the MySkillScan encouraged most participants to seek further professional development opportunities and they would recommend it to a colleague. However, it should also be noted that a minority of participants (10%) had a different opinion on some aspects of the tool.

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## Chapter 2

# The Writing Inspiration Padlet: A Creative Repository of Writing Prompts, Exercises, and Examples

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### ABSTRACT

The Writing Inspiration Padlet is a web-based platform designed to provide a creative and accessible repository of writing prompts, exercises, and examples to support writing education and enhance students' writing skills. This study aims to evaluate the effectiveness and usability of the platform in a writing class context. The study involved 10 participants who used the platform for 14 weeks, with data collected through individual interviews. Results of the study indicate that the Writing Inspiration Padlet was generally well-received by the participants, who reported several benefits and challenges associated with its use. The benefits include usability, content quality and diversity, engagement and collaboration, and impacts on writing skills. The challenges and limitations include potential distractions, technical issues, and lack of training and support. Overall, this study suggests that the Writing Inspiration Padlet can be a valuable tool in writing skill, providing an accessible and engaging platform for students to practise and improve writing. Future research can further explore ways to enhance the platform's effectiveness and address the challenges identified in this study.

**Key Words:** Writing Inspiration Padlet, writing prompts, writing exercises, writing skills, writing education

## 1. INTRODUCTION

Writing is an essential skill in many areas of life, from academic and professional contexts to personal expression and communication. However, developing strong writing skills is often a challenging and time-consuming process that requires a lot of practice, guidance, and inspiration (Moses & Mohamad, 2019). Unfortunately, many students struggle to find the necessary inspiration and resources to develop their writing skills, especially in the context of a traditional writing classroom.

'The Writing Inspiration Padlet' is a project designed to address this problem by providing students with a creative repository of writing prompts, exercises, and examples that they can use for inspiration and reference as they work on their writing assignments. The Padlet board is an online platform that allows users to create and share digital bulletin boards or "walls" that can contain various types of content, such as texts, images, videos, links, and files. 'The Writing Inspiration Padlet' is designed to be accessible, flexible, and collaborative.

The objectives of 'The Writing Inspiration Padlet' project is to:

- a) Provide students with a variety of writing prompts and exercises that can stimulate their creativity, critical thinking, and problem-solving skills.
- b) Expose students to examples of good writing in different genres and styles that can inspire them to develop their own writing skills and voices.
- c) Offer students a range of resources and tools that can support their writing process, such as grammar and style guides, dictionaries, thesauruses, and citation guides.
- d) Encourage students to collaborate with each other and with their teachers to share feedback, ideas, and insights about their writing.

The novelty of 'The Writing Inspiration Padlet' project lies in its use of a Padlet board as a digital repository of writing resources that can be easily accessed and customised by students and teachers. While there are many online writing tools and platforms available, only a few provide the same level of flexibility, interactivity, and personalization as a Padlet board. Moreover, 'The Writing Inspiration Padlet' is designed to be inclusive and diverse, with a wide range of prompts, exercises, and examples that can appeal to students from different backgrounds, cultures, and interests.

Overall, 'The Writing Inspiration Padlet' project has the potential to improve both students and society writing skills, fostering creativity and innovation, and promoting lifelong learning and communication. By providing students with a fun and engaging way to develop or improve their writing skills, the project can help enhance students' academic and career prospects, as well as their personal growth and well-being.

## **2. LITERATURE REVIEW**

Teaching and learning writing is a complex and multifaceted field that involves a wide range of theoretical and practical approaches. Over the years, many scholars and educators have explored different strategies and tools to enhance writing skills, from traditional grammar and composition instruction to digital technologies and online communities. In this section, we review some of the key concepts and findings that inform the development and use of 'The Writing Inspiration Padlet'.

### **2.1. Writing Pedagogy**

Writing pedagogy refers to the study of teaching and learning writing skills, including the theories, methods, and practices (Hyland, 2008). Scholars have debated various approaches to writing pedagogy, such as the product-oriented versus process-oriented models, the cognitive versus social perspectives, and the explicit versus implicit instruction. Some researchers argue that writing pedagogy should focus on developing students' critical thinking, problem-solving, and communication skills, while others emphasise the importance of creativity, voice, and personal expression (Pfeiffer & Sivasubramaniam, 2016; Joseph et al., 2021 & Ramamuthie & Aziz, 2022). Nevertheless, most writing pedagogy experts agree that effective writing instruction requires a balance of explicit instruction, feedback, and practice (Higgins et al., 2006 & Zumbroon & Krause, 2012)

### **2.2. Writing Prompts and Exercises**

Writing prompts and exercises are tools that can help students generate ideas, organise their thoughts, and practise different writing skills. Writing prompts can take many forms, such as open-ended questions, images, scenarios, or quotations, and can be used to stimulate creativity, critical thinking, and reflection. Writing exercises, on the other hand, are more structured and focused activities that aim to develop specific aspects of writing, such as grammar, vocabulary, or style. Some research suggests that writing prompts and exercises can enhance students' motivation, engagement, and performance, especially when they are designed to align with students' interests and goals (Gbolli & Keamu, 2017 & Saeed & Zyngier, 2012).

### **2.3. Examples of Good Writing**

Examples of good writing are texts that demonstrate high-quality writing skills in terms of style, structure, and content. Reading and analysing examples of good writing can help students develop their own writing skills by providing them with models to emulate, critique, and adapt. Some research suggests that examples of good writing can also enhance students' metacognitive skills, such as their ability to evaluate and revise their own writing (Ramadhanti & Yanda, 2021; Sachar, 2020). However, it is important to note

that the definition of "good writing" may vary depending on cultural, disciplinary, and personal preferences.

#### **2.4. Digital Writing Tools and Platforms**

Digital writing tools and platforms are software applications and online communities that can support a writing class in various ways. Some digital writing tools are designed to facilitate the writing process, such as word processors, grammar checkers, and citation managers, while others are designed to enhance collaboration and feedback, such as peer review platforms, writing workshops, and online forums. Digital writing platforms can also offer opportunities for multimodal and multimedia writing, such as blogs, podcasts, and videos. Some research suggests that digital writing tools and platforms can improve students' writing skills, engagement, and motivation, especially when they are integrated with other instructional strategies and activities (Chua et al., 2019 & Xue & Walters, 2022).

The literature review suggests that 'The Writing Inspiration Padlet' project is situated within a broader context of writing education that emphasises the importance of creativity, critical thinking, feedback, and practice. The project draws on strengths of writing prompts and exercises, examples of good writing, and digital writing tools and platforms to provide students with a flexible, collaborative, and personalised repository of writing resources. By aligning with key principles of writing pedagogy and leveraging the affordances of digital technologies, this project has the potential to offer a novel and effective approach to a writing class.

### **3. METHODOLOGY**

This section describes the methodology used to develop and evaluate the 'Writing Inspiration Padlet' project, including the design, implementation, and assessment processes.

#### **3.1. Design**

The design phase of the project involved several steps, including needs assessment, content development, platform selection, and user interface design. The needs assessment was conducted through surveys, interviews, and focus groups of the previous semester classes to identify main challenges and preferences related to writing education. The content development phase involved the creation of a wide range of writing prompts, exercises, and examples, covering different genres, styles, and levels of complexity. The platform selection process involved a review of several digital writing tools and platforms, including Padlet and Google Sites, based on their features, usability, and cost-effectiveness. The user interface design phase involved customization of the Padlet platform to match the project's goals and requirements, including the addition of custom backgrounds, icons, and layouts.

### **3.2. Implementation**

The assessment of 'The Writing Inspiration Padlet' was conducted using a qualitative approach, with data collected through individual interviews with 10 participants who used the platform for 14 weeks. Interviews were conducted at the end of the course and focused on the participants' experiences with the platform, including its usability, content quality, engagement and collaboration features, and impact on their writing skills. The interviews were audio-recorded and transcribed for analysis. Thematic analysis was used to identify common themes and patterns in the participants' responses, and to gain insights into the effectiveness and usability of the platform.

### **3.3. Assessment**

The assessment phase of 'The Writing Inspiration Padlet' project aimed to evaluate effectiveness of the platform in supporting writing education and enhancing students' writing skills. The methodology used for this assessment focused on qualitative data collection through semi-structured interviews with writing educators and students who had used the platform during the implementation phase.

The interviews were designed to gather feedback and insights on various aspects of the platform such as its usability, functionality, content quality, engagement, and impact on writing skills. The interviews were recorded and transcribed for data analysis. The data analysis process involved several steps such as coding, categorising, and theme development to identify recurring patterns and themes in the interview data.

The assessment methodology shows that 'The Writing Inspiration Padlet' project's effectiveness was evaluated through a rigorous and systematic data collection and analysis process that relied on qualitative data from interviews. However, the methodology also acknowledges limitations of this approach, such as potential bias and subjectivity, and highlights the need for future studies to use complementary assessment methods, such as surveys, observations, or analytics, to provide a more comprehensive and nuanced understanding of the project's effectiveness.

## **4. RESULTS AND DISCUSSION**

### **4.1. Results**

The results of the study show that 'The Writing Inspiration Padlet' project was generally well-received by the participants, who reported several benefits and challenges associated with its use. Specifically, the results reveal the following themes:

#### **4.1.1 Usability and functionality**

Participants found the platform to be easy to use and navigate, with a variety of useful features and tools for organising and sharing writing materials.

#### **4.1.2 Content quality and diversity**

Participants appreciated the quality and diversity of the writing prompts, exercises, and examples curated on the platform, which helped to inspire and enhance their writing skills.

#### **4.1.3 Engagement and collaboration**

Participants valued the platform's ability to facilitate engagement and collaboration among students and educators, through features such as comments, likes, and sharing.

#### **4.1.4 Impact on writing skills**

Participants reported various positive impacts of using the platform on their writing skills, such as improved creativity, confidence, and quality of writing.

#### **4.1.5 Challenges and limitations**

Participants also highlighted several challenges and limitations associated with the platform's use, such as potential distractions, technical issues, and lack of training and support.

### **4.2. Discussion**

The discussion of the results suggests that 'The Writing Inspiration Padlet' project has the potential to support a writing class and enhance students' writing skills through its usability, content quality, engagement, and collaboration features. The results also highlight the importance of addressing challenges and limitations of the platform's use, such as providing formal training and support to users, and addressing technical issues and distractions.

The discussion further suggests that 'The Writing Inspiration Padlet' project can contribute to the broader field of writing classroom by providing a creative and accessible repository of writing prompts, exercises, and examples that can inspire and support students' writing skills. The discussion also identifies several directions for future research, such as exploring the effectiveness of the platform in different writing contexts, comparing its effectiveness to other writing tools and methods, and investigating its impact on long-term writing skills development.

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## Chapter 3

# FACT FINDING BOOKLET: I AM MALAYSIAN

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### ABSTRACT

In Malaysia, the Federal Constitution is the supreme law of the land. It enshrines the fundamental rights that the state must preserve and establishes the premise that no legitimate power can deprive citizens of their fundamental rights in compliance with the law. Because of its significance, knowledge of these rights in the Constitution is important because without it, the public will not recognize the wisdom behind its existence. The Ministry of Higher Education has mandated this subject to be taught as a general subject for almost all higher learning institutions, including *Pengajian Malaysia*. Unfortunately, the student's knowledge and understanding of the Constitution remains limited. The reason is that teaching and learning about the Constitution is often uninteresting. As a result, the primary objective of this product is to adapt Malaysia's Constitution into a game booklet with exciting ways to learn about the Constitution. Inspired by a famous children's game Humpty Dumpty, this product aims to raise Malaysian consciousness and build their proper comprehension of general knowledge through innovation. In terms of commercialization potential, we can use the product not only in an academic setting but also to benefit the community at large.

**Key Words:** Booklet, Federal Constitution, supreme law, awareness, knowledge

## 1. INTRODUCTION

Several constitutional issues have swept over Malaysians in the previous two years. Covid-19 pandemic, along with political turmoil, has put Malaysia's Constitutional democracy in jeopardy. Issues such as freedom to practice religious rituals, restrictions on movement from (MCO), personal autonomy in receiving vaccine, appointment of Prime Minister and establishment of new government, have emerged as prominent and contentious issues debated by various groups in the nation setting. Without a doubt, being the ultimate and supreme law of the land, the Malaysian Constitution has been the first point of reference for the legal community and human rights campaigners in debating and resolving the aforementioned challenges. The basic structure of our federal Constitution must be viewed from our local circumstances in compliance with the principle of Constitutional supremacy and the rule of law (Husain, 2021). It sets the presumption that no legal power may be utilised to deny citizens' fundamental rights unless it is done in line with the Constitution. This law establishes the fundamental rights that the state must safeguard. Therefore, understanding these constitutional rights is critical due to their importance. The Ministry of Higher Education in Malaysia mandates that Pengajian Malaysia be taught as a general subject in practically all higher education institutions. For community college students, Pengajian Malaysia is a compulsory subject during their first semester of study and part of the Pengajian Malaysia topic, they will study the Federal Constitution. Unfortunately, the pupil still has a limited understanding of the Constitution. As a result, the "Fact Finding Booklet: I Am Malaysian" serves as a legal education tool, imparting this critical legal knowledge not only to students but also to the entire Malaysian's society. Therefore, the primary objective of this product is to transform the Malaysian Constitution into a gaming booklet that offers engaging ways to learn about it.

