FACULTY OF LEADERSHIP AND MANAGEMENT
Fakulti Kepimpinan dan Pengurusan
كلية القيادة والإدارة

E-PROCEEDING

INOVAS22

FKP e-INNOVATION 2022

"HUMAN WELL-BEING & SUSTAINABLE COMMUNITY"

ORGANISED BY:
FAKULTI KEPIMPINAN & PENGURUSAN,
UNIVERSITI SAINS ISLAM MALAYSIA

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First Published in 2023 by

Fakulti Kepimpinan dan Pengurusan
Universiti Sains Islam Malaysia
Bandar Baru Nilai, 71800, Nilai
Negeri Sembilan, Malaysia

Perpustakaan Negara Malaysia

E-Prosiding FKP e-INNOVATION 2022 (INOVAS 2022),
Fakulti Kepimpinan dan Pengurusan,
Universiti Sains Islam Malaysia (USIM),
Nilai, 71800 Negeri Sembilan.

e-ISBN: 978-629-7636-05-4

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PREFACE

FKP e-Innovation Competition 2022 (Inovas22) is organized by the Research, Publication and Innovation Committee (JKPPPI), Faculty of Leadership and Management. The theme for Inovas22 competition is "Human Well-being, Sustainable Community". This competition encouraged lecturers and students to be involved in the generation and development of their own innovative ideas or products. It is a continuation of the previous innovation competition where the main purpose of FKP e-Innovation 2022 is to provide a platform for all innovators at various levels (academic staff, researchers, and students) in USIM to share their findings. This competition also paves the way for all educators at USIM to share ideas and innovative teaching and learning practices to improve human wellbeing and the sustainable community.

The COVID-19 pandemic is considered as one of the recent issues and most crucial global health calamity of the century that the human kind faced since the 2nd World War. Together with ongoing Industrial Revolution, IR5.0, a lot of challenges & problems arise from various aspects of life. New knowledges and innovations are needed to overcome all these issues. Therefore, the success of INOVAS 2022 and the publication of this e-proceeding enable to fulfil the gaps and needs in our community.

Inovas22 Committee

FOREWORD

Foreword of Dean
Faculty of Leadership and Management, USIM

Assalamualaikum and peace be upon all.

In the name of Allah, Most Gracious, Most Merciful

All the praise to Allah, The Almighty and The Most Glorified, the e-Proceeding with the theme of Human Well-being & Sustainable Community can be published. The compilation of extended abstract in this conference is hoped to be helpful for all the researchers in generating new ideas and knowledge in every field. It is hoped that this compilation is fruitful to all relevant parties.

The Innovation Competition 2022 is a continuity series of Innovation Competitions that were held for the first time in 2019. The purpose of INOVAS 22 is to offer a collaborative environment for academicians, researchers and students to exchange and share their experiences as well as producing innovations either from research findings or teaching and learning activities. At the same time, the aims are to provide the opportunities and serves a platform for academic staff and students to participate in research innovation competitions at an affordable fee rate.

Finally, I would like to congratulate all the participants for showing their great interest for INOVAS 22. I am very honoured and would like to thank the committee members of INOVAS 22 who involved in the editing process of the e-Proceeding. Words of appreciation and thanks are also addressed to Faculty of Leadership and Management as well as University Sains Islam Malaysia (USIM) which provide a very encouraging cooperation throughout the issuance period of the e-Proceeding. May Allah (SWT) bless all of us and lead everyone to the path of continuous success and prosperity. Ameen.

Thank you.

Assoc. Prof. Dr. Mohd Faizal Bin Kasmani
Dean
Faculty of Leadership and Management
Universiti Sains Islam Malaysia

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Alvianna Thrazender Anak Unjah[1], Benardine Holt Demai Anak Jang[2] &
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1.0 INTRODUCTION

The term "educational game" refers to a game that is designed and utilised for instructional purposes (Al-Azawi et al., 2016). Game-based learning is the use of gamefulness, gameful interaction, and gameful design to encourage student participation in classroom activities (Hamzah et al. 2019; Hartt et al., 2020). Learners gain benefits as they can acquire the target language quicker. The settings are more valuable and relevant and their memory retention is better as they find the learning is enjoyable (Indarjit et al., 2022). Besides that, because there is a task and a goal that could catch students' interest, digital games are a sort of teaching technology (Lawrence, 2016).

When selecting a game, the cultural background and linguistic proficiency of the pupils must always be considered. It should also be easy to apply and beneficial for pupils with minimal language proficiency. It aims to strengthen memory and make learning spelling more pleasurable (Ang & Hanita, 2022). In order to improve the attitudes of generation Z pupils, educators must endorse the idea of 21st-century learning, which integrates technological aspects into the teaching and learning process (Yang et al., 2012). This is in line with the Malaysia Education Blueprint (MEB) 2013–2025, especially its seventh shift, which emphasises elevating ICT to support effective learning across the nation.

2.0 MATERIALS AND METHODS

2.1 Materials

This paper employed a quantitative study, whereby a set of checklists was given to 25 Year 6 pupils from two different primary schools, 18 pupils from Tatau district and 7 pupils from Baram District in Sarawak. The checklist has columns for observants for their English Language teachers to tick based on their observations towards the participants. The use of a checklist supports the evidence and also serves as collective reflections (Smets, 2017).

2.2 Methods

This educational game is designed based on the instructional design learning model, ADDIE Model. ADDIE stands for A (Analysis), D (Design), D (Development), I (Implementation) and E (Evaluation). ADDIE model integrates the evaluation, planning, and production of training materials for pupils (Branch, 2010).

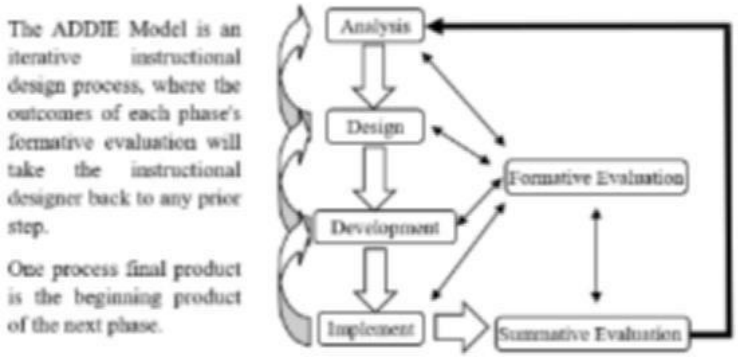

Figure 1.1 ADDIE Model

The first step is to gather more information about the knowledge, abilities, and attitudes of the target respondents regarding what must be taught to satisfy the learning objectives (Lawrence, 2016). Then, it is divided into a need analysis that focuses on the spelling of high-frequency words, a task analysis that uses words ranging from easy to difficult to identify the educational objectives, a learners' analysis that selects words based on their current level of proficiency, and a performance analysis of the participants after they have tried the innovation (Mohammad, 2022). The Bee-A-Maze digital educational game was created using the results of the need analysis. Each game's objectives and consequences must align with the course. In this procedure, the storyline of the educational game is essential, since the setting, information, and features of the game are key points. The development procedure follows. Tests are conducted to identify and remedy faults. Participants are required to take the test and review course material. The educational innovation is periodically enhanced prior to its real implementation. During the implementation process, teachers initiate sessions to familiarise participants with the materials. At this point, implementation occurs to ensure that all features function properly before materials are distributed to their intended participants.

Educators should review each element of the evaluation process to ensure that the instructional design and content fulfil the objectives. Formative assessment is an internal evaluation procedure that occurs at each level of the ADDIE instructional design model to assess the team's ongoing development and review the ongoing process (Karmila Rafiqah et al., 2019), meanwhile summative assessment includes evaluations of domain-specific reference materials, instructional course objectives, and student input (Jasa et al., 2018).

3.0 RESULTS AND DISCUSSION

Using a checklist and classroom observation, the researchers gathered data for this quantitative research. This research employs descriptive statistics whereby frequency and percentage are used. Table 1.1. below shows the frequency values and the percentages of the items in the checklist.

Table 1.1 Checklist for Observation

Checklist Frequency	Percentage (%)
1. Pupils are used to digital tools and games **11**	**44**
2. Pupils become active learners **25**	**100**
3. Pupils learn from mistakes they made. **25**	**100**
4. Pupils like to play and get excited. **25**	**100**
5. Pupils make decisions, take risks and see the consequences. **25**	**100**
6. Pupils learn from their peers. **25**	**100**
7. Pupils can try out and repeat in a simulation environment. **25**	**100**

8. Pupils' interest in spelling increases. **25**	**100**
9. Pupils get memorable learning experiences. **25**	**100**
10. Pupils can apply the learnings with practical exercise. **12**	**48**

According to the findings of the study, participants are attracted to game-based learning and anything that uses technology in the classroom. Based on Table 1.1, from Item 2 to Item 5, all participants agreed that digital educational games engage them in fascinating ways to learn spelling, as they gain more positive attitudes and are more motivated to complete their assignments (Donmus, 2010). When they are participating in such activities, the learning process becomes substantially more enjoyable, and the urge associated with learning increases significantly. Concurrently, almost all participants agree that they have a memorable learning experience because teachers have built environments in which the Year 6 end-of-year target words are practical and relevant. They also make learning and remembering new words more fun for participants (Ramlan, 2016), enabling them to acquire more quickly and retain new words. In other words, game- based learning can be utilised to construct a language-learning environment. However, the majority of participants struggle to maintain concentration when completing written, practical exercises. The majority of them expressed a desire to only answer questions on their computers and not complete the worksheet.

4.0 CONCLUSION

Incorporating games into the teaching and learning process increases pupils' spelling skills in terms of memory retention, as indicated by their favourable responses. It suggests that if the platform is properly executed, pupils can learn spelling in a pleasant and efficient manner. The researchers believe that it would be beneficial to create a more difficult game with more complex features.

ACKNOWLEDGEMENT

The researchers would like to thank the Malaysia National University Faculty of Education, the schools, and the participants for their contributions to the success of this study.

MANGA, RE-ENGINEERED: INNOVATIVE COMIC FOR STEM EDUCATION

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1.0 INTRODUCTION

Graphic novels can aid students in visualising key concepts of a subject matter (Versaci, 2001; Wahyuningsih, 2012; Tatalovic, 2009; Pelton et al., 2009). It can increase interest and attention of weaker students especially in cognitive-heavy tertiary education courses such as engineering courses and in general in the science, technology, engineering and mathematics (STEM) field (Metraglia et al., 2014). Advanced countries such as the United States, Japan and South Korea have been promoting and utilising educational comics (educomic) as educational material (Tachishige et al., 2004; Babaian et al., 2014; Sakamoto et al., 2014; Shigehataki et al., 2014; Feherbari, 2009). However, Malaysia is still lagging behind in terms of promoting educomic as part of its educational material. Hence, we published Survival Statics, an educational comic or educomic that teaches one of the fundamental mechanical engineering subjects while engaging the reader in an interesting storyline (**Figure 2.1**).

2.0 OBJECTIVES

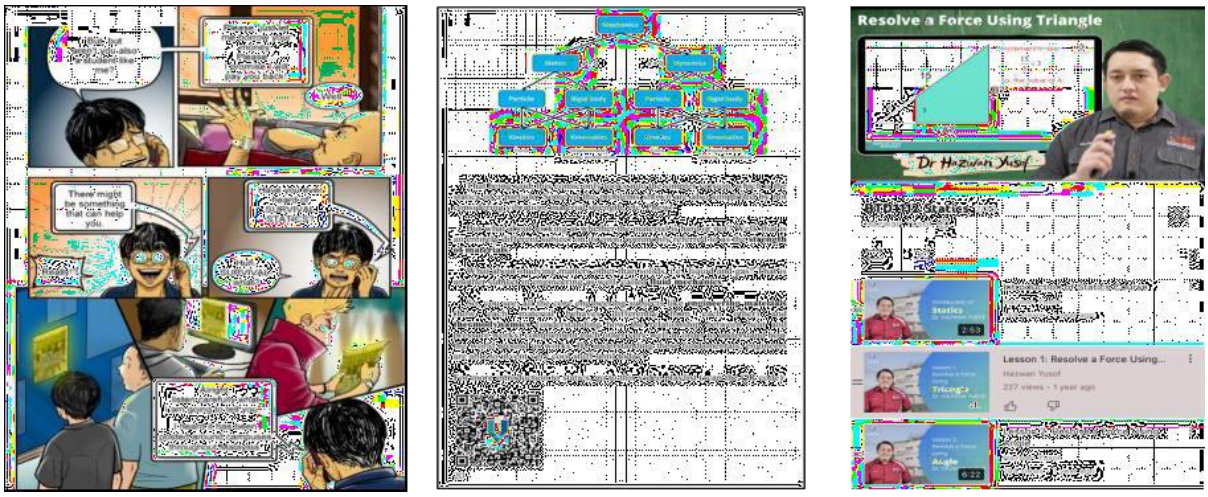
These are the objectives of this product:

i) To ignite students' interest in the engineering subjects through engaging storyline and challenging questions.
ii) To create awareness and interest of younger students to pursue STEM fields in the future.
iii) To publish a supplementary reference book for lecturers teaching the subject.

3.0 PRACTICALITY AND USEFULNESS

This educomic is one of the first engineering educomic in Malaysia. It is the first educomic published by Universiti Malaysia Pahang (UMP). It offers three levels of understanding. In Level 1, students are presented with the general concept and understanding of the subject matter (surface level understanding) through an engaging storyline (Figure 2.2a). In Level 2, readers are presented with short lecture notes of key concepts to further elaborate the general explanation from Level 1 (Figure 2.2b). These notes are placed at the end of each related chapter. Level 3 contains online lecture videos where the undergraduate level lectures relate to the subject matter presented. These lecture videos can be accessed through QR codes throughout the comic (refer to Figure 2.2c). This allows engagement from different levels of readers. Younger readers can enjoy the storyline while being introduced to the subject matter without in-depth understanding, while university students can use it as a formal educational material since it is equivalent to the course syllabus.

Figure 2.1 Survival Statics Part 1



(a) (b) (c)

Figure 2.2 Three levels of understanding for different levels of readers.

4.0 COMMERCIAL VALUE

This product is already in the market and it has a perfect Shopee rating of five stars. Up to date, 193 comics have been sold. In terms of recognition, the educomic has won the Gold medal in the 33rd International Invention, Innovation and Technology Exhibition (ITEX) 2022 in Kuala Lumpur. The product was published by Penerbit Universiti Malaysia Pahang in 2021 and the ISBN is 978-967-2831-14-3.

ACKNOWLEDGEMENT

We would like to express our gratitude towards Universiti Malaysia Pahang (UMP) for the Teaching and Learning grant (RDU150384) as well as SUARA UMP.

MICROBE MELODIES

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1.0 INTRODUCTION

The subject of medical microbiology has been a compulsory component of the medical course. Learning medical microbiology is vital as the percentage of infectious diseases occurring in and out of hospitals accounts for up to 60% of the total disease burden, particularly in low and middle-income countries (Michaud, 2009). Nevertheless, understanding, learning, and memorising the concepts of medical microbiology is challenging. Many challenges are due to the many different concepts, complex terminologies, and extensive content (Struwig et al., 2016). Additionally, the current generation of Gen Y and Zs have a shorter attention span, which makes it harder to focus and digest concepts over extended periods of learning (McNealy, 2013). Thus, numerous methods and applications have been devised to improve and make learning easier for students. Examples of applications and ways to improve the learning experience include mnemonics, gaming, infographics and learning through field experience (Wang et al., 2018). One of the ways can also be applied to enable effective learning for medical microbiology is through incorporating music into learning. Professor Sheldon Campbell from Yale University has previously applied concepts of microbiology to songs. He adapted existing folk music to contain concepts of microbiology to enhance and improve learning experiences for his students. In this project, the lyrics contain and infuse medical microbiology concepts such as antimicrobial resistance.

2.0 MATERIALS AND METHODS

The song I Will Survive by Gloria Gaynor has been adapted and tweaked to contain concepts of antimicrobial resistance.

3.0 RESULTS AND DISCUSSION

Some of the lyrics of the adapted 'I Will Survive' is as below:

At first, I was afraid, I was petrified
Kept thinking I could never live with your presence in my life But then I learnt on how to modify your targets so goodbye then I grew strong
And I learned how to get along

And so you're back with the doctor's grace
I just walked in to find you tryna inhibit my protein synthesis
I should have depolarised my membrane, I stopped up taking all you drugs If I'd known for just one second you'd be back to bother me

Students will listen to this song and be asked to notice the differences in the lyrics of the adapted song. This song conveys the fear of bacteria for antibiotics and how it eventually overcame the resistance mechanism to become resistant to antibiotics. Antimicrobial resistance is an essential concept in medical microbiology in Malaysia and worldwide.

In the first line of the verse, the 'singer', which represents the bacteria, expresses their fear of antibiotics. In the second line, the bacteria claim to have modified their protein targets which is one of the mechanisms for gaining resistance and then expresses that by doing this, the bacteria gains strength or leverage 2 overcome the killing mechanisms of antibiotics.

In the third verse, the word with the doctor's grace shows that sometimes antibiotics can be overly prescribed or overused. The following line, 'I just walked in to find you trying to inhibit my protein synthesis,' highlights one of the other mechanism's bacteria use to overcome antibiotic killing. This statement holds for 'depolarizing bacterial membranes' and 'up taking drugs into the cells' highlighted in the song lyrics.

There are many benefits to incorporating music into learning. Music increases brain neuroplasticity and therefore enhances the muscles brain muscles needed for memory (Musacchia et al., 2020). Musical connections from the melodies and memories created from listening to music also enhance the memorization of the concepts. Chorus used in songs are also of repetitive behaviour, which also helps the listeners to memorise and even process concepts. Additionally, listening to music is a relaxing and fun way to learn and understand concepts. Many find that music can induce relaxation and loosen up the listeners. While studying medicine can be stressful for many medical students, incorporating studies with music can offer a slightly less stressful experience for learning.

4.0 CONCLUSION

Incorporating concepts of microbiology through music can be a fun way of learning. The power of songs, melodies and also infusing concepts in lyrics can be a creative, interdisciplinary approach to learning microbiology. While some of the ideas presented in this paper are the product of the teachers, students in the future can be asked to produce some pieces of ideas which will enhance their understanding of microbiology concepts.

ACKNOWLEDGEMENT

The authors thank all the members from the Unit of Microbiology from the Faculty of Medicine and Health Sciences, USIM.

SELF-MONITORING KIT THERAPY FOR ANOREXICS

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1.0 INTRODUCTION

Anorexia Nervosa is an eating disorder condition portrayed by an abnormal fear of gaining weight. This drives people to starve themselves and eventually become dangerously thin (Attia, 2010). It is more prominent in females but can also be found in male. The cause of anorexia is currently unknown (Coelho et al., 2010). Research suggests that a combination of certain personality traits, emotions, and thinking patterns, as well as biological and environmental factors might be responsible (Smitha, 2020).

Visible signs and symptoms of anorexia nervosa include insomnia, dizziness, thin hair, thin body, abnormal blood counts, fatigue, extreme weight loss, bluish discoloration of the fingers, absence of menstruation, constipation and abdominal pain, intolerance of cold, irregular heart rhythms, low blood pressure, dehydration, and swelling of arms or legs.

Behavioural and emotional manifestations of anorexia nervosa include attempting to lose weight through exercising excessively, restricting food severely, denial of hunger, social withdrawal and refusal to eat in public, fear of gaining weight, frequent checking in the mirror and irritability.

2.0 METHODOLOGY

The National Eating Disorder Association (NEDA) Parents Toolkit was created to provide information to those who want to help family members or friends affected by an eating disorder. However, there is still no specific toolkit for anorexics. According to NEDA, they only provide a toolkit about eating disorders but no specific gadget to measure anorexic physical changes. Therefore, this toolkit was developed for anorexics.

Self-monitoring is an effective tool for behaviour change. Self-monitoring has two components, measurement and evaluation (Loftin, Gibb, & Skiba, 2005): That is, the anorexics (1) measures and records his or her own behaviour (measurement), and then (2) compares that recorded behaviour to a predetermined standard (evaluation).

The collection of self-monitoring data and to record the resulting behavioural data includes rating scale, checklist, and frequency count (Chafouleas, Riley-Tillman, & Sugai, 2007):

• Rating scale. A rating scale consists of one or more items that anorexics can use to complete a global rating of a corresponding number of behaviours (e.g., "How do I perceive my weight: (1) ideal; (2) look fat; (3) look so thin). The rating scale usually has a qualitative, sliding-scale rating format (e.g., "poor...fair...good"). Rating scales are typically completed at the end of a fixed observation period (e.g., after a class session; at the end of the school day).

• Checklist. A checklist is a listing of behaviours (to be increased or decreased) that the person will periodically review, checking off those behaviours actually displayed during the monitoring period. Checklists are helpful for monitoring multi-step behaviours (e.g., the plan-write-revise-edit stages of the diet process) or for monitoring clusters of several related behaviours (e.g., as illustrated in the calories intake)

• Frequency count. In a frequency count, anorexics keeps a running tally of the number of times that a he or she displays a target behaviour (e.g., number of vomiting back the food) during an observation period.

3.0 RESULTS AND DISCUSSION

This toolkit as self-monitoring information progresses on emotions, context and pattern of behaviour towards calories and exercise. The toolkit has several unique features which includes flashcards of healthy eating habits and lifestyle, and also gadgets such as glucometer, blood pressure monitor, digital weight, pulse oximeter, scaling and measuring tape. In addition, there is a religious perspective on a healthy body as a motivation for anorexics to become more positive towards new healthy habits. The uniqueness of the toolkit is helpful for anorexics who wish to change their behaviour through records of their thoughts and actions to analyse their expressions that accumulate at the end of the day. Through viewing and making notes of the positive, approved actions of others in order to have a model to follow and record when the desired behaviour is engaged in.

Hopefully, this process leads to the increase of desired behaviours and become a subconscious aspect of one's thought patterns.

3.1 Informative Flash Card

The body mass index (BMI) shown by chart is a convenient guide for evaluating a healthy weight range. According to the DSM-5, a diagnosis of anorexics or “anorexia BMI” requires the person who has a BMI less than 18.5. The anorexics should regain back their normal BMI value which is between 18.5 to 24.9 which indicates the healthy weight range. The flash card also indicates information of the Malaysian food pyramid updated in 2020 for better nutritional guidance. Testimonials of anorexics who are successful to regain their normal weight and healthy lifestyle are also included as a form of motivation for them. Information on the food calories calculator is also included in the flash card so the anorexics can embrace a particular recommended calories intake depending on age, size, height, sex, lifestyle and physical activities and environmental factors. All the information is pertinent in promoting recovery.

3.2 Glucometer

Anorexics may have psychological and medical comorbidities, including low blood sugar levels or hypoglycaemia. This gadget would make the anorexics beware of their blood levels of sugar.

3.3 Blood pressure monitor

Orthostatic Hypotension (OH) is common in people suffering from anorexia because inadequate food and fluid intake can lead to dehydration which in turn, can cause low blood pressure. If someone is not taking enough liquids, their overall fluid volume can decrease, resulting in a blood pressure insufficient to push blood to all parts of the body (Jacquet, 2016).

In reference to Shamim, Golden, Arden, Filiberto, & Shenker (2003), normalisation of orthostatic pulse changes was achieved after approximately 3 weeks of nutritional rehabilitation when subjects reached 80% of their ideal body weight (IBW). This BP can be useful for anorexics to check the force of blood against artery walls as the heart pumps blood through the body’s circulatory system. Healthy blood pressure for most people is below 120/80 millimetres of mercury. A reading below 90/60 millimetres of mercury is considered low blood pressure.

3.4 Digital weight, measuring tape and pulse oximeter

This gadget will help anorexics to measure the process of their healthy eating and physical behaviour.

By referring to the information on Flash Card, body checking behaviours will not become a threat as long as anorexics have knowledge of health weight and body composition and record its progress weekly. Besides, this tool also has a Pulse Oximeter to check Oxygen saturation level, which must be higher than 90% consistently to reflect their current health.

3.5 Diary of calories intake

This Toolkit also has a diary for self-monitoring of their calorie's intake. To eradicate negative eating behaviours, they must record their daily calories intake so that they will adapt healthy habits.

3.6 Diary of negative behaviours toward eating behaviours and exercise

This segment of the toolkit has some thought of reflection toward the recovery progress. The diary gives awareness and guidance to anorexics to set their minds and the behaviours toward recovery. The diary can be a form of awareness of the relapse process of anorexics to significant others or themselves.

3.7 Religious perspective on healthy body

This section addressed the religious perspectives on the importance of keeping one's body healthy. The Prophet Muhammad SAW said:

> "There is no disease that God Almighty has created, except that He also has created its treatment." and "There is a remedy for every malady, and when the remedy is applied to the disease it is cured with the permission of Almighty God."

In the context of medicine in the West, which has access to doctors and medicine, to traditional healing, medical breakthroughs and alternative cures but many lives are also suffering from emotional pain and listlessness. What is missing is belief, faith in God. (Mediapro, 2022). Anorexics are encouraged to do self reflection on their diet plan and gain strength to fight against previous unhealthy habits according to religious guidance that serves as a motivation factor.

4.0 CONCLUSION

The Self-Monitoring ToolKit is essential in the development of a healthy lifestyle for those suffering from Anorexia Nervosa. The Cognitive Behaviour Therapy (CBT) for anorexics which includes eating habits, meals planning and exercise, components of information of dietary rules, completion of food record and strategies to prevent exposure of fear foods. This product will benefit anorexics' own self, psychiatrists and other significant others to check progress of behavioural change towards a regular pattern of eating and systematic exposure to forbidden foods, while simultaneously addressing cognitive aspects of the disorder such as motivation for change and disturbance in the contexts of shape and weight.

V-MERINGUE KISSES

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1.0 INTRODUCTION

Meringue in culinary terms is a thick white foam made from egg whites and sugar. Meringue can be used as a food product such as macaroon, kisses and pavlova. Besides, meringue is used as a basic ingredient in the manufacture of sponge cakes, mousse, custard and various types of cream. Artificial meringue can be made by replacing egg whites with aquafaba. Aquafaba is a bean liquid (e.g. chickpeas) obtained from the process of boiling beans or canned bean liquid. This liquid is usually discarded and only chickpeas are taken for cooking. Aquafaba contains plants' bioorganic compounds known as saponins. Saponins can produce a foamy texture and expand to become aquafaba when beaten. These features are very important in giving structure and texture to Vegan Meringue Kisses. This discovery is expected to be an alternative for chefs, confectionery product entrepreneurs, vegetarian dieters, consumers who are allergic to eggs or any individual in the meringue production.

2.0 MATERIALS AND METHODS

2.1 Materials

The ingredients used for the production of V-Meringue Kisses can be referred to Table 2.1.

Table 2.1 Ingredients used for production of V-Meringue Kisses

Ingredient	Usage
Aquafaba	As the main ingredient in the product. This liquid replaces egg whites in meringue making.
Castor sugar	Sugar gives sweetness to the product. Helps in stabilising the meringue structure.
Cream of tartar	Used as a substance that will stabilise the mixture.
Food colouring	Give colour to the produced kisses product.
Vanilla essence	Gives aroma to the product

2.2 Method

2.2.1 Production of V-Meringue Kisess

The production of V-Meringue Kisses can be referred to Figure 3.1.

Figure 3.1 Steps to produce V-Meringue Kisses

1. Measure and weigh all the necessary materials.
2. Whisk the aquafaba until foamy. Add the castor sugar and whisk until fluffy.
3. After the aquafaba turns into meringue, add the cream of tartar. Beat until it is smooth and fluffy.
4. Put the meringue in a piping bag that has been smeared with food colouring and pipe into the shape of kisses on a baking tray.
5. Bake in an electric oven for 2 hours 30 minutes at 85ºC.
6. Cool the kisses first before weighing and packing.

3.0 RESULTS AND DISCUSSION

3.1 Results

Data collection through a questionnaire method was conducted on 40 respondents who were selected from Sungai Petani Vocational College 2 to test the level of acceptance of the respondents from the aspects of texture, appearance and sweetness. Analysis of V-Meringue Kisses product testing results from the aspects of appearance and colour, product sweetness and texture can be referred to Figure 3.2.

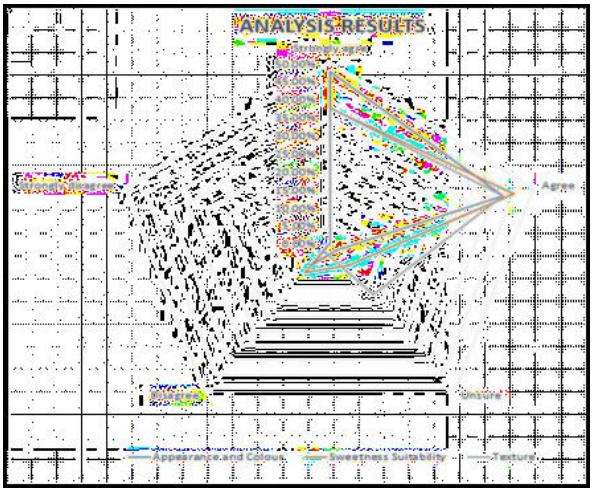

Figure 3.2 Analysis of V-Meringue Kisses product testing results

A total of 42.5% of respondents agreed that V-Meringue Kisses have a crunchy texture. 42.5% of respondents agree that this food product has an attractive appearance. Meanwhile, 45% of respondents agreed that this product has an appropriate level of sweetness.

3.2 Discussion

Innovation of V-Meringue Kisses has successfully proven that aquafaba can replace egg whites in the production of meringue for confectionery products. Vegan meringue that has been used in the product has the same quality in terms of texture and appearance as other Kisses products that use egg whites. This finding can certainly promote the potential use of vegan meringue in the production of other pastry and confectionery products such as macaroons, pavlova, sponge cake and toppings for dessert. So, the use of aquafaba in cooking can be improved instead of just being thrown away. Furthermore, this vegan meringue can be an alternative way for consumers who are practising low protein content food intake or vegetarian dieters. and individuals who are allergic to eggs. V-Meringue Kisses can be consumed as a snack for PKU (phenylketonuria) patients who practise a low protein diet throughout their lives. The results of data analysis obtained based on the survey found that the product is acceptable and has the potential to be marketed.

4.0 CONCLUSION

Creativity and innovation are required to produce a first-class thinking generation in the 21st century to compete in an era full of challenges. Overall, the V-Meringue Kisses product innovation using vegan meringue has achieved the objectives. Hopefully, this study can contribute in developing the food industry in Malaysia by expanding the use of vegan meringue in pastry and confectionery products and can be used as a reference in the future.

PSYCHOEDUCATION PAINTING THERAPY FOR SELF- ACCEPTANCE (PEPT-SA)

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1.0 INTRODUCTION

The Health China Action Promotion Committee (HCAPC) released the "Health China Action (2019-2030)". Among the 15 "major actions" proposed by the Healthy China Action, two are closely related to the physical and mental health of secondary school students (Health China Action Promotion Committee, 2019). Therefore, the development of secondary school students (adolescents) as a group needs more attention. Nowadays, a common problem among high school students is a low level of self-acceptance, which is of great significance in overcoming the formation of an inferiority complex, the development of self-identity, and the perfection of personality (Chen & Li, 2019). Moreover, it is known to have a direct effect on the healthy growth of individuals. Therefore, it is essential to accept oneself (Hu, 2020).

Based on the above fact, it is important to find out how to improve adolescents' self-acceptance levels. Adolescents may benefit from incorporating creative and playful interventions as a more attractive alternative to traditional talk therapy (Gambrel et al., 2020). Creative interventions have been formalised through the disciplines of art therapy, music therapy, dance/movement therapy, drama therapy or psychodrama, poetry therapy, and sand tray therapy (Malchiodi, 2014). These creative modalities are also known as Expressive Arts Therapy. Expressive art Therapy refers to the use of our own emotional and intuitive side in a variety of media, it's a process of discovering ourselves through any art form that comes from emotional fullness (Rogers et al., 2012). Expressive art therapy uses a variety of arts-movement, drawing, painting, sculpting, music, writing, sound, and improvisation-to promote growth and healing in a supportive environment (Rogers, 2016). Expressive use of art means reaching into our inner domain to discover feelings of expression through visual art, movement, sound, writing, and so on (Rogers et al., 2012).

Painting therapy is a kind of technique in expressive art therapy. It is the simplest painting task that can offer unique expressive possibilities that complement and, in many cases, help children or adults' express what words cannot (Malchiodi, 2011). Painting allows participants to communicate thoughts, feelings, concerns, questions, wishes, hopes, dreams and desires in a relatively non-threatening way; it is a tool for expressing unconscious and conscious issues and beliefs (Buchalter, 2009). For high school students, painting therapy is an effective method to relieve stress and regulate their state because it can better release personal negative emotions, is easily accepted by students, and is flexible in application and widely applicable (Yu, 2017).

In summary, painting therapy as a technique of expressive arts therapy, allows adolescents to develop their imagination and stimulate their creativity. Besides, painting therapy can enter the inner world of adolescents, discovering their inner feelings and expressing them through visual arts, movements, sounds and words, thus fostering a more constructive self- acceptance.

2.0 MATERIALS AND METHODS

2.1 Protocol of Psychoeducation Painting Therapy (PEPT)

The protocol developed to help improve self-acceptance level among adolescents in China. Self-

acceptance includes two dimensions, namely, self-evaluation (SE) and self-acceptance (SA) (Gao & Cong, 1999). Therefore, it is necessary to allow teenagers to evaluate themselves correctly and objectively and accept all of themselves. The design of the psychoeducation painting therapy is based on the following two aspects. Firstly, it is based on Natalie Rogers's Person-Centred Expressive Arts Therapy. Secondly, based on the Self-Acceptance Questionnaire (SAQ) by Gao and Cong (Gao & Cong, 1999) which consists of two dimensions, respectively, Self-Evaluation (SE) and Self-Acceptance (SA).

The development of this protocol involves three phases. In the first phase, a review of literature was carried out on issues related to self-acceptance among adolescents and the painting therapy for adolescents. The second phase focused around discussions with the PhD supervisor who is recognised internationally as an expert in Expressive Arts Therapy. Finally, in the third phase, the psychoeducation painting therapy protocol was developed. The protocol consisted of 3 stages, 10 arts activities and 10 self-focused themes that lead to the module namely Psychoeducation Painting Therapy for Self Acceptance (PEPT-SA), to be experimentally researched for adolescents.

With regards to the protocol developed; Stage 1 is Dimension 1: SE (activities 1-5). This stage focuses on self-interaction, self-exploration, self-revealing, self-analysis and self- introspection. Stage 2 is Dimension 2: SA (activities 6-9). This stage focuses on self- understanding, self-awareness, self-discovery, and self control. Finally, Stage 3 is Termination Process (activity 10). This stage focuses on self-direction.

The procedure includes preparing creative arts materials such as A4 papers, pencils, markers, slides that match the theme of the activities, etc. The duration for each activity in group processing is about two hours (120 minutes), in order to enable every member in the group to participate. The number of participants for group participants normally around 4 – 8 members, to provide opportunity for all members to actively engage in the activity.
The protocol of psychoeducation painting therapy`s module is shown in Table 3.1.