## 2. LITERATURE REVIEW

Many scholars have discussed the role of Federal Constitution of Malaysia in maintaining harmony between multi-racial societies, such as Mohamad et al., (2021), Ibrahim et al., (2020) and Hasan et al., (2015). The initial interaction among the multiracial societies representing each race has been the fundamental commencement of Malaysia's Federal Constitution. Federal Constitution is the highest form of law for a sovereign nation like Malaysia. The existence of a constitution is a guide to organize and coordinate the administration of a country. It serves as a guide for the formulation of legislation, whether by the administration or by individuals. According to Muslim, (2017), there is no law or institution that can surpass the supremacy of the Federal Constitution in Malaysia. Sulaiman et al., (2018), Harahap et el., (2020), Panjaitan et al., (2021) concluded that booklet has very valid criteria and suitable and effective for use as a learning supplement.

### 3. METHODOLOGY

This study used a qualitative design with a content analysis approach. Six students from Kolej Komuniti Bukit Mertajam were selected using a purposive sampling method involving students which has taken Pengajian Malaysia's subject previously. A semi-structured one-on-one interview method was used for data collections from Mac 2023 to May 2023 by the second author. The interviews were done using Malay language and started with open-ended questions. The participants were asked to explain their experiences learning Pengajian Malaysia's subject before. Probing questions such as 'explain more about your experience' were used based on the participant's answer for more clarification and examples. The interview session has taken place in a private setting. The session started with more general questions and gradually to more specific towards the aims of the research. Questions such as follows were raised; Do you still remember some topics learned in the subject of *Pengajian Malaysia*. What is your opinion on the traditional ways of learning *Pengajian Malaysia*. Please explained some of your experience learning *Pengajian Malaysia*. Each interview lasted 30 to 50 minutes. All of the interviews were audio recorded and transcribed verbatim. Collected data was analysed manually using an inductive method in which the researcher carries out precise and continuous examinations of the data to extract categories and themes from the raw data. Furthermore, specified meaning units were coded based on participant's descriptions. Reduction and compression processes were later used to classify and extract similarly. Finally, categories and subcategories were formed. The codes extracted from each transcribed text were then analysed using a constant comparison technique before the codes were classified and integrated. Codes extracted from the data were "boring", "confusing sentences and complex", "hard to remember" and "more interesting". We used the Guba and Lincoln criteria for measuring the accuracy and reliability of the study.

### 4. RESULT & DISCUSSION

All participants were guided to describe their experience learning the Pengajian Malaysia's subject. All the six respondents mentioned about the learning process was "boring" one of the respondents described:

*I often tried my best not to doze off during the lecture. I believe most of friends felt the same ways too, but we did try our best to listen as we will need to answer quiz or use what have learned to do the assignment. As the time goes by, it was harder to concentrate on the lesson. Sometimes we will be given a few minutes to rest to freshen up, but it does not help so much.*

The second code is "confusing sentences". Four of the respondents felt like the lecture notes and they gave lesson using a confusing sentence. The example description for this code is:

*Sentences used both in the lecture notes and explanations from the lecturer were confusing. I believe this is due to the usage of law language, which is often intertwined and complex. Some of my friend will often request the lecturer to repeat the explanations for our better understanding.*

The following code is “hard to remember” one respondent narrates that:

*I find it really hard to remember important points even after I revisit the lecture notes. Sometime I will use more creative ways to remember such as turning the important point to songs.*

The final code is “more interesting” as five out of six respondents mention that it will help if the methods of learning Pengajian Malaysia are more interesting. The example description for this code is:

*I wish there are other ways to learn the subjects. Perhaps usage of easier and more examples and pictures will help to make learning Pengajian Malaysia more interesting.*

## **5. PRODUCT DESCRIPTION**

The product is designed to serve as a platform for better understanding and promoting awareness of citizens' rights as protected by the Constitution. Inspired by a famous children's game Humpty Dumpty, this product aims to raise Malaysian consciousness and build their proper comprehension of knowledge on constitutional rights through innovation. The game commences by answering the booklet with appropriate answers according to the level. If the answer is wrong, the participant will aim to remove a brick from the Humpty Dumpty game without letting it fall. With more wrong answers or not answering the questions on the booklet, the more bricks will need to be moved out. The one who makes the Humpty Dumpty fall loose and will leave the game. We divide this invention into three stages, namely Novice, Intermediary and Advance. Novice level is to test the participant's fundamental knowledge and information about Malaysian government. For the intermediary level, the participant is introduced with the federation of Malaysia with the federal constitution as the supreme law of the land whereas the advance level tackles our specific rights as a citizen. For this version, it focuses on the rights when deal with enforcement unit namely police officers. In terms of commercialization, the strategy is to promote and spread the visibility of the product through partnership program with local government and public institution. The product can be used not only in an academic setting but also to benefit the community at large. This is in line with a study done by Ober (2016) and Zsoldos et al., (2020) which suggest that using board-games can be used adjunct to traditional methods is an attractive teaching and learning method for pupils, which develops their cognitive competencies and social skills.

### **5.1. Novelty & Uniqueness**

This product's unique feature is how readily participants and other Malaysians may learn their rights and the laws that may protect them since it simplifies the Federal Constitution using board games inspired by classic Humpty-Dumpty games.

### **5.2. Benefit to Users & Society**

The product "Fact Finding Booklet: I am Malaysian" allows players to increase their knowledge and awareness of their constitutional rights while also exposing them to proper communication methods with authorities. Furthermore, it assists to the smooth running of society by ensuring that the general populace understands their legal rights adequately, while helping people to avoid dispute in finding an appropriate remedy.

## **6. CONCLUSION**

Constitutional law is the cornerstone of the nation's legal system and the foundation upon which the nation's democratic system of government is based. Individual rights are protected by constitutional legislation, which also preserves a balance of power among various government branches. Understanding constitutional law has undoubtedly acted as a catalyst in the process of people's social transformation and it serves as a framework for what is acceptable in society. The product "Fact Finding Booklet: I am Malaysian" can be utilised as a learning tool to raise awareness of government obligations and the scope of their authorities, as well as rights and fundamental liberties as Malaysian citizens. Better understanding of the Federal Constitution is hoped to contribute towards a more harmonious relationship between multi-racial societies in Malaysia.



Figure 1: Novice Part 1

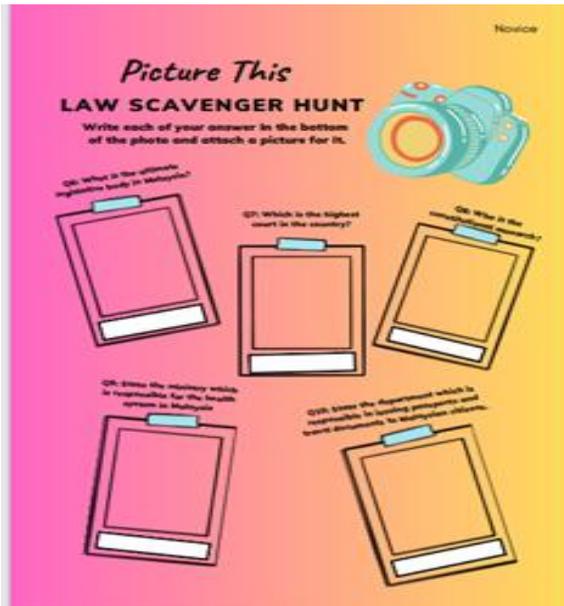


Figure 2: Novice Part 2

Intermediary

## LAW SCAVENGER HUNT

*Malaysia: Our Beloved Country*



Malaysia is a federation comprising the eleven states of Malaya, Sabah, Sarawak and three Federal Territories. The Federal Government adheres to the Federal Constitution of Malaysia as supreme law of the land, under the Westminster system.

 Let's know our country better!

**How are they formed?**  
A democracy system in Malaysia is based on the Federation system.

The Executive branch of the government consists of \_\_\_\_\_ are the head of government. \_\_\_\_\_ is largely a ceremonial role and head of state.

A. Raja Muda  
B. Yang DiPertuan Agong  
C. Chief Minister

D. Yang DiPertuan Agong  
E. CMB Member

The Federal Government adopts the principle of separation of powers. Thus in Malaysia, it has three branches of government. They are: \_\_\_\_\_

A Parliament is the body that enact laws. It is made up of three components. State of them. \_\_\_\_\_



Figure 3: Intermediate Part 1

Intermediary

## Law Scavenger Hunt

*Malaysia: Our Beloved Country*



- His Royal Highness Yang DiPertuan Agong is elected by \_\_\_\_\_
- The law of Malaysia is mainly based on the \_\_\_\_\_ legal system.
- The Prime Minister who is the head of cabinet is appointed by \_\_\_\_\_
- In the states with a Sultan, the Chief Minister is appointed by the respective Sultan and he must come from \_\_\_\_\_ race.
- Malaysia practices \_\_\_\_\_ democracy with Constitutional Monarchy.
- The Military body of Malaysia is the \_\_\_\_\_ while for the law enforcement, the function is given to the \_\_\_\_\_






Figure 4: Intermediate Part 2



Figure 5: Advance Part 1

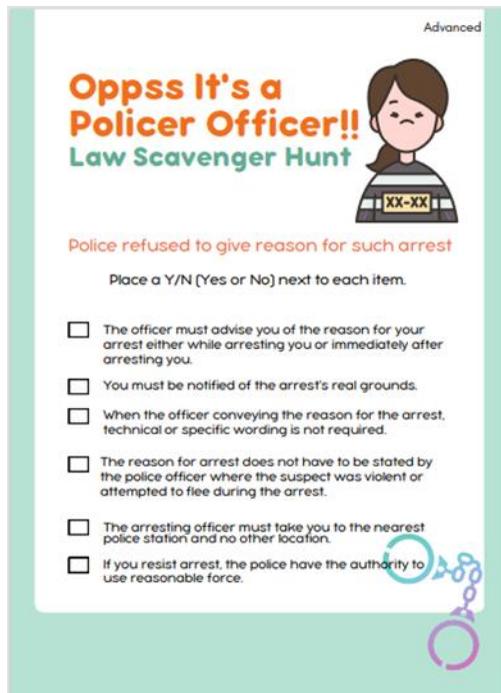


Figure 5: Advance Part 2

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## Chapter 4

# SOCO X: Legal Pocket on Duty of Care of Hospitality Operators and Mediation in Hospitality Negligence

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### ABSTRACT

Running the hospitality industry can be pretty lucrative and one of the most satisfying businesses, providing guests and visitors with leisure activities and lavish vacations. Unfortunately, the nature of the industry exposes the operators to numerous lawsuits, which can be costly to resolve and may even permanently harm the company's reputation. Hospitality negligence describes a failure to exercise reasonable care or other obligations to protect visitors. Therefore, all sectors of the hospitality industry are required to operate safely, or else they risk liability for any negligence, accidents, and injuries that might happen to their guests. At the same time, the business is open for business. Under tort law, a person or an occupier has a duty of care to act comparably as a reasonable person would. The person who breached their duty of care is accountable for any harm or loss that another person sustains because of their negligent actions. SOCO X's principal goal is to educate hospitality operators on their legal responsibilities when running a business and to provide an awareness of visitors' legal rights in the event of negligence. This comprehensive legal pocket includes a uniform legal framework on the operator's duty of care and standard of care to be observed depending on the types of guests who visit their location. This pocket contains legal information in the form of infographics to provide interested parties with insight into the legal liabilities offered by tort law, as well as a checklist to methodically review and examine the parties' adherence to applicable norms and laws. This tool can help hospitality businesses manage their operations and reduce legal risks.

**Key Words:** Legal pocket, duty of care, hospitality negligence, awareness, legal responsibilities.

## 1. INTRODUCTION

OECD (2020) called for building a more resilient and sustainable tourism industry following the outbreak of COVID-19. After a long halt, Malaysia's tourism and hospitality sectors began to flourish again with a record of 10.07 million inbound tourists in 2022 compared to 0.13 million inbound tourists in 2021 entering the country (Tourism Malaysia, 2023). Although the number of domestic tourists in 2021 dropped to 54.5% compared to 2020, the Department of Statistics Malaysia (2022) was optimistic about the recovery of domestic tourism.

These scenarios imply that the hospitality operators should be ready to receive and host the tourists at their best. Nevertheless, the nature of the industry may expose them to lawsuits following unfortunate incidences within their premises. Therefore, actions must be taken to enlighten and educate them about their responsibilities and liabilities. The present innovative product fulfils this objective.

## 2. LITERATURE REVIEW

Tourism significantly contributes to Malaysia's Gross Domestic Product (GDP). Even though the Malaysian tourism sector is still struggling to recover following the COVID-19 outbreak, the Malaysian economy has achieved extraordinary growth since the country shifted to the endemic phase. Tourism Malaysia, the agency responsible for promoting Malaysia as a local and international tourist destination, has stepped up its initiative and efforts. For example, Tourism Malaysia has started the Jom Cuti-Cuti Malaysia 2023 Roadshow, aiming to increase domestic tourist activities and encourage people to arrange domestic vacations to help the economy. It was recorded that 30 industry companies, including tour agencies, hotels, and theme parks, participated in the second edition of this roadshow, which offers over 100 tour packages with discounts ranging from 15% to 50% (Bernama, 2023). Similarly, Tourism Malaysia realigns its other initiatives, as stated in the Tourism Malaysia Marketing Plan 2022-2026, to re-establish Malaysia as an international travel destination (Tourism Malaysia, 2022).

The excitement of re-opening the industry raises various stakeholders' safety and security concerns. Before COVID-19, Malaysia's image as a safe and secure place was tarnished following the Lahad Datu intrusion, recurrent kidnappings and shootings in Sabah, and the MAS airline incident. As reported in the news media, numerous mishaps and unfortunate incidents continue to occur. For example, it was written by The Star (2023) that on 19<sup>th</sup> May 2023, a tour bus lost control and skidded on the East Coast Expressway, which led to two dead passengers and another eight suffering injuries. On 8<sup>th</sup> February 2022, reckless driving by a tourism operator led to a tourist van crash, causing eight deaths at Genting Highland (Alagesh, 2023). Malaysian mass media also reported accidents at the theme parks. Bernama (2022) said three were injured due to a funfair *Sotong* ride in December 2022. In contrast, New Straits Times reported that one visitor was killed while another was seriously injured in the Ferris wheel tragedy at Cheras Funfair on 12<sup>th</sup> November 2021 (Rahim, 2021).

This kind of incident exposes the operators to numerous lawsuits, which can be costly and potentially permanently harm the company's reputation. Under tort law, such incidences are known as hospitality negligence, described as an operator's failure to exercise reasonable care or other obligations to protect its visitors. According to this law, a person or an occupier has a duty of care to act comparably as a reasonable person would. The person who breached their duty of care is accountable for any harm or loss that another person sustains because of their negligent actions.

Therefore, all sectors of the hospitality industry are required to operate safely, or else they risk liability for any negligence, accidents, and injuries that might happen to their guests. At the same time, the business is open for business. Nevertheless, as non-legal experts, hospitality operators may not be able to understand the legal text, cases and statutory provisions. Legal documents are often difficult to be understood by general public due to their ambiguity, length, use of technical vocabulary and structure (Hartley, 2000; Kanapala, Pal & Pamula, 2019; Martínez, Mollica & Gibson, 2022). Hence, a useful and user-friendly tool for non-legal experts should be created to impart knowledge and create awareness of the law on negligence.

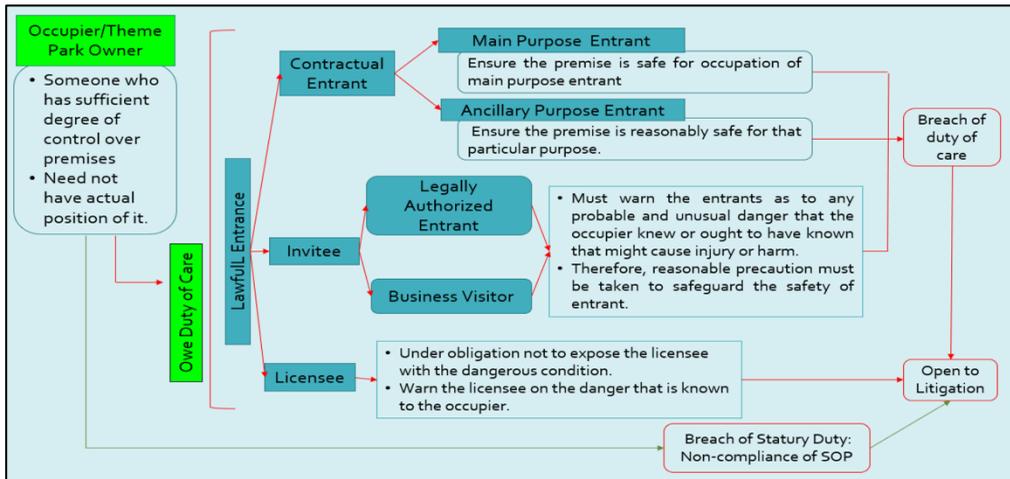
### **3. METHOD**

In creating the innovative product, we used doctrinal legal research that entails reading and interpreting laws, legislation, and judicial decisions. We conducted a library search on relevant legislation, rules and decided court cases in online databases. We mainly referred to the materials published in the Current Law Journal and Lexis-Nexis cases from English Common Law and Malaysian Law. After analyzing all the materials, we extracted the information as input in designing a legal framework, infographic and checklist that form our innovative product.

### **4. RESULTS & DISCUSSION**

SOCO X is created with a comprehensive explanation of the topic of innovation, namely the occupier's obligation and standard of care for visitors. A legal framework (Figure 1) is used as a design strategy because it meets the product's objective of conveying complex legal information about an occupier's duty of care and legal requirements.

It is presented in a logical order, with accompanying images and text, to aid the reader's comprehension of the legislation by elucidating the various categories of visitors recognized by law, including illegal visitors, as well as the different types of legal requirements that the occupier must meet to avoid legal liabilities.



**Figure 1: SOCO Framework©**

Additionally, a list of the legal requirements, duties and obligations a tourism operator must fulfil is provided so that the concerned parties can systematically review and evaluate their compliance with the relevant laws and regulations. The product is also accompanied by an infographic explaining the aspects that must be established in court if a legal procedure is taken against the tourism operator owing to a mishap or negligence on the operator’s side.

**4.1. Novelty and Uniqueness**

The features embedded in SOCO X provide concerned parties with a platform on which they can comprehend and appreciate the intricacy of law effortlessly. That is, SOCO X simplifies the law of tort negligence so that users can learn about and comprehend the laws and regulations easily. The design of the framework, which aims to lessen the difficulties of understanding regulations requiring a substantial quantity of legal papers, makes this product distinctive. It also has a checklist that enables the parties to regularly evaluate and track their compliance with relevant rules and regulations.

**4.2. Benefits to Users and Society**

SOCO X provides three benefits to the users. First, it is helpful for users (i.e., hospitality operators) to understand the legal rights and liabilities as outlined by laws when operating a tourism business. Second, it assists the users in avoiding legal claims being made against them. Third, SOCO X assists the users in adhering to the current legal requirement to earn the trust and confidence of tourists or other visitors.

As for society, SOCO X is potentially helpful for the public to understand the tort on the duty of care and negligence. The general public will also find SOCO X useful in comprehending legislation related to a specific topic because the information is provided

in simple words like an infographic. SOCO X, which aligns with the Sustainable Development Goals (SDGs) 8, 9, 11 and 16, can be a teaching and learning tool for spreading legal awareness. It allows the readers to evaluate whether they are eligible to file a claim if someone infringes their rights.

## 5. CONCLUSION & RECOMMENDATION

With the opening of international borders, reviving the tourist business requires boosting domestic travel and rebuilding public trust in the safety and health of travel and the industry's operations. Although some instances or mishaps have a short-term influence on the Malaysian tourism industry, they may substantially impact the Malaysian branding process. Many tourists and Malaysians still believe Malaysia is safe to visit and stay in. Still, more outstanding efforts are required to ensure Malaysia's tourism industry recovers as swiftly as possible from this negative impact. Therefore, the government must implement a methodical strategy emphasizing conformity to certain laws and regulations.

SOCO X can potentially be a valuable and practical instrument for regaining public trust by providing simplified legal information through a legal framework, engaging infographics, and a checklist that allows parties to assess compliance with applicable laws and regulations. It can be commercialized to hotel sector participants and tourists as an e-brochure. This interactive product disseminates the most recent duty of care and standard of care legal information.

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## Chapter 5

# One Tap to West Java Region Disaster Literate: An Interactive and Comprehensive Tools Based on Android Application

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### ABSTRACT

The peak of the 2022/2023 rainy season has caused many disasters specially landslides in Indonesia especially in west java. Water that seeps into the soil will add to the weight of the soil. If the water penetrates into the impermeable soil which acts as a slip surface, the soil will become slippery and the weathered soil above it will move along the slope and off the slope. It has been four times increased from 2015 that have occurred 500 landslides which has taken many lives and damaged settlements and infrastructures. This damage can be prevented if the society is aware and understands this nature disaster and how to mitigate it. Therefore, we have designed a web-based and android application regarding to these disasters in west java Indonesia. It is an easy and quick tool for society to understand what, why and how to manage this disaster. For this we have collected all research results related to landslides in west java from our laboratory works and others. We have collected research results regarding to type of landslide, its velocity and coverage area if the landslide and liquefaction happen in more than 20 locations in west Java, Indonesia, then we mapped all the data in West Java map as one of the features of disaster literacy both web-based and android application. Other features are definition and process of landslide types, the research method to characterize landslide and last but not least the disaster mitigation.

**Key Words:** landslide literacy, mitigation, west java region disaster

## **1. INTRODUCTION**

West Java is a province in Indonesia located near the subduction zone of the Indo-Australian and Eurasian plates, which is an area of convergence between the two plates and has fault zones, namely the Lembang fault and Cimandiri fault. This makes West Java a vulnerable area to natural disasters.

Currently, the lack of disaster literacy is a highly relevant issue in the context of disaster management. One of the factors causing the lack of disaster literacy is the lack of education and awareness about disaster risks. Many people have not received sufficient information about the types of disasters, early warning signs, and preventive measures that need to be taken. In addition, the lack of access to relevant information resources is also a barrier, especially in remote areas and impoverished communities. This is a serious problem considering that Indonesia, especially West Java, has the highest number of children and elderly individuals, who are vulnerable groups in disasters.

Therefore, we have developed an easily accessible application that is equipped with relevant pictures and videos. This application serves as a literacy tool to enhance understanding and reduce the impact of disasters, particularly landslides.

## **2. LITERATURE REVIEW**

### **2.1. Android Application**

Android applications can be utilized as learning support tools, accessible media, and learning resources (Gargenta, 2011). The benefits of using Android applications in education are that it can attract students' attention and enthusiasm for learning. As a result, the conveyed material can be effectively and accurately delivered (Wijaya, R. E., Mustaji, M., & Sugiharto, H. (2021).

### **2.2. Landslide Disaster Mitigation**

The frequency of landslides and the fact that a large number of people live in landslide-prone areas contribute to the high death toll in Java Island, Indonesia - more than 1,112 individuals between 1999 and 2005. The National Disaster Management Agency (Badan Nasional Penanggulangan Bencana or BNPB) reported 2,766 landslide disasters in Java from 2014 to 2019, resulting in 662 deaths. Considering the situation, it appears that disaster mitigation in Indonesia is still weak. A comprehensive understanding of the weaknesses in landslide disaster mitigation in Indonesia is crucial, requiring the involvement of the government, researchers, and local community actions (Zamroni, A., Kurniati, A. C., & Prasetya, H. N. E. (2020).

**3. METHODOLOGY**

The method used in this research is Research and Development (R&D). We have collected all research result related to landslides in West Java. After that, we mapping all the data in West Java map as one of features of disaster literation both web based and android application.

**4. RESULTS & DISCUSSION**

**4.1. Simulation of the Android Application**

**4.1.1. The Home Menu**



**Figure 1: The Home Menu**

**Table 1 The Home Menu**

Details and Test Result	
Input	User have to press the icon of this application to open the home menu.
Expected Result	Showing home screen, title application, logo, button that can be pressed by the users to enter the Topics of landslide, Method, Prediction, and References.
Test Result	Success

### 4.1.2. Landslide Menu

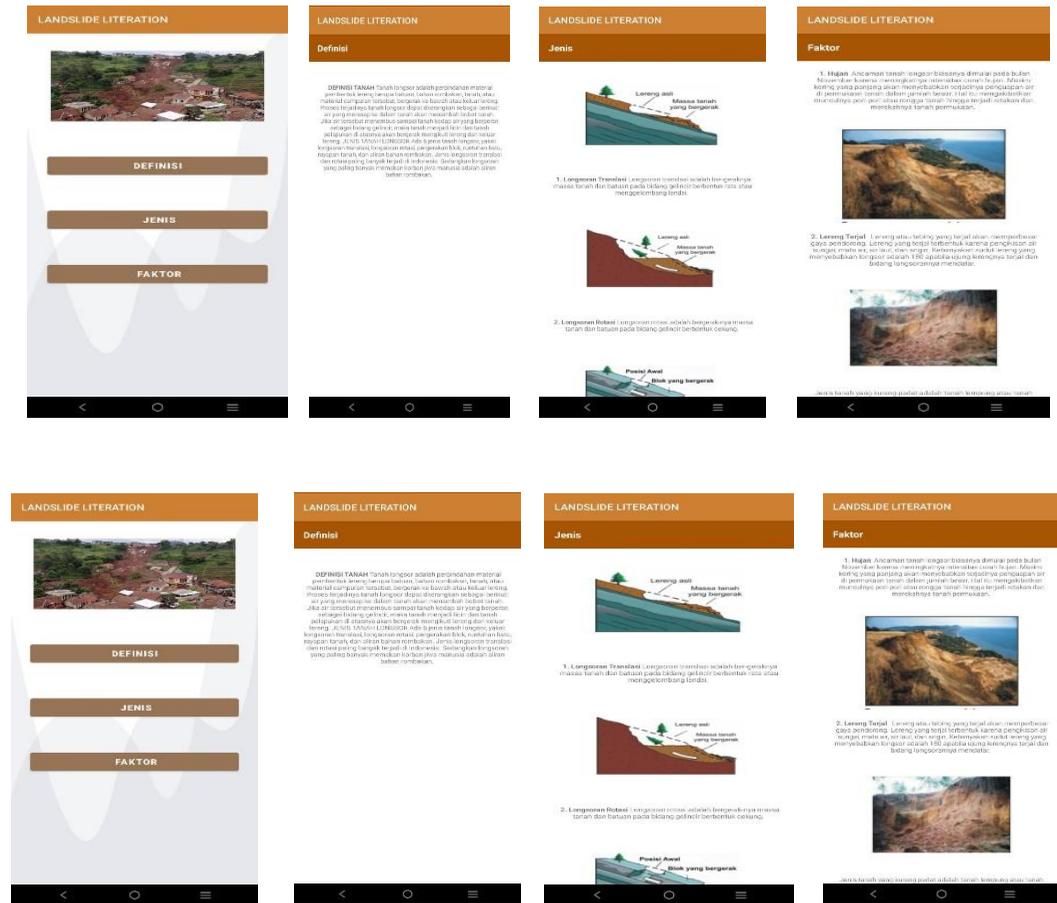


Figure 2: Landslide Menu

Table 2 The Landslide Menu

Details and Test Result	
Input	User have to press the Landslide button of the home menu.
Expected Result	Showing 3 button that can be pressed by the users to enter the Definition menu, Type menu, and Factor menu.
Test Result	Success