Table 3.1 Protocol of Psychoeducation Painting Therapy

Stages	Activities	Self-Focused	Procedures
Dimension 1: SE	**1.Therapeutic Relationship**	**Self-Interaction**	**Contents:** 1. *Establish the group and define the activities' goals. (60 minutes)* 2. *Group members get to know each other. (60 minutes)* **Aims in Psychoeducation:** *Eliminate unfamiliarity and begin to build trust, psychological safety, and freedom.*
	2.Self-Portraits	**Self-Exploration**	**Contents:** 1. *Listen to the music & image. (10 minutes)* 2. *Paint the "Your Self-Portraits". (30 minutes)* 3. *Verbal processing - self scanning, describe the self-portraits. Share and talk about the feelings. (60 minutes)* 4. *Personal Reflection. (20 minutes)* **Aims in Psychoeducation:** *Discover and strengthen the understanding of oneself and be able to evaluate oneself correctly.*
	3. Body Mapping	**Self-Revealing**	**Contents:** 1. *Listen to the music & image. And body scanning with meditation. (10 minutes) 2. Paint the "Your Body Mapping". (30 minutes)* 3. *Verbal processing – describe the body mapping. Share and talk about the feelings. (60 minutes)* 4. *Personal Reflection. (20 minutes)* **Aims in Psychoeducation:** *Through the expression and description of the symbols, colors, and other meanings of the body mapping, enhance and improve the individual's ability to self-understand and self-evaluate.*
	4. My Shadow	**Self-Analysis**	**Contents:** 1. *Listen to the music & image. (10 minutes)* 2. *Paint the "Your Shadow". (30 minutes)* 3. *Verbal processing - describe the constructive and destructive aspects of your shadow. Share and talk about the feelings. 630 minutes)* 4. *Personal Reflection. (20 minutes)* **Aims in Psychoeducation:** *Discover the unconscious complexes that are not known, the qualities of the suppressed or disowned conscious self (Destructive & Constructive aspects). And can do the self-evaluation correctly.*
	5.My Mask	**Self-Introspection**	**Contents:** 1. *Listen to the music & image. (10 minutes)* 2. *Make and paint the "Your Mask". (30 minutes)* 3. *Verbal processing - describe the mask, and try to portray 2 questions: "How others see you on the outside of the mask? How you really feel inside on the reverse side of the mask?". Share and talk about the feelings. (60 minutes)* 4.*Personal Reflection. (20 minutes)* **Aims in Psychoeducation:** *aware of how you see yourself, gradually understand your true self through sharing and telling, and improve the ability to make correct and objective self-evaluation.*
Dimension 2: SA	**6.My Emotion**	**Self-Understanding**	**Contents:** 1. *Listen to the music & image. (10 minutes)* 2. *Free painting – paint the "My Emotion". (30 minutes)* 3. *Verbal processing - describe the product and tell the story or oneself own words. Share and talk about the feelings. (60 minutes)* 4. *Personal Reflection. (20 minutes)* **Aims in Psychoeducation:** *Understand, feel, and express emotions through painting. Enable yourself to accept your emotions (positive & negative emotions).*

3.0 RESULTS AND DISCUSSION

3.1 Expected Outcomes

The expected outcomes would be, firstly, the psychoeducation painting therapy can foster self-

	7. A Person in the Rain	**Self-Awareness**	**Contents:** 1. *Listen to the music & image. (10 minutes)* 2. *Paint the "A Person in the Rain". (30 minutes)* 3. *Verbal processing - describe the product and tell the story or oneself own words. Share and talk about the feelings. (60 minutes)* 4. *Personal Reflection. (20 minutes)* **Aims in Psychoeducation:** *Discover oneself subconscious (positive and negative aspects), learn to slowly accept your thoughts and behaviors, and accept oneself.*
	8. A Bridge	**Self-Discovery**	**Contents:** 1. *Listen to the music & image. (10 minutes)* 2. *Paint the "Bridge" – past, now, future. (30 minutes)* 3. *Verbal processing - describe the bridge and tell the story or oneself own words. Share and talk about the feelings. (60 minutes)* 4. *Personal Reflection. (20 minutes)* **Aims in Psychoeducation:** *Discover individuals' thoughts, emotions, and behaviors about the past, present, and future, learn to accept the past and present, and look to the future.*
	9.The Real Me	**Self-Control**	**Contents:** 1. *Listen to the music & image. (10 minutes)* 2. *Free painting - paint the "Real Me". (30 minutes)* 3. *Verbal processing - describe the product and tell the story or oneself own words. Share and talk about the feelings. (60 minutes)* 4**.** *Personal Reflection. (20 minutes)* **Aims in Psychoeducation:** *Through previous painting therapy in psychoeducation activities and the discovery and expression of our true selves, raise the level of self-acceptance, accepting both shortcomings and strengths.*
Termination			*1. Share some information about painting therapy, such as theories, applications, and effects. (60 minutes)* *2. Group members give blessings to each other and end the activity. (60 minutes)* **Aims in Psychoeducation:** *Investigate the level of self-acceptance after painting therapy in psychoeducation. End the painting therapy in psychoeducation activity*

acceptance among adolescents. Furthermore, PEPT-SA can explore the helpful aspects during the process of psychoeducation painting therapy for self-acceptance. Finally, PEPT- SA can investigate the helpful effects after psychoeducation painting therapy intervention for self-acceptance.

4.0 CONCLUSION

The protocol and module of PEPT-SA can be use as guideline for various mental health professional, educators, human resource and development, as well as for parenting to explore and improve the level of adolescent's self-acceptances. The application of PEPT-SA can be practices globally, within multicultural perspective. This protocol and module will provide a thorough grounding and contribution to research on psychoeducation, painting therapy, and adolescents' self-acceptance level.

ACKNOWLEDGEMENT

Thank you to Universiti Utara Malaysia

MANUAL OF CREATIVE ARTS THERAPY FROM ISLAMIC PERSPECTIVE AS THERAPEUTIC TOOL FOR DAKWAH.
(I-CAT-Dakwah)

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1.0 INTRODUCTION

The variety of clients who come to the Negeri Sembilan Islamic Religious Council Counselling Centre (PKMAINS) requires the counsellors to conduct counselling sessions more creatively and innovatively. The number of clients suffering from mental health issues are increasing day by day regardless of race and religion. The conventional verbal counselling approach is becoming less effective in dealing with the 21st century issues for clients who are difficult to express verbally and more in depth (Azizah, 2015; Azizah, 2015; Azizah, 2021; Abdullah, 2021; Abdullah, 2021). Therefore, combining the creative arts therapy and Islamic Value (I-CAT) is a new innovative approach that can be helpful for client self-improvement. I-CAT can easily be adapted in motivational programs, family counselling, career counselling, Addiction`s educational and prevention program, rehabilitation intervention, crisis management and any program related to human capital development. After comprehensive training, PKMAINS counsellors are able to upscale their personal and career professionalism by employing I-CAT within their practices. Thus, the transfer program of I-CAT knowledge and skills assist PKMAINS counsellors to expand and disseminate I-CAT application at the national and international levels through various programs such as workshops, public talk, seminars and focused skills training, ultimately as a medium for *Dakwah*.

For some people, verbal therapy becomes a daunting task to explore hidden issues at a deeper level. Therefore, we need a more concrete and wider medium for self-expression, exploration, revealing and healing (Azizah, 2015). For the purpose of searching the soul, by expanding creativity, intuitive, imaginative ability, the powerful transformation takes place that leads to fact-findings, and unexpected insight awareness (Gladding, 2010; Malchiodi, 2022; Maznah & Azizah, 2022; Rogers, 1993). Some clients merely can be helped through verbal communication during the counselling process. However, when verbal communication is no longer helpful, creative arts therapy can aid in breaking the gap and difficulty in communicating or expressing internal issues (Maznah & Azizah, 2022). The use of a non-verbal approach combined with verbal counselling to improve the quality of life and mental well-being of a person helps in the aspect of positive changes in oneself, as well as reducing the difficulty of disclosing unconscious, hidden or the unknown (Galadding, 2010; Malchiodi, 2022). In the context of human development, especially improving the quality of life and emotional well-being of a person, the application of creative arts therapy helps in increasing self-awareness, soul searching and purifying, reducing emotional stress, relaxing, releasing and letting go of all unnecessary and unwanted emotions (Abdullah, 2021; Gladding, 2010; Malchiodi, 2022; Maznah & Azizah, 2022).

Few studies found that counsellors or practitioners in the helping profession as well those interested in human capital development, need sufficient understanding, knowledge, skills practice and supervision. Lacking of these aspects tend to make incorrect evaluations and interpretations of the client's arts works, left the client feeling insecure, hesitation, shutdown, feel wronged or increased inner self-criticism (Azizah, 2015; Azizah, 2021; Abdullah, 2021; Gladding, 2010; Malchiodi, 2022; Maznah & Azizah, 2022; Rogers, 1993). Thus, the manual of I-CAT-Dakwah fulfils the need for skill enhancement.

2.0 MATERIALS AND METHODS

2.1 Materials & Framework Protocol of I-CAT for Dakwah

The project, funded by Ministry of Higher Education of Malaysia under Knowledges Transfer Program (KTP), collaborates within Universiti Utara Malaysia (UUM), Islamic Council of Negeri Sembilan (PKMAINS) and various agencies to develop Innovation tools for *Dakwah* in creative way. The project is a special application that combines Islamic and Spiritual values and creative arts materials. The protocol focuses on self-expression, self- exploring, self-introspection, self-awareness, self-understanding, self- discovery, and self-refining holistic individuals in order to promote a better quality of life and well- being. Selected innovative materials and modalities as powerful symbolisation tools including: 1) Imagery and Creative Cards, 2) Quotes from Al-Quran, 3) Themes Drawing, 4) Expressive Arts Movements, 5) Painting, 6) Creative activities, 7) Miniature, 8) Smalls objects, 9) Play Materials, as well as 10) Islamic and Spiritual Inspirational Words. Some materials were collected and brought from the United Kingdom, however it is still significant to use within the local context, and from Islamic perspective in particular.

With regards to the protocol developed for I-CAT-Dakwah`s manual, the procedure is adapted from empirical scientific research (Azizah, 2015) consist of sixes (6) level of training; i) Foundation, ii) Intermediate, iii) Advanced, iv) Community Practice, v) Clinical Practice, and vi) Supervision. I-CAT combines theories of counselling, psychology and creative arts application, alongside Islamic values. The construction of this protocol framework has been reviewed by expressive arts therapy experts at the international level, through the International Expressive Arts Therapy Association (IEATA). The expert, Dr Yuseof Al AJarma (REAT), was clinical supervisor to the head of this project, and served as Co-Chair of IEATA. Before this project was implemented, the international expert reviewed and examined the draft of this manual. Moreover, the foundation of the Creative Arts Therapy protocol was examined and validated by Professor Micheal Behr of Germany, for PhD thesis of University of Strathclyde, UK (Azizah, 2015). Logo and infographic were created with particular related meaning to I-CAT-Dakwah prior to Intellectual Property application through UUM.

Figure 4.1 Logo for Creative Arts Therapy from Islamic Perspective as Therapeutic Tool for Dakwah

Figure 4.2 Infographic of symbolic process using I-CAT-Dakwah

2.2 Methods for developed framework protocol I-CAT-Dakwah

The transfer of knowledge involved a total of fifteen counsellors and assistant counsellors of the Islamic Religious Council of Negeri Sembilan (PKMAINS) who received a six-level training series for a year. This training involves knowledge of basic concepts and theoretical applications of counselling and creative therapy, psychological issues in the 21st century, learning experiences, role playing, field practice, clinical practice with clients, case presentations and supervision, from Islamic perspective. Survey, discussion, content analysis, personal reflections, modification and alteration are held after every 2 levels of training for the purpose of improving the I-CAT-Dakwah protocol for a more comprehensive and wider application.

3.0 RESULTS AND DISCUSSION

3.1 Results

Result indicates that I-CAT is an effective therapeutic tool for exploring inner self, easy to delve into a person's soul, more interesting than simply using verbal interaction, helps a person see himself and his life from a different perspective, and is very helpful in purifying one's soul. Interestingly, the combination of Islamic approach and values, enable counsellors to assist someone in refining or adjusting challenges in order to calm their soul and foster holistic well-being, allowing for mental and spiritual peace, and most importantly, as a medium for *Dakwah* in a more gentle and highly empathic understanding way.

4.0 CONCLUSION

This innovative manual can be established as a guideline for anyone working with human relation and development, mainly as a medium for *Dakwah*, to provide psychological support, psychoeducational purpose, human capital development, organisational and motivational programs, parenting education, community programs etc. I-CAT- Dakwah also can be promoted as an innovative medium for soul recovery and healing not only for local prospects, but also can penetrate the global market.

ACKNOWLEDGEMENT

Ministry of Higher Education Malaysia (MOHE), Universiti Utara Malaysia (UUM), Religious Council of Negeri Sembilan (MAINS) and various agencies involved in this Knowledge Transfer Program and Research.

FORENSIC ARTS THERAPY FOR SELF-REGULATION AND PERSONALITY DEVELOPMENT (FAT-SRPD)

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1.0 INTRODUCTION

As art therapy practice progresses into the modern world, distinct theoretical orientations focusing on the process of art making and art psychotherapy flow along the continuum of different approaches (Gussak & Rosal, 2016). Since better assessment tools and approaches are necessary to establish better results in using arts in psychotherapy (Gussak, 2006), forensic art therapy (FAT) was introduced to offer interviewing tools in the investigation stage, identification of additional grounds for the exploration process and provides evidence-based materials in helping clients (Cohen-Liebman, 2003; Gussak, 2013). It is a non-conventional art therapy since its purpose extends beyond evaluation and treatment (Gussak & Cohen- Liebman, 2001). While artwork product is used as the primary means in the forensic art therapy processes of gathering information and tangible evidence, it not only provides storylines to the situation at hand but also leads toward the opportunity to expand beyond the client's conscious mind (Cohen-Liebman, 2016). Understanding this matter is crucial because, according to most clients in forensic settings they are not in favour of verbally disclosing their stories to others as it may put them in a vulnerable state (Gussak, 2007).

Forensic art therapy (FAT) is specialisation practise within the legal context which applies investigative approach of strict standard of practice and process in fact-finding to obtain, collaborate, evaluate, and authenticate legal matters information as evidentiary aids and forensically defensible (Kuhl et al., 2006) while art therapy in forensic settings (FS) is non-legal investigative approach but purely therapeutic intervention that is conducted in forensic settings which requires adjustment and modifications to suit the environment and relationships. Its purpose is to measure and treat the behavioural and psychological symptoms among the clients which at the same time respect and value privacy, ensuring survival, and understand the current situation well (Kuhl et al., 2006).

The development of the FAT-SRPD module is aimed at helping adolescents who are residing in correctional facilities in dealing with their self-regulation and personality development issues. This is because their behavioural problems have close connection with their capabilities in controlling and managing self-regulation aspects which consequently has a direct relation to their personality development and in search for identity (Biederman et al., 2020). Therefore, it is necessary to identify the root cause of their behavioural problems among those who are residing in the correctional facilities. For that reason, the adolescents' maladaptive behaviours are categorised into four groups as the following: 1. Obliteration 2. Infringement 3. Reactive 4. Resistance which has been adopted based on Child Behavior Checklist. The adaptation was made due to the strong findings from previous studies which were able to indicate the psychosocial status, emotions, and behaviours of adolescents that could provide crucial information to guide for clinical and therapeutic approaches (Berthelsen et al., 2017). In pertinent to the development of FAT-SRPD which is catering issues among the adolescents in correctional facilities, self-regulation management and personality development are the central focal point. This is because of the need to study the problems and issues related to the mechanism, functioning and deficit of self-regulation in different situations among adolescents and the risk factors related to self-regulation and personality development in their development (Koole et al., 2019; White

et al., 2012).

2.0 MATERIALS AND METHODS

The implementing FAT-SRPD among adolescents in correctional institutions including the use of these measurements tools; Aggressive Behaviour Scale (AGBS) by Lastar (2011), Short Self-Regulation Questionnaire (SSRQ) by Carey, et al., (2004), and Dimension of Identity Development Scale (DIDS) by Luyclex, et al., (2008) which will be administered at the beginning and the end of the module. Whereas FAT- SRPD schematic sessions procedure will be carried out as a group therapy approach.

2.1 FAT-SRPD procedures and protocol

The procedure and protocol of FAT-SRPD is shown in the table 4.1 below:

Table 4.1 FAT-SRPD protocol

SESSION	PHASE & THEME	CONTENT & GENERAL OBJECTIVES
Presession Stage	**INTRO** *Rapport building*	• *Meeting participants and briefing (20 minutes)* • *Filling in consent form (5 minutes)* *Administering survey; AGBS, SSQR, DIDS (35 minutes)* *Objectives:* • *Building rapport and to ensure an encouraging and safe environment.* • *To identify different categories of maladaptive behaviours among the participants.*
Session 1 Investigation Stage	**1** **PRESENT** *Assessment* **THE BLIND SPOT** *What is really going on?* Theme:	*ACTIVITY 1: Thermometer of feelings* • *Introduction (10 minutes)* • *Indicating feelings and emotions based by colouring and scales (20 minutes)* • *Processing and exploring feelings and emotions (30 minutes)* • *Sharing thought and self-reflection (30 minutes)* • *Closure ure (10 minutes)* *Objectives:* • *To identify feelings and emotions that contribute to current psychological state* • *To identify factors that contribute to feelings and emotions*
Session 2 Investigation Stage		*ACTIVITY 1: My facemask* • *Introduction (10 minutes)* • *Painting the representing facemask (20 minutes)* • *Processing and exploring (30 minutes)*

	Indulging & understanding emotions	*ACTIVITY 2:Behind my face mask* • *Painting the hidden self behind the facemask (20 minutes)* • *Processing and exploring (30 minutes)* • *Closure (10 minutes) Objectives:* • *To identify current state of wellbeing and to recognise challenges that hinder true self*
Session 3 Intervention Stage	**2 PREFERED** *Identification of strength & intervention* **GOAL CHECK** *What is realistic and achievable ?* Theme: Exploring issues & seeking direction	*ACTIVITY 1:People, house, and tree* • *Introduction (10 minutes)* • *Listening to music and engage in free body movements(10 minutes) • Producing drawing of people, house, and tree (20 minutes)* • *Processing and exploring (30 minutes)* • *Sharing thought and self-reflection (30 minutes)* • *Closure (10 minutes)* *Objectives:* • *To evaluate issues regarding what one's hope to achieve in life*
Session 4 Intervention Stage		*ACTIVITY 1: Tree of life* • *Introduction (10 minutes)* • *Breathing exercises while discerning major problems in life and contemplate ways to overcome (5minutes)* • *Draw tree of life and label (15 minutes)* • *Processing and exploring (30 minutes) ACTIVITY 2: Pick a fruit* • *Draw a picture of a person picking a fruit from a tree (15 minutes) • Processing and exploring (30 minutes)* • *Breathing and free movement (5 minutes)* • *Closure (10 minutes)* *Objectives:* • *To identify and categorise major issues in life* • *To expand one's capability to discover own potential*
Session 5 Intervention Stage	**3 ACTION** *Resiliency & termination* **BEST FIT STRATEGY**	*ACTIVITY 1: Draw a bridge* • *Introduction (10 minutes)* • *Listening to inspirational music and free movement (5 minutes)* • *Draw an imaginary bridge and write 5 words to describe (20 minutes) • Processing and exploring (30 minutes)* *ACTIVITY 2: The road*

	What will actually work? Theme: Developing goals, strength, and self reflection	• *Draw road with symbols and signs (20 minutes)* • *Processing and exploring (30 minutes)* • *Closure (10 minutes)* • *<u>Objectives:</u>* *To instil self-believe in making choices in life and inculcate self-confidence towards betterment*
Session 6 Termination Stage		*ACTIVITY 1: A Card to me* • *Introduction (10 minutes)* *Listening to soft music and making free movements while imagining a wonderful moment in life (5minutes)* • *Creating a card with messages (20 minutes)* • *Processing and exploring (30 minutes)* • *Self-reflection (10 minutes)* • *Administering survey; AGBS, SSQR, DIDS (35 minutes)* • *Debriefing and closure (10 minutes) <u>Objectives:</u>* • *To empower self-worth and determination*

3.0 EXPECTED RESULTS AND DISCUSSION

The implementation of FAT-SRPD is hoped to yield results in upright self-regulation management and positive personality development among adolescents in correctional facilities. This is based on the characteristics of FAT/FS which provide an alternative way of communication to (1) express feelings and emotions, (2) circumventing unconscious, (3) conscious defences, and (4) able to reduce psychological symptoms without spoken clarification which may include dishonesty and supporting creative activities for necessary distraction (entertainment) and emotional escape (Gussak, 2006; Gussak et al., 2001; Gussak, 2007). This is also in line with the orientation in the aspects of subconscious thinking, id, ego, superego, self defence mechanism, and sublimation which involving the aspects of affect, emotion, and feelings of self-concept that influenced by subconscious mind (White et al., 2012).

4.0 CONCLUSION

As a conclusion, an effort in understanding the issues regarding self-regulations alone would not be adequate enough to cater maladjustment behaviours among adolescents. Another important element such as personality development must be catered along too. This is based on the suggestion that both properties play important roles in shaping the cognitive capability which are the essential elements in self-directed goal setting, emotions, and controlling risks of maladjusted behaviours that could be decreased in the application of FAT- SRPD procedure.

SMART MONITORING SYSTEM FOR SYNCHRONOUS ONLINE LEARNING

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1.0 INTRODUCTION

Online learning and communication via the Internet have been around for decades but fully on board since the year 2020 when the Pandemic happened. Having more than 184,000 students has made Universiti Teknologi MARA (UiTM) the biggest university in Malaysia. Therefore, a large number of students per class is a norm and becomes more challenging when the technical class is conducted via an online medium (Ismail et al., 2021; Hasan et al., 2022). The efficiency of online teaching and learning is still an issue, not only in UiTM but also in other institutions. There are cases where students feel lost during online synchronous teaching and learning but it is hard to express that they are left behind (Zhang et al., 2021). This is not a good sign for realising the outcome of teaching and learning. Educators recognise this situation and always try to find a better way to recover any weakness foreseen in online learning (Panigrahi et al., 2018).

In line with that, there is a need for more research and innovations to improve online teaching and learning towards ensuring that this education delivery method is meeting the objectives. Many university courses might involve technical information and need immediate hands-on exercise; hence it is very important for them to follow the guidelines given by the instructor. However, many students struggled when it involved hands-on sessions. This innovation aims to provide real- time monitoring of student progress in following the lessons guided by instructors. It is being utilised during a synchronous online class session in Information Technology for Sports course, well known via code SRT441. This course is offered for first-semester students who enrolled in a bachelor's degree in sports science and a bachelor's degree in sports management. Even though this course is not the core course to get a degree in sports, it has become a mandatory course for them as Information Technology is the heart of today's living and operation. Hence, all the students are required to enrol and pass this course as well.

If there is no monitoring done, some students who have no interest in learning this subject might drop out and be lost in the air since it is not possible for the instructors to ask for every student to share their screen during the online lesson. With close monitoring, this SMSSOL will be a helpful tool for the student to share their progress. The system provides the milestones and tasks they need to complete during the Information Technology class. Within a single page using Google Sheets, students will be able to feedback on their progress and see the progress of other colleagues (Vargo et al., 2021). To maintain a good pace of lesson delivery, the instructor also refers to the statistical data shown in the system. This helps to evaluate any improvement that could be considered for the betterment of the course delivery.

2.0 MATERIALS AND METHODS

Google Sheets requires an Internet connection and allows collaboration and engagement to happen in real-time. It helps to manage various kinds of data, including numbers and checkboxes. This tool is simple yet very powerful as it allows users to customise and design a formula to automate a task, apart from being attractive and intuitive.

The Smart Monitoring System for Synchronous Online Learning (SMSSOL) applies the checkbox

feature in the Google Sheets to allow students to update their progress. The worksheet is being shared during online synchronous class to monitor the student's progress so that the instructor can manage and control the pace of the class without leaving the students behind as it is not possible to ask and wait for every student to share their screen during online class due time constraints.

3.0 RESULTS AND DISCUSSION

The SMSSOL has been tested in 3 classes for first-semester students in the Faculty of Sports Science & Recreation and the findings have been summarised as follows:

Table 5.1 Progress Monitoring Screen

				Sheet Improvement	Filter	Sort	Conditional Formatting	Pivot Table	Pivot Table Chart	Freeze Panes	Repeat Rows at Top During Printing
NO	STUDENT ID	NAME	TOTAL	24	23	21	17	9	7	17	12
1	[redacted]	[redacted]	38%	☑	☑	☑	☐	☐	☐	☐	☐
2	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
3	[redacted]	[redacted]	38%	☑	☑	☐	☐	☐	☐	☑	☐
4	[redacted]	[redacted]	75%	☑	☑	☑	☑	☐	☐	☑	☑
5	[redacted]	[redacted]	0%	☐	☐	☐	☐	☐	☐	☐	☐
6	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
7	[redacted]	[redacted]	50%	☑	☑	☑	☐	☐	☐	☑	☐
8	[redacted]	[redacted]	63%	☑	☑	☑	☑	☐	☐	☑	☐
9	[redacted]	[redacted]	75%	☑	☑	☑	☑	☑	☐	☑	☐
10	[redacted]	[redacted]	0%	☐	☐	☐	☐	☐	☐	☐	☐
11	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
12	[redacted]	[redacted]	75%	☑	☑	☑	☑	☐	☐	☑	☑
13	[redacted]	[redacted]	38%	☑	☑	☑	☐	☐	☐	☐	☐
14	[redacted]	[redacted]	50%	☑	☑	☐	☑	☑	☐	☐	☐
15	[redacted]	[redacted]	63%	☑	☑	☑	☐	☐	☐	☑	☑
16	[redacted]	[redacted]	0%	☐	☐	☐	☐	☐	☐	☐	☐
17	[redacted]	[redacted]	0%	☐	☐	☐	☐	☐	☐	☐	☐
18	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑

As shown in Table 5.1, the total number of students progressing for each task can be seen in each of the task columns. Those who have done the given task and are able to follow the lessons will tick the checkbox, to reflect on their outcome. The percentage of completion for each student will have a colour that triggers automatically, that has been pre-set in the system for ease of monitoring. If their progress is below 50%, the colour is orange and when they reach 100%, the colour turns into green colour.

Table 5.2 Sample Progress 2

				Sheet Improvement	Filter	Sort	Conditional Formatting	Pivot Table	Pivot Table Chart	Freeze Panes	Repeat Rows at Top During Printing
NO	STUDENT ID	NAME	TOTAL	30	30	30	30	29	30	30	30
1	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
2	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
3	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
4	[redacted]	[redacted]	86%	☑	☑	☑	☑	☐	☑	☑	☑
5	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
6	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
7	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
8	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
9	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
10	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
11	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
12	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
13	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
14	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
15	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
16	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
17	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑
18	[redacted]	[redacted]	100%	☑	☑	☑	☑	☑	☑	☑	☑

An example of completed lessons where the colour is mostly green is shown in table 5.2. This progress report is taken from other classes using the same system, which shows much better progress. At the end of the class, all the students are required to submit a screenshot of their declared outcome in the class Padlet, another online tool that is useful to communicate and share information in teaching and learning activities. Sample Submission for one of the classes tested using this system is shown in Figure 5.1. The submission will be done by students to the column that belongs to them, based on their name.

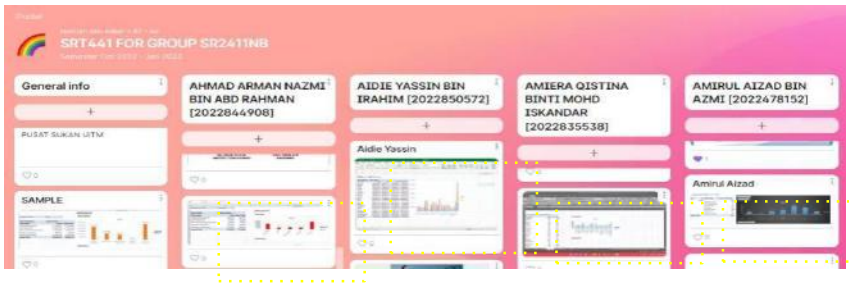

Figure 5.1 Sample Submission in Padlet

4.0 CONCLUSION

To ensure that the student can easily go along with the synchronous online course and close monitoring of the progress, the SMSSOL has been developed using a free online tool that is accessible by everyone where information is available on a single page, the summary is live and auto-generated based on student's feedback. The innovation of SMSSOL considers simple yet powerful tools to present online progress reporting during synchronous learning. It is easier for the students to share their progress and helps the instructors on the monitoring and engaging the students. The instructor can assist those who might be left behind by calling their name to check on which part they missed and then guide them accordingly. This progress monitoring is crucial for a technical course like this Information Technology course to ensure that the lesson outcome is achievable, apart from keeping the students interested and continuously engaged.

The positive response from the students proves that this innovation opens up an opportunity for improving the delivery of online teaching and learning. It facilitates engagement via close monitoring of the learning progress. In conclusion, overall students' agreement with this innovation will influence the acceptance of the student's learning. Future research in applying this kind of SMSSOL development for other courses should be considered to better understand its effectiveness and area for improvement. Suggestions for future studies are researchers could also study the challenges faced by many instructors and students in synchronous online learning for sports core courses as well as another field of study.

ACKNOWLEDGEMENT

We would like to thank the management of Universiti Teknologi MARA for the great support in online learning and funding support for this project.

MYPLANET APPLICATION: AN INNOVATIVE RECYCLING SYSTEM

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1.0 INTRODUCTION

Our solution for a better environmental sustainability in the world is a Recycling Tracking Application, named "myPLANET". myPLANET will encourage people to participate in the noble act of recycling. We are confident in our app's ability to be able to help the community to recycle effectively. The innovative features that our app offers would not only be able to bolster the rate of recycling, but in the long run, make an impact on global warming. myPLANET offers the user a neat and user-friendly UI, and a way to get rewards for their efforts.

When compared to other countries, the recycling rate of Malaysia is estimated at 31.52% in 2021 which is relatively low (BERNAMA, 2022). Lack of confidence, awareness, motivation, knowledge, and information lead to the decrease of the rate of recycling in Malaysia. 1 in 2 adults say that their recycling behaviours are affected by whether the items actually get recycled or just get dumped to the landfill. While every 4 out 5 adults who do not recycle say that they would recycle more if they had more guidance and facilities (Wood, 2021). Lack of information on what happens to recyclables after collection negatively impacts the public. Users do not know whether their items are actually recycled or thrown away into landfills. In addition to lack of certainty, consumers also expressed a great lack of confidence in the recycling system, with only one-third of the community believing that only a quarter of what they put in their recycling bins is actually recycled. Due to the lack of knowledge on the recycling system, users commonly send contamination along with their recyclables. This would cause thousands of tons of valuable recycling to be diverted to the landfill, not by the user, but by the recycling plant. The current recycling system is not transparent. Lack of confidence, awareness, motivation, knowledge, and information all comes into play when it comes to the low recycling rates.

The goals of our project are to reduce the waste dumping in oceans and landfills and recycle these wastes into beneficial new products. We also want to develop myPLANET application using Android Studio which consists of JAVA, XML and SQLite, and to guide users on how to recycle and build confidence using the futuristic features in myPLANET.

The myPLANET has the potential to be commercialised through the green points reward system. Collaboration with various industries also allows discount coupons to users as their rewards for effective recycling. We will also collaborate with the community and businesses to host recycling and environmental programs which would provide a place for business marketing fulfilling their corporate social responsibility.

We are confident that this app will be a stepping stone towards achieving net zero carbon emissions by 2050. The myPLANET will collaborate with companies, organisations, and governments to make this goal realistic. People will be more aware of what they consume and how it impacts the environment. This project will create new job opportunities that will lead to economic growth. Cities and communities around the globe will be more sustainable as carbon emissions will be greatly reduced because recycling will be more prevalent due to the impact of myPLANET. These goals are in accordance with the United Nations' 17 Sustainable Development Goals.

2.0 MATERIALS AND METHODS

Development of myPLANET's User Interface

To develop an app, first, you need to design the layout. In Android Studio, the layout is designed using a type of file called XML, which stands for Extensible Markup Language. It is used to define the position and the characteristics of objects in the app, like images, buttons, and text fields. XML is used to change the colour and behaviour of buttons, for example, to give the UI a more aesthetic feel.

Development of myPLANET's Framework

The next step is to add the functionalities of the app, using Kotlin, which will be the framework of our app. The framework is used to put the functionalities into our app. For example, if we wanted an app to go to another page when a button is pressed, or if we were to connect a database to our app, Kotlin would be used. For each activity created, which is a page in Android studio, there will be a Kotlin activity file and XML layout file for us to customise the look and functionalities of the page.

Development of myPLANET's Back-End

SDK will also be used to develop myPLANET. SDK is a set of software tools and programs used by developers to create app for specific platforms. SDK tools include a wide range of things, including libraries, documentation, code samples, processes, and guides which developers can use and integrate into their own apps. SDK would be used from the first time the user would open the app, for example the multiple sign-in options the user would have to save their personal credentials.

API, also known as Application Programming Interface, is usually packaged into a SDK. API is a software intermediary that allows two applications to talk to each other. In our project, APIs are used to display the map near the user, to generate unique QR code for each user every time they recycle, to collaborate with other apps to redeem green points and to connect to social media.

To develop the myPLANET application using Android Studio, we used Kotlin, which is the framework, XML, which defines properties and the layout of objects in the app, SDKs (Software Development Kits) which are sets of software tools and programs used to create applications, APIs (Application Programming Interface) which allows to app to talk to each other, and Google's Firebase, which will be used for user authentication, storage of data and artificial intelligence for recommendation of recycling location and redemption of green points.

3.0 RESULTS AND DISCUSSION

Survey

We conducted a survey on teenagers aged 13-18 to gain insides on their recycling habits. Another survey was also conducted on selected participants, they were given a prototype of our app and were asked to give feedback and opinions.

We learned that the recycling rate that was received was quite positive, with 65.9% of participants saying that they do recycle. In the following question, it was received that only 2.4% of participants said that they recycle very often. The overall results showed that the recycling rate among the participants is still below average.

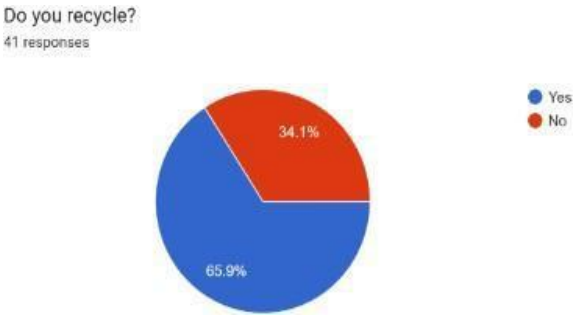

Figure 6.1 Responses of survey conducted

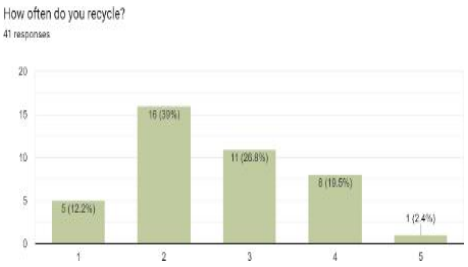

Figure 6.2 Responses of survey conducted

This survey also shows us that the majority of people believe they know how to recycle properly when in fact it is the opposite. About 58.5% of the participants stated they possess the knowledge to recycle properly, but when their knowledge was tested in further questions, the number was lower.

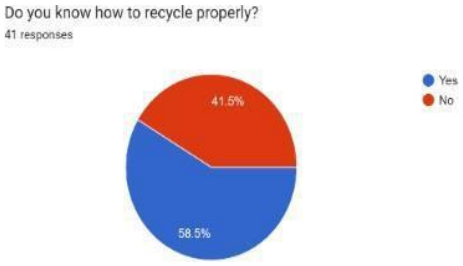

Figure 6.3 Responses of survey conducted

All of the participants agreed that they will recycle more if given more guidance and facilities. Almost 95.1% of them also stated that they will be more motivated to recycle if given rewards. This is further backed up when the majority of responses to Section D, Question 1 is to give rewards to motivate people.

Figure 6.4 Responses of survey conducted

From the feedback on the app, all the participants (100%) agreed that the app stated its purposes and function, the app's UI is neat and clear, and the app will make people interested in recycling. While about 85.7% of the participants fully understand how to use the app and stated that they have never experienced using this app. All of the participants also rated the innovativeness of the features of the app high or very high.

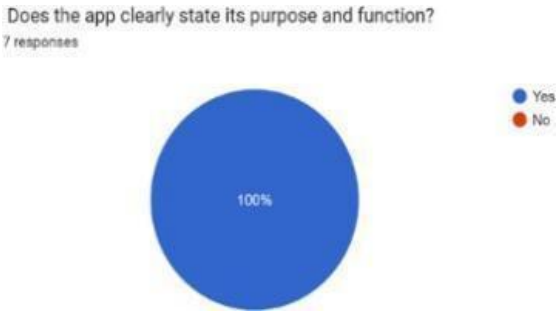

Figure 6.5 Responses of survey conducted

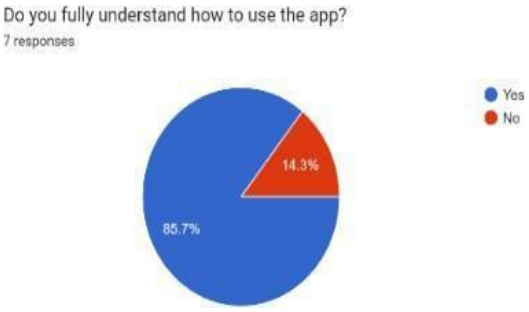

Figure 6.6 Responses of survey conducted

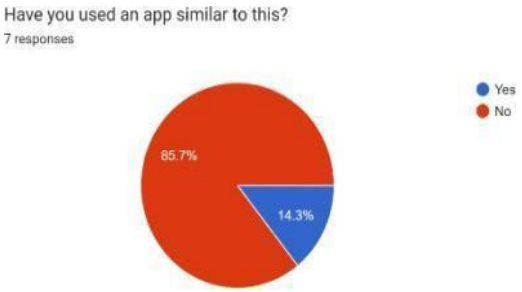

Figure 6.7 Responses of survey conducted

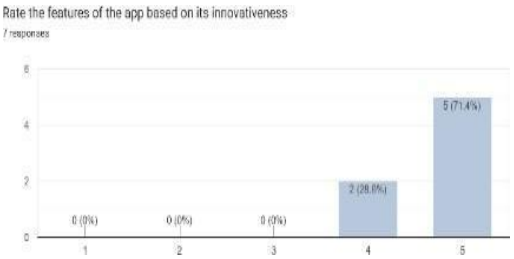

Figure 6.8 Responses of Survey Conducted

From the survey carried out, the innovators are confident that the app is able to increase the rate of recycling, provide guidance and rewards to those who wish to start recycling. This app will teach and guide people to recycle properly.