### 4.1.3. Method Menu

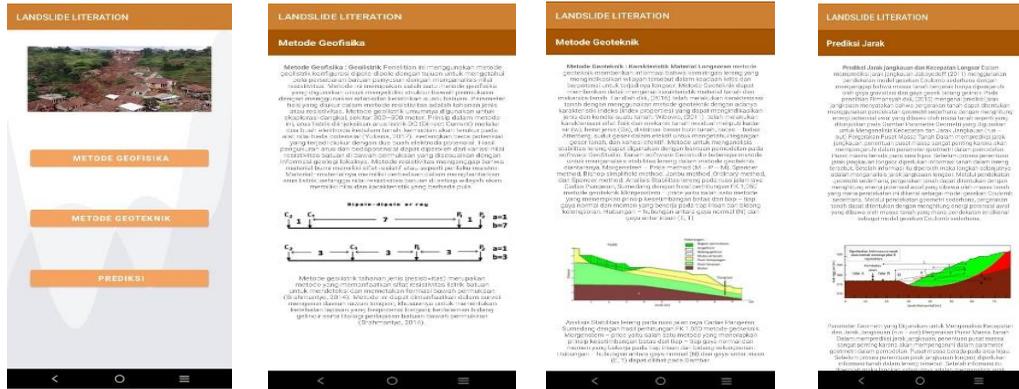
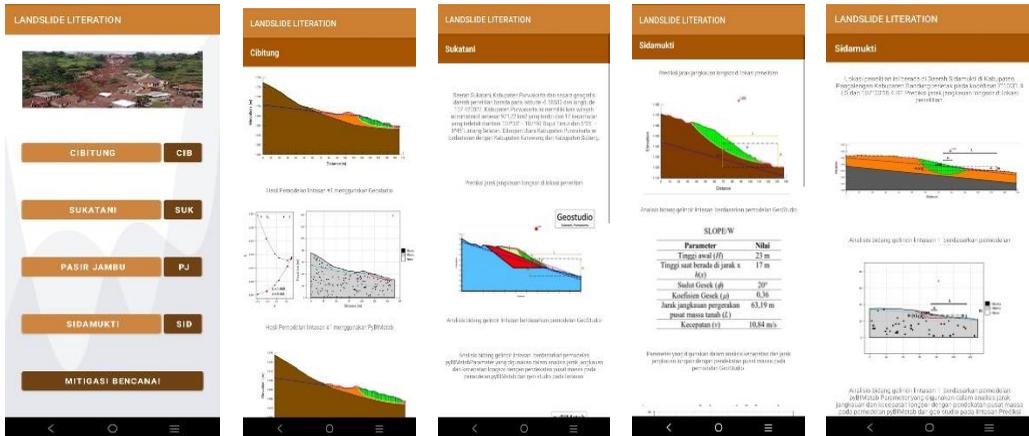


Figure 3: Method Menu

Table 3 Method Menu

Details and Test Result	
Input	User have to press the Method button of the home menu.
Expected Result	Showing 3 button that can be pressed by the users to enter the Geophysics Method, Geotechnical Method, and Prediction menu
Test Result	Success

### 4.1.4. Prediction Menu



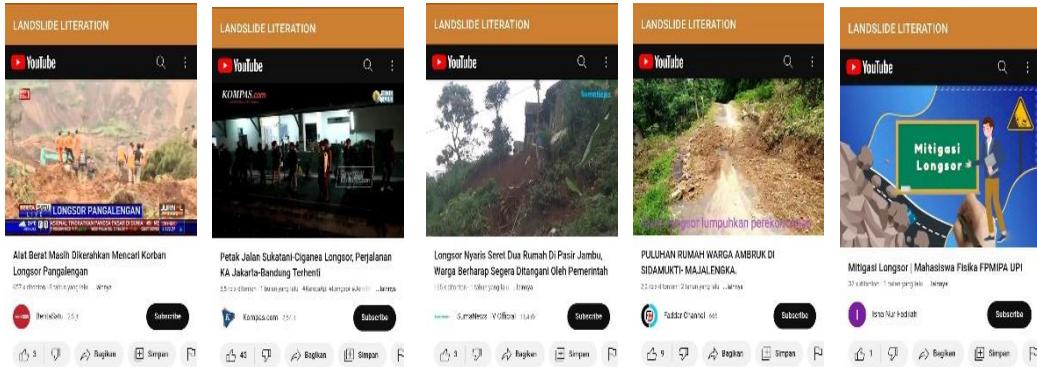


Figure 4: Prediction Menu

Table 4 Prediction Menu

Details and Test Result	
Input	User have to press the Prediction button of the home menu.
Expected Result	Showing 4 button that can be pressed by the users to enter the Cibitung site, Sukatani site, Pasir Jambu site, and Sidamukti site menu.
Test Result	Success

4.1.5. References Menu



Figure 5: References Menu

Table 5 References Menu

Details and Test Result	
Input	User have to press the References button on the home menu.
Expected Result	Showing the reference about this application teory.
Test Result	Success

**4.1.6. Developer Menu**



**Figure 6: Developer Menu**

**Table 6 Developer Menu**

Details and Test Result	
Input	User have to press the Developer button on the home menu.
Expected Result	Showing the names of the people who developed the application.
Test Result	Success

**4.2. Testimonials from Users**

Testing by users of the Landslide Literation application was carried out by taking reviews from users who run this application, namely lecturer, physics teacher, and citizen. From the results of interviews, this application is very useful for students, the people in the field of physics, or citizens to be more aware of landslide. Features of the application are set in a simple order to explore. Communities will surely get more knowledge about landslide easily.

**5. CONCLUSION & RECOMMENDATION**

The android application we created can be one of the applications that help everyone to be more aware of landslide quickly and easily by equipped with relevant pictures and videos of landslides in the research area. All content has run is successful. We hope, in the future this application can be developed by adding materials and features also fixing existing shortcomings.

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## Chapter 6

# Factors Influencing Seeking of Psychological Help and Perception Towards Mental Health App Among University Students with Depressive Symptoms: A Qualitative Study

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### **ABSTRACT**

In Malaysia, mental health issues among youth continue to be a challenge exacerbated by uniformed attitudes and misconstrued perceptions toward mental health. Despite government and social media efforts to raise awareness, individuals face barriers in seeking treatment due to social stigma and misconceptions about mental illness. To counteract this issue, mental health apps have been developed to improve the accessibility of mental health interventions and discreetly facilitate the first step towards mental health treatment. Therefore, this research aims to understand the factors influencing the seeking of psychological help and the perception towards mental health apps among youth with depressive symptoms. A qualitative research design was utilised, involving semi-structured interviews with purposively sampled university students aged 18-25 in Klang Valley, Malaysia. Data were analysed using thematic analysis. The relevance of this research is to address the significant barriers to seeking psychological help to provide recommendations for interventions to promote help-seeking behaviour, improve accessibility and effective mental health services. The main findings of this study identified factors that influenced the seeking of psychological help behaviour, such as topic transparency, accessibility, affordability, and lack of mental health literacy. Moreover, the participants' perception towards the mental health app revealed concerns about the quality of service, lack of human interaction, and the high level of commitment required to perceive effective results from such interventions. The study's recommendations for interventions to address barriers to help-seeking behaviour include increasing mental health literacy, improving engagement, broader range of treatment available, and providing intervention that suits their needs. Therefore, this

study proposes an innovative solution to provide effective and accessible mental health treatment by suggesting a hybrid approach of technological and traditional methods. This approach would involve providing accessible and affordable treatment through mental health apps for youth in their respective institutions, while also utilising educators and counsellors to further engage, educate, and establish human connections for mental health treatment.

**Key Words:** University Students, Depressive Symptoms, Psychological Help-Seeking, Mental Health Apps, Perception.

## 1. Introduction

In Malaysia, mental health issues among university students continue to be a challenge exacerbated by negative attitudes toward mental health (Kotera et al., 2020). Despite efforts by the government and community to raise awareness, individuals still face barriers in seeking professional treatment due to social stigma and misconceptions about mental illness. This leads to a relatively low perceived help-seeking intervention, with only 20% of Malaysians with a mental disorder seeking professional help (Raaj et al., 2021).

To counteract this issue, mental health apps have been developed to improve the accessibility of mental health interventions and discreetly facilitate the first step towards mental health treatment. These apps provide comprehensive in-app services, such as friendly chatbot services with cognitive-behavioural therapy and mood trackers to monitor their mood (Whitcomb, 2021). Despite the potential benefits of mental health apps, it lacks the human engagement to ensure effectiveness of intervention (Collier, 2022). Furthermore, their efficacy and acceptability are still not well-understood, particularly among university students with depressive symptoms.

The significance of this study lies in its potential to provide valuable insight into the factors that influence seeking psychological help and the perception towards mental health app among university students with depressive symptoms. Research has shown that mental health apps can have a positive impact on mental health outcomes, and there is a growing need for innovative solutions to address the mental health crisis in Malaysia (Wong et al., 2020). By exploring the attitudes and perceptions of university students towards mental health app, this study can contribute to the development of effective interventions that can help to reduce stigma and increase access to mental health care (Cheng et al., 2020). Overall, this study has the potential to benefit researchers, mental health practitioners, and policymakers in addressing the mental health crisis in Malaysia.

## 2. Literature Review

The factors that prevent seeking psychological help among university students have several factors identified as barriers to seeking psychological help. Stigma and negative attitudes towards mental health are one of the most reported barriers (Rüsch et al., 2017). Fear of being perceived as weak or incompetent, concerns about confidentiality, and concerns about the consequences of seeking help are other common barriers. Additionally, lack of awareness of available resources, financial constraints, and time

constraints are other factors that hinder students from seeking help that led them to manage their own well-being (LeViness et al., 2021).

Furthermore, several studies have identified factors that facilitate university students to seek psychological help. One study by Griffiths et al. (2018) found that perceiving psychological services as accessible, affordable, and convenient facilitated help-seeking among university students. Similarly, Hefner and Eisenberg (2018) found that having a supportive social network positively influences help-seeking behaviours as well.

Moreover, study from Burns et al. (2020) investigated the perception of adoption in the use of mental health apps among college students, finding that perceived usefulness, ease of use, and compatibility with personal values and preferences were significant predictors of app adoption and use. The study also suggests that digital interventions could be a useful supplement to traditional mental health services, particularly for students who experience barriers to accessing them.

### **3. Methodology**

This research uses a qualitative approach to study the factors influencing the seeking of psychological help and perception towards mental health app among university students with depressive symptoms. The research design utilises a semi-structured interview with purposively sampled university students aged 18-25 in Klang Valley, Malaysia. Data were analysed using thematic analysis.

Moreover, participants were gathered through purposive sampling with The Beck's Depression Inventory-Second Edition (BDI-II) to screen for depression symptoms to qualify the participants for the interview, where eligibility criteria for the students to take part in this study required the participants to be age between 18 to 25, enrolled in university as a full-time student, currently residing in Klang Valley, and scored a mild depression score in BDI-II. Participants were then shortlisted and interviewed using the 12 interview questions from Topkaya (2015) that aimed to understand the factors influencing psychological help seeking in adults, and three interview questions from Holtz, McCarroll, and Mitchell's (2020) that aimed to understand the perceptions and attitudes toward mobile phone app for mental health for college students.

BDI-II is a 21-item questionnaire self-report rating inventory that measures the attitude associated with depression and the symptom of the participant, where mild depression scores of 14 or greater qualified participants to participate in the study (Hailu, 2018). This study took place in Klang Valley, Malaysia that covers five significant metropolis cities. Klang Valley was chosen as the ideal site to gather the sample because studies have shown that depression is significantly more common in urban regions than rural areas, which showed potential sampling sizes to be found in this area (Iman et al, 2021). The qualitative data analysis method for this study was the thematic analysis, founded by Braun and Clarke in 2006, to identify themes from an interview transcript that showed patterns of meaning repeatedly, to turn it into a narrative academic writing to explain the study finding (Caulfield, 2019).

**4. Results and Discussion**

**Table 1 Category Frequency**

<u>Category</u>	<u>Frequency</u>
<b><u>BDI-II Score</u></b>	
(0-13) Minimal Depression	1 (Previously Diagnosed Exception)
(14-19) Mild Depression	1
(20-28) Moderate Depression	4
(29-63) Severe Depression	4
<b><u>Diagnosis Status</u></b>	
Yes	1
No	9
<b><u>Experience Seeking Help</u></b>	
Yes	5
No	5
<b><u>Mental Health App Knowledge</u></b>	
Yes	5
No	5

**Table 2 Mean and Standard Deviation**

<u>Category</u>	<u>Mean</u>	<u>Standard Deviation</u>
Age	21.2	0.92
BDI-II Score	29.5	14.67

**Table 3 Main themes and sub-themes in Findings**

<u>Main Themes</u>	<u>Sub-Themes</u>
<i>Factors Preventing University Students with Depressive Symptoms from Seeking Psychological Help</i>	Issue of Self-disclosure Stigma Associated with Seeking Help Lack of Mental Health Literacy Self-reliance
<i>Factors Facilitating University Students with Depressive Symptoms towards Seeking Psychological Help</i>	Increasing Accessibility Transparency in Discussion The Needs to Understand Self Free Service
<i>Perception Towards Mental Health App among University Students with Depressive Symptoms</i>	Existing Awareness on Mental Health App Perceived Usefulness Attitude Towards Mental Health App

This section begins by reporting the factors preventing university students with depressive symptoms from seeking psychological help. The most significant barrier identified was stigma associated with seeking help, with participants reporting various forms of stigma associated with seeking help that include religious, generational,

masculine, and judgmental stigma (Goh et al., 2021). Moreover, self-reliance was found to have significant barriers as well due to the participant preferences in addressing their needs with perceived flexibility in adjustment to the intervention without the need to involve others. To address this issue, the findings emphasised the importance of addressing negative beliefs, increasing mental health literacy, providing flexible intervention, and promoting the benefits of seeking help (Biddle et al., 2017).