4.0 CONCLUSION

In conclusion, myPLANET app is a convenient and easy-to-use app for all users. The innovative features included in the app would revolutionise the act of recycling, making the process easier as a whole and attracting more people to it. The myPLANET is an essential tool in achieving the goal of zero net carbon emissions by 2050. With the futuristic and realistic solution for the recycling issues, there will be no problem for the community to achieve the targeted recycling rates in 2025. A community with a better and eco-friendly life will be pioneered by myPLANET.

ACKNOWLEDGEMENT

Halal Action Laboratory of Kolej GENIUS Insan, Universiti Sains Islam Malaysia, provided financial assistance for a portion of this research.

AUGMENTED REALITY BASED E-LEARNING TOOL: SUPERALIVE KIT

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1.0 INTRODUCTION

Augmented Reality (AR) is one of the most trendy technologies on mobile devices, with its incorporation of digital information. It has recently become a potential pedagogical method for various educational purposes. This technology blends the virtual environment with reality, creating rich and real contextual immersive language learning and retention experiences through realistic sensory experiences. AR relates to situated learning theory, self-determination theory (SDT), and flow theory, which makes language learning natural, motivating, encouraging and meaningful for young active modern pupils (Amalina et al, 2021). Izwan et al. (2018) stated that previous studies have reported much analysis on AR as a promising tool which promotes attractiveness and effectiveness in education generally, for vocabulary learning and language motivation, however, the majority of the research is carried out in Malaysian schools. To contribute innovatively to the field of AR which is said to be the ideal solution for all educational applications, this paper presents an innovative AR kit for mobile devices with either the Android operating system or the iOS, called the "SUPERALIVE KIT".

1.1 Problem Statement

I. Research on vocabulary retention is still immature and lagging in Malaysian ESL classrooms.
II. Past studies have reported much analysis on AR as a promising tool which promotes attractiveness and effectiveness in education generally, for vocabulary learning and language motivation, however, the majority of the research is not from Malaysian schools.

1.2 Objective

III. To create an AR module that aligns the vocabs in the Malaysian CEFR English textbook, Super Minds 1.
IV. To motivate Year 1 pupils in vocabulary learning and retention.
V. To strengthen Year 1 pupils' vocabulary, visualisation and sensory.
VI. To promote rich and real contextual immersive vocabulary retention experiences in Malaysian ESL classrooms.
VII. To promote fun and engaging self-learning outside the classroom.

2.0 METHODOLOGY

Table 6.1 Methodology

Phase	Activities	Tool	Outcome
Analysis	-Analysing the basic vocabularies in Super Minds Textbook must be mastered by students -Analysing students' interest	-Questionnaires -Observations -Interviews	Analysis result is evaluated

	and attitude towards mobile learning -Analysing relevant materials to the vocabulary's retention skill		
Design	-Design CEFR-Aligned module focuses on vocabularies in context	-Microsoft Word -Microsoft PowerPoint	-CEFR-Aligned module for year 1
Development	-Develop Augmented Reality (AR) materials needed. - Attach AR images in the module	-MAKAR apps -Canva -Superminds textbook	-Completed module with AugmentedReality images
Implementation	-Development result is applied in learning process to know its influence covers the effectiveness and attractiveness	-MAKAR apps -Module	-Functionaliy testing
Evaluation	-Testing usability and evaluate	-Questionnaire	-Usability testing

3.0 PRODUCT DESCRIPTION

V.1 Module Introduction Page

The first page of SUPERALIVE KIT is clear that this kit is CEFR-Aligned kit that focuses on Year 1 only.

V.2 Instructions and Introduction

On page 2, teachers or parents need to guide the students to download the MAKAR app from the App Store or Play Store. The students need to be briefed first on how to use the kit. On page 3, the students will be brought on a journey to four different 'places' based on the syllabus in Super Minds book.

V.3 Main Content

The main content of SUPERALIVE KIT are the first four chapters in Super Minds book which was then put in a different context for the students to experience a different learning situation. In this 'school trip' journey, students will be brought to visit five different places, namely; (1) school, (2) arcade, (3) market, (4) zoo, and (5) restaurant. In these five places, users are able to learn vocabularies in Augmented Reality images together with the spelling and pronunciation.

4.0 AUTHENTICITY

SUPERALIVE KIT will be the first CEFR-Aligned module that focuses on the list of vocabularies in Super Minds book for Year 1 and allows users to learn the important vocabularies with AR (Augmented Reality) together with the spelling and pronunciation.

5.0 USEFULNESS

SUPERALIVE KIT is a prototype of mobile application that provides students with interesting experience in learning and enhancing their vocabularies. This kit is useful to encourage self-learning among students with little / no assistance from adults. The SUPERALIVE KIT contains the vocabularies needed to be mastered with interesting AR (Augmented Reality) images, spelling and pronunciation.

6.0 COMMERCIAL VALUE

6.1 Access

SUPERALIVE kit module comes in a digital form where it can be accessed by users at their own convenience. With SUPERALIVE KIT, learning can occur outside the classroom with minimal to zero guidance from teachers or guardians.

6.2 Cost

SUPERALIVE KIT requires minimal time to be accessed because of its user-friendly features. Other than that, for this kit to be accessible, a user only needs to own a mobile phone with internet connection to download the MAKAR app and have the module ready.

7.0 CONCLUSION

The development of this module aims to make learning vocabularies for Year 1 more interesting and effective. Other than that, the development of SUPERALIVE KIT whoYear 1 students to practise self-learning skills in line with the 21st century goal.

PSYCHOLOGY FIRST AID KIT (WITH YOU) FOR SUICIDAL IDEATION

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1.0 INTRODUCTION

Royal Malaysian Police (PDRM) sources found that there was an increase in suicide cases reported in 2020 which was 631 cases compared to 609 cases in 2019. As of March 2021, a total of 336 suicide cases have been reported to the Royal Malaysian Police due to mental disorder issues caused by various problems. Suicidal thoughts have been demonstrated to fluctuate within a few hours (Kleiman et al., 2017). According to recent findings, people who supported stronger ability to utilize suicide-related coping were less likely to experience a suicidal episode within 90 days if they were at high risk for suicide (Interian et al., 2021).

Many persons who are at risk of suicide are not in contact with any programs, despite the fact that health care services play a significant role in identifying and taking action to reduce suicide risk. Only a five of those who die by suicide receive specialized mental health care, and less than half of those who do so had contact with primary care services in the month before to their death (Stene-Larsen et.& Reneflot, 2019). Instead of focusing on high-risk individuals, tackling suicide risk factors at the general level may be more beneficial. Public education programs such as PFA kit that instruct participants to identify signs of mental illness or suicide intentions in others offer them the proper support (Bond et al., 2021). This With You PFA kit will empower the public to assist the individual with suicidal ideation. This will ensure immediate and effective aid to reduce suicide incidence.

2.0 PROBLEM STATEMENT

The Malaysian government through the Ministry of Health (MOH) has taken action involving a number of initiatives to address the issue of suicidal behavior including strengthening the implementation of mental health and psycho-social support services in collaboration with non-governmental organizations (NGOs) to increase access to the coverage of mental health services and psycho-social support for help individuals who need support.

However, the services provided to deal with the problem of suicide are still not widely used. Surrounding people such as family members, colleagues and school friends are responsible for helping individuals who are at risk of suicide. They run the risk of opting to commit suicide if you leave them alone with a mental crisis and without assistance.This coincides with the findings of the research Isometsa (2001) which found that about one-third to a half of people who die by suicide explicitly communicate their intent to family members.

We found that the Psychology First Aid Kit provided by the Ministry of Health (MOH) is a booklet and is limited to Psychological Officers, Counsellors and Psychiatrists only. However, there are family members, coworkers, and school mates that have the capacity to provide Psychology First Aid assistance when dealing with suicidal cases and suicide attempts.

Accordingly, there should be an effective approach to reduce suicide cases that includes features that are easily accessible, easy to implement, immediate, holistic, comprehensive use and impactful.

Therefore, we suggest that a newly developed Psychology first aid kit is needed.

This Interactive Psychology First Aid Kit will be developed for the use of individuals (helpers) who want to help other individuals who have suicidal tendencies and desires whether family members, friends, colleagues, and the community. This kit is also very effective as a guide for counselors, psychologists, and social workers in handling suicidal cases. This kit is given the name 'With You' because togetherness with individuals experiencing mental crisis is very important. With the name 'With You' it is also hoped to help individuals who are experiencing a crisis to be aware of their environment and help them with the crisis they are facing.

3.0 METHODS OF IMPLEMENTATION

This PFA kit is developed in the form of an application that needs to be downloaded on a mobile phone device through the *App Store, Play Store* or other available methods. Helper needs to download this application as an immediate reference and guide in handling PFA.

In this application, there are 3 main parts to help the helper to operate the PFA. The first part is a brief questionnaire regarding the symptoms identified from individuals experiencing a mental crisis (van Spijker et al., 2014). The questionnaire needs to be filled out by the Helper to identify the suicidal ideation of a person. By identifying the symptoms of suicidal tendencies, the Helper can be prepared with appropriate actions for helping the person.

The second part is a guide to apply Psychology First Aid. Psychological First Aid (PFA) is an evidence-based modular approach to assist anyone, including affected individuals experiencing acute stress reactions or who appear to be at risk for significant functional impairment or mental health problems. (WHO, 2011). In this Part 2 there is a core action of Psychological First Aid which is safety and stabilisation. These two main things are important in ensuring suicidal person condition is safe and helping Helper stabilize the emotions of suicidal person who is experiencing a mental crisis (Shultz & Forbes, 2014).

The third part is the treatment therapies that can be used by the Helper to help the suicidal person. This therapy includes healing methods and easing the emotional state of crisis (Shultz & Forbes, 2014). Among the therapies that can be used are multicultural therapies such as the melodic method of the Holy Qur'an, yoga and specific prayers. The Fourth Section in this application includes emergency and helpline numbers, including counselling service lines, welfare lines, Crisis Response Team (CRT) lines and other agencies. Having a list of emergency lines helps Helper get immediate help from the appropriate agency or NGO

3.1 Advantages of the Interactive Psychology First Aid Kit (With You) For Suicide

Psychological First Aid provides assistance or guidance to helpers helping those who have the intention to attempt suicide as an early help before seeking other emergency help. It is a user-friendly approach that makes it easier for helpers to understand and act early using the approach that needs to be used. In this app, a variety of cultural approaches are created to make it easier for helpers to choose.

3.2 Cost

Taking into account the development cost of this interactive Application, might require as much as RM5,000.

4.0 CONCLUSION

We highly recommend this application because it really helps the helper to calm and stabilize emotions to people who want to commit suicide. In this life, many things are beyond our control but there is an application that can reduce and prevent deaths from injury and depression. There may be a lot of treatments or methods that have a sustained goal however this PFA is the best option to start with.

BED FRAME 2 PICTURE LEDGE

Mohamad Sanusi Bin Mustafa[1], Dr. Noor Azah Binti Abdul Raman[2] & Siti Nur Aisyah Binti Sazali[3]

[1,2]Kolej Komuniti Jasin
[3]Universiti Sains Islam Malaysia

1.0 INTRODUCTION

Today's young generation cares about the preservation of the environment. This can be achieved by "reduce, reuse and recycle" that is; reduce, for example reduce waste or reduce litter; reuse, for example the reuse of materials so that the production of new materials can be controlled, especially those based on wood that is processed from trees and takes a long time to mature", and recycling that can extend the useful life of a material, the possibility of making other functions as well. These efforts are very helpful towards Smart Green. A bed frame made of wood can be modified into a "Picture Ledge" or pictures.

2.0 MATERIALS AND METHODS

Materials are as follow:

1. Wooden bedframe – the side part
2. Pad eyes or cleat (min 2, max 4)
3. Screws as needed
4. Electric drill

3.0 RESULTS AND DISCUSSION

"Picture Ledge" can extend the function of the wooden bed frame components. It provides a space for several pictures to be displayed in groups. The number, composition and arrangement of pictures can be modified according to the suitability and creativity of the user. Not all bed frames have the same design. The part of the bed frame used in this innovation project is the side part, made of wood or wood composite. It consists of 2 pieces of wood; one is larger and slightly longer than the other and both are placed side by side. This wooden frame can be repainted to produce the desired colour and texture, or left in its original state. Two or three screws are attached to the bottom of this bed frame component for the purpose of attaching it to the wall. The pad eye is attached to the wall and bed frame components with screws. Wooden components can be added with nails or screws or any other attachment technique for lively decoration space, if necessary.

3.1 Before Innovation

Figure 7.1 The side part of bedframe before innovation

3.2 After Innovation

Figure 7.2 After innovation – Picture ledge is hanged on the wall

4.0 CONCLUSION

The re-use of bed frames is proven to save the cost of decorating the walls of the home or office as well as creating a unique and attractive picture display. The arrangement of pictures exhibited can be adjusted according to the number and appropriate theme. It also prevents the walls of the house from being nailed repeatedly every time the arrangement of pictures and the number of hangers are to be changed. This effort can prevent more large-sized solid waste from being thrown away. The space can be decorated accordingly because the arrangement and composition of the displayed pictures is flexible and can be changed at any time.

ZAS MOBILE APPLICATION FOR COMBATING DEPRESSION

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1.0 INTRODUCTION

Depression is one of the mental illnesses (Mohd Dahlan & Ida Shafinaz, 2013: Nydegger, Basile & Nydegger, 2011). The word depression comes from the Latin word "depressio", which means downfall. A person feels preoccupied with a weighted presence. Mood disorders that range from normal transient depression in everyday life to clinical syndromes with severe and significant duration and associated signs and symptoms that are markedly different from normal. Depression is a disease characterised by depressed mood as the main symptom. This includes painful emotions, bad moods, anxiety and panic attacks, decreased performance of various mental and cognitive functions, isolationist tendencies, decreased motivation, apathy, anorexia, difficulty in enjoying pleasure, feelings of hopelessness, and motor inhibition, including hypertonia and negative thoughts. Delusions in severe cases. On the other hand, it can have a wide range of associated physical manifestations, and some organic alterations often correspond to the larval or capsular morphology of depression. In this sense, it is defined as a psychiatric disorder characterised by the presence of sadness, loss of joy, feelings of guilt, and low self-esteem, accompanied by such personality changes. Sleep patterns and appetite, poor concentration and fatigue can become chronic and recurrent, leading to dysfunction in daily life. Mild cases can be treated with psychotherapy, but moderate or severe cases may require drug treatment.

Depression, if left untreated, will cause the individual to experience social dysfunction. In addition, it will have a negative impact on their social life, including relationships with family, workplace and community (Bernard, 2018). Therefore, the Islamic approach is seen to be one of the effective interventions to help individuals suffering from depression to restore their social functionality. There are various previous studies that show that the Islamic approach is effective. A study conducted by Muhammad N.H.N & Omar (2019) shows that the *zikr* approach can help in solving the issue of drug addiction. While the study conducted by Dwidiyanti et al., (2021) also shows that the Islamic approach is able to help in dealing with the issue of depression among nursing students during the Covid- 19 pandemic. Therefore, this study was conducted to discern the Islamic approach in helping individuals who suffer from depression, especially in the Muslim community.

Islam is the basis of human life. Islam is a religion that emphasises the sanctity of the soul in civilised human life. Purity of soul is part of the beliefs that make an individual abiding by Islamic law. Islam is therefore very important in daily life because it can protect people from existing problems, especially depression (Meidiana, et al., 2021). The idea of having this ZAS application is to be able to provide an initial step to the prevention of depression with everyone being able to install it on their handphone or laptop immediately. In this ZAS application there are three therapeutic contents according to the Islamic way, namely *Zikir*, Al-Quran and *Salawat*.

1.1 UNIQUENESS OF ZAS APPLICATION

This innovation project is to build a mobile application to target patients with Depression. This application offers a new and more attractive design because it is more user-friendly and has no difficulty in helping patients find the verses of *Zikr*, Al-Quran and *Salawah*. The management of time and place for the patient to find the verses can also reduce the patient's time to seek early therapy through hearing. This application is also environmentally friendly because it is paperless. Notes and links in the application look more interesting and colourful to read and appreciated. Positively, this mobile application acts as an early prevention for patients. Just a few steps, patients can browse this application to recover themselves with the therapy of *Zikir* verses, Al-Quran and *Salawah* easily.

2.0 MATERIALS AND METHODS

The mobile apps will be developed by purchasing the pre-done app design template which can be purchased from a few sites. This is a lot cheaper than hiring a designer to create a custom app design. This ZAS application can be used by all ages especially for Muslim people. In this application there are three features which contain *Zikir* verses, Al- Quran and *Salawah* that provide peace to those who suffer from depression.

3.0 RESULTS AND DISCUSSION

3.1 Zikr

Depression can be overcome by practising Zikrullah. According to the Muslim Hadith Number 2730, which means there is no god but God the Great and the Most Gentle, there is no God but God the Lord of the Great Throne, there is no God but God the Lord of the Heavens and the Lord of the Earth and the Lord of the Glorious Throne. Based on the *hadith*, Prophet Muhammad SAW said when in a difficult situation. The speech that is *Zikr* is a praise and moan to Allah S.W.T. when in sadness, worry, anxiety, worry and distress. Therefore, individuals facing depression are strongly encouraged to pray through Zikr to seek healing. (Wan Hilmi Wan Abdullah & Hidayah Zaki, 2020).

3.2 Al-Quran

Recitation of verses from the Qur'an can also provide healing for depression patients. According to Islamic Medicine Guidelines (2011), states that *rukyah* is a prayer based on the verses of the Qur'an and hadith that coincide with *syar'a* for the purpose of medicine and well- being or goodness. In the art of reciting the Qur'an, there is also a rhythm that can create peace in the soul of the listener. Al-Quran reading is also able to influence the development of cells in the human body as well as contribute towards the healing of health and spiritual problems such as depression (Rosyafirah Hashim et al, 2017).

3.3 Salawah

Salawah can treat the body from various diseases, relieve stress and anxiety, create inner peace, heal from misgivings, as well as prevent heart disease. According to Sheikh Ahmad Asshawi if Sholawat Tibiil Qulub read 400 times or 2000 times and is intended for sick people, so that by Allah's permission, any disease can be cured. In the opinion of KH Muhammad bin Abdullah Faqih Sholawat Tibbil Qulub effective in maintaining body health and prevent all diseases dzahir and inner. (KH Muhammad bin

Abdullah Faqih. 2018).

4.0 CONCLUSION

Depression is one of the psychological abnormalities that can be overcome through Islamic perspectives such as *Zikr*, Al-Quran and *Salawah*. These three elements if practised with devotion and perseverance will be able to cure the depression faced especially by the Muslim community. The innovation of the production of an application named "ZAS" is expected to provide benefits and help those who face depression to use this application in daily life. The innovation in this application can improve the development of early patient recovery through the latest mobile application and is a new strategy and perspective. This strategy should help patients understand the importance of getting early therapy for early-stage recovery.

THE CREATIVE COUNSELLING MODULE IN GROUP COUNSELLING FOR STUDENTS WITH LEARNING DISABILITIES(CGC)

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1.0 INTRODUCTION

Learning is defined as a problem in one or more of the basic psychological processes involving the understanding or use of language either speaking or writing in which the problems encountered result in imperfect listening, thinking, speaking and reading abilities. This does not include those with learning disabilities resulting from visual, hearing and motor disabilities, mental retardation, emotional disturbances or environmental, cultural or economic deprivation. The characteristics of pupils and students with learning disabilities can be divided into cognitive characteristics; academic; social and emotional; and attitude.

1.1 Cognitive characteristics

Pupils and students with learning disabilities are usually weak in observation including concentration, attention, memory, and thinking or processing. They face difficulty in relating existing knowledge to new knowledge or find it difficult to apply that knowledge in a learning situation.

1.2 Academic features

Academic features occur in reading, speaking, writing, and maths problems. Many students have reading problems. The most obvious is difficulty understanding what is read and difficulty identifying words. A term often associated with reading problems is dyslexia. In addition to reading, these people face difficulties in speaking such as phonology, morphology, word order in sentences (syntax), and pragmatics. Students who are weak in oral language fail to understand the words that are delivered and thus find it difficult to engage in conversation or interaction with friends and so on.

Next, the problem with writing skills is difficulty in holding a pen or pencil when writing by hand, writing letters of different sizes, weakness in spelling, not using correct grammar, irregular paragraph organisation, and less use of complex sentence structure. In general, the writing skills of students with learning disabilities are lower than their normal peers. However, writing skills can be improved if early intervention is implemented and regular and systematic teaching methods are introduced.

The last area where pupils and students with learning disabilities face difficulties in learning is Mathematics. This problem can also be termed dyscalculia which refers to the inability in Mathematical skills. Dyscalculia generally means the inability to count. Among the Mathematical problems that occur among students with learning disabilities is not fully mastering basic calculations such as addition, subtraction, multiplication, and division. In addition, it is difficult to make estimates and measurements such as size, value, money, distance, or liquid.

Creativity is a crucial component in the advancement of all major cultural entities, including effective counselling. It is through creativity that major theories of counselling and skills in counselling have been developed. Creativity is longitudinal in its impact. If counselling is to progress in the future, it is essential that counsellors be rewarded for creative innovations and that they help themselves become more creative by studying the expressive arts, reading widely, travelling, and observing human nature from multiple perspectives (Samuel T. Gladding 2008; 2021). Communication, problem-solving,

behavioral skills, group work, academic basics, interpersonal, computer, time management, self-management, not confidence, following instructions, personality management, and social integration (Hiller et al., 2007); Lee et al., 2011; Shier et al., 2009; Singley & Susan, 2003; Zainudin et al., 2009).

Issues like this can cause LD to be marginalised from society and find it difficult to adapt to a lifestyle full of challenges. Communication skills and self- confidence are very important to ensure that daily life can be managed as well as possible. In addition, a study by Hussein et al. (2020) stated that various problems are faced by students in the category of learning difficulties. In general, they experience delays in the development of thinking, memory, concentration, coordination, communication, reading, writing, spelling, and arithmetic as well as social skills and emotional maturity.

2.0 PROBLEM STATEMENT

Learning disabilities are situations where children or teenagers experience difficulties in learning. Learning difficulty refers to the condition of inadequate development in a certain academic field, language, speaking, or motor skills that is not caused by mental retardation, autism, physical disorders that can be seen, or lack of educational opportunities. Children with learning disabilities generally have average or above average intelligence, but have difficulty learning some specific skills (e.g. arithmetic or reading) so that their progress in school becomes hindered. Learning disability by learning disorder, communication disorder, and motor skills disorder.

Students with Special Needs (SEN) are indeed faced with various problems. One of them is that SEN lacks communication skills and has low self- confidence. Some of the SEN do not master skills as SEN are indeed faced with various problems. One of them is that LD lacks communication skills and low self-confidence. Some of the LD does not master skills such as communication, problem-solving, behavioural skills, group work, academic basics, interpersonal, computer, time management, self-management, not confidence, following instructions, personality management, and social integration (Hiller et al., 2007); Lee et al., 2011; Shier et al., 2009; Singley & Susan, 2003; Zainudin et al., 2009).

Issues like this can cause LD to be marginalised from society and find it difficult to adapt to a lifestyle full of challenges. Communication skills and self- confidence are very important to ensure that daily life can be managed as well as possible. In addition, a study by Hussein et al. (2020) stated that various problems are faced by students in the category of learning difficulties. In general, they experience delays in the development of thinking, memory, concentration, coordination, communication, reading, writing, spelling, and arithmetic as well as social skills and emotional maturity.

Based on the study of Mohd Hanafi (2016) in (Siti Fatimah and Mustafa, 2018) found that there are mainstream teachers who teach in PPI classes who do not have basic knowledge or experience related to special education and methods of Jurnal al-Sirat Bil. 18 Vol. 1 (2019) 174 handling of LD. This will cause class or subject teachers to face difficulties in understanding the requirements of LD during PdP in the classroom. This situation will make the PdPLD process difficult in the PPI class. The results of this study found that three out of five (60%) mainstream teachers did not obtain specific exposure related toPdP techniques and methods that are compatible with LD in the PPI class.

This is proven in the findings of Hasnah's study (2010) where teachers do not receive comprehensive training to recognize the characteristics of autism, assess, teach using effective strategies, undergo training directly with students with autism and collaborate with other professionals and parents in their formal special education studies. In terms of the training they received while in service, they stated that the quality was average, but the training was better compared to the training they received while they were studying at universities and teaching institutes. Guidance and Counseling Teacher / Special Education Teacher.

Special Education Data (2020) published by the Malaysian Ministry of Education (2020) shows the

type learning disability with special needs from 2020as shown in the table below:

Table 7.1 Students consisting of school levels, which have types learning disability on 2022.

NUM	TYPE LEARNING DISABILITY	SPK				PPKI				PPI				TOTAL
		PRA	REN	MEN	JUM	PRA	REN	MEN	JUM	PRA	REN	MEN	JUM	
1	Down Syndrome	11	43		54	141	2,945	1,979	5,065	2	35	5	42	5,161
2	ADHD	4	47	42	93	76	3,690	1,923	5,689	3	431	294	728	6,510
3	Autism	67	147	23	237	537	9,367	2,954	12,858	32	652	294	978	14,073
4	Intellectual Disability	8	126	249	383	49	10,550	9,058	19,657	11	1,231	1,005	2,247	22,287
5	Specific Learning Problems (Dyslexia/	2	40	145	187	10	5,870	4,190	10,070	7	1,608	1,430	3,045	13,302
6	Slow Learner		24	244	268	12	4,148	6,551	10,711	1	435	654	1,081	12,060
7	Others	6	46	21	73	91	2,112	1,055	3,258	7	259	215	481	3,812
Total		98	473	724	1295	916	38,682	27,710	67,308	63	4,651	3,888	8,602	77,205

Jain, and Kioh (2010) also touched on the needs of counsellors in handling group counselling. A counsellor needs to be skilled in handling group counselling with students with special needs. Counsellors may have problems conducting individual counselling during services in certain cases. For example, in developing students' social skills.

3.0 METHODS

The methods were conducted, by using a qualitative methodological approach that applied a survey research design and interviews in the form of face-to- face in-depth interviews and focus groups for data collection. Thesample of this study consists of students aged between 7 to 18 years. The respondents involved were 6 students selected from the Alor Gajah District. The respondents of this study conducted on them, or through student attendance data through the Student Database Application (SDA). In addition, we also obtain information on Good Practices and Student Cases through the Student Identity System (SSDM), Ministry of Education Malaysia.

The structured interviews and semi-structured interviews in conducting this study. The researcher will send the interview protocol questions to the evaluator to be confirmed before the study is conducted.

This group counselling session will also be recorded to provide a transcript of the interview. The transcripts of these interviews will be analysed to generate themes. This theme will be confirmed by the study sample. Next, the theme will be verified by experts to obtain validity and reliability. The results of this theme will be used to produce a module on dealing with the problem of drug abuse among students. The counselling interventions involving various creative activities can attract interest,

thereby addressing problems among LD. Among the creative activities used are psychodrama, play therapy, painting, music, and so on. Undoubtedly, through this activity, LD can express their perspective on themselves, their family, and the environment, thus gaining common sense in dealing with their problems.

4.0 CONCLUSION

We hope with this new invasion program can help the future of our next generations for better country and environment, special needs student were also a big part to the country's contributors in terms of intelligence and unique ability, by requiring some techniques that experts use can polish hidden talents and givehope to LD that they are also capable of be a successful.

Cost: This module does not need any cost except to recycle materials such as paper, cardboard, boxes and flora waste.

EMOTION SELF-REGULATION MODULE FOR ADHD ADULTS: NEEDS ANALYSIS

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1.0 INTRODUCTION

The issue of ADHD is a global issue. The increase in this number causes the issue of social benefits to become increasingly important to be addressed as best as possible, especially in the aspect of education to help this group prepare to continue life for the future. Moreover, until today there is still no specific cure to treat ADHD. Just an early intervention, which is an effort to improve their condition holistically and increase the value of their lives in a better direction. Furthermore, various crises occur that involve society's negative view of those with ADHD. Seeing the impact of stigma on the acceptance of ADHD can be a barrier to treatment as well as discouraging those involved.

Emotional self-regulation refers to the complex process of initiating, inhibiting, and modulating the conscious aspects of emotion to effectively achieve one's goals. Although this concept, at the most basic level, refers to controlling one' s feelings, theory and research on emotional self-regulation have addressed various cognitions, physiological processes, and behavioural outcomes associated with individual differences in the capacity to effectively manage one's emotions. Although the ability to regulate one's emotions emerges at an early age and evolves throughout the lifespan, significant differences have been found in individual's tendencies to control their emotions.

People with this disorder have a great deal of difficulty sustaining their attention on a task or activity (Barkley, 2015). Attention-deficit/ hyperactivity disorder (ADHD) is among the most common neuro behavioural disorders. ADHD is a type of developmental disorder that commonly occurs among children around the world. However, based on studies conducted by researchers, they found that ADHD is a chronic disease that occurs throughout life. This means that the symptoms of ADHD disorder exhibited during childhood will carry over into adulthood. Psychological intervention aims to strengthen the mental resilience of ADHD individuals. A relationship between the therapist and the ADHD adults must also exist in order for them to achieve positive personal change.

1.1 Literature Review

A large literature on emotion systems and self-regulation has been advanced from fields ranging from neuroscience to developmental psychology. We also outline several themes that have implications for interventions that teach them emotional self-regulation skills. Most current models emphasise the functional role of emotions and the reciprocal balancing between emotion systems and higher brain centres in self-regulation processes (Derryberry and Tucker 1992; Gross 1998).

Emotions initiate a series of predictable physiological and experiential changes and coordinate brain activity through a series of systems developed to address different adaptive challenges (LeDoux 2002). In tandem with emotion systems, a mode of functioning characterised by reappraisal and regulation of emotion. Within this two-mode perspective on self-regulation, simultaneous processing and reciprocal balancing is ongoing between emotion systems characterised by automatic, reflexive and socialisation processing. This control mode characterised by expectation or past experiences shape the interpretation of sensory information (Gazzaniga, Heatherton, 2016) which includes symbolic functioning required for planning and strategic behaviour (Carver et al. 2008).

1.2 Emotional Self-regulation

One of the efforts to reduce this kind of disorder is by implementing self-regulation emotions exercises. The ability to self-regulate as an adult has roots since childhood. In essence, maturity reflects the ability to face emotional, social, and cognitive threats in the environment with patience, kind-heartedness and also thoughtfulness. If this description reminds you of mindfulness, that's no accident or harm will happen. Learning how to self-regulate is an important skill that children learn both for emotional maturity and, later, for social connections. Self regulation of uncontrolled emotions which this type of unhealthy emotion can disrupt interpersonal relationships, such as expressing anger freely.

Emotional self-regulation refers to the complex process of initiating, inhibiting, and modulating the conscious aspects of emotion to effectively achieve one's goals. Although this concept, at the most basic level, refers to controlling one's feelings, theory and research on emotional self-regulation have addressed various cognitions, physiological processes, and behavioural outcomes associated with individual differences in the capacity to effectively manage one's emotions. Self regulation of emotion is also related to the etiology and maintenance of diverse problems including depression. Emotional regulation means the ability of an individual to control his emotions in human adaptation to enjoy a better life.

2.0 MATERIALS AND METHODS

This module is generally built using the development design research (DDR) method. It is a research concept that develops an orderly and systematic development study. This study is basically formed into four phases (Richey & Klien, 2007). Firstly, analysis phase, second, design phase, third phase is the development phase and the finally is the evaluation phase which relates to usability testing.

2.1 Evaluation Phase

In the final stage of the evaluation phase of the module, the evaluation uses a survey research design and pre- and post- experiment of one group that will be detailed in the research evaluation design. The module used in the evaluation phase is updated by the researcher until it reaches a satisfactory level.

2.2 Field Research

In obtaining all the data, the author uses field research using interview and observation methods. The Interviews and observations are conducted on a group of individuals who are experts in the 3 main approaches that are combined in the structure of doing this module. The writer also going to reb centre to do a group session.

2.2.1. Focus Group Interview (FGD)

An interview is a process of interaction and communication between two or more people (subject and object). This method is done to obtain information by asking the respondent directly. It was a structured and unstructured interview where the author visited the study site. A list of questions has been prepared in advance, and when the interview process is carried out, questions related to issues arise when deemed necessary, the writer will immediately ask the respondents.

3.0 RESULTS AND DISCUSSION

The construction module of the emotional self regulation module was developed based on spiritual, physical elements and a few elements that are based on the art of music. By combining the three elements, each of which has an element of recovery in treating individuals who are dealing with ADHD

disorders. Each activity model planned in each approach has been harmonised with behavioural adaptations for ADHD symptoms. These three models are adapted through the Guided Repentance Theory and integrated through a psychological approach through various cognitive behavioural modules (Noor Shakirah, 2008).

Emotional self regulation is the suitable approach to improve subjective well being with a combination of cognitive behavioural approaches to change emotional aspects. This approach was chosen on the grounds that many studies were only done with a cognitive approach that caused a drop-out effect on the patient. Module of self-regulation of emotions that is seen to be able to build a new goal in the process of healing and treatment for ADHD disorders.

The early stage of this self regulation training is to teach people with ADHD the skills to recognize emotions. Before trying to express and manage their emotions, ADHD adults are expected to recognize their emotions first. The identification of these emotions is both positive and negative emotions. From the results of previous research conducted by Ghom (2003) explained that the ability to recognize emotions will be able to prevent individuals from psychological distress. The second stage in the emotional regulation process is the skill of expressing emotions. Emotional expression skills can be done both verbally or express the feeling. The third level in emotional regulation is the skill of managing emotions. The skill of managing emotions is done by practising relaxation techniques, especially muscle relaxation. The results of previous research show that this relaxation technique aims to provide skills to manage emotions that appear after a stressful event according to three approaches. The three aspects of the formation of behaviour include emotional assessment, emotional regulation and emotional expression. The combination of these three aspects will give you a new sense of calm and balance. Three elements of the module involved physical, music and spiritual approaches as follows:

3.1 Physical approach

Regular exercise can help in the prevention and management of health conditions such as diabetes, high blood pressure, heart disease and obesity. In addition, it can also treat psychology as the most effective way to fight depression and there are many ways to make it an enjoyable activity. Learning muscle control and relaxation techniques is one of the ways in this module to effectively control stress and anxiety.

3.2 Music and meditation approach

By implementing these activities, it will help ADHD patients to understand their condition better. It will make them know how to observe themselves and focus on something. ADHD patients are also willing to take the mind to travel back in time when distracted. ADHD patients are exposed to a calm musical mood that can calm the emotions of ADHD patients. In addition to all the suggested activities, always remember that ADHD patients are still in the process of overcoming their under controlled life. Music has the ability to influence emotions actively or passively and help reduce stress and potentially be used as therapy to regulate emotions. Therefore, consciously or unconsciously, the music or song played can change the environment and the emotional state of the people around. Based on the potential of this element, a new approach that is based on musical technique is to be featured in the preparation of this Emotional Self-Regulation Module.

3.3 Spiritual approach

Human life will not run away from tests and guesses from God. As ordinary people, we need to always be prepared for these various tests and take a positive attitude that all these tests signify God's love for us. Every problem educates us to always return to the greatness of God and always ask to be given guidance and guidance. Every event has a reason hidden behind great wisdom. Therefore, humans need to be satisfied with the destiny that God has set in addition to trying to live a better life with divine provisions. Look at destiny with a positive outlook.

4.0 CONCLUSION

As a conclusion, self-regulation of emotions is an individual ability which refers to the ability to think, manage emotions, organise and control oneself in behaving in order to achieve goals and resolve problems. Someone who can show self-regulation of emotions will reduce the tendency of behaving dysfunction. This module can be used by students with intensive counsellor assistance, until the results maximum obtained. In a meantime, as is expected to provide knowledge, awareness and subsequently lead to long term behavioural changes.

Recognizing all the options can help ADHD patients to put their self-regulation skills into practice. As a guidance, we can focus on identifying what they are feeling but always put in mind that feelings are not facts. We also can give them to stay calm and deliberate the options in order to help them make better choices.