Furthermore, access to affordable and convenient mental health services is the most significant facilitator of help-seeking behaviour among university students with depressive symptoms, where participants expressed their willingness to try free mental health services, but some were sceptical about their quality of service. Moreover, transparency in discussion was found to facilitate their help-seeking behaviour as well when participants recognised the importance of self-awareness and the need for help-seeking process through these discussions. The findings suggest that providing accessible, affordable, flexible mental health services and reducing the stigma associated with mental illness can further facilitate university students to seek help for their needs.

Subsequently, findings on the perception towards mental health app among university students with depressive symptoms suggest that participants had varying levels of awareness and perceived usefulness of mental health apps. The support system features, mood tracking, and therapist support were identified as important features of the app. The perceived usefulness of mental health apps is related to their ability to provide anonymity, access to assessment tools, and guidance and support to individuals with mental health issues (Baumel et al, 2019). However, participants' attitudes towards mental health apps varied on how it influenced their willingness to use them, with concerns raised on the effectiveness for severe cases, the lack of human connection, and high commitment required. Mental health apps can be valuable tools for individuals seeking help, but they must be supported by practitioners to ensure their effectiveness. These findings could inform the development of more effective and user-friendly mental health apps that meet the needs of individuals with depressive symptoms.

## **5. Conclusion and Recommendation**

In conclusion, this research sheds light on the various types of barriers experienced by university students seeking psychological help and using mental health apps. The findings also point towards the importance of addressing negative beliefs, increasing mental health literacy, providing flexible intervention, and promoting the benefits of seeking help. Additionally, technology-based resources such as mental health apps can be valuable tools for individuals seeking help, but they must be supported by practitioners to ensure their effectiveness. These findings could inform the development of more effective and user-friendly mental health apps that meet the needs of individuals with depressive symptoms. Overall, the results of this study suggest that providing accessible, affordable, flexible mental health services and reducing the stigma associated with mental illness can encourage university students to seek help for their needs and provide effective mental health services for university students and beyond. By implementing

these interventions, we can work towards reducing the barriers to seeking help and improving the mental health and well-being of individuals by providing a foundational mental health resource.

The study recommends for increasing mental health literacy, improving engagement, broader range of treatment available that, and providing intervention that suits the needs of youth. Therefore, this study recommends an innovative solution to provide effective, affordable, and accessible mental health treatment by suggesting a hybrid approach of technological and traditional methods. This approach would involve providing accessible and affordable treatment through mental health apps for the students in their respective institutions, while also utilising educators and counsellors to further engage, educate, and establish genuine human connections for their mental health treatment. This will allow the youth to have the necessary resources for them to manage their own well-being with guidance.

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## Chapter 7

# WANDER: Empowering Travelers with a Centralized Platform for Enhanced Travel Experiences

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### ABSTRACT

Wander is a revolutionary app designed to transform the way travelers explore and discover the world. Through authentic reviews in a vibrant community, Wander helps users make informed decisions, uncover hidden gems, and create unforgettable travel experiences. Even in today's digital age, travelers face dozens of challenges when it comes to planning their journeys. The overwhelming abundance of information, the lack of reliable reviews, and the difficulty in connecting with like-minded explorers often lead to frustration and missed opportunities. At the heart of Wander is a robust review system. Wander focuses on authenticity, ensuring that reviews are genuine and reliable. By encouraging users to provide detailed insights and personal experiences, the app enables travelers to make well-informed decisions based on trusted information. Wander goes beyond being a review platform by fostering a vibrant and engaged community. Travelers can connect with fellow explorers, share their experiences, and seek advice. Wander provides a dedicated space for travel-based content creators. With their expertise and creativity, they can share their recommendations, upload stunning photos, and inspire others with their travel narratives. Through a seamless interface, they can interact with their followers and establish themselves as trusted authorities in the travel community. In conclusion, Wander is a game-changing app that empowers travelers by providing authentic reviews, fostering a vibrant community, and promoting sustainable tourism. With its comprehensive features, intuitive interface, and commitment to quality, Wander is poised to revolutionize the way people explore, connect, and create memorable travel experiences.

## 1. INTRODUCTION

The tourism industry is poised for rapid growth in the post-COVID-19 era, with the World Tourism Organization (2021) predicting a 4% annual increase in international tourist arrivals. As a result, reliable reviews and personalized recommendations for restaurants, hotels, and tourist sites are becoming increasingly important for travelers seeking the best possible experiences. However, the absence of a centralized platform, trustworthy reviews, and authentic information leaves travelers with the time-consuming task of researching scattered reviews for their desired destinations (Munar & Jacobsen, 2014). This issue underscores the need for a comprehensive solution that addresses these challenges and enhances the overall travel experience. WANDER, an innovative travel app, aims to provide a centralized platform that offers personalized recommendations and reliable reviews, streamlining the travel planning process and empowering travelers to make informed decisions.

## 2. METHOD AND MATERIAL

WANDER is a centralized platform that provides users with reliable reviews of restaurants, hotels, and tourist sites. The app utilizes advanced algorithms, such as collaborative filtering and content-based filtering, to analyze user preferences and interests, delivering personalized recommendations tailored to each individual (Smith & Linden, 2017). This personalization is crucial, as research has shown that personalized recommendations can increase user satisfaction and engagement (Xu et al., 2014). Furthermore, WANDER simplifies the travel booking process by seamlessly integrating booking services directly within the app, reducing the need for users to navigate multiple platforms (Gretzel et al., 2015). Below are the description of the users who exist in WANDER:

### 2.1 Businesses

Businesses, such as hotels, restaurants, and tour operators, are essential components of the WANDER ecosystem. They can create profiles, display their offerings, and connect with potential customers through the app. By subscribing to premium features or forming partnerships, businesses can increase their visibility, attract customers, and enhance their reputation within the travel community.

### 2.2 Content Creators

Content creators, including travel bloggers, photographers, and influencers, contribute significantly to the WANDER community. They can share their experiences, recommendations, and insights with fellow travelers through the app. Content creators have the opportunity to grow their followers, collaborate with businesses, and monetize their influence via brand partnerships, sponsored content, and affiliate marketing.

### **2.3. Viewers/Users**

Viewers/users constitute the largest user group on the WANDER app. They can access a wealth of travel information, read reviews, view content created by others, and participate in discussions. By bookmarking places, planning itineraries, and sharing their own experiences, viewers/users actively contribute to the app's dynamic travel community. The app may generate income through advertising, sponsored content, and premium features for users seeking enhanced functionalities or an ad-free experience.

### **2.4. Admins**

Admins are the backbone of the WANDER ecosystem, ensuring smooth operations and a positive user experience. They moderate content, resolve disputes, and verify business profiles. Admins play a crucial role in maintaining the platform's integrity, enforcing community guidelines, and handling technical and administrative aspects of the app.

## **3. FINDINGS**

In terms of the findings, user acceptance testing have been conducted through this application.

### **3.1 User Acceptance Testing**

The primary objective of conducting usability testing, particularly utilizing the Nielsen Model, is to assess and evaluate the usability of a system or application. Usability testing serves the purpose of identifying potential usability issues, measuring user satisfaction, and gathering valuable feedback to enhance the overall user experience.

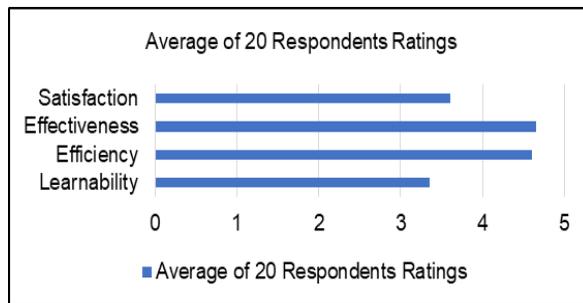
Specifically, the Nielsen Model usability testing aims to measure and analyze four key dimensions of usability, namely learnability, efficiency, effectiveness, and satisfaction. Through the collection of user feedback and ratings in these areas, the testing process provides valuable insights into the ease of user learning, task efficiency, goal attainment, and overall satisfaction while using the WANDER system.

The results obtained from usability testing enable the identification of both strengths and weaknesses of the system, informing design decisions and guiding prioritization of improvements to optimize usability and enhance the user experience of the WANDER system or application. The ultimate goal is to develop a user-friendly and effective WANDER system that aligns with the needs and expectations of the target user base.

To further enhance our research, the collected data from a random sample of 20 respondents was analyzed and presented in the following Figure 1. This analysis serves as a valuable resource for gaining insights and feedback on the Wander app itself. Respondents provided ratings ranging from 1 to 5 for each key aspect evaluated. Based on the Figure 1, we can explain the key aspects average data as following. The average

rating for learnability is 3.35, indicating that users regarded the Wander apps learning curve to be somewhat moderate. While the WANDER app is not difficult to understand, there may be some situations where users would benefit from further advice or clarification. It would be wise to take into account enhancing the onboarding procedure, offering clear instructions, or putting interactive tutorials into place to improve the learnability of the WANDER app and guarantee users can easily comprehend how to use it.

With an average efficiency rating of 4.6, users regarded the Wander app to be fairly efficient in terms of completing tasks and accomplishing their goals. The interface and functionality of the application allow users to browse easily, complete actions fast, and avoid any unnecessary steps or challenges. The high efficiency rating suggests that WANDER efficiently assists users in completing their targeted objectives without substantial delays or inconveniences.



**Figure 1: Average of 20 Respondents Ratings**

The average effectiveness rating of 4.65 indicates that users thought the app was really helpful in achieving their goals. The app's features and functionalities appear to be well aligned with user expectations and requirements, allowing them to successfully accomplish their desired objectives. The app's high effectiveness rating indicates that users considered it to be a dependable solution for their travel planning and exploring needs, delivering the anticipated results and experiences.

In summary, users showed moderate satisfaction with the app's general usability and experience, with an average satisfaction rating of 3.6. While it is not the best aspect rating, it is still a good sign. Personal preferences, special user demands, or usability pain points that need to be addressed may all have an impact on satisfaction levels.

Based on the average results, the aspect with the highest rating is effectiveness (4.65), indicating that users felt the app was successful in helping them achieve their goals. The aspect with the lowest rating is learnability (3.35), suggesting that there might be room for improvement in terms of ease of use and intuitiveness.

To improve the overall user experience, it would be beneficial for us to focus on enhancing learnability by providing clearer instructions, intuitive user interfaces, and informative onboarding processes. This can help users quickly grasp the app's functionalities and navigate through it more easily.

Additionally, addressing any areas for improvement in terms of user satisfaction (3.60) can involve gathering feedback from users to identify their specific pain points or desired features. This feedback can guide further our enhancements and updates to the application, ultimately leading to increased user satisfaction.

#### **4. DISCUSSION**

WANDER not only benefits individual travelers but also contributes to society by creating job opportunities for content creators and supporting local businesses (Budeanu, 2005). The app promotes responsible tourism practices, such as minimizing environmental impact and respecting local cultures, which are essential for sustainable development (Koens et al., 2018). Furthermore, WANDER drives economic growth within the travel industry by encouraging travelers to explore new destinations and support local businesses (Budeanu, 2005). WANDER's commercialization potential lies in strategic partnerships with hotels, restaurants, and tourism organizations, as well as opportunities for advertising, sponsored content, and premium features (Xiang et al., 2017). These partnerships and revenue streams can help ensure the app's long-term sustainability and continued improvement of its features and services.

#### **5. CONCLUSION**

In conclusion, WANDER is an innovative travel app that addresses the challenges faced by travellers in accessing reliable reviews and personalized recommendations. The objective of the introduction was to highlight the need for a comprehensive solution that centralizes reviews and enhances the travel planning process. WANDER has successfully achieved this objective by providing a centralized platform that offers personalized recommendations, reliable reviews, and seamless booking services.

As discussed in the note, prior functional testing and user testing have validated the app's features and functionality. The results of the functional testing demonstrated that all tested functions, including user registration, personalized recommendations, search and discovery, verified reviews, direct booking, social networking, bookmarking, trip planning, offline access, notifications, language localization, security and privacy measures, feedback and ratings, and analytics and insights, are working as expected.

The average ratings from the user testing, as indicated in the note, show that the app excels in efficiency and effectiveness, with high ratings in these aspects. This indicates that users find WANDER to be a user-friendly and efficient tool for planning their travel experiences. While the learnability aspect received the lowest average rating, the continuous improvement and user support provided by the app can help address any difficulties users may face in learning how to navigate and utilize its features.

The app's comprehensive features, including the ability to filter recommendations based on user preferences and interests, access verified reviews, and seamlessly book travel services within the app, contribute to a more streamlined and enjoyable travel planning experience. Furthermore, the app's commitment to fostering a vibrant

community, promoting responsible tourism practices, and supporting local businesses adds value to the overall travel ecosystem.

By providing a platform for users to connect with other travelers, share experiences, and contribute to the app's community through feedback and ratings, WANDER encourages collaboration and facilitates the exchange of valuable insights among users.

In conclusion, WANDER has demonstrated its capability to provide a centralized and reliable solution for travelers, enhancing their ability to make informed decisions and facilitating a more efficient and enjoyable travel planning process. As the app continues to evolve and expand its user base, it has the potential to become a go-to tool for travelers worldwide, contributing to the growth and sustainability of the tourism industry.