CHIATATO

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1.0 INTRODUCTION

Purple sweet potato is one of the underutilised crops for commercial consumption in Malaysia despite its various health benefits and functional properties. Thus, Purple Sweet Potato Cracker has been developed to promote the local crop as a novelty food for Malaysians that is low in fat and high in fiber. The addition of Chia Seeds to the formulation is intended to increase its nutritional values and sensory properties.

2.0 MATERIALS AND METHODS

The crackers were evaluated for proximate composition and sensory characteristics, taste, aroma, texture, colour, appearance, and acceptance.

3.0 RESULTS AND DISCUSSION

A total of 8.4 to 8.7 g of protein and 68.5 to 68.9 g of carbohydrate were contained in 100 g of cracker samples. In addition, 11.1 to 11.4 g of crude fiber per 100g of sample was also reported. Interestingly, the amount was more than the recommended fiber intake by Codex Alimentarius on Dietary Fiber in 2009, which must be more than 3 g per 100g. The ratio of purple sweet potato and other ingredients used in this study were 50:100, 52:100, 54:100, 56:100, and 58:100. The results of the Hedonic sensory analysis showed that the formulation with a ratio of 54:100 was the most preferred formulation by the trained panellists in terms of aroma, colour, and appearance.

4.0 CONCLUSION

The developed Malaysian Purple Sweet Potato Cracker with high fiber content has the potential to be marketed as one of the healthy crackers in Malaysia, which may enhance the consumption of underutilised purple sweet potato.

ACKNOWLEDGEMENT

This research has been conducted in the Faculty of Hotel and Tourism Management, and Faculty of Health Sciences, Universiti Teknologi MARA (UiTM) Puncak Alam Selangor.

BIBLIOTHERAPY: BOOK PUBLICATION PROJECT FOR COUNSELING INTERVENTION WITH MALAYSIAN EXPERIENCE

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1.0 INTRODUCTION

Bibliotherapy has been known as one of the approaches in helping clients effectively. By reading others' experience, the counsellor enables clients' insight into their perspective on their current pressing issue. This innovation was developed as currently there are lacking specialised reading resources in Malay that can be used in counselling interventions through Bibliotherapy technique. namely; (1) Pandemic Covid-19, (2) Addiction and Recovery, (3) Trauma, (4) Divorce and Separation, (5) Marriage and Family, (6) Children, (7) Teen Conflict, (8) Early Adulthood & Career, (9) Abuse & Neglect, and (10) Loss & Grief. The works produced are true stories based on counselling cases written by counsellors or social practitioners as well as real cases from the authors who come from various backgrounds.

2.0 MATERIALS AND METHODS

This project engaged n=325 writers with 650 works of cases and experiences of counsellors, clients, and other social practitioners from various backgrounds in society. The project began by reaching out to counsellors, social practitioners and potential authors who wanted to share their true story. This innovation is divided into three phases: Call for authors, writing stage and editing, and publication and dissemination.

Stage 1: Call for Authors

At this stage, the project head created 10 different posters namely (1) Pandemic Covid-19, (2) Addiction and Recovery, (3) Trauma, (4) Divorce and Separation, (5) Marriage and Family, (6) Children, (7) Teen Conflict, (8) Early Adulthood & Career, (9) Abuse & Neglect, and (10) Loss & Grief. The announcement and advertisement to look out for potential authors took place for 2 months beginning from November to December 2021. At the end of February 2022, there were 325 authors who finally agreed to write their stories based on themes above accordingly. The project head is also responsible to provide a standardised template for authors in guiding each story. Each author can write two anecdotes, 4 pages long. As part of agreement, the authors contributed RM100 for two anecdotes and in return they received four free copies of books based on respectives themes they contributed at stage three.

Stage 2: Writing Stage and Editing

Writing and editing stage took about four months. At this stage, the project head appointed three editors to edit authors' work. The authors can submit their work through Google Drive that has been set up by editors. The editors finally merged all the anecdotes into a final manuscript to be sent as a final draft to project head before the project head merged with other parts in the final manuscript.

Stage 3: Publication and Dissemination

First degree titles (2.) should be written left aligned, all caps and bold. Second and 3rd degree subtitles

(2.1, 2.1.1) should be written left aligned, bold and with title case. A blank line should be placed between the paragraphs and there should not be any paragraph indentation.

3.0 RESULT AND DISCUSSION

3.1 Usefulness and Application

Reading specific pieces of literature and talking about them with a counsellor, therapist or in a group therapy setting is thought to offer clients to understand other perspectives, make sense of a difficult past or upsetting symptoms, or experience feelings of hope, contentment, and empathy. Generally, reading itself is also thought to improve self-esteem, self-awareness, and feelings of self-efficacy. In fact, this book can be owned and read by anyone at various ages as a learning process through other people's experiences. In addition to understanding the case load, the client gains common ground related to resilience, coping strategies, further improving a healthier mental and emotional well-being.

3.2 Commercial Potential

This product has a huge and widespread commercial potential. The books published are based on anecdotes and short stories. This product is marketable at various levels of age, socio economic backgrounds including individuals, parents, counselling teachers, counselling practitioners in various organisational and community settings. Such a product is unique and useful to the reader as it is limited and demanding in the market.

3.3 Environmental Friendliness

This product is considered environmentally friendly as this product can be recycled. Books have high durability and are well taken care of by buyers or users. It can save even more the environment if these books can be published electronically or updated in phone Apps.

4.0 CONCLUSION

This bibliotherapy project is crucial in helping clients from various settings. The counsellors from school settings, universities, organisations can benefit from the stories that have been shared by various authors. Hopefully there will be more initiatives to enrich the bibliotherapy resources using Malaysian experience.

ACKNOWLEDGEMENT

Thank you to the Center for Children and Families Enhancement (CCFE) that initiated this project.

2HEAL: THE DEVELOPMENT OF A MENTAL HEALTH APPLICATION FOR MALAYSIAN YOUNG PEOPLE

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1.0 INTRODUCTION

Mental health, in the past three decades, has been a public health concern, especially among youths. The National Health Morbidity Survey report in 2019 stated that 2.3% of adults aged 18 and above in Malaysia have depression. Studies in Malaysia have estimated that between 9.6 and 35% of the population; could benefit from, but are not receiving, mental health support (Chong et al., 2013). According to Malaysia's Ministry of Health, one in every three adults in the country has been at risk of acquiring a mental health disorder in the last five years. It is postulated that mental illness is expected to overtake heart disease as the leading cause of morbidity.

Globally, the World Health Organization estimates that 970 million people around the world were living with a mental disorder, with anxiety and depressive disorders the most common. (World Health Organization, 2022). Storrie and colleagues in 2009 further found that the barriers, such as stigma in seeking help, were the main factor in hindering youths to seek help. Thus, this increases the prevalence of mental health problems among youths. This phenomenon is currently exacerbated by the worldwide COVID-19 pandemic that is taking its toll on all layers of the community. COVID-19 has been linked to higher symptoms of sadness, anxiety, and stress as a result of psychosocial stressors such as life disruption, dread of sickness, or worry of unfavourable economic consequences. (Moreno et al., 2020).

Without early intervention, the effects of mental health issues can proceed to serious mental illness, suicidal thoughts and attempts, and other social maladies including drug usage. Therefore, introducing early intervention to vulnerable target groups is beneficial. The low adoption of mental health treatments is a result of barriers to help-seeking behaviours, despite the wide array of interventions that are accessible. Due to its numerous advantages, the mobile mental health app is viewed as a possible tool for lowering obstacles to receiving mental health interventions. The aim of this study is to develop a mental health self-screening tool and suitable activities for a mobile app and to assess the app's usefulness.

2.0 MATERIALS AND METHODS

The 2Heal is a smartphone-based app for dealing with mental health issues of people. It is developed through the partnership efforts of researchers from various disciplines such as public health, psychology, and computer science from the University of Malaya. This app enables the screening of the users' emotional states, including depression, anxiety, and stress and provides psychoeducation and activities for improving their mental well-being. The app's screening component was developed based on a causal structure related to risks and protective factors surrounding the mental health of Malaysian youth. This structure was established on the grounds of a qualitative study, which included reviewing 28 youths aged between 15 and 22 years from the urban areas of Kuala Lumpur and Selangor and a systematic review of the literature on mental health screening tools. Based on this framework and a systematic literature review, a mental health screening questionnaire that screens for a person's emotional states i.e., depression, anxiety, and stress; risk factors for mental health problems and stressful life events, and coping skills were developed. The English and Malay screening items were validated, and the tool was found to be reliable and valid. After the screening tool had been developed, it was incorporated into the 2Heal app (Figure 8.1). Interventions based on systematic review were mapped with the levels of emotions and included in the app (Figure 8.2). Using Google Forms, the screening tool was administered to 154 youths. The scale reliability was examined using Cronbach's alpha coefficient. The usefulness of this app was subsequently evaluated among Malaysian users. Based on the feedback, further revisions were made to the app by adding more features and improving the screening questions.

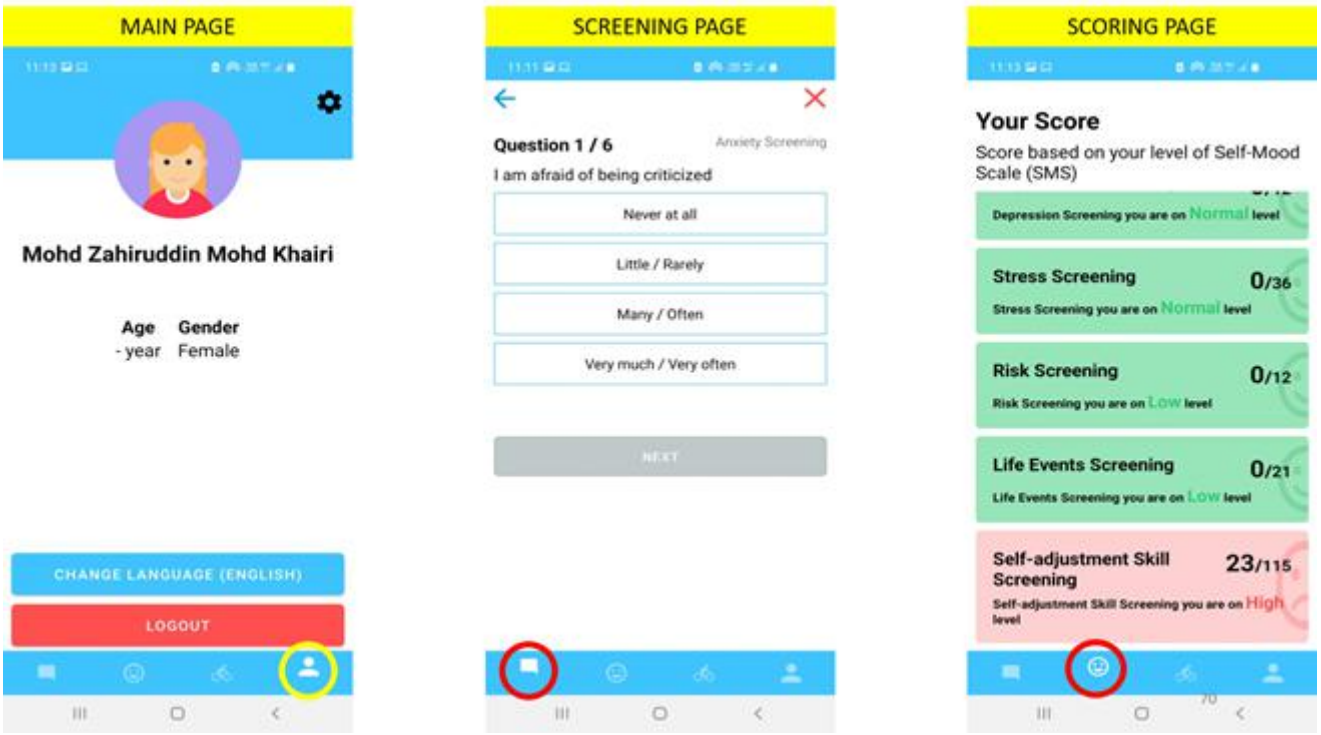

Figure 8.1 Screening Questions and Scoring

Figure 8.2 Mental Health Activities

3.0 RESULTS AND DISCUSSION

The 2Heal screening tool was found to be reliable and valid. It was found that the app's internal reliabilities for depression, anxiety, and stress were 0.82, 0.90, and 0.92, respectively. It was also observed that the app was accessible, and the screening questions were easy to understand by the users. In addition, most users were of the view that the app was helpful in managing their emotions.

The mobile app promotes mental health self-screening and help-seeking. Among the advantages of the app are that 1) it is an easy way to get a fast assessment of current mental well-being, 2) it directs the user to a suitable intervention based on their mental well-being, 3) it raises the user's awareness of the problems that they are facing, 4) it encourages users to get help early, and 5) for those who have already been diagnosed with a mental health condition, it allows self-screening between appointments with a mental health professional. However, the 2Heal app is not intended to diagnose depression, anxiety, or stress, but rather to help people to recognise their symptoms of mental health problems. If a user feels that their symptoms are not improving or if they have concerns about their health, professional medical advice should be sought.

4.0 CONCLUSION

The tough challenges faced by adolescents demand the development of an innovative solution to address the surge in mental health problems. The results of this study demonstrate that 2-Heal has the potential to assist in mental health services for adolescents and improve their mental health literacy. However, the 2Heal app can be further improved by expanding the app to iPhone users and having better features such as healthcare professionals who are available to answer questions.

ACKNOWLEDGEMENT

WHO APACPH-KL Collaboration Project entitled Coping to Live with Covid-19: The New Norm (UM.TNC2/UMREC_1359), University of Malaya Research Grant (UM.TNC2/UMREC-199) and University of Malaya Research Grant (UM.TNC2/UMREC-637.

POSCARE APP

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1.0 INTRODUCTION

Extraction of the mandibular third molar is the most common oral surgical procedure in dental clinics (Alvira-Gonzalez & Gay- Escoda, 2014). The patient satisfaction experience following surgical removal of a third molar procedure is becoming a wellbeing concern (Ruta et al., 2000). Post-operatively experiences that developed after surgical removal of a third molar can be categorised as immediate post-operatively tissue reactions and complications. General immediate postoperative tissue reactions are referred to swelling, pain, limited mouth (trismus) and difficulty on swallowing (dysphagia) (Bello et al., 2011). Other common complications of surgical extraction of impacted lower third molars reported by other authors were lingual or inferior alveolar nerve paraesthesia, haemorrhage (bleeding), infection and dry socket (alveolar osteitis) (Deliverska & Petkova, 2016). These immediate complications usually occur on the first three days after surgical procedure, and can normally affect the patient's quality of life because surgery can induce tissue trauma that produces inflammatory response (McGrath et al., 2003). Therefore, it is recommended to provide patients with a clear post- operative instruction to minimise the complications that could potentially affect the patient's comfort and quality of life (Matijević et al., 2013).

Post-operative instruction is the instruction given to patients after surgical procedures (Ekaniyere & Ifeoma, 2020). Verbal postoperative instruction delivered in oral form is considered the most common and the traditional mode of post-operative instruction presentation to patients (Johnson & Sandford, 2005). The advantage of verbal post-operative instruction is it being direct and cost-effective. The manner of post-operative instruction presented to patients in either verbal and/ or written form could influence the patient's understanding and compliance to post-operative instructions (Aloy-Prósper et al., 2020). However, the delivery of the information may not be standardised between clinicians. It has been shown that patients will understand better using visual and written compared to verbal alone (Linden & Fletcher, 2022). Thus, it is very important to choose an appropriate mode of post-operative instruction presentation. Failure to do so might affect the patient’s understanding, satisfaction, compliance and increase postoperative complications/ morbidity and in certain cases, patient complaints and even allegations (Johnson & Stanford, 2005).

Till date, USIM dental polyclinic is still adopting the verbal form of post-operative instructions delivery to the patient. Understanding the shortcomings of the verbal approach and taking into account the advancement of the technology, hence, this innovation was initiated. The idea was to develop a postoperative instruction module using an online web-based application which could be both user-friendly to the patient and cost-effective for the dentist.

2.0 MATERIALS AND METHODS

PosCare application (PosCare app) was developed using a web-based software called Glide (htpps://www.glideapps.com). The module for the PosCare was prepared and divided into nine sections. The sections and topics are listed in Table 8.1.

Table 8.1 PosCare module

Section	Topic
1	Introduction to PosCare Summary of complications after surgical extraction
2	Explanation of post-operative pain and its management
3	Management of post-operative bleeding
4	Management of post-operative swelling
5	Management of other complications e.g. trismus, soreness
6	Post-operative diet
7	Post-operative oral hygiene care
8	Things to avoid
9	Visit to the dental clinic

All the topics and materials for each topic were entered in a web-based spreadsheet program on Google Sheets. The spreadsheet was then uploaded into the Glide platform (htpps://www.glideapps.com) and the application was automatically generated. To improve accessibility, the layout and settings were changed, and the finer formatting was made. The link to the app was made available for use after it was published.

The PosCare app was then pretested on several patients who had undergone surgical removal of impacted teeth. Patients were required to scan the QR code (Figure 9.1) or click on the provided link to go to the PosCare app (https://post-op-instruction-mos.glideapp.io). They need to read all of the information and instructions by the PosCare app. After that, they were requested to give feedback on the use of the PosCare app in Padlet (https://padlet.com/inovfpgusim/pvvkz780ztad80ud). Feedbacks from the patients were appraised and improvement to the PosCare app and its contents were made accordingly.

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Figure 9.1 The QR code for the PosCare app

3.0 RESULTS AND DISCUSSION

Based on the patients' feedback, the PosCare application may be suggested as a reliable method to deliver post instructions after surgical removal of impacted teeth. Patients felt that the navigation through each section was easy and simple. The PosCare application could be assessed by the patient repeatedly, anytime, and anywhere using their mobile phones or tablets with no extra charges.

In the future, a study will be conducted to test the effectiveness of using the PosCare app as a method to deliver post-operative instructions to patients that had undergone surgical removal of impacted teeth. A validated questionnaire with the calculated sample size of 125 patients will be collected in Dental Polyclinic of Faculty of Dentistry, USIM. In addition, the use of such applications can be expanded to deliver PosCare or other dental and maxillofacial surgical procedures such as Orthognathic surgery which will benefit patients in the long run.

4.0 CONCLUSION

In conclusion, the PosCare app offers a feasible alternative to conventional/verbal instruction. The PosCare app was also found to be more interesting and interactive. The visual stimulation provided by the pictures and the written information may offer better memory retention.

ACKNOWLEDGEMENT

We would like to convey our deepest gratitude to the management of Faculty of Dentistry USIM, the staff, academicians and patients who have contributed their time and effort to this project.

PHYSICOCHEMICAL AND PROXIMATE PROPERTIES OF CHICKEN SAUSAGES SUBSTITUTES WITH CHIA SEED POWDER AND ITS SENSORY ACCEPTANCE

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1.0 INTRODUCTION

Chia seed is a novel food that is reported to contain about 30-34% fibre composed of insoluble dietary fibre (85-93%) and soluble dietary fibre (7-15%) (Kobus-cisowska et al., 2019). In addition, chia seed has a high amount of polyunsaturated fatty acid such as ω-3 α-linolenic acid and ω-6 α-linoleic acid (Marcinek & Krejpcio, 2018). In the context of minerals and vitamins, chia seed is rich in riboflavin, niacin, thiamine, calcium, and phosphorus (Grancieri et al., 2019). Chia seed has been a notable substance due to its property in stabilising emulsion and has good gelling forming ability, fat binding capacity, and water binding capacity (Pintado et al., 2017). The ability of chia seed to form a gel and excellent to retain water make it possible to reduce the food system's viscosity. Besides, chia seed is a good thickener, emulsifier, and stabiliser in frozen food products (Many & Sarasvathi, 2016). These chia seed properties are very advantageous in meat products as meat products are usually stored in frozen condition. During storage, the juiciness of the meat must be maintained, and chia seed could be an excellent ingredient to be added in the meat products. Furthermore, chia seed is also well-known for excellent dietary fibre content and can add value to meat products.

The trend of including some carbohydrate-based elements such as dietary fibre into meat products opens a new dimension for the consumers on various choices other than focusing on its nutritional value (Mehra et al., 2015). Moreover, dietary fibre has a neutral flavour and improves water retention as well as lowering cooking loss. Highly soluble fibres are used to modify texture and manage water migration in meat products (Biswas et al., 2011). Fibre is also desirable as it can increase cooking yield, reduce formulation and production cost, enhance the texture of meat products, and positively affect human health (de Oliveira Paula et al., 2019).

2.0 MATERIALS AND METHODS

2.1 Preparation of Chicken Sausages

Chicken sausages were processed according to Yadav et al. (Yadav et al., 2018). The minced chicken meat (100%, 95%, 90% and 85%) was thawed in a refrigerator at 4^{o}C for 3 hours. All ingredients were weighed using a weighing scale (Sartorius, German). Minced chicken meat and sodium chloride (1.7%) were mixed using a meat processor (Panasonic, Malaysia) for 2 minutes, followed by chia seed powder (5-15%), cold water (10%), palm oil (1.8%), an3d8 egg white (3%) for another 2 minutes. Garlic powder (2.5%), sugar (1.35%), ground white pepper (3%), and sodium tripolyphosphate (0.15%) were then added and mixed for 2 minutes. The mixture was stuffed into a cellulose casing using a stuffer. Then, the sausage was steamed under boiling water for 30 minutes. The sausage was left at room temperature (25°C) until warm and soaked into cold water (10°C). The casing was removed, and the sausages were stored in the freezer (18°C) prior analyses.

2.2 Analyses

The uncooked samples were cut (2 cm x 2 cm) and analysed for their textural properties at three different spots using Texture Analyzer TA-XT Plus (Stable Micro System, London). Water Holding Capacity was determined by the weight difference after centrifugation (Jayasinghe & Silva, 2011). Then, cooking loss was expressed by the weight difference before and after cooking after pan-fried for about 1 minute (Sharima Abdullah et al., 2018). Proximate composition of uncooked samples was carried according to the AOAC (AOAC, 2015) method.

Seventy (70) untrained panellists carried out the sensory acceptance test consisting of staff and students at Universiti Sains Islam Malaysia (USIM). The degree of acceptability was evaluated according to the attributes of texture, colour, juiciness, taste, and overall acceptability in a form consisting of a 9-point hedonic scale; 1: strongly dislike, 9: strongly like. All data were recorded and analysed using ANOVA statistical analysis on Minitab. The results were expressed in the form of (mean ± standard deviation), and a one-way analysis of variance was applied. The data was *statistically significant at P<0.05.*

3.0 RESULTS AND DISCUSSION

3.1 Texture, Water Holding Capacity and Cooking Loss Properties

Chicken sausages with chia seed powder substitution produced a softer texture (P>0.05), as shown in reducing hardness values (Table 9.1). Chia seed contains protein compounds such as globulin, glutelin, and albumin, allowing the gelling property to maintain the protein network and meat emulsion stability (Felisberto et al., 2015). High surface area by chia seed powder causes hydrophilic protein and soluble fibres to interact with the liquid, resulting in the sausages' soft structure. This data was also concurrent with the correlation study between water holding capacity and hardness values (R^2=0.97). Water holding capacity and cooking loss are somehow related to the juiciness of the meat. Sausages with chia seed powder substitutions were significantly (P<0.05) higher in water holding capacity. Cooking loss, which significantly decreased (P<0.05) in values as the chia seed powder increased, indicating better water retention.

Table 9.1 Texture, Water Holding Capacity and Cooking Loss of Chicken Sausages

	Control	Sample A	Sample B	Sample C
Hardness (N)	5.10 ± 0.66^{a}	4.52 ± 0.50^{a}	4.29 ± 0.60^{a}	3.63 ± 1.97^{a}
Water Holding Capacity	21.68 ± 0.52^{d}	28.70 ± 0.75^{c}	43.42 ± 0.50^{b}	60.42 ± 0.50^{a}
Cooking Loss	32.74 ± 0.17^{a}	30.32 ± 0.20^{b}	24.07 ± 0.31^{c}	22.30 ± 0.37^{d}

Notes: Control = 100% chicken; Sample A = 5% chia seed powder substitution; Sample B = 10% chia seed powder substitution; Sample C = 15% chia seed powder substitution

3.2 Nutrient Composition

From Table 9.2, all chicken sausage samples substituted with chia seed powder showed significant increases (P<0.05) in carbohydrates, fats, ash, and fibre contents in comparison to control. However, chicken sausages with chia seed powder substitution significantly (P<0.05) decreased proteins and moisture contents of sausages. These were probably due to the high-fat content in chicken sausages with chia seed powder substitution was attributed to high polyunsaturated fats (considered as good fats) as chia seed contains α-linoleic acid. It contrasts with the control that had the saturated fat solely due to chicken composition (Edris & Ibrahim, 2012).

Table 9.2 Nutrient Composition of Chicken Sausages

	Control	Sample A	Sample B	Sample C
Carbohydrates	9.67% ± 0.40^{d}	11.38% ± 0.17^{c}	16.59% ± 0.15^{b}	22.00% ± 0.11^{a}
Fats	2.99% ± 0.09^{c}	7.25% ± 0.08^{b}	9.39% ± 0.32^{a}	9.46% ± 0.04^{a}
Proteins	22.76% ± 0.59^{a}	20.27% ± 0.04^{ab}	20.27% ± 0.56^{ab}	19.24% ± 0.04^{b}
Moisture	62.08% ± 0.25^{a}	58.31% ± 0.12^{b}	50.30% ± 0.06^{c}	45.83% ± 0.11^{d}
Ash	2.50% ± 0.03^{c}	2.80% ± 0.07^{b}	3.45% ± 0.03^{a}	3.47% ± 0.00^{a}
Fibre	6.21% ± 0.23^{c}	9.95% ± 0.26^{b}	15.27% ± 1.00^{a}	17.27% ± 0.90^{a}

Notes: Control = 100% chicken; Sample A = 5% chia seed powder substitution; Sample B = 10% chia seed powder substitution; Sample C = 15% chia seed powder substitution

3.3 Sensory Acceptance

The mean scores of chicken sausages (chia seed powder substitution) obtained higher scores than control sausage for all the sensory attributes evaluated with sample B obtained the highest values. This indicated that chia seed powder's substitution in chicken sausage formulations improves its sensory properties. High mean scores imply the sausages substituted with chia seed powder are accepted by the panellists. This finding also indicated that the overall acceptance attribute scores might be influenced by texture, taste, and juiciness attributes as they had similar scores.

Table 9.3 Sensory Acceptance Scores for Chicken Sausages

	Control	Sample A	Sample B	Sample C
Colour	6.48 ± 1.76^{a}	6.65 ±1.51^{a}	6.20 ±1.57^{a}	6.22 ±1.61^{a}
Texture	6.20 ± 1.69^{a}	6.68 ±1.37^{a}	6.58 ±1.76^{a}	6.63 ±1.67^{a}
Taste	6.42 ± 1.90^{b}	7.18 ±1.11^{a}	6.97 ± 1.35^{ab}	7.03 ± 1.25^{ab}
Juiciness	6.10 ± 1.75^{a}	6.75 ±1.40^{a}	6.63 ±1.70^{a}	6.58 ±1.45^{a}

Overall Acceptance	6.28 ± 1.65[b]	7.07 ±1.23[a]	6.95 ± 1.52[ab]	6.87 ±1.27[ab]

Notes: Control = 100% chicken; Sample A = 5% chia seed powder substitution; Sample B = 10% chia seed powder substitution; Sample C = 15% chia seed powder substitution

4.0 CONCLUSION

Chia seed powder (5% to 15%) substitution into chicken sausages formulations successfully improved the physicochemical properties, proximate composition, and sensory acceptance of chicken sausages. Therefore, chia seed powder can be included in sausages as a gelling agent, and this could reduce the amount of chicken used in the formulations. In future work, the substitution of chia seed as a gelling agent would be studied in other meat-based products such as meatballs and patties.

ACKNOWLEDGEMENT

This research was funded by the Faculty of Science and Technology (FST).

E-MSST: ENGLISH LANGUAGE MOTIVATION SELF-SYSTEM FOR TAHFIZ STUDENTS

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1.0 INTRODUCTION

Tahfiz schools are regarded as one of the best places to equip students with Islamic religious knowledge, especially when facing today's challengingly harsh world. Many parents hope that by sending their children to such schools will enable them to flourish as good Muslims. However, *Tahfiz* students are generally seen as being inferior, less motivated, and weak when it comes to learning the English language. Today we have many capable *Da'ie* (preachers) who can communicate and disseminate Islamic teachings in the Malay language but lack the ability to converse well in the English language, which is an important language to be globally functional. English is widely used in occupational settings and is a key tool for international communication. If we ignore this problem; our capable *Da'ie* will not be fully fit to handle any cascading problems regarding religion, and thus may miss critical issues which could result in lost knowledge and bring further damage to our Islamic reputation. The increasing number of Muslim populations in the next coming years will demand for a larger number of Da'ie and educators with Islamic expertise in explaining the Islamic teachings clearly and confidently with good command of language, especially to the larger global audiences. In response to this problem, this project proposes to investigate and analyse the attitude and motivation of learning English among *Tahfiz* students.

2.0 MATERIALS AND METHODS

This project explores the motivation of learning English among students in selected *Tahfiz* Government and State schools in Malaysia. Questionnaires adapted from Dornyei (2004), with an additional construct, were administered to 1,017 students aged between 13 to 17 years old. Exploratory Factor Analyses (EFA), Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) with Robust Maximum Likelihood estimation technique (MLR) were used. From the SEM analysis, a new model of motivation in learning English among *Tahfiz* students is proposed. The study discovers that attitudes towards community, promotion, prevention, parental encouragement, interest, Islamic values, ideal L2 self, ought to L2 self and attitudes towards learning English, all play central roles in the proposed model, which is named the E-MSST model.

The development of the **E-MSST: English language Motivation Self-System for Tahfiz Students** was divided into 4 phases as described below:

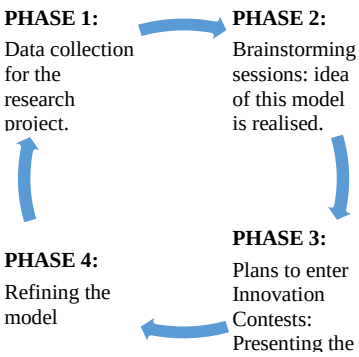

Figure 10.1 Phase of E-MSST development

3.0 RESULTS AND DISCUSSION

The E-MSST is a model of motivation in learning the English language specifically for *Tahfiz* students. By following and referring to the model as a guide, *Tahfiz* second language (L2) learners, L2 teachers, school administrators, the ministry of education and other relevant parties as well as stakeholders could play their roles, hand in hand in assisting *Tahfiz* students to like and be keen on learning the English language. From there, it is hoped that *Tahfiz* students could have more positive attitudes and motivation in learning English, and subsequently would be able to master the language. With their high-level Islamic knowledge coupled with very good command of English, they could serve as a better *Da'ie* at the global level.

The E-MSST model encompasses 9 key elements namely: 1) Attitudes toward L2 community 2) Promotional instrumentality 3) Preventional instrumentality 4) Parental encouragement 5) Ideal L2-self 6) Ought to L2-self 7) Attitudes toward L2 8) Criterion measures and 9) Islamic drives. The description of each element is as follows:

Table 10.1. Elements and explanations of the E-MSST Model

1)	Attitudes toward L2 community	Associated with attitudes toward meeting L2 speakers and travelling to their country, that is, attitudes toward having direct contact with them.
2)	Promotional instrumentality	Referring to instrumental motives with a 'pulling power' (e.g., learning English to facilitate professional achievement)
3)	Preventional instrumentality	Subsuming instrumental motives with an avoidance focus (e.g., studying in order not to fail an English course or disappointing one's parents).
4)	Parental encouragement	Related to family support and family influence
5)	Ideal L2-self	A desirable self-image of the kind of L2 user one would ideally like to become in the future. If learners see a discrepancy between this and their actual self- image, the unease that this difference generates will act as a potent motivational source.
6)	Ought to L2-self	Reflects an 'imported' self-image, that is, the attributes that one believes one ought to possess to meet the expectations of others and to avoid possible negative outcomes.

7)	Attitudes toward L2	Related to learner's interest in learning English as well as his/her learning experiences
8)	Criterion measures	Related to the learner's intended effort
9)	Islamic drives.	Related to learning English and its functions with Islamic purposes

Apart from the standard elements of Motivation based on the available literature, the E-MSST model is special because it features an additional element of Islamic drives, uniquely discovered for *Tahfiz* English language learners. The Islamic drives highlight the reasons and motives for *Tahfiz* students to be motivated in learning English. In essence, the Islamic drives suggest that *Tahfiz* students' motivation is closely connected to their spiritual vision—using English mainly as a means of *da'wah* and for communicating with other Muslims worldwide. Additionally, to reduce the existing knowledge gap that the students may have, especially pertaining to the working knowledge of the Quran and Sunnah or other religious matters, *Tahfiz* students are also aware of the immediate need for them to master the target language.

E-MSST (refer to Figure 10.2) allows *Tahfiz* students to understand and gauge their motivation in learning English based on the elements in the model. Further steps can be taken by their L2 teachers through the right and proper teaching techniques that suit and match the students' needs as well as inclination. Moreover, other relevant parties can be aware and focussed on their planning when assisting to ensure *Tahfiz* students are at par, or even better, than other students who receive more exposure to English.

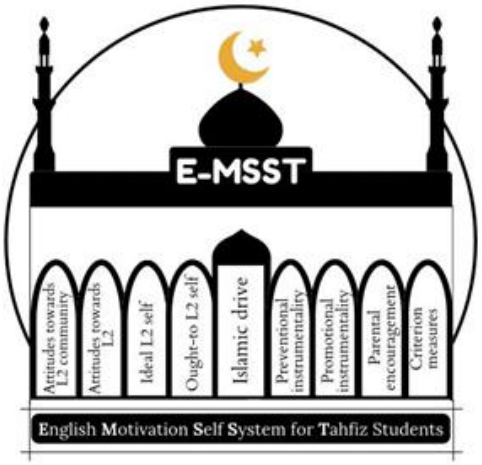

Figure 10.2 The E-MSST Model

Here are the detailed descriptions of the symbols in the E-MSST model:

Table 10.2 Symbolic meanings of the E-MSST Model

	Symbol/Items	**Description**
1)	Mosque structure	Islamic preaching and knowledge dissemination

2)	Central Dome	Upholding Islamic teachings and principles, facilitated by proficiency in the English language
3)	Dome	Islamic drives as the main purpose of increasing Tahfiz students' motivation in learning English
4)	Crescent	New beginnings and the making of dreams into reality – Producing Tahfiz students to be competent global *Da'ie*
5)	Star	Inspiration and Importance - Producing Tahfiz students to be competent global *Da'ie*
6)	Pillars	Factors involved in increasing Tahfiz students' attitudes and motivation to learn the English language
7)	Circle	Conducive ESL environment/context to generate skillful future Global *Da'ie*

4.0 CONCLUSION

The E-MSST model is research-based, making it a strong and reliable framework. It presents an objective and structured way of helping students from *Tahfiz* schools to be better English learners. The model also imparts a more energetic and fresher look of *Tahfiz* school students at the global level. Apart from inspiring *Tahfiz* students themselves, other relevant parties i.e., *Tahfiz* English teachers, *Tahfiz* community, parents, policymakers, curriculum developers and English language module writers can also benefit from this E-MSST model.

ACKNOWLEDGEMENT

This work was supported by Universiti Sains Islam Malaysia through the USIM Grand Challenge Grant 2019 (PPPI/UGC_0119/FPBU/051000/13719).

THE EDGE MODULE: ENGLISH FOR DA'IE TOWARDS GLOBAL EXCELLENCE

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1.0 INTRODUCTION

Based on our larger study (Abdullah et. al., 2022; Abdullah et. al., in press), we found that Islamic and Tahfiz students are mainly motivated to learn English due to some Islamic drives which include: 1) learning English to explain more about Islam to more people, 2) creating awareness that English functions for international purposes, 3) acknowledging that English can help global preaching and 4) understanding that English could substantiate one's Islamic knowledge.
Responding to these reasons under the Islamic drives, we have come up with a special English module exclusively composed for Islamic and Tahfiz students. It is an important tool to aid the students in becoming more proficient and fluent users of English. This module, named The EDGE Module: English for Da'ie towards Global Excellence, is distinct from other available English modules because it provides a sense of purpose to this group of students, who own excellent Islamic knowledge and are more inclined to Arabic language, but are generally not so proficient in English. The EDGE Module comprises various topics which are relatable to the Islamic context e.g., Pillars of Islam and Iman, *adab* and *dua*, entertainment in Islam and many more. The module is also created taking into consideration some important educational concepts namely communicative approach, project-based learning, interactive learning, and technology-based learning. The EDGE Module offers valuable English lessons uniquely designed for the Islamic and Tahfiz school students, who aspire to be the future global *Da'ie* or preachers.

2.0 MATERIALS AND METHODS

The EDGE module is developed following a research project which explores the motivation of learning English among students in selected *Tahfiz* Government and State schools in Malaysia. This anchor project uses questionnaires which were adapted from Dornyei (2001, 2005, 2009), with an additional construct proposed by the authors based on their extensive reading. The questionnaires were administered to 1,017 students aged between 13 to 17 years old. Exploratory Factor Analyses (EFA), Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) with Robust Maximum Likelihood estimation technique (MLR) were used. From the SEM analysis, a new model of motivation in learning English among *Tahfiz* students is proposed (Abdullah et. al., in press). The study discovers that attitudes towards community, promotion, prevention, parental encouragement, interest, Islamic values, ideal L2 self, ought to L2 self and attitudes towards learning English, all play central roles in the proposed model, which is named the E-MSST model.

Following the E-MSST model, The EDGE module was then developed by the authors. The EDGE has been piloted with a group of secondary school students with *Tahfiz* background, and feedback was gathered from the students as well as the English language instructor. The EDGE has received positive feedback from both groups and is seen to have further market value. Apart from local Islamic and *Tahfiz* schools, the EDGE could also be introduced to other ASEAN countries such as Thailand, Indonesia, and Brunei where there are also Islamic and *Tahfiz* institutions available.

3. 0 The EDGE

As mentioned earlier, the EDGE Module has been designed following a research project which was conducted to explore the attitudes and motivation of Islamic and *Tahfiz* background students in learning the English language. The first series of the EDGE Module comprises five units: Islamic Pillars, Islam is a Way of Life, Islam and Entertainment, Islam in the Digital World and My Idol Preachers. Within these five units, there are two lessons per unit, which are devised based on current educational pedagogical approaches namely communicative language learning, project, and technology-based learning, together with the edutainment concept.

The materials brought in this module are also in alignment with the Common European Framework of Reference for Languages (CEFR), which is an international standard for describing language ability. The EDGE Module is hoped to bridge the gap found in the Islamic and *Tahfiz* school students, bringing them towards achieving good performance in the English language so that they can play major roles and function as globally recognised and renowned *da'ie*.

Table 11.1 Topics covered in The EDGE Module

UNIT	TOPIC
UNIT 1 : **THE PILLARS AND PRINCIPLES OF ISLAM**	The Five Pillars of Islam The Six Pillars of Faith/Iman
UNIT 2 : **ISLAM AS A WAY OF LIFE**	Reciting Daily *Dua* Ablution & Prayers Daily *Adab*
UNIT 3 : **ISLAM & ENTERTAINMENT**	*Nasyid* songs Islamic songs – Maher Zain Kids songs
UNIT 4 : **ISLAM IN DIGITAL WORLD**	Contemporary issues in Islam
UNIT 5 : **MY IDOL PREACHER**	Preaching Muslims all over the world

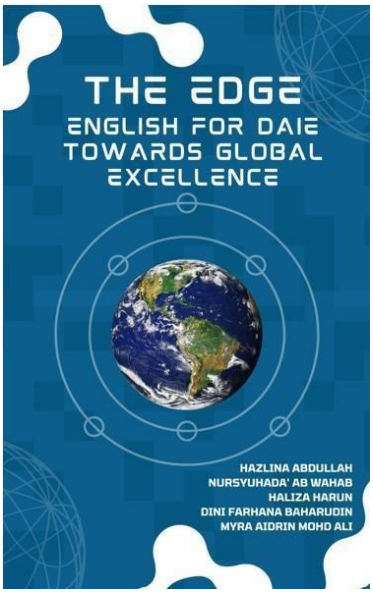

Figure 11.1 The EDGE module

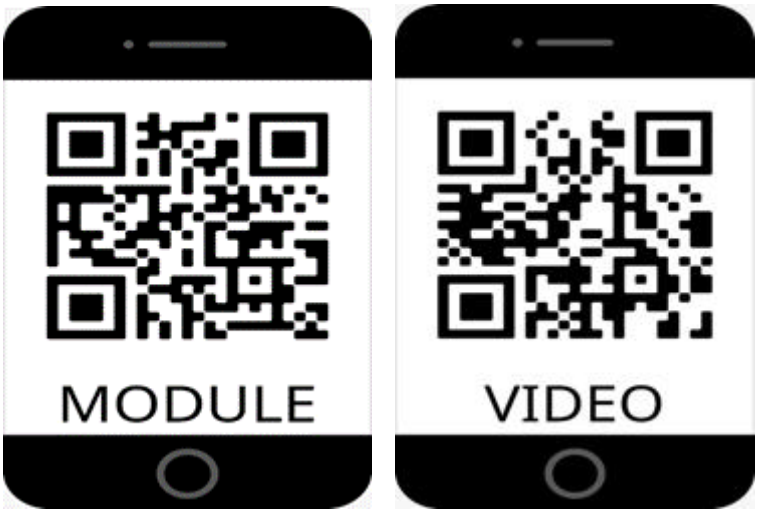

Figure 11.2 QR codes for the full version of the EDGE module and the video of one of the piloted lessons

3.1. Potential Contributions to the Society

The EDGE module is exclusively catered for Islamic and *Tahfiz* students as it is developed with this group of students in mind. Thus, it is seen as a huge contributor by:

- Increasing motivation for Islamic and *Tahfiz* students to learn English;
- Providing a special platform for Islamic and *Tahfiz* students in building a generation of international, capable *Da'ie*; and
- Creating a suitable context of learning English for religious and *Da'wah* purposes

3.2 Novelty

Apart from the contributions, the EDGE module also holds the novelty of:

- being Research-based, making it stronger and more concrete.
- boosting Islamic and *Tahfiz* students' English performance.
- being catered for *Da'wah* purposes and thus, the module presents a sense of purpose to this group of students.
- including technological elements, in alignment with the 4IR era.

4.0 CONCLUSION

With all the above-mentioned descriptions, features and qualities of the EDGE Module, the module writers have high hopes and aspirations in bridging the gap found in the Islamic and *Tahfiz* school students, bringing them towards achieving good performance in the English language so that they can play major roles and function as globally recognised and renowned *Da'ie*.

ACKNOWLEDGEMENT

This work was supported by Universiti Sains Islam Malaysia through the USIM Grand Challenge Grant 2019 (PPPI/UGC_0119/FPBU/051000/13719).

ENHANCING SPEAKING SKILLS IN THE CLASSROOM USING BOARD GAME: SUPERCHAT BOARD

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1.0 INTRODUCTION

Innovative works help teachers to teach something effectively and we can increase the interest of the students by capturing their attention with something new and up-to-date. Teachers must be adept with the current trends in modern teaching techniques to be competitive teachers globally (Bekai & Harkouss, 2018). As a result, teachers have to merge their teaching techniques with technology. SuperChat Board aims to improve students' speaking skills and confidence to speak in English and at the same time to encourage students to speak using the list of vocabulary in the standard curriculum and assessment documents (DSKP). This innovation also creates fun speaking activities in the English Language either in the classroom or through online learning. It is innovated by using Microsoft Powerpoint. Thus, this innovation is easy to share with other teachers as a tool for them to help their students to be better speakers. SuperChat Board can be implemented online and offline. For online learning, teachers can share the slides on video-communication apps such as Google Meet,
Zoom, etc, and monitor the students how to play the game. In the classroom, teachers can print out the game board and let the students play in small groups (four players in each group). The finding shows this innovation has improved the performance and confidence level of students as well as the interest among students to speak in the English language.

2.0 MATERIALS AND METHODS

This is a quasi-experimental method type of research design (Ni et al., 2020). In order to evaluate the efficacy of a treatment or other educational intervention about the responders, this design featured a pre-test and a post-test phase.

2.1 Research Respondents

Purposeful sampling, which is the process of finding and choosing people or groups of people who know a lot about or have a lot of experience with something of interest (Palinkas et al., 2015) was done on 95 Form 1 students with low to average levels of English proficiency. This level of proficiency was determined using the classroom-Based Assessment (CBA) in their first trial exam.

2.2 Research Instrument

Four research instruments were used in this research. They were pre-test, and post-test followed by pre- and post-survey questionnaires.

3.0 RESULTS AND DISCUSSION

The result of implementation showed that SuperChat Board was effective and managed to improve students' speaking performance and attract students' interest to do English speaking activities.

Table 12.1 Number of respondents

Class	Male	Female	Total number of respondents
1A	**10**	**12**	**22**
1B	**13**	**10**	**23**
1C	**13**	**13**	**26**
1D	**14**	**10**	**24**
Total			**95**

3.1 SURVEY METHODS

This study made use of four research tools. They included pre-test, post-test, and pre-survey, post-survey questions after the tests. Pre-test and pre-survey questionnaires were given to the respondents before the intervention was started, and the results were collected and analysed.

Table 12.2 Pre-survey questionnaire result

No.	Statement	1	2	3	4
1.	I am not confident with my speech.	0	3	12	80
2.	I feel nervous to speak.	0	0	5	90
3.	I am afraid to make mistake in my speech.	0	0	3	92
4.	I speak English at home and public places.	91	3	1	0
5.	My friends refused to speak English with me.	0	0	23	72
6.	I am confused with my teacher's pronunciation.	93	2	0	0
7.	I am lack of vocabulary.	0	2	3	90
8.	I have good pronunciation.	88	4	3	0
9.	I want to be a fluent speaker.	0	0	0	95

Pre-survey indicates that participants have a low confidence level in speaking. They also have limited vocabulary knowledge and lack of speaking practice. However, they have an interest in being fluent speakers.

3.2 FINDINGS

The data had been collected and after identifying the students' scores, the scores were then analysed and placed with reference to the CEFR (Common European Framework of Reference). Their level of proficiency was determined by A2 level descriptors.

Table 12.3 Rubric used to assess speaking performance

Assessing Speaking Performance – Level A2

A2	Vocabulary	Grammar	Pronunciation	Interactive communication
5	- Uses a range of appropriate vocabulary to talk about everyday situations.	- Shows a good degree of control of simple grammatical forms.	- Is mostly intelligible and has some control of phonological features at both utterance and word levels.	- Maintains simple exchanges. - Requires little prompting and support.
3	- Uses appropriate vocabulary to talk about everyday situations.	- Shows sufficient control of simple grammatical forms.	- Is mostly intelligible despite limited control of phonological features.	- Maintains simple exchanges despite some difficulty. - Requires prompting and support.
1	- Uses a vocabulary of isolated words and phrases	- Shows only limited control of a few grammatical forms.	- Has very limited control of phonological features and is often unintelligible.	- Has considerable difficulty maintaining simple exchanges. - Requires additional prompting and support.
0	*Performance below band 1.*			

Table 12.4 Results of Pre-test and Post-test

Band	Number of students	
	Pre-test	Post-test
5	3	72
4	11	21
3	17	2
2	46	0
1	18	0

Based on Table 12.4, showed that about 76% of all participants scored band 5 compared to only 3% before the intervention. None of them scored band 2 and band 1 after the intervention.

Table 12.5 Post-survey questionnaire result

No.	Statement	1	2	3	4
1.	I am confident with my speech after using SuperChat board.	0	0	2	93
2.	SuperChat board is very fun and interesting.	0	0	0	95
3.	SuperChat board helped me to remember vocabulary.	0	0	1	94
4.	SuperChat board is easy to play.	0	0	0	95
5.	SuperChat board design is attractive.	0	0	0	95
6.	SuperChat board helped me to be fluent.	0	0	0	95

Post-survey indicates that all participants felt very interested in using the SuperChat board. All respondents agreed that this innovation helped them to be fluent. It also significantly helped students to build their speaking confidence and familiarise them with the vocabulary in DSKP.

4.0 CONCLUSION

SuperChat Board can cater to the needs of students to be better speakers. It manages to help them to improve their speaking skills, be familiar with the vocabulary in DSKP and guide them to develop sentences orally which increases their confidence. This innovation is easy to apply, to be shared and the cost of production is cheap. Thus, it is an effective and sustainable teaching tool.

INNOVATION OF LET'S JIZZLE! AND ITS EFFECTIVENESS TOWARDS ENGLISH VOCABULARY LEARNING

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1.0 INTRODUCTION

Vocabulary is seen as an integral part of language learning since it is a crucial element in acquiring all four language skills. Based on the descriptors in the latest CEFR, students are ought to acquire the targeted vocabulary in order to read and comprehend a reading passage in their textbook. However, it was apparent that the students were disengaged and unable to recall the spelling and meaning of the words they had learnt. Game-based learning (GBL) has been practised in the classroom by many educators for ages. Game-based learning is derived from Piaget's cognitive development theory where the students process new information through assimilation and adaptation. The process of assimilation and adaptation can be forged through play as Piaget (1962) described play as an integral element for students' stages of cognitive development (Piaget, 1962). Puzzle falls under GBL and it is an effective educational play tool (Ratika et al., 2021). It is aligned with the twenty-first century learning approach where it stimulates students' creativity, critical thinking, problem solving and collaborative skills.

Let's JizZle! is a toolkit of vocabulary games that has been adapted from jigsaw puzzles to accommodate and facilitate students in learning vocabulary. John Spilsbury in 1762 was the person to produce the first jigsaw puzzle (Lau et al., 2014). Let's JizZle! focuses on the words from Year 6 to Form 1 the latest CEFR textbook. Since the context of the book is foreign to our local Malaysian students, the words in the textbooks are deemed difficult for the students to comprehend and apply pragmatically and syntactically. This innovation promotes the students to understand the words better as it is designed thematically and systematically organised to students' level of proficiencies through differentiated learning strategy. Therefore, this paper aims to design, develop and evaluate the effectiveness of Let's JizZle! in teaching and learning English vocabulary especially for Year 6 and Form 1 students.

2.0 MATERIALS AND METHODS

The research design used in this study is Design and Development Research (DDR) which was proposed by Richey & Klein (2014) (Richey & Klein, 2014). There are three main phases in DDR: analysis, design and development, evaluation. At the same time, ADDIE model has proven useful in developing gaming materials in education (Al Ghawail et al., 2021; Herout, 2016). Thus, ADDIE model was applied in developing the jigsaw-puzzle based vocabulary learning kit named Let's JizZle!.

2.1 The Phases in Developing Let's JizZle!

Analysis: Based on the classroom-based assessment (PBD), the researchers found that most of the students in transition from Year 6 to Form 1 were struggling in reading comprehension and communicative competence for both writing and speaking. Therefore, a need analysis was conducted to identify the areas of students' learning difficulties through a questionnaire (Hutchinson & Waters, 1987). The result of the questionnaire showed that the main reason was due to students' lack of vocabulary, misspelling of the words and comprehending the meaning of the words in their new

textbooks, Academy Stars as well as Pulse 2.

Design: In this phase, the researchers established an overall outline of how the teaching and learning of vocabulary will be delivered effectively. This includes determining the best teaching strategy and creating useful and action-oriented learning objectives for vocabulary teaching and learning. Let's JizZle! is created based on the data collected from the need analysis as well as through thorough literature review of the relevant pedagogical theories and approaches. In order to facilitate effective vocabulary learning among the students of Year 6 and Form 1, the researcher curated the main objectives of Let's JizZle! As.

To comprehend the targeted words of different levels based on the three main themes in their latest CEFR textbooks.

- To use the words in context (sentences) correctly.
- To spell the words correctly.

Besides, the researcher also determined the size, materials needed and cost of developing Let's JizZle!

Development: In this phase, the materials were developed from scratch using Microsoft Word especially in designing the layout of the box, puzzles and worksheets before the printing process. Other materials were purchased except for the puzzle-frame which was handcrafted to make it transparent on both sides. All the materials were assembled and kept in three different boxes for three different themes. Each box contains a dice, erasable marker pens, transparent puzzle-frames, pocket files with worksheets and three ziplock bags with puzzle pieces labelled as beginner, intermediate and advance. Let's JizZle! was introduced to two individuals who had expertise to acquire their validation and feedback on suitability of the innovation product. The two experts were a SISC+ officer and a head of the English Panel respectively. The experts' remarks were analysed and the constructive comments were taken into consideration to upgrade the kit, Let's JizZle! before applying it to the students. The module assessment tool that the experts were provided had a total of 11 items. The results show that both validators gave more than 80%. After collecting the comments and feedback from the experts, amendments were made accordingly. The finalised draft was sent for printing.

Implementation: During this phase, Let's JizZle!, was implemented to a total of 57 students from both Year 6 and Form 1 through purposive sampling. 23 Year 6 students from SJK(C) Chung Huah, Kampar in Perak and 34 Form 1 students from SMK Tengku Idris Shah, Kapar in Selangor were selected for the testing of this product. Initially, the students were given a pre-test to identify their level of vocabulary acquisition (Alakrash et al., 2020; Nguyen, 2021). It was conducted prior to the implementation of Let's JizZle! in order to determine the level of students' understanding towards the words from their textbook. The result of the pre-test will be discussed in the evaluation phase where it will be used to make comparison with the post-test after implementing the product to the students. Then, the teacher introduced Let's JizZle! to the students by describing the instructions. The description would clearly state that each box contains 3 packs with a total of 54 puzzles, which can be sorted into 18 words. The teachers demonstrated and explained the steps to play Let's JizZle! The students are encouraged to start with the Beginner pack and slowly upgrade to Advance level.

Evaluation: As for this phase, the students were given another round of a vocabulary test as a post test. The tests were conducted to determine the effectiveness of Let's JizZle! towards teaching and learning English vocabulary for Year 6 and Form 1 students. The results were analysed and evaluated deliberately in findings and discussion.

3.0 RESULTS AND DISCUSSION

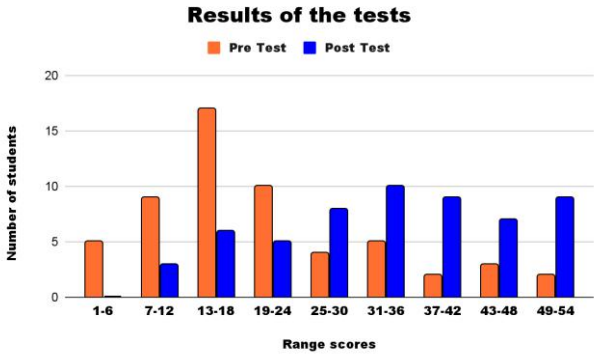

Figure 12.1 Students' Scores In Pre And Post Tests

The results in Figure 12.1 indicated that it is an undeniable fact that Let's JizZle has brought in a huge change in the learning of vocabulary among the Year 6 and Form 1 students. All the students managed to get a good score and they displayed great improvements in their vocabulary learning. Learning vocabulary is a difficult task for some students as they are unable to memorise unfamiliar words and spelling thus having games is an effective way to have a more interactive and meaningful learning (Hazar, 2020). Through Let's Jizzle, students' interest to take part in an active learning was clearly seen and it encouraged them to to interact with each other, thus, resulting in better acquisition and understanding of vocabulary. This is supported by Wardana (2016) and Melasari et.al (2019) who stated that using games creates an effective impact on learners' vocabulary development (Melasari et al., 2019; Wardana, 2016).

Vygotsky (1978) also mentioned that students' problem-solving skills as well as their creativity and communication skills are enhanced through games (Vygotsky, 1978). By playing Let's JizZle!, students were able to communicate effectively to complete the jigsaw puzzle together with the meaning. It eventually promotes an engaging learning atmosphere that gives learners the opportunity to grasp the information easily (Alda & Wati, 2021). It was also proven through the findings that students are more confident to use the words learnt in context as it is learned through cooperative learning and in a fun environment. This is in line with the previous study conducted by Halim, Hashim, & Yunus (2020) who found that students gain confidence in using English when they learn the language in a fun way (Halim et al., 2020). Let's JizZle! does not only enhance students' vocabulary but it also promotes meaningful learning among students.

4.0 CONCLUSION

The design and development of Let's JizZle! with DDR as the research design and ADDIE model as the foundation of the study produced a positive effect towards the teaching and learning of vocabulary for both primary and secondary school learners of lower to intermediate proficiency. Learners' physical involvement in learning the vocabulary according to their syllabus and applying the knowledge in the process of playing Let's JizZle! boost their confidence in acquiring English vocabulary. This game also enhanced collaborative and cooperative learning among the learners, which also supports autonomous and meaningful learning.

WHODIDIT?: GAME-BASED LEARNING IN ENHANCING CRIME VOCABULARY

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1.0 INTRODUCTION

Teaching and learning in the classroom have been enhanced by technology. Students are tech-savvy because they grew up in a quickly changing society. Technology provides limitless learning opportunities to improve students' education and pursuit of knowledge. The Malaysian Ministry of Education is enabling students to study digitally by improving infrastructure, educating teachers, delivering sufficient devices, and piloting ICT innovations to enhance the quality of student learning (Ministry of Education, 2013). Dichev and Dicheva (2017) described gamification as incorporating game design and gamelike experiences into learning processes. Teachers gradually use gamified learning to improve visual, aural, and tactile learning. Gamified learning empowers learners to be independent seekers of knowledge and equips them with ICT-related skills (Yunus & Hua, 2021). Gamified learning will make lessons engaging and stimulate active learning.

A chapter on crime was incorporated into the Form 5 English KSSM textbook to aid the government's anti- crime effort when the Common European Framework of Reference (CEFR) was introduced to upper secondary forms, namely, Form 4 and Form 5, in early 2021. The Malaysian curriculum has focused on introducing criminal language since the first grade. It emphasizes more on bullying leading to murder to achieve Sustainable Development Goal 16: promote justice, peace, and strong institutions. Crime is an unlawful act that transgresses the law (Lynch et al., 2016). In recent years, the crime rate in our country has risen. Criminals begin their criminal activity at a young age, and the problems associated with high school students being involved in criminal activity, particularly bullying and violence, are increasing. As a result, teachers can contribute to reducing crime in educational settings.

Despite that, one problem ESL learners face is that they lack crime vocabulary. Form 5 students are expected to be at B1 level upon leaving Form 5 (Ministry of Education, 2020), meaning they should know at least 2,200 to 3,000 words in English (Isa et al., 2021). However, most of the students have yet to reach this level. This problem is associated with learners finding that vocabulary learning is demanding and time-consuming in terms of memorization and long-term retention (Waluyo & Bucol, 2021). There is also extensive use of the mother tongue at home (Yaccob & Yunus, 2019) and comes from non- speaking environments. Gamification may be an effective solution to solve such issues and change the perceived tedious learning experience into exciting classroom activities. Hence, this paper aims to identify the effectiveness of WHODIDIT? as a gamification tool in improving secondary school and diploma learners' crime vocabulary.

2.0 MATERIALS AND METHODS

This paper employed quantitative research. Simple random sampling was used to select the sample to have a random selection procedure. ADDIE Model has been proven effective in implementing gamification in education (Papavlasopoulou & Giannakos, 2020). The needs analysis was based on research by (Aliki et al., 2021), and results showed that students favoured the topic of crime and chose vocabulary exercises as the most challenging activity in the classroom. Pre- and post-testing using crossword puzzles were given to 30 participants from two schools: SMK Datuk Haji Panglima Jakarullah, Semporna, Sabah, and SIDMA College Kuching, Sarawak, to compare students' knowledge

of crime vocabulary before and after the intervention. These words are listed in the English Vocabulary Profile (EVP) provided in the Dokumen Standard Kurikulum dan Pentaksiran (DSKP), which provides common words that students should learn in British English (Ministry of Education, 2020). A senior teacher who has been teaching for ten years from SIDMA College, Kuching, and a SISC+ officer from Pejabat Pendidikan Daerah, Semporna, was asked to examine the puzzle and game to establish the validity and reliability of this study. Necessary amendments were made based on valuable feedback. The implementation of WHODIDIT? were carried out at the computer lab at both institutions, followed by the post-test.

3.0 RESULTS AND DISCUSSION

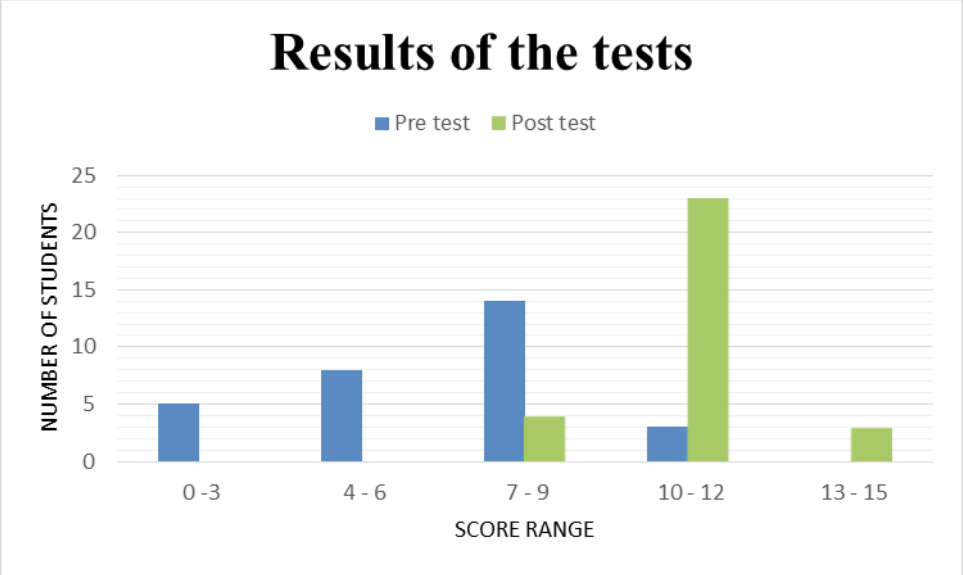

Figure 13.1 Students' scores in pre and post tests

Crossword puzzles were given for pre-and post-test results are compared in Figure 13.1. The score range is displayed on the horizontal axis, while the number of students is displayed on the vertical axis. Green bars represent the post-test following WHODIDIT? whereas blue bars represent the pre-test. The differences demonstrate the expansion of students' crime vocabulary. More students performed well on the follow-up test.

Students faced barriers in understanding reading comprehension has led to the intervention of WHODIDIT?. Crossword puzzles were used as a learning tool to improve vocabulary in reading comprehension (Karakedo et al., 2020). Based on the pre-test, most students scored less than half of the crossword puzzle correctly, which shows that the students have not mastered crime vocabulary well. Insufficient vocabulary affects reading comprehension (Fadi, 2019). The students came from various backgrounds, most of whom speak in their mother tongue. The interference of L1 affects vocabulary acquisition. 30% of the participants agreed that L1 interference interrupted their L2 learning (Yaccob & Yunus, 2019).

Most of the students studying at SMK Datuk Haji Panglima Jakarullah, Semporna are Bajau and Suluk students, and students from SIDMA College are Iban, Bidayuh, and Malay from Lundu, Sarikei, Kapit, Baram, Kanowit, and Lubuk Antu. These students typically use their mother tongue in conversation,

grow up in non-English speaking environments, and lack exposure to the language. Many children in various countries are exposed to English for several hours a week (De Wilde & Eyekmans, 2017), which has led to the student's impressive grasp of English vocabulary sizes. Learners in Belgium were found to have scored 66.20 out of 108 on the Peabody Picture Vocabulary test without having formal English instruction during the test. The exposure that students need includes watching English-language television, playing computer games, and reading English materials.

Before the introduction of WHODIDIT?, only three students successfully responded to the crossword puzzle with answers ranging from 10 to 12. Twenty-three students correctly answered the crossword puzzle ranging from 10-12 following the intervention of WHODIDIT?, according to the post-test, indicating a significant improvement. Based on Figure 1.0, no students scored less than 7-9 crossword puzzles correctly after they had played WHODIDIT? as compared to the results before the intervention. All the students completed the game, which contained an element of suspense, and identified the murderer, making the game more interesting. Therefore, they gained knowledge of crime-related terms. Replaying the game if they made an error helped students retain new terminology. The underpinning theory of Gamified Learning proposed that the presence of game elements improves the student's motivation and attitude toward learning, eventually improving learning outcomes (Nair & Mathew, 2021).

According to the findings of (Waluyo & Bucol, 2021), gamified learning has altered the landscape of vocabulary learning. Learning vocabulary can be exhausting for some students since it involves recall and repetition, which inhibits comprehension and production skills such as speaking and writing. Students' vocabularies can be improved through the gamification of vocabulary learning, which can make word acquisition and repetition more enjoyable and engages students in vocabulary acquisition. This is also consistent with (Gene Ersoy & Belet Boyaci, 2021) finding that gamification-based vocabulary learning activities produced richer sub-themes because of the ongoing effects on the participants when compared to the in-class learning activities that did not involve gamification because the experimental participants continued to feel positively toward vocabulary learning. Hence, WHODIDIT? can help students comprehend Unit 6 on Crime in their Form 5 KSSM textbook as it helps students discover more crime vocabulary while playing the game, which piques their attention.

4.0 CONCLUSION

The main findings showed that the learners were better able to master crime vocabulary. The substantial rise in post-test scores for crime vocabulary proved that gamified learning ought to be incorporated into educational institutions' enrichment or extension activities. Future research should incorporate more vocabulary words at the A2 level and involve primary school settings.

‘SLIDE IT!’: A FUN LEARNING MODEL TO IMPROVE PREPOSITION OF PLACE AMONG YEAR 4 ESL REMEDIAL PUPILS

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1.0 INTRODUCTION

The Ministry of Education (MoE) has always focused on the teaching of English as Second Language to be an effective platform for producing holistic learners. One of the Malaysia Education Blueprint (2013–2025) goals is to produce learners who can comprehend the language for various purposes, including for information and enjoyment/ In English as Second Language (ESL) learning, pupils should master all the four skills ; Listening, Speaking , Reading and Writing to be well-rounded as competent language user. Grammar plays a significant role and it’s a necessity that language components need to be mastered by pupils in order to acquire these four main skills effectively (Mandasari, 2021). Pupils should have a good command in understanding grammar which determines their English proficiency level.

Over the years, most of the pupils showed declination on their English proficiency level. This declination can be seen through their School Based Assessment (SBA) results. The decline is especially in their productive skills which are Speaking and Writing skills because ESL learners need to master both vocabulary and grammar and use them to construct sentences accurately (Govindarajoo et al., 2022). The decline of their proficiency level was shown as a result of their poor command in grammar, especially preposition. Preposition is one of the important parts of speech which is a must for all the pupils to learn in order to have a good command of grammar. Lack of understanding in prepositions brings effect to the grammar acquisition. Apart from that, the pupils especially the remedial pupils face difficulty to understand the prepositions especially prepositions of place. Many of them are not able to understand the preposition of place and its purposes in language. Besides, weak communication by the remedial pupils in using proper preposition of place is also a concern.

Starting 2022, the Ministry of Education with the collaboration from English Language Teaching Centre (ELTC) has initiated a Remedial Instruction (R.I) programme specialized for Year 4 English teachers. This programme aimed to develop and assist the teachers to teach remedial pupils by using various teaching modules. Hence, this Slide It! The innovation model aimed to improve the usage and understanding of prepositions of place among the Year 4 remedial pupils. Pupils, especially remedial pupils should be drilled for an effective ESL lesson in order to increase their retention rate and are able to achieve the language components taught (Johar & Yunus, 2021). Besides, this model aims to prove as an effective teaching model which can be used by the R.I teachers to teach prepositions for Year 4 remedial pupils. The objectives of using Slide It! Model is to help the Year 4 remedial pupils to identify different types of prepositions. Besides, it will be helpful for the pupils to differentiate the function and purposes of prepositions in places where they can use proper prepositions in written and speech form.

2.0 MATERIALS AND METHODS

2.1 ADDIE Model of Instructional Design

In order to develop this model, ADDIE model of Instructional Design was implied. ADDIE model which comprises of analysis, Design, Development, Implementation and Evaluation were the primary

steps which were useful to build this ‘Slide It!’ innovation model. The flowchart of the instructional design is shown in Figure 14.1. ADDIE model is ideal to be used as it consists of an easy to follow process for the researcher to use while developing a project (Jais et al., 2022).

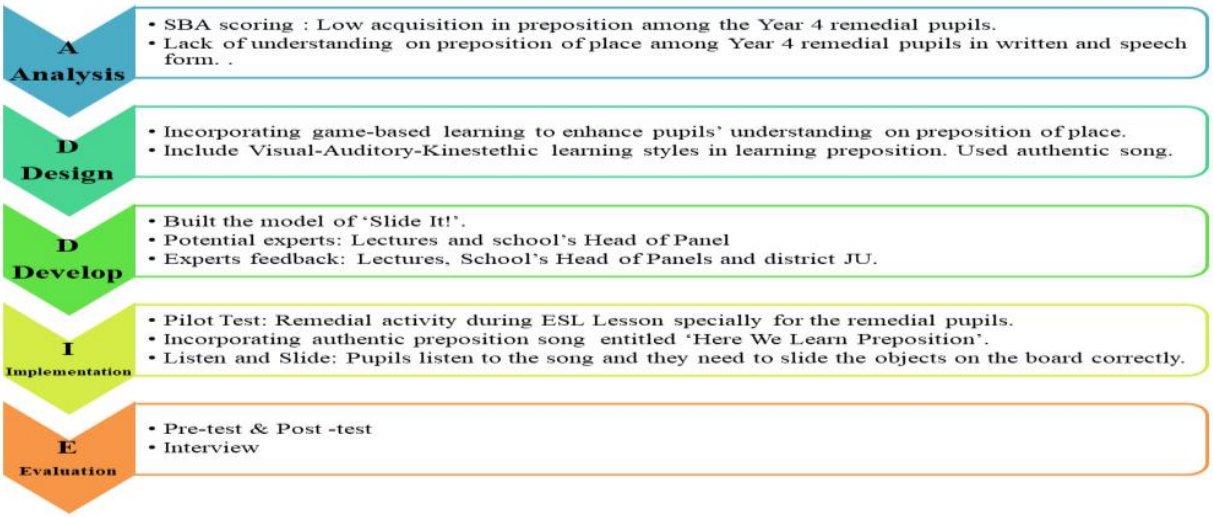

Figure 14.1 ADDIE Model of Instruction Design

Realia objects have been used to build this model. Real life visuals are essential for pupils to build their literacy skills and boost their confidence. Besides, real-life visuals aids can lower the anxiety among the remedial pupils and can help them to explain the learning concepts easily (Quecan, 2021). Hands-on and interactive learning will make the learning more meaningful for the remedial pupils. Cardboards, car toys, boy figurines, magnets, Lego, word cards, ice-cream sticks , glue sticks and plant decorations were used to build this ‘Slide It!’ innovation model. The built up model is shown in Figure 14.2.

Figure 14.2 ‘Slide It!’ Model

2.2 Incorporation of V-A-K Learning Styles

The incorporation of V-A-K learning styles is emphasized through this model for the remedial pupils. Basically, the learning style of the VAK model consists of three components of learning style practised by students which are visual learning style, auditory learning style and kinesthetic learning style (Norul Haida et al., 2016). During the remedial activity, each pupil listened (auditory) to the song played by the teacher. Then, they need to understand the lyrics and instructions contained in the song and demonstrate their understanding by sliding the toys to the correct word cards (visual and kinesthetic). The song is an authentic text which was written by the researcher and the music produced was originally created by the researcher as well. The song lyrics are described in Figure 14.3.

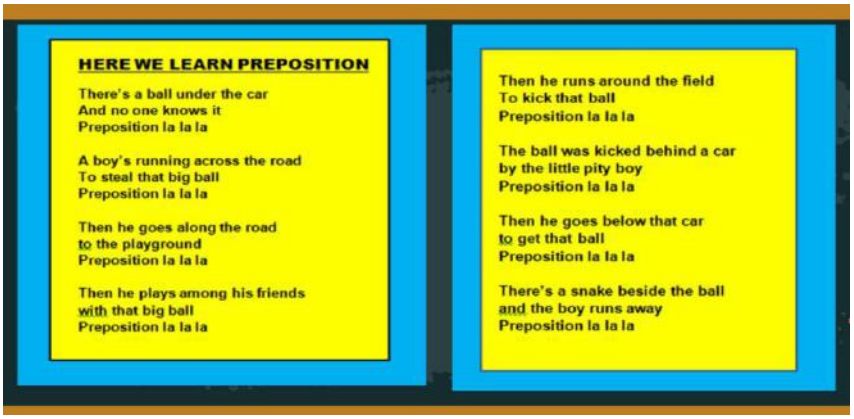

Figure 14.3 Authentic song lyric

2.3 Sample

The samples were chosen by using the purposive sampling method. 12 samples were selected who were the Year 4 remedial pupils from SK Tasik Damai, Ipoh, Perak. Purposive sampling method is the most suitable sampling method as the researcher focused on the targeted sample only (Etikan, 2016). There were 5 males and 7 females respectively and all of them were 10 years old. Those 12 pupils were selected based on their School Based Assessment mid and final year report. Those samples are healthy and free from any disabilities or health issues.