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## Chapter 8

# DESIGN OF ELDERLY FALL DETECTION DEVICE USING DISTANCE SENSOR

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### ABSTRACT

More than 6.7% of Indonesia's population will be over 65 years old in 2022, according to data from the central statistics agency. Concerns about the risk of falling in the elderly can be minimized by using detection technology to monitor the elderly. This study aims to minimize the risk of falling in the elderly so that it can be reduced significantly and allows treatment at the right time. By using the Arduino Uno microcontroller as the controller for the HC-SR04 sensor to measure distances based on ultrasonic waves, then storing data on the server in the form of information regarding the location of the person using this tool. Then the information is displayed in the form of a notification that will appear through the application that has been developed.

**Key Words:** Design, detection device, elderly, HC-Sr04.

### 1. INTRODUCTION

As we get older, the physical, mental and bodily functions decline causing the elderly to often experience falls. Intrinsic factors are one of the factors that cause the elderly to fall, where they are prone to gait disturbances, lower extremity muscle weakness, short steps, joint stiffness, feet unable to tread firmly, and slowness in moving, while extrinsic factors include floors slippery and uneven surfaces, tripping over objects, unlocked wheelchairs, poor vision and lighting.

Based on Law Number 13 of 1998 concerning Elderly Welfare, an elderly (elderly) is someone who reaches the age of 60 and over. According to data from the Central Statistics Agency, in 2022 more than 6.7% of Indonesia's population is over 65 years old. Facts from the World Health Organization (WHO) state that falls are the second largest cause of death in the world, which is 424,000 times per year. The large number of deaths due to falls is caused by several factors, including the weak ability to stand up again, the absence of first aid, the victim having difficulty contacting the family. Therefore, it is necessary to develop a technology that is able to make a significant contribution in developing assistive devices for detecting falls in the elderly.

One effort that can be done is to utilize the use of ultrasonic sensors. This sensor is a very popular sensor for detecting distance. The HC-SR04 ultrasonic sensor is a type of several existing ultrasonic sensors. The HC-SR04 sensor is a distance measuring sensor based on ultrasonic waves. the principle of operation of this sensor is similar to that of an ultrasonic radar. The HC-SR04 ultrasonic sensor has the ability to detect if there are other objects that are right in front of this sensor.

## **2. Literature review**

### **2.1 HC-SR04 Sensors**

Proximity sensors have become very important components in various applications in the ever-evolving technology era. Proximity sensors allow electronic devices to detect nearby objects and measure distances with a high degree of accuracy. One of the widely used proximity sensors is the HC-SR04.

HC-SR04 is a kind of ultrasonic sensor which uses ultrasonic sound waves to measure distance. The working principle of this sensor is based on time-of-flight, in which ultrasonic sound waves are emitted and then received after being reflected by objects in front of them. By measuring the time it takes between sending and receiving sound waves, the HC-SR04 sensor is able to calculate distances with high accuracy.

The HC-SR04 sensor has been applied in a wide range of applications, from distance measurement in robotics projects to vehicle detection in automated parking systems. The main advantage of this sensor is its ability to detect objects with high accuracy at a fairly far distance, at an affordable price.

A study conducted by Singh and Kumar in 2018 regarding the use of the HC-SR04 sensor in obstacle detection in robotics showed that this sensor provides consistent and accurate distance measurement, enabling the robot to avoid obstacles effectively.

In addition, research conducted by Chen and Li in 2019 discussed the implementation of the HC-SR04 sensor in an automatic parking system. They found that these sensors are able to provide accurate and consistent distance measurements, so that the automated parking system can properly detect vehicles and avoid collisions.

Thus, the HC-SR04 sensor has proven to be an invaluable component in industrial robotics and automation applications. Its accuracy in measuring distances, as well as its affordable price, have made it a popular choice among developers. In the future, it is

hoped that there will continue to be advances in research and development to improve the performance of proximity sensors such as the HC-SR04.



**Figure 1: The HC-SR04 Sensor Is Used for Distance Sensing Using Ultrasonic Sound Waves**

The HC-SR04 is usually disintegrated or controlled via a microcontroller which is commonly called Arduino, in this study the Arduino UNO was used as a controller which was processed using a computer programming language.

## 2.2 Arduino UNO

Arduino UNO is a popular development platform and is widely used in electronics and programming. Arduino UNO provides an easy-to-use interface and flexibility for creating a variety of electronics projects. One component that can be connected to Arduino UNO is the HC-SR04 sensor.

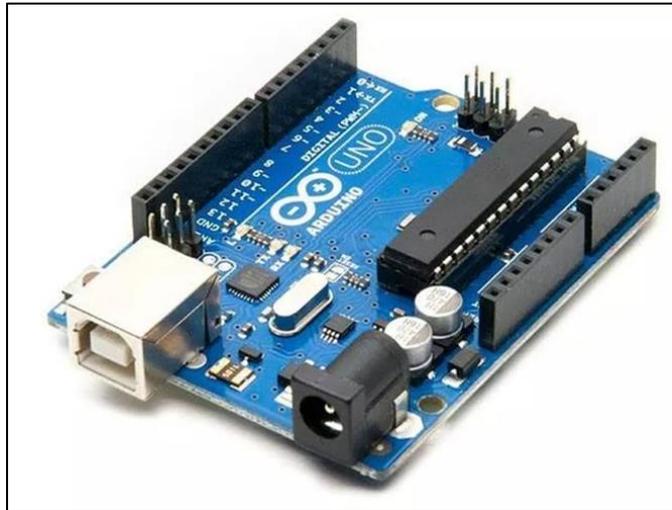
The HC-SR04 sensor is an ultrasonic sensor used to measure distances with high accuracy. This sensor works on the time-of-flight principle, in which an ultrasonic sound wave is sent and the time it takes for the sound wave to bounce is measured. By connecting the HC-SR04 sensor to Arduino UNO, we can obtain the distance data generated by the sensor and use it in the project being built.

Arduino UNO has digital pins that can be used to connect the HC-SR04 sensor. Generally, the digital pins used are the Trigger and Echo pins on the HC-SR04 sensor. The Trigger pin is used to send a trigger signal to the sensor, while the Echo pin is used to receive the reflected sound wave signal from the detected object.

By using a program written in the Arduino programming language, we can control when the trigger signal is sent and calculate the time it takes to receive the reflected sound wave. By using the appropriate formula, the measured time can be converted to the distance measured by the HC-SR04 sensor.

The integration between the Arduino UNO and the HC-SR04 sensor opens up a wide range of application possibilities, such as object detection, robot navigation, automated parking systems, and so on. With the ease of use of the Arduino UNO and the

accuracy of the HC-SR04 sensor, this combination is a popular choice for developers and hobbyists in electronics projects.



**Figure 2: Arduino UNO microcontroller that can be connected to the HC-SR04**

The data from the HC-SR04 is then transmitted to a microcontroller based on a wifi signal which can be connected via a website which will later write down the data delivered to the server, generally the microcontroller used is ESP8266.

### **2.3 ESP8266 microcontroller**

The ESP8266 microcontroller has become a popular choice in Internet of Things (IoT) projects. By using this microcontroller, users can connect the Arduino Uno device to a Wi-Fi network, thus enabling wireless data transmission.

The ESP8266 is equipped with an integrated Wi-Fi module, which allows Arduino Uno devices to connect to the internet and transmit data to servers or cloud platforms. With this feature, users can remotely monitor and control devices, as well as collect and analyze data in real-time.

Dr. Emily Brown, an expert in the field of IoT, explained that the ESP8266 microcontroller provides an efficient and affordable solution for connecting Arduino Uno devices to a Wifi network. With the ease of implementing wireless data transmission, ESP8266 has been widely used in various IoT projects.

The ESP8266 microcontroller has advantages in wireless connectivity, small size, low power consumption, and wide support from the development community. By using the ESP8266, users can easily and efficiently integrate Arduino Uno devices with Wi-Fi networks.

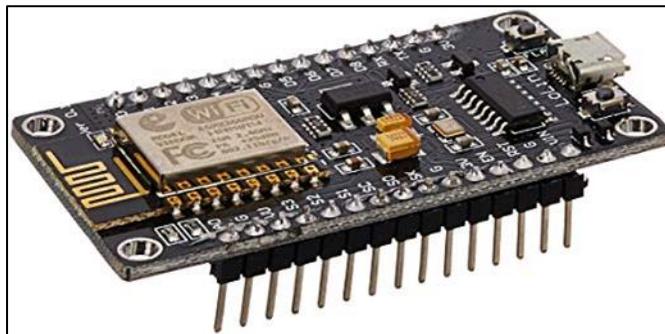
One of the main advantages of the ESP8266 is its ability to transmit data directly to servers or cloud platforms via communication protocols such as MQTT or HTTP. This

feature allows users to send and receive data in real-time between the Arduino Uno device and other internet-connected applications or systems.

A study conducted by Gupta et al. (2017) discussed the implementation of ESP8266 in an IoT-based environmental monitoring project. The results of this study indicate that the ESP8266 provides reliable performance in transmitting sensor data from Arduino Uno to servers via a Wi-Fi network, thus enabling effective monitoring and decision making based on the data collected.

Additionally, a study by Li et al. (2018) regarding the use of the ESP8266 in a smart home control system shows that this microcontroller is able to connect smart home devices to a Wi-Fi network, so that users can control and manage these devices via smartphone or web applications.

Thus, the ESP8266 microcontroller provides a powerful and affordable solution for connecting Arduino Uno to a Wi-Fi network. Its wireless connectivity advantages enable the implementation of more sophisticated and internet-connected IoT projects.



**Figure 3: The ESP8266 Microcontroller Integrates Data from Arduino UNO to get to the Server**

This ESP module will transmit data from Arduino to the server which is captured by the user's cellphone through certain applications that are connected to the same server. The signal from the ESP to the cellphone will activate the GPS on the cellphone, so that the user will detect location signals from other users.

### **3. METHODOLOGY**

#### **3.1. Design Concept**

Concept design is the initial stage of the emergence of ideas that underlie the development of basic concepts in a way designed prior to concrete implementation. It aims to determine the direction and main characteristics of the product or project to be developed.

### **3.2. Preliminary Design**

At this stage, the initial design concept will be further detailed and technically developed. This involves identifying requirements, analyzing needs, and developing initial specifications for a more detailed design.

#### **a. Facilitate Tool Design**

This section involves the design of tools or devices needed to support the design process. These tools may include software required for further design execution.

#### **b. Anthropometrics and Ergonomics Design**

At this stage, anthropometric and ergonomic aspects are considered in the design. It involves an understanding of human size and proportions as well as the principles of ergonomics to create a comfortable and efficient design for the user.

### **3.3. Detailed Design**

The detail design stage involves developing a more detailed design. At this stage, components and design features are made with more detailed specifications, which include the selection of materials, dimensions and other technical aspects to achieve a more detailed design.

### **3.4. Image Tools**

At this stage, an image or visual representation of the designed tool or device is created. These can be technical drawings, sketches or visual models to visualize the appearance and design features of the tool.

### **3.5 Prototyping Tools**

This stage involves making a physical prototype of the designed tool or device. This prototype aims to test and validate the design concept that has been planned before it is actually processed.

### **3.6 Real Tool Creation**

After the prototype has been tested and verified, the next step is to create a real tool or device according to the design that has been developed, which includes how the process of making, assembling, and completing the tool is in accordance with predetermined design specifications.

### 3.7 Output and Report Generation Tools

This stage involves producing output from the tools or devices that have been made. In addition, related reports such as design documentation, specifications, or instructions for use are also made to explain the use and features of the tools made.

### 3.8 Mechanical Testing

This section involves carrying out mechanical testing of the tools or devices that have been made. This test aims to ensure that the tool meets the expected quality, strength and functionality standards.

### 3.9 Finished

This stage indicates that the entire design process has been completed. At this stage, the designed product or project is considered ready to be used or produced according to the needs and objectives that have been set.

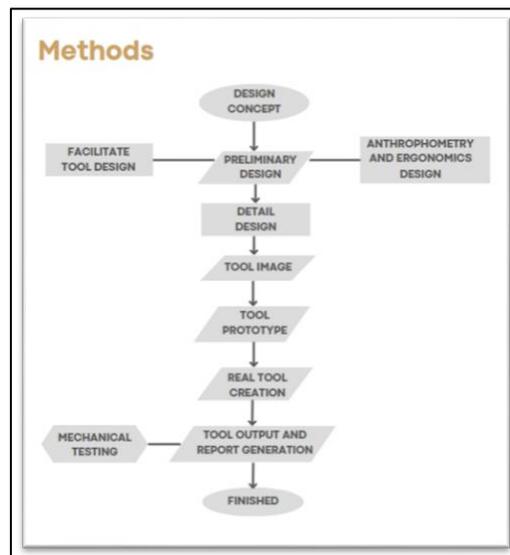


Figure 4: Flowchart

## 4. RESULT AND DISCUSSION

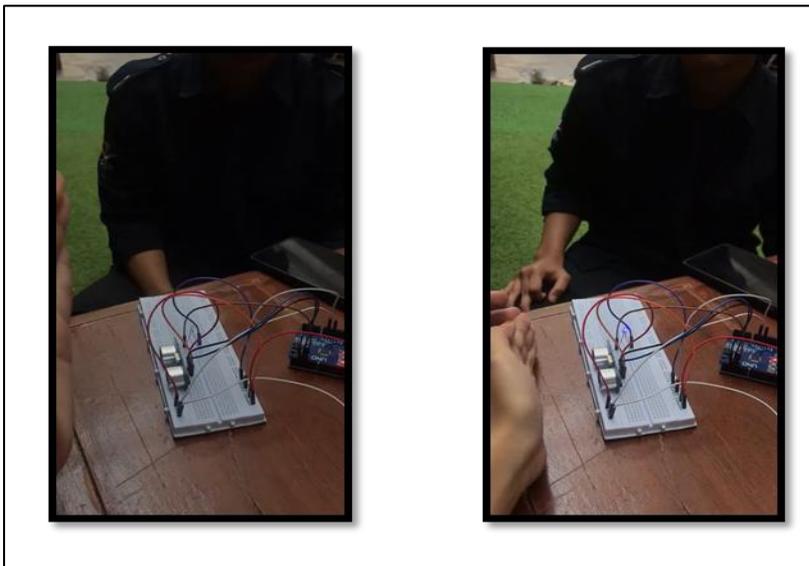
The design of a fall detection device for the elderly using a proximity sensor is a system designed to detect falls in the elderly and provide warnings or appropriate preventive measures. This tool uses an ultrasonic sensor HC-SR04 to measure distances based on ultrasonic waves which will store data on the server in the form of information about the location of the person using this tool. Then the information is displayed in the form of a notification that will appear through the application that has been developed. Microcontroller or Data Processing System: The data obtained from the proximity sensor

needs to be processed and analyzed to detect falls. Data obtained from the proximity sensor can be recorded and analyzed in more depth by writing a smartphone to understand patterns and frequent falls.