3.0 RESULTS AND DISCUSSION

3.1 Pre-test and Post-test results

Pre-test has been conducted before using this model in teaching prepositions. Meanwhile the post-test has been done after using the model 'Slide It!'. A total of 10 questions on preposition of place were given in the form of a quiz. The scoring from the 12 samples before and after using the 'Slide It!' model shown in Figure 2. The post-test scoring revealed that the pupils are able to understand and comprehend well on the preposition of place after using the 'Slide It!' model.

4.0 CONCLUSION

This ‘Slide It!’ innovation model is really beneficial for the Year 4 remedial pupils where this hands-on learning model incorporated V-A-K learning styles helped them to understand the preposition of place better (Kannan et al., 2021). Besides, it is a useful teaching aid for the teachers to teach preposition of place and promotes fun learning. Therefore, this ‘Slide It!’ model is an excellent model to be used for all the remedial pupils.

TRIP OR TRIP? IMPACTING AN INTERACTIVE BOARD GAME TO AID YEAR 2 LEARNERS ACQUIRE THEIR VOCABULARY

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1.0 INTRODUCTION

Technology has changed many elements of modern life. Today, technology solutions to common problems are obvious. It applies to teaching and learning. Technology has been used by teachers to motivate and assist learners since recorded history (Caponetto, Earp & Ott, 2014; Pazilah, Hashim & Yunus, 2019). Malaysian kids are learning English in droves. English is essential in elementary and secondary education. learners struggle with this subject, which lowers their vocabulary. If the teacher uses the same boring methods, they get bored quickly (Bakhsh, 2016). Teachers must motivate learners with intriguing lessons. Young kids' behaviour and mental processes should be examined and interpreted by teachers, according to Harmer (2008).

Malaysian ESL learners lack English competency in listening, speaking, reading, and writing. Malaysian ESL learners fall behind due to a poor English vocabulary (Misbah et. al, 2017). Sulistianingsih, Febriani, & Pradjarto (2019) agree that vocabulary is just as important as grammar, especially when learning and teaching English. Embi & Mohd Amin (2010), referenced by Misbah (2017), state that a huge vocabulary helps language learners communicate in the target language. Thus, a greater vocabulary boosts a student's confidence and encourages language study. Education uses games to solve the problem.

Therefore, this study aims to develop the interactive board game *Trip or Trip?* to help Year 2 learners learn new vocabulary and to determine how learners perceive game based learning as a means of enhancing their ESL vocabulary.

Thus, this study will answer the following questions: 1) Does an interactive board game assist learners in acquiring vocabulary? and 2) What are the learners' perceptions after using interactive board games in their learning?

2.0 MATERIALS AND METHODS

2.1 Materials

All the materials used in this product are taken from the CEFR Superminds Year 2 textbook. This is to ensure that the learners in year 2 can master the vocabulary they should master while in Year 2. All the pictures and materials used in this product also comply with the proper copyright.

2.2 Methods

2.2.1 Research Design, Samples and Instruments

Richey & Klein contributed DDR for this investigation. Richey and Klein (2007) developed this strategy to add structure to educational research methods (Mazidah et al., 2018). Additionally, DDR

uses quantitative and qualitative methodologies to conduct research (Richey & Klein, 2007, 2014). Saedah et al. (2013) describe four DDR periods. DDR investigations include four phases (Richey & Klein, 2005). Needs analysis, design, development, implementation, and assessment are these steps.

The ADDIE approach—Analyze, Design, Develop, Implement, and Evaluate—is probably the most widely utilised strategy for developing instructional resources. Digital learning is often created using the ADDIE paradigm. Digital learning uses technology to teach. Digital information is computer-generated information and instructions. Digital learning uses digital information to educate. ADDIE has been utilised to create digital learning aids for elementary, secondary, and adult learners (Karademir et al., 2019). Digital games, e-learning apps, and MOOCs have been created using the ADDIE framework (Tanjung & Sitompul, 2020). (Fondo & Konstantinidis, 2018). Thus, the vocabulary-learning board game *Trip or Trip?* used ADDIE.

This study uses a pre-test, post-test, and questionnaire. learners were given 30 vocabulary-related questions in various formats before the interventions. The intervention followed the pre-test. After the intervention, the pre- and post-tests were repeated. Student questionnaires were distributed to triangulate data. Each questionnaire had a four-point Likert scale from 1 to 4, with responses of strongly disagree, disagree, agree, and strongly agree. learners were asked about interactive board games in education. Ten questions comprise the questionnaire Ismail et al. (2018). This study included 34 Year 2 learners. 34 young learners took the pre- and post-tests and survey. They're from Pasir Gudang, Johor. All learners attend same class.

3.0 RESULTS AND DISCUSSION

3.1 Pre-Test And Post Test

This study validates the game's potential and provides data for further improvements. It would also advance more interesting and effective learning technologies. 34 learners responded in Figure 1. 24 learners (70.59%) scored 0-15. 3 learners (8.82%) scored 16-20. 7 learners (20.59%) scored between 21-25, while none scored 26-30. After the pre-test, it can be concluded as most learners struggled with vocabulary. In a Figure 15.1 also shows the learners' post-test score increased greatly. 10 learners (29.41%) scored 26-30. The *Trip or Trip?* board game helped learners acquire ESL vocabulary. 14 learners (41.18%) scored 21-25, while 10 (29.41%) scored 16-20. No learners scored 0-15.

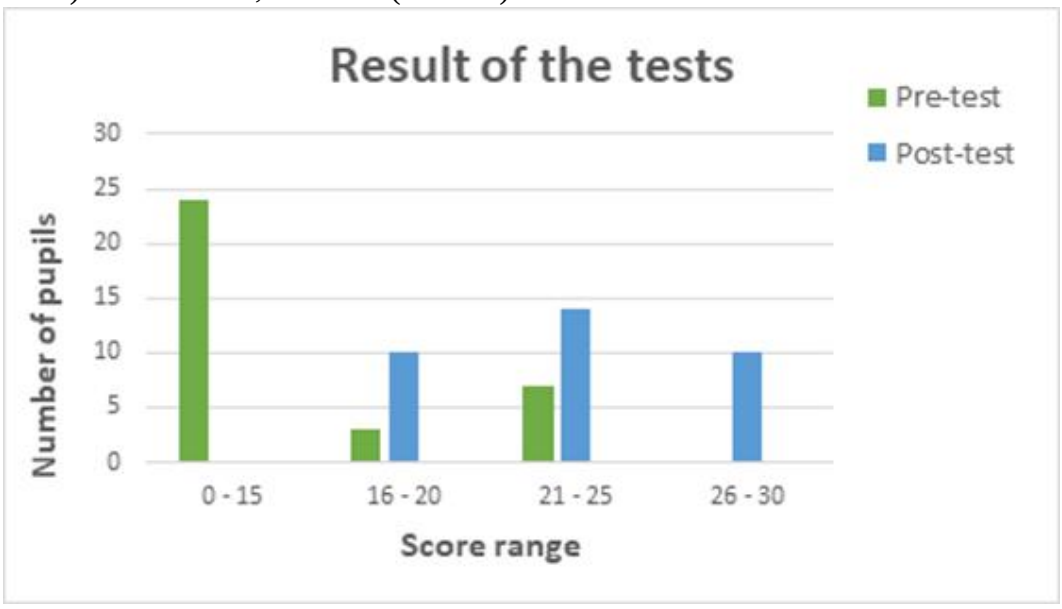

Figure 15.1 The differences result of pre-test and post-test

3.1.1 Questionnaire

18 male and 16 female 8-year-olds participated. 28 of the 34 learners speak Malay, while 6 speak English. Table 13.1 shows learners' attitudes toward game-based learning to improve ESL vocabulary.

Table 13.1 Learners' perception of game-based learning (interactive board game)

Items	Percentages (%)			
	Strongly disagree	Disagree	Agree	Strongly agree
1. If the teacher uses games, I will be happy to be in the class.	0.0	0.0	52.9	47.1
2. If there are games in the English lesson, I will pay close attention.	0.0	0.0	64.7	35.3
3. When games are included in an English class, I respond better.	0.0	0.0	52.9	47.1
4. The burden of learning English vocabulary is increased via games.	38.2	52.9	8.8	0.0
5. I applaud English teachers that include games into their lessons.	0.0	2.9	82.4	14.7
6. I learn English vocabulary more effectively through games.	0.0	0.0	50	50
7. I think it is interesting to use games to learn English.	0.0	8.8	67.6	23.5
8. I believe that playing games doesn't encourage me to focus on the English lesson.	26.5	55.9	14.7	2.9
9. I like games because the content is easy to understand.	0.0	0.0	55.9	44.1

10. I enjoy playing games in English classes because they provide me the chance to experiment with learning.	0.0	0.0	76.5	23.5

Table 12.1 shows how learners felt about game-based vocabulary acquisition. The 4-point Likert scale scores strongly disagree and disagree as disagree, while agree and strongly agree as agreement. The results showed that all learners are happy in class if the teacher employs games (100%) and love playing games in ESL classrooms since they may experiment with learning (100%). Additionally, all learners believed that if the teacher used games, they would pay closer attention and reply better (100%). Games are enjoyable (91.1%), easy to comprehend (91.9%), and improve English vocabulary (100%). The learners also think games don't help them acquire English vocabulary (91.9%) and don't help them focus on the lecture. (82.4%). They also praise English teachers who use games. (97.1%).

This study's pre- and post-test results show that the board game *Trip or Trip?* improved vocabulary development. Every student raised their grades and scores. Given English's global importance, replacing some of its seemingly limitless phrases can seem difficult. This hampers English-as-a-second-language learning, especially for Year 2 learners. Learning new terms is difficult for English learners (Rafiq et. al, 2020). Because they love games, learners enthusiastically participate in *Trip or Trip?* interactive board game. Gerovasiliou (2017) agrees, saying games in language teaching are beneficial. Games can engage young learners because of their age and personality.

According to Vygotsky (1978, as referenced by Bouniol, 2004), young learners learn languages best through social involvement with their environment. This is congruent with Yükseltürk (2018)'s conclusions that a young learner's classroom must foster learning by doing and interacting. *Trip or Trip?* an interactive board game did it all. While playing the board game, learners will speak the target language. *Trip or Trip?* makes learners happy and increases vocabulary. Bakhsh (2016) agrees that teaching English language learners vocabulary through games is essential. Games keep learning fun and encourage creative language use. *Trip or Trip?* Interactive board game improved vocabulary and meaningful learning.

4.0 CONCLUSION

This study developed the interactive board game *Trip or Trip?* to aid Year 2 learners acquire new vocabulary and assess how learners see game-based learning to improve ESL vocabulary. The research showed that games improve learners' vocabulary. The exercise is stimulating and engaging, entertaining and intriguing, and allows learners to explore their own learning, which enhances it. Game-based learning must be considered while designing and developing games to promote learning and yield beneficial results. This will ensure that games can keep learners excited and improve learning. This study encourages teachers to use games to create a fun, natural learning environment. Future study can examine game modes that suit different learning levels. Thus, games may help motivate ESL learners.

RHEOLOGICAL STUDY WITH THE HEATING EFFECT OF WATER-BASED DRILLING FLUIDS USING SYNERGISTIC IMPACT OF POLYACRYLAMIDE (PAM) AND SILICA

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1.0 INTRODUCTION

Due to the growth of the global market for drilling mud with an incline of 10.3 %, this was presumed to allocate 12.31 billion by 2019 (Davoodi et al., 2019). Meanwhile, the performance of drilling fluid can affect the overall expenditure, therefore the drilling fluid formulation is the crucial part to determine the efficiency of drilling operations, especially to cope with the difficulties related to bore pile stability, pH stability, and thermal stability. With this regard, there has been a special focus on the enhancement of conventional polymer with a potential dopant to overcome the difficulties that are aforementioned.

In a drilling system, the polymer is always utilized as a rheological modifier, filtration controller, and shale stabiliser. Two types of polymers can be employed in a drilling system, synthetic polymer, and natural polymer. Natural polymer, such as starch, carboxymethyl cellulose, and guar gum are commonly studied in drilling operations as it is low-cost and biodegradable. However, natural polymers have limitations, such as thermal and chemical stability as reported by several researchers (Mohammed, 2018; Nzenguet et al., 2018; Ramasamy & Amanullah, 2020). Further, the synthetic polymer garners attention in drilling formulation as it is capable to control the filtration loss and rheological performance of drilling. Many researchers suggested that synthetic polymers hybridized with some drilling additives can contribute better or comparable results as the commercial PAM (Davoodi et al., 2019). PAM is selected in this study because it is a commercial alternative to conventional bentonite in the drilling operation. Although it is eco-friendly and inexpensive, it has some difficulties such as bored pile stability, thermal stability, soft toe issue, and others in the geotechnical field. In this study, silica was used to modify PAM to investigate the rheological performance between bare PAM and modified PAM under specific temperatures. Below is a schematic diagram for modifications of PAM.

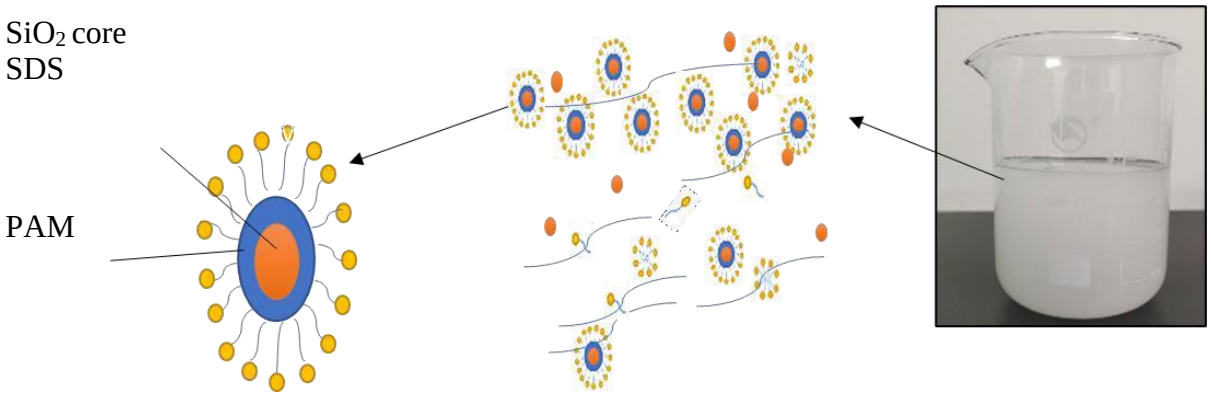

Figure 16.1 A surface modification of PAM. Redrawn from Kumar et al. (2020)

2.0 MATERIALS AND METHODS

Blending of PAM with SiO2 and sodium dodecyl sulphate with a specific formulation to form a drilling fluid. Bare PAM is formulated with 1000 ppm PAM only, while modified PAM was formulated with 1000 ppm PAM and a specific concentration of SiO2 and SDS. The rheological behaviour of drilling fluid was tested via a 6-speed rotational speed viscometer with specific temperatures (ambient (~25°C), 80 °C). The result obtained firstly compares the rheological profile between bare PAM and modified PAM at ambient temperature to validate the performance after its modification without heating. Subsequently, each product is heated before being tested with a viscometer in order to validate the thermal stability of each product.

3.0 RESULTS AND DISCUSSION

This study has proven that the apparent viscosity and plastic viscosity at ambient temperature (~25 °C) have reduced by 17.68 % and 25.80 %, respectively after modification of PAM using silica. After further heating, modified PAM shows a lower reduction of apparent viscosity and plastic viscosity when compared to bare PAM due to the heating degradation of the polymer, as detailed in Table 14.1. This meant the modified PAM can withstand thermal stability as its reduction is low.

In summary, the heating temperature can contribute greater thermal energy to drilling fluid. The low reduction of rheological profile indicated the excellent thermal stability of the drilling fluid. This can be explained by the degradation of the polymer. Bare PAM is less viscous than modified PAM after heating at a selected temperature because the binding energy of PAM structure has been destroyed by heating. However, the modified PAM has less destroyed by heating as the structure of modified PAM consists of silica, which can withstand high temperatures. Hence, this invention can be applied in drilling, excavations, and offshore.

Table 14.1 The rheological profile between PAM and modified PAM at ambient temperature and 80 °C.

Rheological aspect	PAM		Modified PAM	
	Ambient	80 °C	Ambient	80 °C
Apparent viscosity	13.12	8.95	10.80	9.75
Plastic viscosity	9.30	4.33	6.90	6.50

The cost of modified PAM (RM 10-12/m^3) is cheaper than conventional bentonite (RM 18-25/ m^3). Low usage of modified PAM (0.5 – 2 kg/ m^3) than conventional bentonite (25 – 50 kg/m^3). PAM is a biodegradable material. Silica and SDS are safe in terms of health for use in modification of PAM and their usage is low with 0.1– 0.5 wt %. Low usage of each component in the formulation of modified PAM, compared to conventional bentonite. The modified PAM with 0.5 – 2 kg/m^3 is low, then the waste of drilling becomes less than conventional bentonite. Less drilling problems such as borehole sticking and soft toe issue Less energy consumption as the waste produces less and the drilling problems are minimised. Hence, it has a stable rheological performance with good thermal. The thermal stability of modified PAM achieves better than bare PAM.

4.0 CONCLUSION

In terms of rheological aspects, modified PAM using silica improved by around 17-25 %. A promising new formulation in drilling technology was studied. This can be further simulated in the pilot scale testing for the fulfilment of the insight of advanced technology.

ACKNOWLEDGEMENT

This research work is supported by Synergy Lite Sdn Bhd.

AKADEMI YOUTUBER APPLICATION: SUSTAINABLE TECHNOLOGY EVALUATION IN EDUCATION

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1.0 INTRODUCTION

Appropriate instruction is primarily concerned with influencing positive changes in the ways that students approach and engage with material. The success of the lesson depends on the teacher's ability to implement effective strategies for doing so. Due to the need for adaptable strategies based on learner abilities and personality, this makes teaching a more complex and demanding endeavour.

Etcuban (2013) argues that teachers play a pivotal role in every school. The minds of their students are cultivated and taught by them. Teachers have an obligation to learn about their students' backgrounds, interests, and skill sets so that they can effectively meet those requirements in the most efficient and cost-effective manner possible (Proserpio & Gioia, 2007). Sung et al. (2016) add that in order for students to succeed in the classroom, teachers need to select an instructional tool, such as mobile apps.

Academy Youtuber is the first app available in the Google Play store to provide a selection of Teaching and Facilitation (T&F) videos aligned with the requirements of the Curriculum and Assessment Standard Document for Malaysian Schools (DSKP). Application number DV2021E04521 was filed with the Malaysian Intellectual Property Corporation (MyIPO) on October 27, 2021, making the Academy Youtuber application a copyrighted material of intellectual property in Malaysia.as shown in Figure 17.1.

Figure 17.1 Registration with the Malaysian Intellectual Property Corporation (MyIPO)

Cikgu Muhammad Suffi bin Yusof, a teacher at Pengkalan TLDM National School in Lumut, Perak, came up with the concept for the Academy Youtuber app. The lack of digital content materials in the field of education that are compatible with the Standard Primary School Curriculum (KSSR) and the Standard Secondary School Curriculum (KSSM) in Malaysia is what inspired us to come up with this idea. There is also a severe scarcity of high-quality digital content materials created by qualified professionals or teachers working for the Malaysian Ministry of Education. Next, Cikgu Suffi

collaborated with educators from all throughout Malaysia to create a learning app (the Academy Youtuber Application) that features well-structured, comprehensive digital education.

2.0 MATERIALS AND METHODS

In this section, we'll go over the steps taken to create the code behind the scenes of the Academy Youtuber app. The 42 educators chosen for this poll come from the states of Negeri Sembilan, Selangor, Perlis, and Sabah, and will be used to evaluate the effectiveness of the Academy Youtuber app. The research follows the ADDIE model (Tegeh et al., 2014). The fact that it has been built methodically and is based on sound theoretical principles of instructional design contributed to its selection. This paradigm is likewise programmatically organised, with sequences of systematic actions taken to address a learning challenge in terms of outcomes determined by requirements.

3.0 RESULT AND DISCUSSION

The development of the Academy Youtuber application is to encourage the teaching and learning process to be easier and more effective. This application was built to facilitate the teacher's teaching process in improving student understanding. This application can act as a personal tutor for students with the teacher acting as a facilitator. Table 15.1 shows the percentage of expert agreement for each item in the evaluation of the effectiveness of Academy Youtuber application development.

Table 15.1 Percentage of Expert Agreement for Each Item in the Evaluation of the Effectiveness of AYU Application Development

Bil	Item	Percentage of Expert Agreement
1	Apps interface is simple, clear and interesting	89.9%
2	The language used is clear and easy to understand.	90.3%
3	The objectives given are clear and achievable using these apps.	90.3%
4	The videos in the apps are clear and easy to understand.	90.3%
5	Usage of this application can build student-based learning.	90.3%
6	Activities in the apps are interesting, simple and appropriate.	90.7%
7	The apps is user-friendly and easily accessed.	90.3%
8	The content available in this application is suitable for use by all.	92.7%
9	The content of the apps are easily accessed.	91.9%
10	The content of the apps are suitably for teachers' reference.	92.7%
11	The content of the apps can inculcate self-learning culture in students.	91.5%
12	The content of the apps can assist teachers, students and parents.	93.9%

In table 15.1, the higest percentage was 93.9% which most of the expert agreed that the content of the Akademi Youtuber application can assist teachers, students and parents. The research by Jonathan and Leocineza (2018) found that students' achievement and learning were improved due to the use of the mobile application in the classroom. The administrator should mandate and encourage the use of the

mobile app to its fullest extent to provide the highest quality of education possible. In order for their students to be successful on a global scale, educators must provide them with the tools they need to compete.

Replicability

“Beginning Free, Forever Free” is the motto held by the teachers who are under the roof of the Youtuber Academy. This slogan is what inspires teachers to contribute their videos for free. This Academy Youtuber application was created not for profit but rather as one of the efforts to improve the dignity of the country's education system. The Academy Youtuber application is the same as other applications available on the 'Google Playstore' which can be downloaded for free without limits. Users can use this application anywhere that has Internet access. Various age groups and user backgrounds can use this application. The learning videos found in this application will also be constantly added and updated according to the current curriculum.

Efficiency

This Academy Youtuber application has successfully helped users by showcasing its efficient features including the impact of saving time because users only select the theme or title that is needed. Does not involve high costs, can increase productivity and is easy to use because the videos found in this application are easy to download into the user's smartphone.

High significance

Based on the results received from IT experts, 91.2% of respondents agree that the Academy Youtuber application is not only helpful during the pandemic but also post-pandemic as a learning aid face-to-face or independently at home.

4.0 CONCLUSION

In the 21st century, students have the option to learn wherever and whenever they want. In this way, the Academy Youtuber app may aid teachers in the process of presenting knowledge, students in the process of revising their own comprehension, and other users (parents) in the process of understanding the learning content based on the DSKP supplied.

HYDROGEN-ETHANOL FUEL POWERED BIKE

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1.0 INTRODUCTION

The main reason behind the discovery of these fuels is the rising cost of available fuels and their dwindling earthly reserves and the use of available fuels that are polluting us and causing us to get sick. So when you need this kind of fuel, it will reduce the pollution and it will never run out, so I invented Hydrogen-Ethenol Fuel powered bike .Using this fuel makes your Bike engine less hot as compared to other fuels, so your engine does not break down quickly and also extends its life. This fuel uses hydrogen gas and ethanol and electric motor and battery,In ethanol we mix hydrogen in the form of gas, we send it to the engine, burn it and we drive, The reason behind mixing hydrogen in ethanol is that when we drive on ethanol we mix hydrogen gas in it to make up for the difference in speed and pickup.

2.0 RESULTS AND DISCUSSION

1) It is a pollution-free fuel and has no adverse effect on the environment

2) The cost of this fuel is ₹65/- which is available at a very low price compared to other fuels

3) One liter gives 60-65 KM / Liter Mileage

4) Using this fuel the vehicle runs at a speed of 70-75Km/h

Figure 18.1 Hydrogen-Ethanol Fuel Powered Bike

3.0 CONCLUSION

Hydrogen-Ethanol is a Never-ending fuel. It Is A Sustainable Fuel. This project started last two years to run Bike on Hydrogen-Ethanol fuel and after 7 times project error on 8th time this i invented fuel and bike without any error bike start. To produce this fuel, the raw materials required for this Fuel are available in our country in large quantities, so we will not need to depend on other countries for fuel.

SCIENCEREX PROGENY GAMIFICATIONS

Lailatun Nazirah Ozair[1,] S. Hajar[2], Siti Suraya Mohmad[3], Nurul Iman Bakhtiar[4] and Nur Fatiha Raman[5].

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1.0 INTRODUCTION

Playing game during a lesson is an interactive way to attract student's interest about the syllabus in school and enhance learning outcomes. The objective of Sciencerex Progeny gamifications is to teach kids on the importance of the environment. Also, to encourage students to love and care for the environment and the earth. This game intention is to make learning lesson more enjoyable and fun for students and teachers.

2.0 MATERIALS AND METHODS

Sciencerex progeny has been developed by Study Stylus using Scratch Website. This gamification is based on the Pac-Man concept and has been modified to student's friendly game. According to Scratch official website, Scratch is a free programming language and online community where you can create your own interactive stories, games, and animations.

2.1 Game flow

To start the game, click the green flag. This game consists of 3 levels with different difficulties. You need to play the sequence level. To see instructions, click the remote. To see the objectives of the game, click the question mark. Instructions to play:

1. Use the arrow keys to move characters.
2. Each potion contains a question that needs to be answered for each level.
3. After obtaining all 3 potions in each level, you can go to the book at the end of the maze, to get explanations for the answered questions.
4. At each level 5 lives will be given. If you run into a microorganism, the lives will be deducted by one.
5. If you eat a pill, the microorganisms will disappear in 10 seconds.

2.2 Game challenges

- This game has 3 distinct levels. Level one is reduced, level two is reuse and level 3 is recycled.
- Each level contains three questions that are hidden in separate potions.
- The player will have to avoid the microorganism if colliding with them one life will be deducted.
- The player also will get stuck on the wall if the player gets too close to it.
- Finding hidden questions in the right portion while avoiding microorganisms.

2.3 Game story design

During environmental week 2022, Sekolah Kebangsaan Tanjung Bestari (SKTB), Selangor has held a quiz competition based on learning in science class using Sciencerex Progeny Gamification that involves all science teachers and students among all students SKTB. Teacher Zain and teacher Liana will give the quiz during their time in class 3 Ceria.

You will go on a day trip to a neighbourhood playground. There, teacher Liana will explain more about the 3R principle to you. As you walk around the playground, you can relate to what teacher Liana means about the 3R principles that are applied in our life. During the questions and answers session, you also give some examples of reducing which you always bring your food to school by using Tupperware instead of using a plastic container. After that, you will move on to the Sciencerex Progeny Gamification to test your understanding about the topic.

In this game, you must use the arrow keys to control the character in the game and navigate pass all the obstacles to reach the book. The game contains walls where you must avoid getting too near to avoidbeing trapped on them. Every time you hit a microorganism; one of your 5 lives will deduct. Whilst if youtake the pill, the microorganism will vanish for ten seconds. Your real goal is to locate three potions in eachlevel, which will have three questions.

The book will become visible at the end of the wall once every potion has been located. To end thelevel, you must reach the book as it will provide you with justifications for each of the questions and answers. When the level increases, microorganisms will move faster. After finishing Sciencerex Progeny, the Study Stylus will give you a certificate of completion. Until then, Study Stylus wishes you luck and have fun playing through learning.

2.4 Screenshot of the game.

Figure 19.1 Screenshot of the game

Figure 19.2 Screenshot of the game

Figure 19.3 Screenshot of the game

Figure 19.4 Screenshot of the game

3.0 RESULTS AND DISCUSSION

A survey has been done to collect feedback from the teachers/students (age 7 and above). A total of 10 respondents have been collected. Based on the survey, 30% aged 7-9 years old, 10% aged 10-13, 10% aged 14-15 years old and 50% aged 16 and above were collected.

The survey was conducted on 1 -5 scales with not satisfied to very satisfied respectively and was divided into two categories; player/student and teacher.

3.1 Player/ Student feedback:

- 60% were satisfied (scale 1-5; satisfied, very satisfied) with the information displayed and easy to understand.
- 80% were satisfied (scale 1-5; satisfied, very satisfied) with the game's accessibility and user-friendly.
- 70% were satisfied (scale 1-5; satisfied, very satisfied) with the knowledge gained from the game.
- 60 % were satisfied (scale 1-5; satisfied, very satisfied) with the ability to answer the questions.
- 90 % were satisfied (scale 1-5; satisfied, very satisfied) with this game that attracts you to study science.
- 90 % were satisfied (scale 1-5; satisfied, very satisfied) with they think the same game should be continued in the future.

3.2 Teacher feedback

- 60 % were satisfied (scale 1-5; satisfied, very satisfied) with this game to meet the lesson

objectives.

- 80 % were satisfied (scale 1-5; satisfied, very satisfied) with the suitability of the topic.

- 60 % were satisfied (scale 1-5; satisfied, very satisfied) with the game to help students in science lessons in the classroom.

- 80% were satisfied (scale 1-5; satisfied, very satisfied) with they think the same game should be continued in the future.

- 60% of respondents were moderately satisfied with the overall experience of playing the ScienceRex Progeny.

Below are some of the additional comments/suggestions from the respondents. “Game yang bagus untuk dimain di dalam kelas sangat interactive”
“Saya rasa game ini sangat seronok dan mungkin cikgu boleh mengajak pelajar untuk membuat aktiviti ini didalam kelas”
“Boleh dilaksanakan sebagai satu aktiviti di dalam bilik darjah.”
"Very impressive! The game is so fun and at the same time, I can gain knowledge too. Recommended to school students or teachers to use it. Keep it up!"
“Good animation and the information also easy to understand.”
"The voiceover behind the need to be more courageous, but I like her voice btw, very nice explanation for each question. Overall, I hope this game will be your catalyst to create even more sciences game for the younger generation. Thank you very much."

4.0 CONCLUSION

In conclusion, because of the eye-catching and inventive infographic that will grab students' attention in a certain subject, Sciencerex Progeny gamification is one of the options for making studying time more engaging and fun. Due to the game's challenges, this game can also train the brain to concentrateharder in order to win and perhaps even in order to finish their work. Hopefully, this game will be practisedmore in the classroom in the future.

ACKNOWLEDGEMENT

Thank to the Faculty of Science and Technology, Islamic Science University of Malaysia (USIM), Nilai for connection supply especially Wi-Fi in the learning room throughout this project.

THE EFFECTIVENESS OF USING JOLLY CARD SENTENCES IN ENHANCING YEAR 3 PUPILS' SENTENCE CONSTRUCTION IN SVO ORDER

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1.0 INTRODUCTION

The English Language is the mainstream language used worldwide as an intermediary tool for communication on a global scale for various sectors (Us Saqlain, 2020). In Malaysia, as education progresses, pupils coming from the background of second language users have their setbacks or challenges in constructing sentences in the English Language (Ibrahim & Othman, 2021). It is found that pupils still struggle to form sentences in the correct word order due to the lack of exposure to Subject Verb Objects (SVO). Few studies have been conducted on using card games in enhancing sentence construction in SVO order. Thus, this paper aims to help pupils to form sentences correctly using SVO with Jolly Card Sentences. Jolly Card Sentences is a card game which was created using a self- made template consisting of word cards for verbs and picture cards for the subject and object. Using gamification in teaching word order effectively increases their mastery and understanding, as the critical aspect of games is repetition (Mohamad et al., 2018). To remember word orders and sentence construction, repetition is essential. Besides repetition, games provide a friendly atmosphere among the pupils (Wichadee, 2018). The result of this research contributes positively to using this method for teaching writing sentences by considering the strengths of conducting this research.

2.0 MATERIALS AND METHODS

2.1 Jolly Card Sentences

Jolly Cards is an innovative game aimed at improving sentence construction skills among pupils. It addresses the problem pupils face in constructing sentences in the proper order besides their lack of interest.

Jolly Cards can be used in the classroom as they provide a rich user experience and attracts pupils' attention to make the right sentences. This game consists of materials with a few picture cards displaying people, verbs and objects. Pupils will be sitting in a big round, and everyone will be given 10 cards at the beginning of the game. As the game progresses, pupils need to pick one card and decide whether to keep it or not for them to make sentences. The game continues until a player manages to make three sentences. In this game, pupils must compete with other players individually. The research suggested that the games' fun element and incentives helped pupils to improve their participation and engagement while learning sentences. Pupils' interest in winning the game will motivate them to understand the words given in the cards and encourage them to rearrange them in the correct order.

2.2 Material Development

Based on pupils' work, it is found that pupils still show glaring mistakes in the basic arrangement of words in a sentence in the classroom. These have reflected that the pupils have not acquired the rules for what needs to be included in the basic sentence construction. Hence, Jolly Card Sentences was designed and developed to support pupils' learning using ADDIE Model (Kurt, 2019). This research emphasizes constructivism and Vygotsky sociocultural theory to promote a safe and fun learning environment to enhance pupils' memory in SVO order. Jolly Card Sentences was adapted and modified from Family Card Game. During the play, the pupils are guided with pictures to aid their understanding and remembering the SVO patterns. The pupils learn SVO order actively by making three correct sentences to win the game. To evaluate pupils' learning outcomes, a post-test was given to pupils to define the effectiveness of Jolly Card Sentences.

3.0 RESULTS AND DISCUSSION

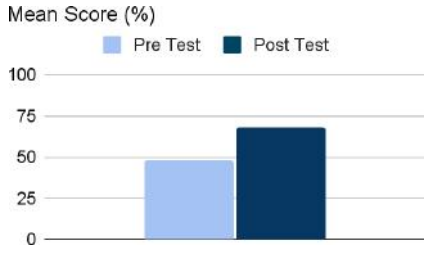

Figure 20.1 Comparison of mean scores between pre and post-tests

Figure 20.1 depicts the analysis of data collected from their pre and post-tests. The mean score for the pre-test is 48.41, where most of the pupils' scores were in the range of 15 - 18 out of 30 marks. The mean score for the post-test has increased to 68.16 after the implementation of Jolly Cards Sentences. Lower marks scored during the pre-test were due to their inability to understand the meaning of words and difficulties remembering the order of the sentence. Drilling the order of sentences through the card games has improved their sentence construction skill efficiently as pupils also agreed that this game had increased their understanding of constructing sentences and improved their vocabulary during a survey that has been conducted (Nee & Yunus, 2020).

Table 16.1 Rate of Improvement Between Pre and Post Tests

Number of pupils	Pre-test (%)	Post-test (%)	Rate of Improvement (%)
40	48.41	68.16	19.75

From Table 16.1, the rate of improvement showed 19.75%, which showed steady improvement. These could be seen when pupils found the activity refreshingly a new tool aiding in classroom learning. They could engage with one another through the realia as they worked to form the sentences indirectly improving their communicative skills and self-confidence. Thus, this created a level of healthy competitiveness that spurred their cognitive development to get as many rights as possible (Johnston et al., 2020). It is also very user-friendly and safe to use. They found it fun as they could relate to the findings of the realia as it dealt with everyday activity. Through the usage of the realia, they build on acquiring knowledge of SVO in an orderly way. They could -correct when constructing sentences

accordingly through the word cards and picture-based cards. They could independently come up with different combinations of the SVO card sentences.

However, results showed a decrease in a pupil's score where his rate of improvement dropped -6.67%. One possible reason the researcher observes is the class size and number of pupils. Classroom management can go out of hand when the class set-up is not conducive for the pupils to move around. The pupils are from similar competency levels; however, the speed of a child's response to another may be slower than others. Some can grasp the SVO order concept quickly, so they play the game faster. This thus left him impatient, distracted and withdrawn from the game. As this is a very hands-on activity, preparation is required before the activity is conducted in the classroom. The activity can only be conducted in an hour or more due to time constraints.

4.0 CONCLUSION

The Jolly Card Sentences is a classroom game-based activity that can be carried out anywhere at any time. There is no usage of technology as it is very hands-on. There is not much resistance in participation as it cultivates peer coaching as teachers function as facilitators. Its unique approachable way of learning SVO in the correct order makes acquiring SVO effectively fun in a non-threatening way. Pupils with various levels of language proficiencies can acquire the SVO knowledge at their own pace. The concept of the SVO card sentences can also be used as a learning tool in future with other grammar forms and functions.

CARBON TAX IMPLEMENTATION FRAMEWORK FOR MALAYSIA

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1.0 INTRODUCTION

In both developed and developing nations, carbon taxes have gained popularity in preserving the environment (World Bank, 2021). A carbon tax has been shown to increase the revenue needed by governments for various purposes, including paying off debt and increasing spending on healthcare and education (Convery et al., 2014). A carbon tax implementation was announced by the Malaysian Prime Minister in the 12th Malaysian Plan (2021-2025). Energy and fuel suppliers will be forced to hike prices due to the imposition of a fixed levy on the carbon content of fossil fuels (PMR, 2017). However, the government has not yet disclosed the structure for carbon pricing. The new tax structure also raises the issue of implementing a carbon tax during the Covid-19 financial crisis to reduce greenhouse gas emissions and help the economy bounce back. This study aims to propose a carbon tax implementation framework for Malaysia.

2.0 MATERIALS AND METHODS

2.1 Carbon Tax

A carbon tax is described as a fixed charge on the amount of carbon in the supply of fossil fuels at the point where coal, petroleum products, and natural gas are processed or refined. This charge is measured in metric t onnes of carbon dioxide (CO2), which is equivalent to tCO2e of a process or product (PMR, 2017). The policy addresses the central problem of climate change: that the social cost of burning fossil fuels exceeds the private and market cost (Metcalf, 2019). An effective carbon price would rise over time to reflect the reality that more greenhouse gas emissions are sent into the atmosphere. The World Bank, OECD, and United Nations (UN) are just a few of the international organisations that strongly advise lawmakers to enact a carbon price. But for the strategy to be successful, it must be carefully crafted in light of the nation's budgetary, social, and economic circumstances.

2.2 Malaysia’s Carbon Emissions

With 255 million tonnes of CO2 emitted in 2019, Malaysia ranks third in the ASEAN area behind Indonesia and Thailand (Ritchie & Roser, 2020). The main source of carbon emissions was the energy sector, which produced electricity and heat (39 percent), transformed natural gas (7 percent), and refined petroleum (4 percent) (Ministry of Environment and Water, 2020). Malaysia has been recommended to implement a carbon pricing regime in order to uphold its obligations under the 1997-signed and 2005-implemented Kyoto Protocol and the 2015 Paris Agreement of the UNFCCC (Al-Amin et al., 2015; Babatunde et al., 2018; Yahoo & Othman, 2015). In accordance with these agreements, Malaysia wants to lower its GDP's CO2-equivalent GHG emission intensity by up to 40% from 2005 levels by 2020 and by 45% from 2005 levels by 2030. (UNFCCC, 2015). However, as there is currently no cost associated with GHG emissions, there is little motivation for businesses and consumers to find ways to lessen their carbon footprint. To create an acceptable and effective carbon

pricing strategy, the government should carefully study the characteristics of carbon taxes and examine the practises used in other emerging nations. This study seeks to outline a framework for Malaysia's introduction of a carbon tax.

2.3 Research Methods

A qualitative research methodology was adopted using document analysis and in-depth interview methods. The former method was conducted on carbon tax published papers, policies, reviews and frameworks to understand implementation strategies and challenges for developing countries. After a general framework for Malaysia was constructed using the secondary data, the following process was to obtain experts' opinions through in-depth interviews.

3.0 RESULTS AND DISCUSSIONS

Based on the experience of countries with carbon taxes and recommendations from experts, a proposed carbon tax implementation framework for Malaysia is constructed. The analysis demonstrates that creating a carbon price is a time-consuming process that requires policymakers in developing nations to decide on ten main dimensions: objective, subsidy reform, administration, tax base, tax rate, use of revenue, coordination with other tax and environmental policy, preservation of company competitiveness, evaluation, review and adjustment, and information dissemination.

Malaysia should base its development of a workable carbon tax strategy on the framework. It is a climate policy that has lowered administrative expenses, increased tax income, and reduced carbon emissions. However, there are many limitations to the policy's execution, such as a shortage of expertise, poor communication and coordination across the ministries, public resistance, and a lack of business readiness. To address these issues, the government must conduct research, invest in advancing the human race, set aside ideological differences, and consult with international experts.

4.0 CONCLUSIONS

A carbon tax has become a popular form of carbon pricing in many nations and jurisdictions. To be effective and sustainable, a carbon tax policy must be created that is both workable and popular. Malaysia's underlying lack of income and resources, high levels of corruption, and social inequalities make designing a carbon tax structure there more difficult. The proposed framework will provide a strong base for the government's implementation and development of a workable and popular carbon tax. Future studies should collaborate with experts in economics, the environment, and natural resources to further enhance each element of the framework.

ACKNOWLEDGEMENT

The researcher would also like to thank the Ministry of Higher Education for funding this research under grant number FRGS/1/2019/SS01/USIM/03/2.

DEVELOPMENT OF MATLAB APPLICATION FOR SIZING A STAND- ALONE PHOTOVOLTAIC SYSTEM DURING MONSOON SEASON

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1.0 INTRODUCTION

Lately, the state of the globe is deteriorating day by day because of man-made pollution. Today, global organizations such as the United Nations have begun an environmental program with the goal of having the world use renewable energy by 2030. Renewable energy is defined as energy produced from natural sources that are replenished at a faster rate than it is consumed (United Nations, 2022). Examples of renewable energy are sunlight, wind, and many more. Renewable energy is constantly being replenished as its sources exist andare all around us.

A photovoltaic (PV) system is a technology that utilizes solar energy to generate electrical energy. According to the University of Calgary, a PV system is made up of one or more solar panels, an inverter, and other electrical and mechanical components that use the sun's energy to generate electricity (Mirica et al., 2020). A PVsystem uses a PV system that can convert solar energy to electrical energy. PV systems collect the sun's energy and transform it into electricity using semiconductor material. Silicon is the most used semiconductor material. When light strikes the PV system, a certain amount of energy is absorbed by the semiconductor material, knocking electrons, the negatively charged particles that serve as the foundation of the electricity (EWS POWER LTD, 2015).

In a PV system, there are three prominent types which are grid-connected systems, stand-alone systems, and hybrid systems. For this project, the types of PV systems used are stand-alone system types. A stand-alone PV system is made up of numerous separate photovoltaic panels that are typically 12 volts and have power outputs ranging from 50 to 100+ watts. A standalone PV system is not linked to the power grid. As a result, a battery storage solution was necessary (Genus Innovation Limited, 2022). The standalone PV system is powered by solar systems and produces electrical power automatically throughout the day to charge banks of batteries for usage at night when the sun's light is unavailable. A small-scale PV system on its own uses rechargeable batteries to store the electrical energy generated by a PV panel (Altenergytutorials, 2014).

A stand-alone PV system is chosen since its benefits are appropriate for this project. The advantages of a stand-alone PV system are it can be used when there is no grid access. Next, it will make me feel amazing to be self-sufficient in terms of my energy needs. Moreover, my electricity supply will not be affected by grid outages or downtime (Rooij, 2017). In this project, the standalone PV system will be used during themonsoon season. A monsoon is a wind shift that frequently generates a highly rainy or very dry season. Although monsoons are typically associated with Asia, they can occur in a variety of tropical and subtropical climates (Ross, 2020). Plus, a MATLAB application will be used to size a stand-alone photovoltaic (PV)system during the monsoon season. As a result, users can apply this application for photovoltaic (PV) system sizing.

2.0 MATERIALS AND METHODS

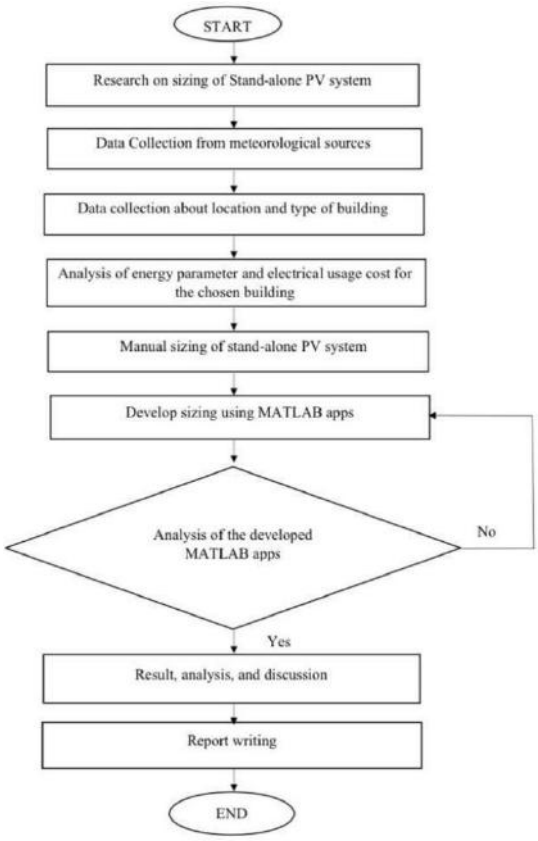

Figure 21.1 The flowchart of the method used for this project

3.0 EXPECTED RESULTS AND DISCUSSION

At the end of this project, things that need to be achieved are:

1. A Stand-alone photovoltaic system during Monsoon season for a single-storey house has been sized
2. The design of a stand-alone sizing photovoltaic system using MATLAB application during the monsoon season had been gained.
3. The developed MATLAB apps could size the Stand-alone photovoltaic (PV) system during the monsoon season accurately. Figure 21.2 and Figure 21.3 show the draft of design for the MATLAB apps.

Figure 21.2 The draft of design for the Main Menu of the MATLAB Apps

Figure 21.3 The draft of design for the Main Panel of the MATLAB Apps

4.0 CONCLUSION

In conclusion, the things that are expected to be achieved in this project are a stand-alone PV system during monsoon season for a single-storey house will be sized. Next, the design of a stand-alone sizing photovoltaic system using MATLAB application during the monsoon season will be gained. Moreover, the developed MATLAB apps could size the stand-alone PV system during the monsoon season accurately.

ACKNOWLEDGEMENT

We would like to thank the Research Management Centre, Universiti Tun Hussein Onn Malaysia for funding this work through Research Grant H762.

POWER MONITORING SYSTEM USING INTERNET OF THINGS FOR PHOTOVOLTAIC POWERED FERTIGATION SYSTEM

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1.0 INTRODUCTION

Today, photovoltaic (PV) has been used all over the world. Solar electricity or also known as photovoltaic (PV) technology is one of the renewable technologies that has the potential to design a future electrical system that is clean, reliable, and scalable (Gul et al., 2016). Due to its high efficiency, PV creates electricity from sunlight and transforms it to electrical energy (Samsudin & Rahman, 2016). However, one of the drawbacks of PV is, it is not always dependable. This is because solar radiation varies and changes regularly due to the unpredictable nature of the sun and its reliance on weather and climate change. As a result, generated energy does not always match load demand. PV systems generate electrical energy from the amount of sunlight that is available on site (Alsadi & Khatib, 2018). Since there is more sunlight than rain in Malaysia, the weather is very perfect and conducive to the utilization of PV systems. PV power generated based on the time, location and surrounding climate condition.

In addition, the United Nations established the Sustainable Development Goals (SDG's) to achieve universal actions to protect the planet, minimize poverty, and ensure that people enjoy peace and prosperity [4]. As a result, the United Nations (UN) mission, solar energy was one of those that addressed SDG's number 7 which is affordable and clean energy. This awareness is familiar that all designs and the house loads using a solar as a power generation source (Ali et al., 2018). The automated system primarily uses solar power generation to help people in saving money on their electric bills and is suitable for off-grid areas. Malaysia's weather is ideal for using solar as an alternative source and being a clean energy resource (Bukhari & Abdullah, 2021). The IoT must be implemented in our daily to life and become a modern world, such as smart cities, smart homes, energy conservation, and intelligent transportation.

Besides, the Internet of Things (IoT) is an essential thing to the generation right now, especially for young people (Bukhari & Abdullah, 2021). People are most concerned about technology or accessing the internet. It can be proven when past research same says that IoT is progressively becoming an essential aspect of our life that can besensed everywhere around us (Kumar et al., 2019). IoT is the devices that can be transmitted the data from the system into another medium that does not use or attach any cable, in other words, called wireless such as smartphone, laptop, etc.

Currently, many devices and work can perform automatically without being controlled by the humanon the site. Hence, the plantation also can be one of the industries that can make it run automatically in a way to increase production (Bukhari & Abdullah, 2021). One example is automated fertigation, which is a system that can irrigate the plant on its own. It allows the plant to take care of more things without requiring full attention from humans. It is quite familiar nowadays due to its ease of installation and high production results (Farooq et al., 2020). To keep its nutrient efficiency, the plant requires an adequate supply of water. According to previous research, afterfour weeks of using this fertigation system, there were able to conclude at the end of the project that the system was capable of keeping the plant alive and in healthy mode (Hanna Hermansoon, 2019). The use of this type of system clearly

can schedule the system to run properly and ensure that the plant remains in a healthy state (Bukhari & Abdullah, 2021). Basically, this project is focused on to build an IoT based model for the monitoring system of the PV system for the farming sector especially in fertigation system. In this project, IoT will be used as a monitoring algorithm that will determine the output of the solar PV system.

2.0 METHODOLOGY

In this section, all the methodology of solar PV system development in the fertigation system is discussedwith the implementation of the monitoring system and IoT.

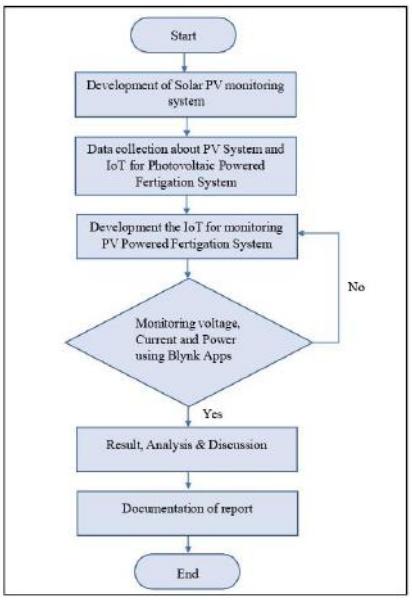

Figure 22.1 The Flowchart of power monitoring system using IoT for PV powered fertigation system

2.1 Development of solar PV monitoring system

The first important step to be carried out first before developing the monitoring system is designing thewhole monitoring process for the stand-alone solar PV.

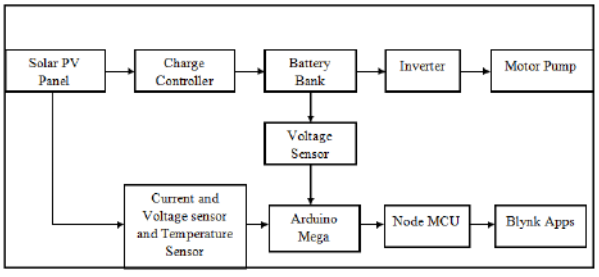

Figure 22.2 Block diagram of the solar PV monitoring system by using IoT

3.0 EXPECTED RESULTS AND DISCUSSION

3.1 Implementation of IoT

For this part, the application will display the reading of the sensors used in this project, which are the reading of voltage, current, power, temperature, dust density and battery capacity. This will ease the monitoring system as it does not require for the person to come to farm every day just to monitor the condition of the solar performance. Figure 22.3 below shows the example interface of the application with thevalue displayed on it.

In addition, the dust sensor has operated in this monitoring system as to show that the dust, animal wasteand dry leaves accumulated on the surface of solar panel gives disturbance to the reading of voltage since the sun irradiance towards the solar panel is restricted. Thus, if the reading of dust density and solar PV performance is high, a notification is sent to the application as shown in Figure 22.4. This project can be ableto monitoring process from another place by using the application, suitable for any operating system technology by using mobile phone or laptop as shown in Figure 22.5.

Figure 22.3 Example of the solar monitoring system in application

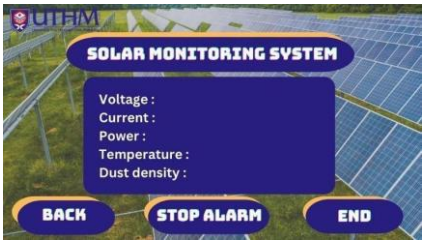

Figure 22.4 Example of the performance of the solar panel

Figure 22.5 Example of monitoring the system using laptop

4.0 CONCLUSION

In conclusion, the solar monitoring system using IoT will be used in this project with the monitoring system for the energy produced by the solar energy sources. With the implementation of IoT, it has eased the monitoring process from another place by using the application, suitable for any operating system technology. This solar PV monitoring system eventually will help the users to evaluate and predict the performance of the solar panel. The users can decide what is the predictive maintenance need to be done to ensure the solar PV system operate smoothly and able to supply continuous electricity to the load.

PREDICTION OF PHOTOVOLTAIC POWER OUTPUT BASED ON REAL DATA USING ADAPTIVE NEURO FUZZY INFERENCE SYSTEM

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1.0 INTRODUCTION

Photovoltaic System (PV) is gaining more popularity among countries that strive on using the renewable energy. The PV system is a system that use sun as its main source of energy. The sun emits array call photons. The photons then absorb by the PV cells and converted to electrical energy for the consumers (Akorede, 2022). The installation of a PV system has a significant impact on the power output for long-term operation and energy security. Customers should be compensated for the high initial cost of a PV system by ensuring thehighest power output from the PV system. The new semiconductor technologies lower the price of PV power output by lowering manufacturing costs while increasing power output. The cost of PV panels and the required space has been reduced by increasing the percentage of PV system sharing with the utility grid (Abdeen et al., 2017).

To ensure the highest power output, prediction on the power output of PV system need to be calculated. This project is purposing a way to predict the power output PV system by using ANFIS configuration. The ANFIS configuration stand for Adaptive Neuro Fuzzy Inference System and have grown in popularity for prediction and forecasting in a variety of fields (Ahmed & Shah, 2017).

2.0 MATERIALS AND METHODS

The materials and methods used in this project is stated as below.

2.1 Materials

The main materials of this project are the photovoltaic panels that is installed at UTHM, Johor. The software materials that will be used are MATLAB software for creating the configuration system.

2.2 Methods

Below is the flow of methodology for this project.

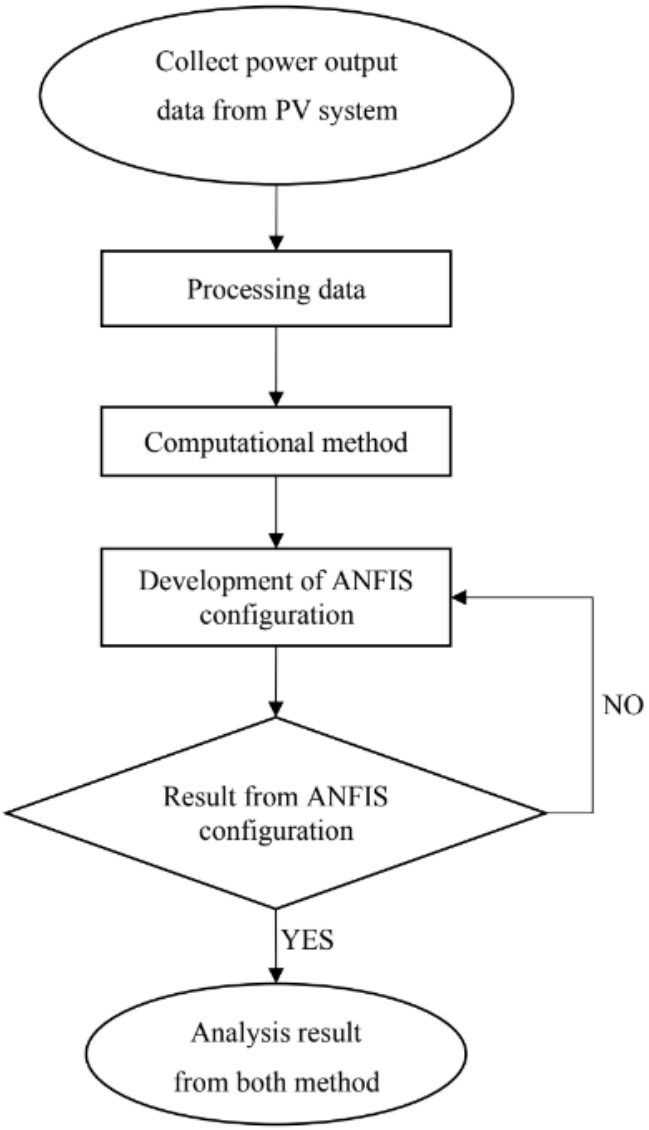

Figure 23.1 Flow of project

3.0 EXPECTED RESULTS AND DISCUSSION

1) The real PV power output data for 6 months have been collected.

Figure 23.2 Starting project

2) The prediction of PV power output has been obtained using computational method and being compared with the ANFIS configuration.

Figure 23.3 Start computation method after collecting real data

3) ANFIS configuration that has the ability to predict the PV power output has been develop. ANFIS configuration is expected to give more accurate result compared to the computational method.

Figure 23.4 Start developing ANFIS and compare results

4.0 CONCLUSION

To summarise, this project proposes that ANFIS intelligence produces more consistent patterns of power output PV system real data than the computational technique. ANFIS included additional elements that should be emphasized over the computational approach.

ACKNOWLEDGEMENT

We would like to thank the Research Management Centre, Universiti Tun Hussein Onn Malaysia for funding this work through Research Grant H762.

DEVELOPMENT OF A MATLAB APPLICATION FOR EVALUATING THE PERFORMANCE OF PHOTOVOLTAIC SYSTEM

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1.0 INTRODUCTION

In recent years, climate change is one of the most pressing issues across the world. This happened due to huge differences in the average data of meteorological parameters such as precipitation and temperature over a lengthy period of time (Mohanty, 2021). While climate change has its own benefits, the bleak outcome far more horrendous. To overcome this issue, one of the solutions that widely used is the usage of renewable energy. Nowadays, renewable energy has been considered as one of the significant energy sources. Renewable energy provides advantages due to concern of pollutions, global warming, emission of carbon gas and etc.(Tahiri et al., 2017),(Satsangi, 2018). By installing renewable energy, it will reduce the dependency of residency on power grid system and indirectly bring positive effect to the environment.

Solar energy collected from sun in one day may meet the needs of the entire planet for more than 20 years since the energy of solar energy irradiation falls at a rate of 120-watt peta on the earth's surface (Radhi et al., 2019). Hence, non-conventional energy such solar photovoltaic represents the largest contribution among all renewable sources because to its abundant supply, eco-friendly, cheap cost, and noise-free nature (Bhol & Charansahu, 2020). The materials employed in photovoltaic panels are those capable of absorbing photons and emitting electrons that makesphotovoltaic panels can directly converted sun radiation into electricity (Bhoopal et al., 2021), (Rosu et al., 2020). These materials have the potential to be utilized to make electric generators. Solar energy is converted into direct current using thesecells.

This research project is related to development of an application for evaluate the performance of photovoltaic system by using MATLAB. In engineering study, MATLAB mainly use as tool to design and execute analysis of circuit and system because of MATLAB software is widely used in many fields, including image processing, engineering calculation, financial modelling design, signal processing and communication, and control design, because it supports the drawing of functions and data, matrix operations, the creation of user interfaces, algorithm implementation, and other programming language programme connections (Yu, 2018).

2.0 MATERIALS AND METHODS

2.1 Methods

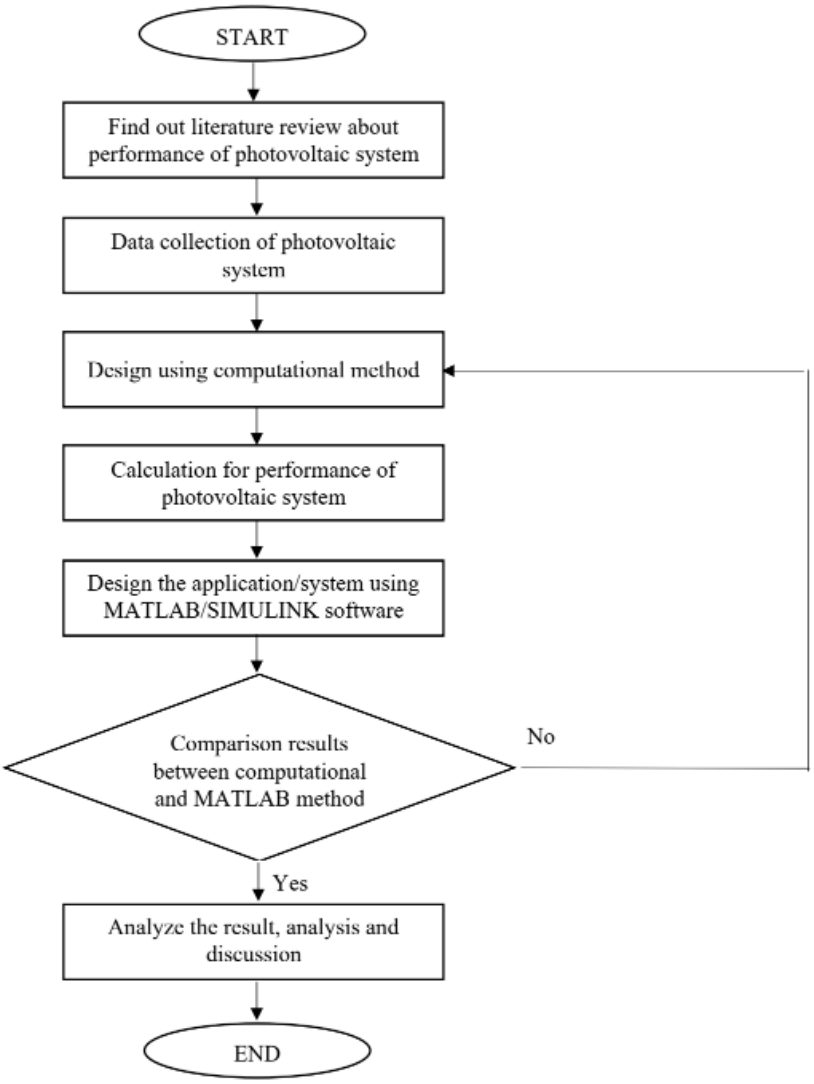

Figure 24.1 Project Flowchart

2.2 Materials

MATLAB software as the main tool for analyze photovoltaic system performance. Other than that, photovoltaic system also needed as real data for sunray irradiance need to be recorded.

3.0 EXPECTED RESULTS AND DISCUSSION

Upon completion, the project is expected to have results as follow:

1. Application to evaluate the performance of photovoltaic system is fully develop by using

MATLAB software.

2. Able to compare the performance of photovoltaic system between result of developed application and computational method.

Figure 24.2 MATLAB Graphical-User Interface

4.0 CONCLUSION

As a conclusion, the most important finding in this project was the importance of photovoltaic system performance since inconsistency of photovoltaic panel input values. Solar irradiance exposure on the photovoltaic (PV) array and photovoltaic (PV) cell temperature are the two most important elements influencing photovoltaic (PV) system performance. Output power is dramatically reduced when photovoltaic (PV) modules are subjected to varying solar irradiation which certain areas are partially shaded (Hong et al., 2018).

ACKNOWLEDGEMENT

We would like to thank the Research Management Centre, Universiti Tun Hussein Onn Malaysia for funding this work through Research Grant H762.

THE USE OF DIGITAL EDUCATIONAL GAMES 'TRILINGÜE: HÉROESCAPE' IN ENHANCING LISTENING SKILLS AMONG LOWER SECONDARY ESL STUDENTS

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1.0 INTRODUCTION

In today's digital-gen society, the question of how certain skills can be effectively taught in schools isthe top priority in education system. Game-based learning is hoped to diversify education, improve students' attentiveness and motivation, and give positive and effective learning experiences. It is considered an effective educational tool for improving education in classrooms of the future especially in this pandemic era where a total shift of system was introduced to cope with the negligence and carelessness of students in their learning.

1.1 Utilization of Digital Educational Games in Language Learning

According to Wu, Zhang & Wang (2020) digital games refer to games that are developed and designed relying on computer technology and implemented through digital equipment as a platform. They also claim that digital games include computer games, interactive digital board games, video games, online games as well as mobile games among others. In this study the term "digital games" is used to refer to all games used for teaching and learning English language, that is, games used as an educational platform or, as Sulistianingsih et al. (2019) put it, as a multimedia teaching technique.
Digital games are considered to be a new way to endorse literacy. They are many characteristics suchas visuals, music, storyline, gameplay, and characters which makes them attractive to a considerable amount of people (Camacho Vasquez & Ovalle, 2019). Prensky (2001) stated that there is a combination of twelve elements which make a game engaging. These are: fun, play, rules, goals, interactivity, adaptiveness, outcomes and feedback, win states, conflict, problem solving, representation and story. With these features, games have the power of engaging people in fun ways, providing interaction, chances for problem solving, appealing storylines among others while encouraging creativity and participation.

1.2 Importance of listening skill in ESL learning

According to Vandergrift & Tafaghodtari (2010), throughout any language learning process, listening is a crucial skill that involves understanding spoken messages that is the input. It is importantto master this skill and according to Arono (2014), the purpose of critical listening with learning listening is to prepare students to be the best problem solver, make a better decision and develop long- term skills. This means that students need to be equipped well with the skills to be able to make sense not only in learning but in real world situations. English has been a very challenging subject not just for the teachers to teach but also for the students to learn. According to El Shazly (2020), English communication skills which include listening skills are vital for advancing people's social lives and careers. With many changes in technology done and introduced, comprehensible input can be accumulated and delivered better to students. This way, English teaching and learning can be done thoroughly and holistically. By paying attention to how words work together when hearing or practicingsentences in English, ESL learners would be able to improve their language acquisition in no time.

2.0 MATERIALS AND METHODS

2.1 Population

- The population of this study were students of low proficiency from form 1 until form 3 of an English class. The sample was selected by simple random sampling.

2.2 Duration

- The study was conducted during the lessons in class for 2 weeks.

2.3 Variable

Independent: the use of 'Trilingüe: HéroEscape' in enhancing listening skill.
Dependent: The students' learning achievement on listening skills and attitudes towards learningusing the 'Trilingüe: HéroEscape'**.**

2.4 Questionnaire

1. 3 language specialists were consulted to check the congruence between the questionnaire items. The value of Index of Congruence (IOC) was between 0.6-1.0. The students were required to rate the statements on a five-point scale from "very low" to "very high".
2. The initial questionnaire was tested and improved to make it more comprehensive, reliable and valid for collecting data.
3. The questionnaire was then administered with a new group of students to study their attitudes towards learning listening skills through using the application. The Cronbach's Alpha value ( ) of this questionnaire was 0.82.

2.5 Data collection

The data were collected from the student's answer after using the application and the score of listening comprehension and from exercises undertaken after each learning material was presented.

3.0 RESULTS AND DISCUSSION

3.1 Data analysis

The data obtained from this method of teaching in the study was analysed and interpreted through quantitative analysis. Quantitative data includes the data obtained from pre-test, the post-test and the questionnaire. The t- test was used to compare the listening competency of the experimental group. The computer software program, SPSS, was used to analyse the data. The data from the Likert's scale was calculated for the arithmetic means (X). These means revealed the students' opinions towards learning with 'Trilingüe: HéroEscape'. The value of mean scores for opinion level was interpreted according to thefollowing criteria.

3.2 Findings

Table 16.1 below showed the comparative result of English listening pre-test and post-test scores of students. The average mean scores of the pre-test and the post-test are 7.80 and 11.80 respectively. The standard deviation of the pre-test and post-test of the experimental group was 2.14 and 1.93

respectively. According to the result of the t-test which was -20.248, it can be concluded that the learning achievement of students' post-test is higher than the pre-test at a significance level of 0.05. The students' English listening comprehension ability increased significantly after learning with 'Trilingüe: HéroEscape'. The result of this study is shown in Table 17.1.

Table 17.1 The result of comparison between the English listening pre-test and post – test.

Test Types	Mean	n	Std. Deviation	t	Sig. (2- tailed)
Pre - test	7.80	30	2.14	-20.248	.000
Post - test	11.80	30	1.93		

3.2.1 Evaluation of Students' attitudes towards learning English listening using 'Trilingue: HéroEscape'.

Based on the Table 17.2, it has been found that the mean score of the questionnaire about students' attitudes toward learning listening using 'Trilingüe: HéroEscape'**.** The highest mean score is (4.17).

Table 17.2 Result of evaluation of students' attitudes towards learning listening skill using 'Trilingüe: HéroEscape'.

Evaluation items		**X**	**SD**	**RESULT INTERPRETATION**
1.	I prefer to use the English in all the application that Iuse	3.75	.79	Good
2.	English in 'Trilingüe: HéroEscape' motivates me to do more listening outside the classroom.	3.70	.64	Good
3.	I prefer not to use simplified listening materials provided in the textbook.	3.60	.80	Good
4.	Keywords I have learned prior to using the application motivated me to learn English	4.17	.73	Good
5.	The application helps me improve my listening skills.	3.92	.90	Good
6.	The application helps me to understand other listening materials outside the class.	3.80	.55	Good
7.	The application materials in the listening course motivate me to listen to other materials outside the class	3.75	.53	Good
8.	The application materials introduce me to how language is used in the real world.	3.58	.54	Good
9.	The application materials help develop my listening ability more than modified or non-authentic materials do	3.34	.65	Good
10.	The application materials increase my knowledge of vocabulary which I need in real life situations	3.43	.54	Average

4. CONCLUSION

Conclusively, this study shows that ‘Trilingüe: HéroEscape’ significantly improves students’ performances in listening skills. Students also demonstrate positive viewpoint on the usage of digital toolsin enhancing their listening skills. Digital tools are obligatory parts of most students’ lives and using these tools in school in the future could inspire the students to enjoy the classes more.

MALAY WRITING

APLIKASI HODATE
(COUNSELING HOMEWORK AND DATE REMINDER APPS)

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1.0 PENGENALAN

Setiap individu di dunia ini pasti akan berhadapan dengan konflik sama ada ianya melibatkan konflik dalaman atau luaran. Daya tahan dan strategi seseorang dalam menangani konflik juga berbeza mengikut keadaan dan diri individu itu sendiri. Tidak sedikit masyarakat sekarang yang menghadapi konflik lantas mempengaruhi kesihatan mental terutamanya sejak pandemik COVID-19 melanda. Semakin ramai juga masyarakat yang membuka minda dan bertemu kaunselor untuk mendapatkan jalan bagi menyelesaikan isu masing-masing. Namun, tidak kurang juga klien yang tidak menghabiskan sesi secara keseluruhannya. Johari et al. (2019) menerusi hasil kajian yang dijalankan mendapati bahawa kaunselor memainkan peranan penting dalam sesi kaunseling pelajar ponteng sekolah. Antara tugas kaunselor adalah menggunakan pendekatan memberi khidmat kaunseling dengan profesional dan memperbanyakkan program kaunseling mengikut isu yang dikemukakan pelajar. Secara tidak langsung, kaunselor dapat menangani isu klien dengan baik dan memberi celik akal kepada klien untuk keluar dari permasalahan yang dihadapi. Hasil kerja rumah (*homework*) yang diberikan oleh kaunselor membantu klien untuk memupuk kekuatan dan perasaan positif klien terhadap dirinya dan menguatkan penentuan diri klien (*self-determination*) dalam fasa menjalani sesi dengan kaunselor (Brodley, 2006). Oleh itu, kepentingan untuk memberi tugasan kepada klien menjadi faktor penting dalam membantu klien menangani masalah. Secara tidak langsung, tugasan ini menggalakkan klien untuk mempunyai komitmen tinggi dalam menjalani dan menghadiri sesi kaunseling.

1.1 Pernyataan masalah

Sesetengah klien hanya datang pada sesi pertama atau kedua atas faktor yang berbeza. Sebilangan klien yang tidak mendapat sokongan sosial untuk menguatkan klien tersebut hadir pada sesi berikutnya akan menyebabkan klien terhenti sesi di pertengahan jalan. Stigma masyarakat juga menjadi sebahagian yang menyumbang kepada isu ini. Stigma ini telah lama berlaku dan membuatkan masyarakat mempunyai persepsi negatif terhadap individu yang mendapatkan perkhidmatan kaunseling (Vogel et al., 2006). Ini menyebabkan individu yang mendapatkan khidmat kaunselor tidak berani untuk memberitahu situasi diri dan mendapatkan sokongan daripada orang sekeliling. Lantas, idea aplikasi HODATE ini dicipta adalah untuk memberi sokongan sekali gus ingatan kepada klien untuk melakukan aktiviti yang dipersetujui bersama kaunselor. Aplikasi ini juga membantu memberi notifikasi kepada klien berkaitan tarikh sesi berikutnya. Ini bagi memastikan klien tidak lupa akan persediaan janji temu berikutnya.

1.2 Objektif

1) Membantu sebagai alat pemantau kepada hasil kerja yang perlu dibuat oleh klien
2) Membantu klien mengingati tugasan yang perlu diselesaikan
3) Menggalakkan klien menjalankan tugasan yang diberikan
4) Membantu klien mengingati temujanji bersama kaunselor bagi sesi seterusnya.