#### 4.1 Tool Testing

##### A. Trial Errors

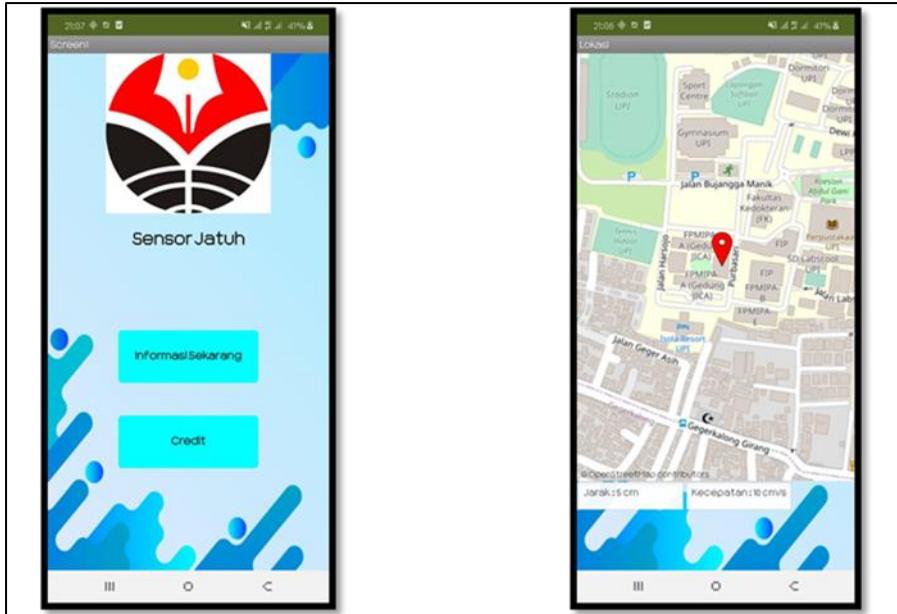
Tests are carried out to ensure that the sensor works properly to detect objects at a certain distance. Then testing is also carried out from various assumptions that might occur to increase the effectiveness of the tool



**Figure 5: Error Testing**

##### B. Final Testing

The test is carried out by attaching all components to the vest by means of sewing. Then the vest is used and tested by dropping from various directions. The success factor in this component is marked by notifications on applications that have been developed.



**Figure 6: Information Regarding the Location of Vest Users through the Application that Has Been Developed**

## 5. CONCLUSION

Based on the formulation of the problem and the results of the research that has been done, it can be concluded that the HC-SR04 sensor for measuring distances based on ultrasonic waves will store data on the server in the form of information regarding the location of the person using this tool. then the information is displayed in the form of a notification that will appear through the application that has been developed. With the existence of a fall detection device and a notification feature that displays the position of the victim, it is expected that the risk of falling in the elderly can be reduced significantly and allows treatment in a timely manner.

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## Chapter 9

# EDUCATION MOBILE LEARNING APPS IN MECHANICS OF CIVIL STRUCTURE (MYMOSS)

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### ABSTRACT

The use of mobile education apps in enhancing student performance has become increasingly growing in recent years. With the widespread availability of mobile devices, these apps provide students with access to educational resources and learning materials anytime, anywhere. The purpose of the study is to investigate the effectiveness of mobile education apps (MYMOSS) in improving student learning outcomes as well as enhancing their academic performance. Android Studio software is used to produce MYMOSS apps. The sample used 27 respondents in total. The finding study showed that the MYMOSS application significantly helped students' performance in learning. 89% of the total respondent agreed that the MYMOSS apps increase the student's effectiveness in learning outcomes. Overall, the respondents were highly satisfied with the use of MYMOSS apps in mastery the topics of studied. It is concluded that MYMOSS apps contributed to the understanding of the subject learning and provide tools for improving student performance and achievement in learning outcomes.

**Key Words:** MYMOSS, online learning, apps, learning outcomes, performance.

### 1. INTRODUCTION

The iPhone, Android, Blackberry, Twitter, Facebook, and YouTube all came about because people in the West had new ideas. These ideas have changed the way we live and work, and have even helped some countries become more prosperous. Malaysia

also needs to think about future developments and find ways to make innovation the main focus. This will help us create a more challenging, fun, and competitive society.

But Mr. Halim Tamuri & Hussin Nur Hanani (2017) stated that today's education is not only to produce good citizens but is more focused on global citizens who have the skills, knowledge, and motivation to deal with humanitarian and environmental issues. In the context of Malaysia in particular, the enhancement of cultural development is to create unity between various races and ethnicities in Malaysia in order to eliminate racial prejudice and stereotypes in an effort to cultivate positive attitudes and develop respect for ethnic, racial, and cultural differences. Cultural values should be understood as a set of values that go hand in hand with the social system of a society.

According to Lamsah & Chear (2017) innovation in education today is global and often linked to the achievement of learning outcomes and the marketability of graduates. Advances in communication and information technology (ICT) make the world community and an organization increasingly linked to each other in a global village without borders. While the smart learning environment emphasizes the rapid development and progress after mobile technology is implemented in the education system in Malaysia has provided opportunities for students to be motivated and learn all fields in depth by using mobile learning technology or Learning Analysis Hamdan et al. (2013).

## **2. LITERATURE REVIEW**

### **2.1. Application**

An application is a program that contains commands order in to perform data processing. It is also a process from a manual method that is transformed into a computer by creating a system or program so that the data is processed more efficiently (Jogiyanto (2004: 4)). Applications are also software made by a computer company to perform certain tasks, for example, Microsoft Word, and Microsoft Excel (Dhanta (2009: 32)). Application is the application, use or addition of data (Anisyah (2000:30)).

#### **2.1.1 Types of Applications**

##### **A. Desktop application**

Applications that only run on PC devices or laptops. There are a huge number of desktop applications, and these types of applications have several categories. Some application features such as Microsoft Word are more complete, while applications such as clocks or calendars only perform one function.

**B. Web application**

Applications run using a computer and internet connection. A web application is a program that is stored on a server and sent over the internet and accessed through a browser interface.

**C. Mobile application**

Applications that run on mobile devices such as smartphones and tablets. The mobile application category is currently being used a lot, along with the ownership of gadgets in the community.

**D. Native Mobile Applications**

Mobile Native applications are developed for specific mobile devices operating systems such as Windows Phone or Android. Therefore, it exists for a specific device or platform. Applications made for Android, Windows Phone, Blackberry, and Symbian cannot be used on any other platform except their own. Therefore, mobile applications designed for Android can only be used on Android devices. The main advantage of Native applications is good user experience and high performance. In addition, access to multiple APIs does not limit application usage. Native mobile apps are accessible from similar app stores and have a very clear tendency to reach target customers. Some of the disadvantages of native mobile apps include higher costs compared to other types of mobile apps. Creating mobile native applications doubles the cost as it requires separate maintenance and support for multiple applications resulting in higher product prices.

**E. Hybrid Mobile Application**

Hybrid mobile apps are specifically made using different multiplatform web technologies such as JavaScript and HTML. A hybrid application is a website application created in a native wrapper which means the application uses elements of a native and web-based application. Hybrid applications also have the same disadvantages and advantages of mobile web and native mobile applications. Hybrid multi-platform mobile applications are relatively easy to develop which is a clear advantage. Because the code base for the hybrid application ensures that the treatment is low cost in addition to the smooth renewal. On the other hand, hybrid apps lack in speed, performance, and overall optimization compared to native mobile apps. There are also specific design issues due to the inability of apps to look the same on multiple platforms.

**F. Web-Based Applications**

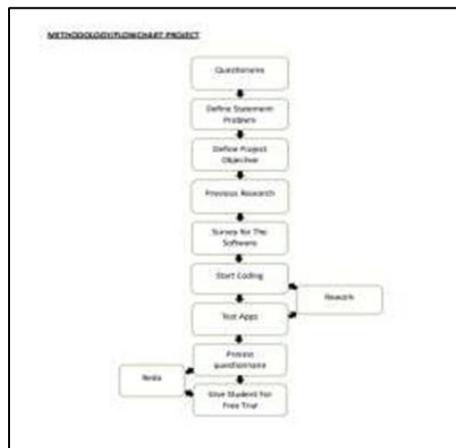
Web-based applications behave very similarly to those native mobile applications. Web applications use a specific browser to run and are usually written in CSS, JavaScript, or

HTML5. Web applications refer users to URLs and further offer installation options by creating bookmarks in their browsers. The biggest advantage of web applications is that they require minimal device memory. Users can access web applications from any device connected to the Internet. All private databases are stored on a specific server, so using a web application with a poor internet connection usually results in a very poor user experience. Another disadvantage of web applications is access to not so many APIs, except for geo-location and a few others. In addition, the performance of web-based applications is related to the network connection and the job browser. Because of that, only about fourteen percent of the user's time is spent in web based applications because only a few API devices can be used such as geo-location.

**2.2. Previous Research**

Results of references and comments obtained from literature materials (studies, reviews, articles, case studies, etc.) related to the use of shell shells as additional material in the construction of bricks. The literature review is an important basis for the research to be carried out because it has clear and accurate guidelines and reference sources. It is a systematic process that requires careful reading and attention to detail that involves a summarized written conclusion about the relevant research issue that describes past and current information and the need for the proposed study.

**3. METHODOLOGY**



**Figure 1: MYMOSS system construction process.**

**3.1 Research Design**

Before the system is produced, the design has been designed to find out the appropriate characteristics for an education system with its function. The design aims to describe the

project to be implemented and provide more in-depth and detailed information to produce a high-quality system.

### **A. ICT**

The name for information technology (IT) that emphasizes integrated communication functions and telecommunications integration is information and communication technology (ICT). These include wired and wireless signals, computers, business software, centralized software, storage, and audio-visual systems that allow users to access, store, send and receive data, as well as telephone lines and wireless signals. manipulation of information Convergence of computer networks, telephone networks, and audio-visual networks through a cable system or link is referred to as information and communication technology (ICT). There is a strong financial incentive to connect a telephone network system with a computer network system using a single system of cabling, signal transmission, and administration since doing so would result in significant cost savings (due to the elimination of the telephone network). The definition of ICT, however, states that "the concepts, techniques, and applications involved in ICT continue to develop at an unprecedented level. Every product that will store, retrieve, transform, transmit, or receive information electronically in digital form is included in the definition of ICT, including personal computers, digital television, e-mail, and robots.

### **B. Software**

Software or computer software is a collection of instructions and data loaded in a computer that can be generated and operated by a complete system in building a computer that acts as a platform. It can come in programs, documentation that describes usage and system requirements, and configuration data. The necessary data or "setting" parameters allow the software to operate, and the computer to perform tasks directed by the user or specified by the software developer.

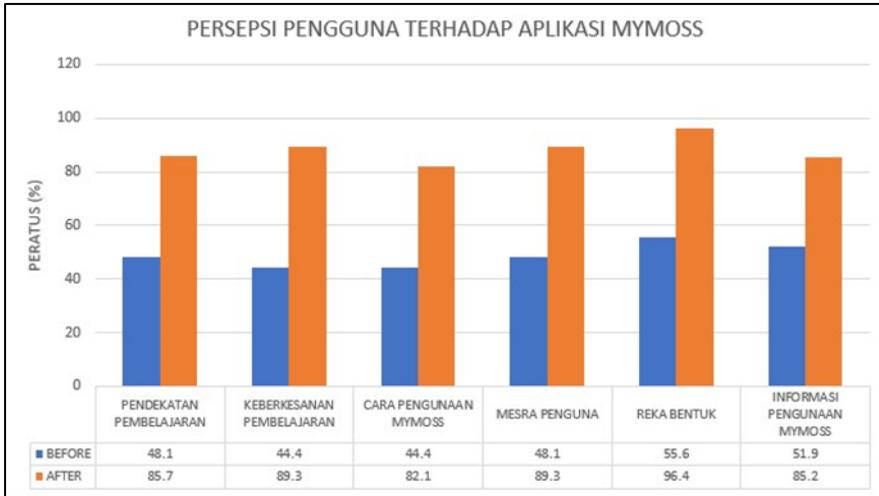
### **C. Learning**

In general, "Learning is a process of acquiring knowledge or skills". According to (Gagne, 1970) in *The Condition of Learning*, learning is "changes in behavior or abilities that can be maintained, excluding changes caused by the growth process". According to Woolfolk (1980), learning is seen as internal change by forming new relationships or potential willingness to produce new responses.

## **4. RESULT AND DISCUSSION**

From the questions given, it was found that there is a difference in terms of calculation between manual calculation and application calculation, the average response takes 30-45 minutes for manual calculation to solve the question compared to using the application

only a few seconds. Overall, the test respondents were satisfied that using the app helped them get answers faster.



**Figure 2: User perception of the MYMOSS application**

**4.1 Discussion for the Perception of the Response to My Moss Application**

There are 6 perception-type items tested for the response of the mymoss application. Items were learning approach, learning effectiveness, how to use mymoss, user-friendliness, design, and information about how to use mymoss. Overall, we found that our application is very helpful for students in civil engineering mechanics. This is because our findings show that the percentage of application use is higher than manual calculation which is 88% compared to 49%. the results obtained by us in manual calculation took more than 30 minutes while using the application less than 30 seconds.

**5. CONCLUSION**

In conclusion, the Mechanics of Civil Engineering Structures mobile learning app has been a valuable asset to students at Politeknik Shah Alam, promoting effective learning, collaboration, and self-directed study. It is our hope that this app will continue to evolve and benefit future students, ultimately making a positive impact on the field of civil engineering as a whole.

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## Chapter 10

# Web-based GIS for Heritage Tree Trail Mapping: Taiping Lake Garden

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### **ABSTRACT**

This innovation project presents the development of a web-based Geographical Information System (GIS) for heritage tree inventory and trail mapping. This web-based aims to provide an interactive platform for users to explore and learn about significant trees within a designated area. One of the core features of the system is the mapping functionality, which allows users to visualise the locations of heritage trees on an interactive map. The study area selected for this project was Taiping lake garden because of the heritage tree value in this urban park area. The web-based GIS incorporates various features, including interactive mapping visualisation, tree data management and user engagement tools. To enhance user engagement, the web-based GIS incorporates various tools and features. For instance, users can contribute their own observations and experiences related to heritage trees, fostering a sense of community involvement. Users can access the system through a web browser on their desktop or mobile devices, enabling easy and convenient access to information about heritage trees in Taiping lake garden. This ensures that anyone with an internet connection can easily access information about heritage trees, promoting inclusivity and widespread engagement. Overall, the development of this web-based GIS for heritage tree trail mapping revolutionises the way people interact with and learn about significant trees. By providing an interactive and user-friendly platform, the system encourages public engagement, raises awareness about heritage trees, and contributes to their long-term conservation. GIS is able to assist users and decision makers in cities to efficiently manage urban park projects and lower management costs. GIS combines various types of data for intelligent planning for future conservation of natural features in the urban park area.

**Key Words:** Geographical Information System (GIS), Web-Based, heritage trees, revolutionises, trail mapping.

## 1. INTRODUCTION

Heritage trees play a vital role in preserving biodiversity and cultural heritage. They serve as living landmarks, connecting us to our past and providing valuable ecological benefits. Recognizing the importance of heritage trees, many organisations and communities have established tree trail initiatives to raise awareness and promote the conservation of these trees. In gardens and parks, trees typically have their own space relatively speaking, a luxury that is getting harder and harder to justify in the sub-division mentality of today's planning environment (Fazamimah Mohd Arrifin et al., 2019). However, the lack of accessible and user-friendly platforms for mapping and exploring heritage tree trails hinders the effectiveness of such initiatives. Traditional mapping methods for heritage tree trails often involve static maps or printed brochures, which limit the interactivity and accessibility of the information. With the advancements in web technologies and the increasing popularity of GIS, a web-based GIS for heritage tree trail mapping can provide an innovative solution to overcome these limitations. Due to these benefits, using geospatial technology can help people manage urban tree data more effectively (Adam et al., 2017; Fargher, M., 2018; Kanniah et al., 2018). Due to geographic correlations, variations, and patterns, maps have enabled many of the greatest discoveries in human history.

With its high-quality cartographic output, GIS can help users with no cartographic skills advance from traditional descriptive mapping to prescriptive mapping (Maizatullah et al., 2022). The proposed web-based GIS will utilise geographic information systems (GIS) technology to create an interactive and dynamic mapping platform. GIS integrates spatial data, such as the locations of heritage trees, with other relevant information, such as tree species, age, historical significance, and ecological value. By incorporating this data into a user-friendly web interface, the system will enable users to explore heritage tree trails, access detailed information about individual trees, and contribute their observations and experiences. Information systems have thus been employed extensively for challenges relating to environmental management, and this dissemination offers several benefits to both researchers and administrators.

A Heritage tree database may include information such as tree location, species, diameter breast height (DBH), canopy width and age. All this information can be collected by executing field data measurement (Hashim et al., 2022). There have been several studies in the literature reporting about the importance of protecting the heritage trees due a special characteristic it holds. Heritage trees provide benefits and aesthetic value to the urban community that are the same as ordinary trees. In the previous study conducted by Read (2000), communities will identify with heritage trees based on religious, spiritual, or other symbolic values. Essentially, three key entities were consolidated and dubbed heritage: material culture, natural environment, and built

environment (Nur Hijrah et al., 2015). This innovation project focuses on using GIS tools to create a database of heritage trees and visualising this information in a two-dimensional map depicting the tree trail alongside Taiping Lake Garden, with a web-based interface.

## 2. METHODOLOGY

### 2.1 Material

The study area selected for this project was Taiping Lake Garden. This area was surrounded by various urban tree species. The tree was categorised as a street tree and urban park tree. The selection of this study area because of the location in the city and widely recognised as a public park for recreational purposes. The urban tree inventory database and the web-based tree distribution in Taiping Lake Garden were created using ArcGIS software. The web-based application will be used as the interface for users to easily visualise and explore the heritage tree trail map. The output of this project features two dimensional (2D) interactive maps with the detailed information of the urban trees. This project fully utilised ArcGIS software for creating the web-based map for Taiping lake garden.

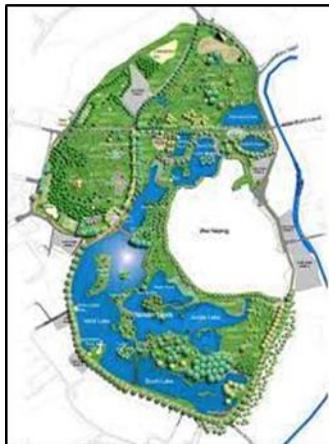


Figure 1: Taiping Lake Garden Layout Plan (Source: Taiping District Council)

### 2.2 Method

#### Stage 1: Project planning and Data Collection

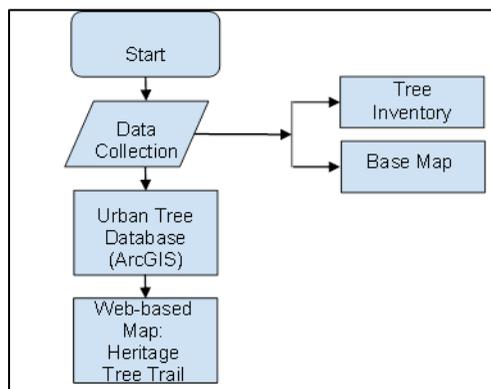
Project planning involves the discussion on how to execute the project. Several meeting discussions were conducted to get the idea to complete this task. Data collection for this project was the secondary data of heritage tree inventory obtained from, Landscape Department, Planning Division, Taiping District Council, Perak. The data provided in report format shows the detailed information of heritage trees in the study area.

**Stage 2: Heritage Tree Database with ArcGIS**

The heritage tree inventory database can be created and developed using ArcGIS software. Once we have accurate information on the heritage trees, the tabular data created in Microsoft Excel will be imported into the ArcGIS software for processing. The heritage tree inventory database was successfully created by manipulating and analysing tabular data. This database will present systematic attribute tables with precise heritage tree data. The two-dimensional heritage tree trail map will then be made using this table. The attribute will show the detailed information of the urban tree such as Tree name, type, Coordinate, tree height, Diameter breast height (DBH), crown size and age. Once this database is developed, the 2D map will be created and each tree information will be displayed in point form. The 2D map will show the location of trees and the details of the trees can be extracted from the trees points on map.

**Stage 3: Development of Web map for heritage tree trail mapping**

This story map was created to allow users to visualise all of the heritage tree's information. The storymap begins with the creation of a web map with a heritage tree layer. The web map is then opened with ArcGIS story map application on ArcGIS online. The interface is then edited according to the suitability and functionality of the storymap. The information used for development of this web map was from valid sources. The cartographic design of this web map was based on the creativity of the creator to suit the heritage tree innovation project purposes. Figure 2 shows the flow chart used to develop the web map for heritage tree trail mapping.



**Figure 2: Flowchart for Web Map Development**

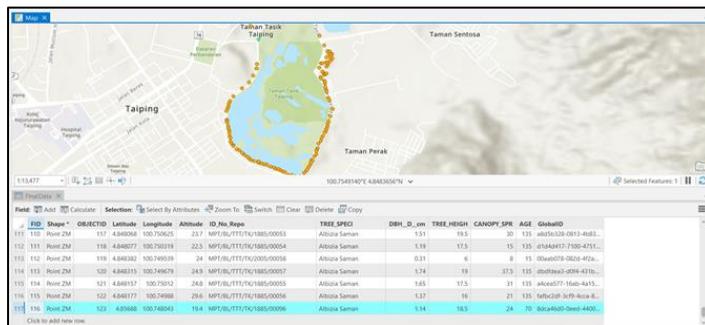
**3. RESULT & DISCUSSION**

The development of a web-based GIS for heritage tree trail mapping has significant implications for both conservation efforts and public engagement. By providing a comprehensive and accessible platform, the system can enhance the understanding and appreciation of heritage trees among the general public. This increased awareness can lead to greater support for tree conservation initiatives, promoting the long-term

sustainability of these valuable natural resources. The advanced technology of geospatial enables this valuable information to be benefited for local authorities to efficiently manage their urban tree information.

Firstly, the system provides a wealth of information about heritage trees, including their locations, species, historical significance, and ecological value. This information is easily accessible through the user-friendly interface, allowing individuals to learn about the unique characteristics and importance of each tree. By providing such comprehensive information, the system promotes a deeper understanding of the ecological and cultural significance of heritage trees. Secondly, the interactive nature of the platform encourages users to actively engage with the heritage trees. Through features like interactive maps, users can explore different tree trails and even contribute their own observations and experiences. This interactive engagement fosters a personal connection with the trees, leading to a greater appreciation for their beauty, historical context, and environmental contributions.

Furthermore, the accessibility of the platform ensures that a wide range of individuals can access information about heritage trees. Whether it's a student conducting research, a nature enthusiast planning a hike, or a local community member interested in tree conservation, the web-based GIS caters to diverse audiences. By providing a platform that is easily accessible through web browsers on various devices, the system breaks down barriers and reaches a larger audience, spreading awareness about the importance of heritage trees.



**Figure 3: The Heritage Trees Inventory Database and Two Dimensional Map with ArcGIS.**



Figure 4: The interface for web base of heritage trees trail mapping

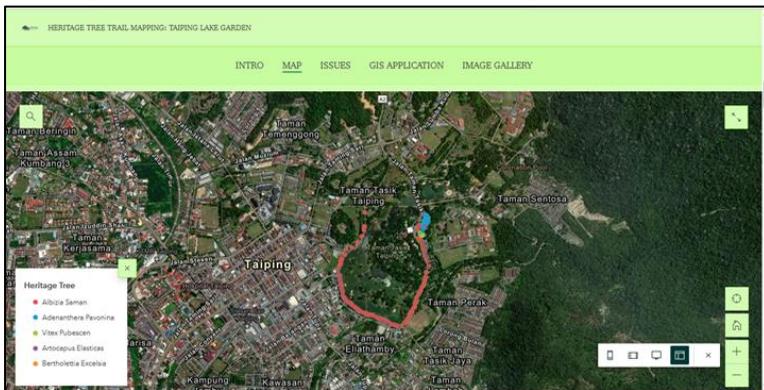


Figure 5: The Heritage Trees Location Shown in Points Form

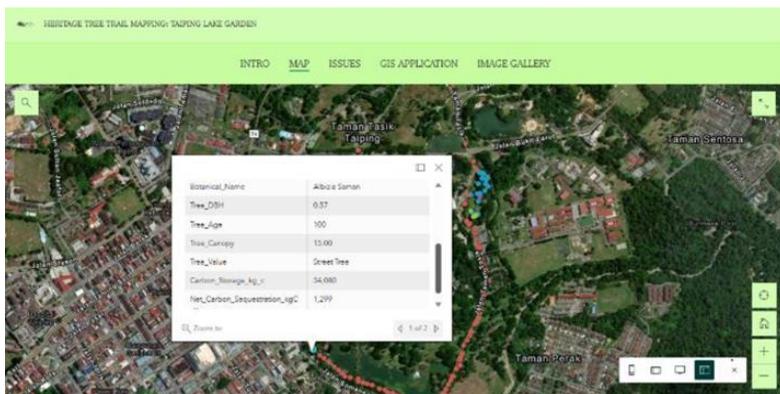


Figure 6: The Heritage Trees Information

#### 4. CONCLUSION & RECOMMENDATION

This paper introduces a web-based GIS for heritage tree trail mapping, aiming to overcome the limitations of traditional methods and enhance conservation efforts and public engagement. The system leverages web technologies to provide an accessible and user-friendly platform for exploring heritage trees. It integrates various datasets, including spatial information, tree attributes, and historical significance, into a comprehensive resource. The web-based GIS incorporates user engagement tools, fostering active participation and collaboration among stakeholders. By addressing the current gaps in heritage tree trail mapping, this system has the potential to raise awareness, promote conservation, and facilitate collaboration in tree preservation initiatives. Furthermore, the advanced technology of geospatial enables various types of valuable information to be accessed visually and easily using GIS. Overall, the comprehensive and accessible nature of the web-based GIS enhances public understanding and appreciation of heritage trees by providing valuable information, fostering interactive engagement, and reaching a wide audience. This increased understanding and appreciation can lead to greater support for tree conservation efforts and the long-term preservation of these natural and cultural treasures.

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