2.0 BAHAN DAN KAEDAH

2.1 Penerangan Idea

Bahagian 1
Idea HODATE ini akan dibangunkan dalam bentuk sebuah aplikasi. Aplikasi HODATE ini dapat membantu memberi ingatan dan sokongan kepada klien dalam masa yang sama membantu kaunselor memantau perkembangan klien. Dalam aplikasi ini tersedia maklumat untuk klien mendaftar masuk dengan menyediakan bahagian maklumat klien dengan kod yang khusus untuk setiap kaunselor. Kod khusus kaunselor tersebut bertujuan untuk menjaga privasi klien dan segala maklumat yang diberikan klien hanya dapat dilihat oleh kaunselornya sahaja.

Bahagian 2
Aplikasi HODATE ini juga menyediakan bahagian untuk memasukkan aktiviti yang perlu dilakukan klien dan tarikh sesi seterusnya yang dipersetujui klien. Klien dapat melihat jadual kelapangan kaunselor seterusnya memilih tarikh yang bersesuaian untuk sesi seterusnya. Bahagian untuk klien memuatnaik perkembangan diri juga disediakan setiap hari untuk klien dan kaunselor memantau keadaan diri dan emosi pada hari tersebut. Aplikasi ini juga disediakan aksesori tambahan seperti nada dering notifikasi yang pelbagai, tema warna dalam aplikasi, serta kartun yang menarik. Aplikasi ini juga terdapat ciri khas iaitu data dalam aplikasi tersebut akan terpadam dengan sendiri selepas klien mendaftar keluar daripada aplikasi tersebut apabila tamat sesi kaunseling yang dijalankan

Prosedur Penggunaan Aplikasi HODATE
Kaedah yang diperlukan untuk menggunakan aplikasi ini adalah klien dikehendaki mendaftar menggunakan maklumat yang tepat bersama-sama kaunselor dengan persetujuan klien. Seterusnya klien akan memasukkan aktiviti yang telah dibincangkan bersama kaunselor di bahagian yang disediakan. Klien boleh memilih bunyi deringan notifikasi yang diingini dan bersesuaian dengan diri klien. Setiap hari, aplikasi ini akan memberi notifikasi berkaitan aktiviti yang perlu dilakukan. Klien juga disediakan ruang untuk memuat naik perkembangan diri di dalam aplikasi ini. Apabila hampir tiba tarikh sesi seterusnya, aplikasi ini akan memberi nota ingatan kepada klien dengan cara yang menarik (contoh, kartun bercakap dengan nada ceria). Sekiranya klien berjaya menjalankan setiap aktiviti, aplikasi tersebut akan memberi sambutan yang dapat menaikkan lagi semangat klien. Sekiranya klien telah habis menjalankan sesi atau ingin memberhentikan sesi, klien perlu mendaftar keluar dan secara automatik maklumat klien tersebut akan terpadam. Jika klien memerlukan sesi seterusnya untuk isu yang lain, klien akan mendaftar masuk dan mengisi aktiviti yang baru. Cara ini dilakukan adalah bagi mengelakkan percampuran sesi isu yang berlainan.

2.2 Keaslian

Intervensi yang dijalankan oleh kaunselor kepada klien adalah intipati utama dan penting dalam mencapai solusi kepada isu yang dihadapi klien untuk mencapai matlamat sesi kaunseling yang dijalankan. Rentetan itu, tugasan adalah salah satu bentuk intervensi yang dijalankan kepada klien. Namun begitu, klien yang sedang berada dalam fasa ‘mendung’ dan tekanan pastinya seringkali terlupa atau perlu diingatkan kepada tugasan yang perlu dilaksanakan. Oleh itu, Aplikasi HODATE ini dilihat sebagai satu bentuk peringatan (*reminder*) kepada klien dalam memastikan keberkesanan sesi kaunseling yang dijalankan. Bentuk aplikasi seperti ini masih belum berada di pasaran dan mempunyai potensi untuk dikembangkan.

3.0 HASIL DAN PERBINCANGAN

3.1 Praktis dan Kegunaan

Selari dengan perubahan zaman, aplikasi HODATE ini boleh didapatkan dengan mudah dengan memuat turun di *appstore/playstore* di peranti masing-masing. Selepas selesai memuat turun di dalam peranti tersebut, aplikasi tersebut memerlukan pengguna untuk memasukkan butiran peribadi seperti nama penuh, alamat dan juga nombor telefon. Selepas itu pengguna boleh mendaftar masuk dengan kata nama dan kata laluan yang telah dipilih pada awal pendaftaran. Hal ini bertujuan untuk mengelakkan sebarang penyalahgunaan maklumat peribadi oleh pihak lain. Sejurus selesai proses pendaftaran, satu kebenaran akses untuk pengguna akan diminta oleh aplikasi tersebut untuk menunjukkan notifikasi di paparan hadapan ketika ada peringatan berkaitan kerja rumah dan juga temu janji yang akan datang. Pihak kaunselor yang terlibat akan mempunyai akses kepada aplikasi tersebut untuk memasukkan segala kerja rumah yang diberikan dan juga menetapkan tarikh untuk temu janji yang seterusnya.

3.2 Impak

Antara impak yang positif yang klien dan kaunselor perolehi daripada aplikasi HODATE ini ialah dapat membantu mempermudahkan dan menggerakkan sesi kaunseling agar berjalan dengan lancar. Hal ini kerana, segala kerja rumah yang diberikan kepada klien dapat dipantau melalui satu sistem yang teratur walaupun klien dan kaunselor tersebut tidak bertemu secara fizikal untuk berinteraksi. Kerjasama yang baik diantara kaunselor dan klien juga dalam memanfaatkan penggunaan HODATE bagi mencapai objektif dan keberkesanan sesuatu sesi. Selain itu, ianya juga membantu klien dan kaunselor menjadi lebih produktif di mana kedua dua pihak mampu melakukan sesuatu perkara secara konsisten, contohnya seperti *homework.* Kaunselor boleh mengingatkan klien bahawa *homework* yang diberikan tidak semestinya perlu ditangguhkan ke suatu perjumpaan masa akan datang. Sekiranya enam hari tempoh diletakkan untuk klien menyelesaikan sesuatu *homework*, maka dengan menjadi produktif bersama HODATE, tugasan tersebut sebenarnya dapat diselesaikan dalam tempoh kurang daripada dua ataupun tiga hari 126ahaja. Secara teknikalnya, klien lebih produktif dengan tidak menangguhkan tugasan mereka.

3.3 Nilai Komersial

Aplikasi ini dapat digunapakai oleh semua klien dan kaunselor bagi memudahkan lagi perhubungan dua hala di samping dapat memberikan data yang tepat kepada kaunselor berkaitan dengan kerja rumah yang diberikan. Selain daripada itu, berikutan dengan jumlah klien yang berjumpa dengan kaunselor yang tinggi saban hari, produk ini akan mendapat sambutan yang menggalakkan kerana dapat mengingatkan klien tentang temu janji dan juga tugasan yang belum diselesaikan. Oleh kerana itu, potensi untuk aplikasi ini mendapat sambutan adalah amat tinggi berikutan dengan permintaan yang tinggi untuk berjumpa dengan kaunselor.

3.4 Perbincangan

Peringatan merupakan teknik mudah yang boleh meningkatkan keupayaan individu dalam mematuhi sesuatu tugasan yang diberikan (Horsch et al., 2017). Justeru, peringatan yang ditekankan dalam aplikasi HODATE menjadi faktor utama untuk memastikan *homework* dilakukan dengan sebaiknya dan menepati masa yang ditetapkan. Tugas utama seorang kaunselor adalah untuk memastikan sesi kaunseling dapat mencapai keberhasilan matlamat sesi dengan baik. Untuk memenuhi tugas ini, kaunselor bukan sahaja perlu menyediakan suasana sesi yang terapeutik dan harmonis, tetapi mereka juga perlu mencari alternatif yang berkesan seperti menggunakan aplikasi HODATE. Ini bermakna, kaunselor boleh menentukan pendekatan dengan memilih kaedah dan menetapkan teknik-teknik tertentu yang sesuai dengan perkembangan dan pemantauan bersama. Selain itu, aplikasi ini dapat

membantu memberi ingatan dan sokongan kepada klien dalam masa yang sama membantu kaunselor memantau perkembangan klien untuk memudahkan urusan temujanji klien bersama kaunselor.

4.0 KESIMPULAN

Secara asasnya setiap manusia perlukan peringatan dalam hidup mereka, tidak semua mampu mengingat segala tarikh dan kerja, apatah lagi mereka yang sedang dilanda dengan masalah dan isu dalam kehidupan mereka. Oleh itu, aplikasi HODATE ini dilihat mampu membantu bukan sahaja kaunselor, tepi juga klien dalam menjalankan peranan masing-masing dalam memastikan keberkesanan sesi kaunseling yang dijalankan.

SELF-RECOVERY BOOK FOR BIBLIOTHERAPY (SERAB)
BUKU TERAPI BIBLIO UNTUK KEPULIHAN DIRI

Abdul Rashid Abdul Aziz[1], Ishaq Ibrahim[2], Nur Adniey Md Rodi[3], Nurun Najihah Musa[4], dan Nur Hanis Mazni[5]

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1.0 PENGENALAN

Terapi biblio adalah satu kaedah untuk mendapatkan kesembuhan dan solusi kepada masalah yang dihadapi dengan kaedah pembacaan. Jika tubuh fizikal badan memerlukan nutrisi yang mencukupi, maka hati, emosi dan mental juga memerlukan 'makanan' untuk terus kekal positif. Terapi biblio juga dikenali sebagai terapi buku, terapi biblio telah dibincangkan sebagai model psikodinamik pada tahun 1950-an oleh Caroline Shrodes. Pada tahun 1966, ia secara rasmi diperkenalkan ke dalam perbendaharaan kata perubatan sebagai proses menggunakan elemen kesusasteraan untuk menggalakkan perubahan kognitif dalam diri individu.

Secara asasnya, terapi biblio dilihat sebagai cara yang digunakan oleh individu dalam menyelesaikan cabaran peribadi melalui pembacaan terarah. Ia sering digunakan sebagai bentuk rawatan tambahan dalam pelbagai pendekatan psikoterapi dan boleh melibatkan segala-galanya daripada membaca secara peribadi hingga perbincangan dalam kumpulan. Walaupun individu terbabit bukan peminat buku, mungkin dalam situasi- situasi tertentu individu mendapati apa yang diperolehi daripada aktiviti pembacaan mereka seiring dengan permasalahan yang dialami. Dengan pembacaan bahan-bahan yang betul, ia boleh memberikan impak positif kepada emosi seseorang dan seterusnya memberi dorongan kepada perubahan diri.

Umumnya, buku boleh menjadi medium terapi atau penyembuhan bagi individu yang mengalami gangguan mental, kebimbangan, trauma dan tekanan. Rohmiyati (2019) menyatakan bahawa terapi biblio adalah salah satu bentuk sokongan psikoterapi melalui bahan bacaan untuk membantu seseorang yang mengalami masalah peribadi. Terapi ini juga dapat melahirkan katarsis (kelegaan) dalam diri seseorang, supaya mereka mempunyai pandangan baru, dan boleh menjadi sumber tindak balas emosi dan empati (Weigand & Davis, 1994). Menurut Kushariyadi (2011), terapi biblio boleh dikelompokkan kepada empat (4) peringkat iaitu seperti berikut:

1. Peringkat intelek: Individu memperoleh pengetahuan tentang tingkah laku penyelesaian masalah mereka. Tambahan pula, individu akan menyedari bahawa terdapat banyak pilihan dalam menangani sesuatu masalah yang timbul.
2. Peringkat sosial: Membaca cerita atau cerita orang lain boleh menajamkan sensitiviti sosial seseorang.
3. Peringkat tingkah laku: Individu akan berupaya meningkatkan keyakinan diri untuk bercakap tentang isu yang sukar dibincangkan kerana perasaan takut, malu, dan bersalah.
4. Pada tahap emosi: Individu boleh terbawa-bawa dengan perasaan sendiri dan individu juga sedar tentang emosi yang dialami. Situasi ini merupakan 'jalan keluar' yang terbaik bagi individu untuk menyelesaikan masalah yang dialami.

1.1 Pernyataan masalah

Sebagai manusia, kita tidak lari dari perasaan sedih atau hiba (*grief*) terutama apabila menghadapi

kehilangan orang tersayang. *Grief* ini adalah tindak balas normal dan boleh berlaku sebagai tindak balas kepada kehilangan nyawa (*lost*), serta perubahan drastik terhadap rutin harian dan cara hidup yang biasanya membawa kita kepada keselesaan dan kestabilan. Antara reaksi *grief* yang biasa berlaku ialah sedih berpanjangan, dalam keadaan tidak percaya atau penafian, marah serta hilang selera makan dan tempoh tidur yang terjejas. Rasa hiba akibat dari kehilangan sesuatu ini bukan sahaja dapat memberi kesan kepada perasaan, bahkan akan memberi kesan kepada pemikiran seperti tidak rasional, hilang fokus, idea yang pelik sehingga wujud idea membunuh diri, persepsi seperti terimbas kembali dan halusinasi, tingkah laku yang agresif, dan biologi seperti insomnia, mimpi ngeri dan hilang selera makan (Hassan, 2014). Bukan itu sahaja, pekerjaan dan rutin harian juga akan terjejas jika tidak dapat meneruskan kehibaan tersebut (Smith & Segal, 2012). Misalnya terdapat satu kes di mana seorang ibu daripada kanak-kanak berumur 5 tahun yang rentung yang disyaki menjadi mangsa bunuh mengalami distres rentetan perpisahan dan kerinduan yang melampau hingga masih tercari-cari mangsa (Ponnusamy dan Shazli, 2010). Ini menunjukkan betapa sukarnya seseorang menghadapi sesuatu kehibaan dan kesannya kepada diri dan orang sekeliling. Penerimaan setiap orang terhadap jenis kehibaan yang dihadapi juga adalah berbeza bergantung kepada sikap dan kekuatan seseorang. Kekuatan dalaman dan luaran juga memainkan peranan dalam menghadapi kehibaan yang dilalui. Justeru, penghasilan terapi biblio SERAB ini diharapkan dapat membantu dalam memberi kesembuhan dan meredakan emosi diri seseorang yang mengalami isu tidak bahagia (*unhappiness*), kehibaan dan kehilangan.

1.2 Objektif

1) Solusi kepada isu hiba dan kehilangan (*grief and lost solution*)
2) Intervensi dalam sesi kaunseling (*homework intervention in counseling session*)
3) Kesembuhan dan Keredaan emosi diri (*catharsis and self-healing*)

2.0 BAHAN DAN KAEDAH

2.1 Penerangan Idea

Terapi biblio boleh dibahagikan kepada tiga elemen iaitu bahan pembacaan (buku, majalah, akhbar), Video dan Muzik dalam bentuk *podcast*. Dalam idea inovasi SERAB yang dikemukakan ini, aspek utama yang menjadi tumpuan ialah pembacaan dari buku. Oleh itu, idea inovasi buku terapi biblio untuk kepulihan diri atau *self-recovery book for bibliotherapy* (SERAB) adalah terapi serta penyembuhan diri melalui kaedah membaca buku tertentu mengikut segmen yang telah ditetapkan berasaskan kelegaan masalah psikologi yang dihadapi iaitu kehibaan dan kehilangan.

Fasa 1
- Kenal pasti masalah yang ingin dibantu iaitu sedih dan hiba (*grief & lost*)
- Kenali komponen kesejahteraan psikologi
- Kenal Pasti genre buku yang bersesuaian
- Intervensi kepada klien
- Ukuran Keberkesanan

Fasa 2
- Penerbitan Buku Antologi bersesuaian dengan tema terpilih
- Tema buku perkembangan kendiri untuk solusi masalah dihadapi
- Kepulihan kepada isu yang dikenalpasti

2.2 Keaslian

Terapi biblio adalah kaedah yang telah wujud sebagai satu bentuk terapi. Namun begitu masih belum ada pengklasifikasian mengikut keperluan psikologi manusia dalam mencapai katarsis dan kesembuhan diri dari tekanan rentetan isu tidak bahagia (*unhappiness*) serta kehibaan dan kehilangan (*grief & lost*). Oleh yang demikian, projek SERAB ini dilihat sebagai signifikan untuk mengatasi isu kehibaan dan kehilangan sesuatu yang disayangi dalam hidup.

3.0 HASIL DAN PERBINCANGAN

3.1 Praktis dan Kegunaan

Projek SERAB ini semestinya merupakan salah satu bentuk terapi yang praktikal dan sesuai untuk pelbagai peringkat umur kerana terapi ini memfokuskan kepada 2 fasa yang telah diterangkan sebelumnya. Dengan erti kata lain terapi ini dibentuk khas bersesuaian dengan seseorang sama ada dari peringkat remaja sehinggalah orang dewasa dan juga warga emas.

Pada dasarnya majoriti rakyat Malaysia tidak lagi mempunyai masalah buta huruf dan mereka juga sedar dan cakna mengenai kepentingan membaca. Oleh sebab itu, boleh dikatakan penggunaan SERAB ini juga sangat mudah dan santai kerana ianya lebih memfokuskan melalui pembacaan secara fizikal.

Meskipun kita tahu bahawa terapi biblio tidak mampu menyembuhkan masalah tekanan mental sepenuhnya, setidaknya ia mampu menangani serta mengurangkan kadar tekanan yang dialami oleh mereka yang mengalami permasalahan ini. Dengan pemilihan buku yang bersesuaian dan tepat dengan masalah yang dialami, ianya membantu pesakit berhadapan dengan perkara tersebut dan lebih memahami tekanan serta permasalahan yang mereka sedang alami dan secara tidak langsung membantu mereka untuk lebih cepat *move on* daripada kesedihan yang dirasai. Mereka yang gemar membaca sememangnya mempunyai jati diri yang lebih tinggi dan lebih mahir dalam menghadapi situasi-situasi sukar dalam kehidupan (Zul Azlin Razali, 2020).

Di dalam khutub khanah *"Medicines of the Soul"* karya Sang Raja Mesir purba, beliau mempercayai bahawa buku-buku itu adalah ubat rohani kepada manusia. Hal ini menggambarkan betapa mereka mengagumi dan mengangkat tinggi hasil sesebuah karya penulisan sejak zaman purba lagi. Di dalam satu kajian yang dilakukan oleh Rane-Szostak dan Herth pada tahun 1995 pula mendapati bahawa golongan warga tua yang membaca bahan bacaan *pleasure reading* ataupun karya fiksyen akan kurang merasa sunyi berbanding mereka melakukan aktiviti sosial yang lain.

Sebagaimana yang dikaitkan dengan fasa satu dalam projek SERAB ini, klien akan diminta berkongsi bagaimana buku tersebut telah membantu mereka mengendalikan serta meleraikan gejolak emosi yang dihadapi dengan baik. Perbincangan dalam kumpulan kecil tentang topik dan isu yang dibaca juga boleh memberikan kesan yang optimum dan lebih berkesan buat para klien. Dengan cara berkongsi bahan bacaan dengan ahli kumpulan yang lain, mereka akan lebih menghayati dan menikmati setiap topik yang dibaca. Meskipun, metodologi ini belum diarus-perdanakan dalam rawatan psikiatri, namun telah terdapat hasil kajian yang memberangsangkan oleh Pearcy (2016) dan Gualano (2017) yang menjadi asbab untuk kita tidak boleh memandang remeh tentang kaedah terapi melalui buku ini.

3.2 Impak

SERAB ini dilihat dapat memberi impak yang besar kepada masyarakat. Seperti kajian lepas yang menunjukkan membaca dapat memberi kesan kepada psikologi seseorang. Ini menunjukkan bahawa penghasilan buku ini juga dapat memberi impak kepada setiap masyarakat. SERAB yang dibangunkan

berdasarkan isu dan komponen kesejahteraan juga dilihat dapat dimanfaatkan oleh segenap lapisan masyarakat. Hal ini kerana, kebiasaannya masyarakat akan memilih untuk membaca buku yang berkaitan dengan perasaan yang sedang dialami. Terutamanya individu yang berhadapan isu hiba, sedih, tidak bahagia dan kehilangan. Individu-individu ini amat memerlukan sokongan sosial selepas kehilangan sesuatu dalam hidup. Dengan membaca SERAB, individu tersebut tidak akan merasakan bahawa dirinya keseorangan. Projek SERAB ini bukan sahaja dapat memberi manfaat kepada masyarakat Malaysia, bahkan dapat dimanfaatkan di tahap antarabangsa.

3.3. Nilai Komersial

Projek SERAB ini merupakan satu projek penghasilan buku untuk masalah tidak bahagia dan kesedihan ini berpotensi besar untuk diaplikasikan di dalam Malaysia serta di luar Malaysia kerana pengaplikasiaanya yang cukup mudah dan santai serta memfokuskan nilai-nilai penting yang ada dalam diri klien untuk perkembangan kendiri. Bahkan buku ini boleh dibuat dalam edisi bahasa melayu dan bahasa inggeris Bukan sahaja terapi ini dapat digunakan kepada klien yang mengalami kehilangan, sedih dan tidak bahagia tetapi juga dapat digunakan kepada klien yang mengalami trauma oleh kerana sifat terapi ini yang juga berbentuk *catharsis* dan *self-healing.*

3.4 Perbincangan

Projek SERAB terutamanya bagi buku melibatkan kepulihan diri (*self-help*) mempunyai kebolehan untuk menyampaikan pandangan kepada individu tentang pengalaman hidup, mengubah keadaan emosi, dan berpotensi mengubah cara individu berinteraksi dengan persekitaran. Kajian yang telah dijalankan oleh Mar et al. (2009), telah menunjukkan terdapat perkaitan antara membaca fiksyen naratif dengan peningkatan prestasi pada tugasan harian. Buku fiksyen meniru pengalaman sebenar dunia, dan oleh itu secara aktif melibatkan proses kognitif yang serupa dengan apa yang digunakan dalam dunia yang sebenar. Sebahagian daripada proses membaca fiksyen naratif melibatkan pemikiran, perasaan dan kepercayaan yang ada pada watak, dan bagaimana keadaan ini memotivasikan tingkah laku individu (Mar et al, 2006).

Mekanisme di mana bentuk terapi ini menggalakkan perubahan adalah berdasarkan kajian yang dijalankan oleh Caroline Shrodes (1950). Shrodes menyediakan teori rangka kerja melibatkan tiga peringkat yang dilalui oleh pembaca dalam terapi biblio melalui kajian deskriptifnya. Peringkat-peringkat ini terdiri daripada pengenalpastian, katarsis dan kesedaran. Dalam peringkat ini, pembaca pada mulanya membuat persamaan antara kehidupan mereka sendiri dengan jalan cerita, dan seterusnya membawa kepada pengalaman katarsis dan akhirnya mendapat pemahaman yang lebih tinggi berkaitan proses dalaman diri. Selain itu, kajian yang dijalankan oleh Smrita & Allan (2017) menunjukkan bahawa penggunaan puisi atau fiksyen dalam terapi juga bermanfaat untuk pesakit dengan gejala kemurungan, kebimbangan, atau mereka yang mengalami maladaptasi menghadapi diagnosis penyakit kanser.

4.0 KESIMPULAN

Projek SERAB merupakan salah satu kaedah yang berkesan dalam membantu proses adaptasi individu yang berdepan dengan tekanan, masalah kesedihan, tidak bahagia dalam kehidupan dan sebagainya. Ia merupakan salah satu bentuk amalan dan menyumbang kepada strategi daya tindak yang sangat efektif dalam berdepan dengan masalah.

KAPSUL SEJAHTERA: APLIKASI KATARSIS JIWA (AKAJI)

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1.0 PENGENALAN

Masalah dan belenggu tekanan perasaan merupakan tekanan hidup yang tidak pernah terlepas dari diri seseorang. Tekanan boleh dialami oleh setiap individu pada setiap peringkat umur. Seseorang akan bermotivasi untuk lebih berjaya jika tekanan pada peringkat rendah dan sederhana. Namun begitu, individu tidak bermotivasi dan berputus asa jika tekanan pada peringkat tinggi dan sukar beradaptasi (Diana et al., 2017, Rashid et al., 2020). Menjadi keutamaan kepada setiap individu untuk mempunyai pengetahuan tentang cara mengatasi tekanan hidup dan tidak hanya kepada diri sendiri tetapi juga kepada individu yang disayangi. Aplikasi Katarsis Jiwa ini mampu membantu dalam mengawal dan mengatasi tekanan perasaan yang dihadapi oleh seseorang. Definisi terapi dalam kehidupan lebih kepada kaedah membantu seseorang manakala kataris pula merupakan kelegaan, kesembuhan dan rungkaian emosi serta isu yang membelenggu. Kajian oleh Khairul Hamimah et al., (2014) menyatakan bahawa penerapan amalan kerohanian yang berlandaskan ajaran Islam merupakan salah satu alternatif di dalam mengurus psikologi manusia. Banyak perkara yang boleh menyumbang kepada katarsis jiwa seperti kemahiran mengawal kemarahan dan penyelesaian konflik, kemahiran berfikiran positif, kemahiran pengurusan masa, kemahiran penyelesaian masalah dan membuat keputusan, kemahiran mengawal emosi, teknik relaksasi dan kemahiran asertif.

1.1 Pernyataan masalah

Aplikasi Katarsis Jiwa (AKAJI) ini diutarakan dengan melihat pada senario masalah tekanan dan kecelaruan mental yang berada pada tahap yang membimbangkan dalam kalangan masyarakat; bukan sekadar di peringkat nasional, bahkan di peringkat global. Menurut Menteri Kesihatan Malaysia, Khairy Jamaluddin suatu kenyataan pada Oktober 2022 yang lalu menyatakan bahawa terdapat pola peningkatan sebanyak lima kali ganda telah direkodkan dalam laporan statistik individu yang mendapat sokongan Talian Bantuan Perkhidmatan Sokongan Psikososial (MHPSS) berbanding tahun 2020. Bahkan, dalam kenyataan tersebut juga, beliau sendiri tidak menafikan bahawa faktor utama yang menjejaskan kesejahteraan fizikal dan sosial individu adalah disebabkan oleh isu kesihatan mental yang membarah dalam masyarakat (Berita Utama, 10 Oktober 2022). Begitu juga di peringkat global, Pertubuhan Kesihatan Sedunia mencatatkan 1 daripada 8, iaitu hampir sebanyak 970 juta penduduk dunia menghidapi penyakit mental sejak awal tercetusnya pandemik COVID-19 (*World Health Organisation*, 2022).

Dalam wawasan kemakmuran bersama 2030, kerajaan ingin membina indikasi modal sosial dan perkembangannya antara lain menggariskan indeks kesejahteraan rakyat sebagai salah satu matlamat pelan teras strategik ini. Hal ini bagi melahirkan individu yang seimbang dari aspek jasmani, emosi dan rohani. Suhu kesihatan mental boleh mempengaruhi cara berfikir, tingkah laku dan perasaan seseorang. Tahap kesejahteraan mental mempengaruhi cara seseorang itu membuat keputusan dan pilihan dalam hidup, menyelesaikan masalah serta berinteraksi dengan orang lain. Sekiranya kesihatan mental terjejas, cara berfikir, emosi dan perlakuan seseorang itu akan berhadapan dengan suatu keadaan yang dipanggil maladaptasi. Justeru, bagi membangunkan wadah kesejahteraan jiwa, aplikasi

Kapsul Sejahtera: Aplikasi Katarsis Jiwa (AKAJI) ini dibina sebagai medium untuk memberi kelegaan emosi dan jiwa sekaligus meratakan keluk peningkatan masalah tekanan diri dan isu masalah mental dalam masyarakat.

1.2 Objektif

1) Mewujudkan Katarsis dan kelegaan emosi dalam diri individu
2) Mengurangkan tekanan dan emosi negatif yang dialami individu
3) Mencetuskan kebahagiaan diri

2.0 BAHAN DAN KAEDAH

2.1 Penerangan Idea

Kapsul Sejahtera: Aplikasi Katarsis Jiwa (AKAJI) adalah satu inovasi yang boleh menjadi terapi kepada kesejahteraan hidup manusia serta memperkasakan diri seseorang dalam mengurus tekanan dengan lebih berkesan demi meningkatkan daya tahan, produktiviti kerja dan kesejahteraan individu, keluarga dan organisasi. Oleh itu, matlamat AKAJI ialah untuk memberi panduan kepada individu mengurus tekanan demi kesejahteraan diri serta meningkatkan daya ketahanan diri.

Bahagian 1 -Ujian Kebahagiaan

Aplikasi ini juga dilengkapi instrumen bagi mengukur tahap kebahagiaan pengguna dengan menjawab beberapa soalan ringkas dan mudah difahami. Pengguna seterusnya akan diberikan penyelesaian yang dapat dilakukan bagi mengurangkan tekanan yang dihadapi yang dapat dilakukan setiap hari. Pengguna juga dapat melakukan ukuran ini secara berkala sehingga masalah tekanan tersebut dapat diselesaikan.

Di dalam masa yang sama, aplikasi ini juga mempunyai senarai semak aktiviti kesihatan mental yang telah dan belum dilakukan oleh pengguna. Pengguna juga boleh memberikan manfaat kepada pengguna lain dengan fungsi perkongsian yang mana, pengguna dapat berkongsi kata-kata motivasi dari aplikasi ini kepada masyarakat melalui media sosial.

Bahagian 2 - Pengambilan Kapsul

1) Pengkajian tema aspek psikologi dan katarsis
2) Senarai kata-kata motivasi terpilih
3) Sehari 1 kapsul sejahtera (menerusi aplikasi)
4) Kata motivasi disesuaikan dengan isu tekanan dan pembinaan kekuatan diri
5) Kata-kata motivasi dimasukkan dalam aplikasi yang boleh mengeluarkan 1 kata bagi setiap hari
6) Pengguna boleh akses kata motivasi setiap hari (baru) dan juga yang terdahulu
7) Penghayatan terhadap kata-kata motivasi
8) Refleksi diri dalam kapsul

2.2 Keaslian

Kapsul Sejahtera: Aplikasi Katarsis Jiwa (AKAJI) ini merupakan aplikasi yang mempunyai keaslian tersendiri. Semestinya terdapat banyak aplikasi yang menggunakan kata-kata motivasi yang telah dihasilkan oleh pelbagai pihak, akan tetapi aplikasi ini menggunakan kata motivasi yang disesuaikan dengan isu tekanan dan pembinaan kekuatan diri dan aplikasi ini boleh mengeluarkan satu kata bagi setiap hari dalam bentuk kapsul. Bahkan AKAJI ini disiapkan dengan dua bahagian iaitu bahagian 1 untuk klien memantau tahap kebahagiaan dan bahagian 2 klien boleh mengambil kapsul yang

disediakan sebagai ‘ubat’ psikologi menguatkan pertahanan dalaman diri klien.

3.0 HASIL DAN PERBINCANGAN

3.1 Praktis dan Kegunaan

Secara praktis penelitian ini dapat memberi manfaat seperti yang berikut:

1. Manfaat kepada pengguna

Kapsul Sejahtera: Aplikasi Katarsis Jiwa (AKAJI) menjadikan penggunanya sebagai penanda aras kepada keberhasilan manfaat aplikasi ini, justeru pengguna akan dapat meningkatkan kesedaran mereka tentang kepentingan menjaga kesihatan mental dalam memastikan rutin kehidupan tidak terjejas dengan masalah yang terbelenggu dapat diringankan. Akhirnya klien dapat menjalani hidup dengan sebaiknya. Kesannya, klien akan dapat menjalani kehidupan mereka dengan tenang dengan adanya gelombang positif yang baik di sekeliling mereka.

Selain itu, kegunaan utama yang akan terhasil daripada penciptaan idea ini adalah dapat mengurangkan keluk yang membimbangkan mengenai masalah mental dalam kalangan masyarakat. Masyarakat dapat mencapai kelegaan emosi dengan mudah tanpa kos yang tinggi

2. Manfaat kepada Organisasi dan Institusi

AKAJI dapat memberi manfaat dari sudut mengurangkan tekanan staf di tempat kerja yang berhadapan dengan pelbagai tekanan. Bahkan semasa individu menghadapi kuarantin (isu COVID- 19) atau masalah kesihatan yang lain, AKAJI dapat menjadi peneman yang memberi sokongan kepada aspek psikologi mereka. Selain itu, Kapsul Sejahtera: Aplikasi Katarsis Jiwa (AKAJI) merupakan satu medium yang terbaik untuk membantu institusi kesihatan bagi mengurangkan kadar pesakit berkaitan masalah mental dalam negara dan kos pembiayaan rawatannya serta membantu meningkatkan indeks kesejahteraan masyarakat setempat di seluruh negara.

3.2 Impak

Impak utama AKAJI adalah dari aspek kesejahteraan komuniti di mana aplikasi ini boleh disebarluaskan penggunaanya kepada seluruh ahli masyarakat. Siri berbeza dengan versi pelbagai bahasa atau siapan untuk pengguna Islam dan bukan Islam juga boleh dibangunkan. Aplikasi ini juga dapat memberi impak positif dalam mengurangkan tekanan dalam masyarakat dengan kata-kata positif yang disediakan. Hal ini amat penting terutamanya bagi masyarakat yang tidak suka mendapatkan pertolongan orang lain atau meluahkan masalah kepada sesiapa.

Dengan membaca kata-kata yang disediakan didalam kapsul AKAJI, ahli masyarakat tersebut dapat membantu diri sendiri terlebih dahulu sebelum meminta pertolongan orang lain. Selain membantu masyarakat yang mempunyai masalah, aplikasi ini akan mencetus rasa bahagia dalam diri sesiapa sahaja yang membacanya. Ini menunjukkan bahawa aplikasi ini bukan sahaja dicipta untuk membantu masyarakat yang mempunyai masalah, bahkan aplikasi ini dapat digunakan oleh setiap individu tanpa mengira tahap kesihatan mental yang dialami. Secara umumnya, kesejahteraan diri dapat diperolehi dengan bantuan aplikasi ini.

3.3 Nilai Komersial

Kapsul Sejahtera: Aplikasi Katarsis Jiwa (AKAJI) menampilkan nilai keistimewaannya yang tersendiri dari aspek utiliti bagi memastikan para penggunanya dapat menikmati manfaat yang dibawa oleh

aplikasi ini, di samping dapat dikongsi bersama bagi memastikan kelestarian kesejahteraan modal insan sejagat. Sebagai indikator utama dalam menghasilkan nilai utiliti tersebut, AKAJI dihasilkan menepati ciri-ciri komponen kepuasan pengguna terhadap produk menerusi Seth, Newman & Gross, (1991) di dalam buku Freddy Rangkuti, (2006) yang bertajuk *Measuring Customer Satisfaction*. Nilai tersebut adalah seperti yang berikut:

1. **Nilai fungsi:** Kapsul Sejahtera: Aplikasi Katarsis Jiwa dilengkapi dengan kompilasi kata motivasi yang diterapkan dengan elemen pembinaan kekuatan sahsiah, rohani & emosi kepada penggunanya secara harian, serta melampirkan manual panduan kepada pengguna ke arah kehidupan mental yang stabil.
2. **Nilai sosial:** Kapsul Sejahtera: Aplikasi Katarsis Jiwa dimuatkan dengan pengisian yang bersifat universal, mesra pengguna serta sesuai digunapakai tanpa mengira latar belakang umur, lapisan agama dan masyarakat.
3. **Nilai emosi:** Kapsul Sejahtera: Aplikasi Katarsis Jiwa mampu menyeimbangkan dan mendatangkan ketenangan kepada emosi penggunanya dengan penyelarasan kata-kata yang sesuai bagi meningkatkan perkembangan diri pengguna.
4. **Nilai epistem:** Kapsul Sejahtera: Aplikasi Katarsis Jiwa mampu meluaskan kesedaran dan pengetahuan pengguna terhadap kepentingan katarsis sebagai satu pendekatan bagi merawat jiwa dan emosi diri ke arah hidup yang sejahtera.

5. **Nilai keadaan:** Kapsul Sejahtera: Aplikasi Katarsis Jiwa merupakan aplikasi yang tepat untuk pilihan pengguna yang menghidapi masalah kecelaruan & tekanan dalam jiwa serta meredakan ketidakstabilan emosi pengguna.

3.4 Perbincangan

Perasaan takut, risau, bimbang dan stress adalah reaksi normal dalam manusia menghadapi ancaman apatah lagi dalam berhadapan dengan dunia digital selepas dunia diserang oleh pandemik COVID-19. Setiap individu mempunyai cara yang berbeza sewaktu berhadapan dengan masalah atau perkara yang tertekan dalam hidup mereka. Di antara faktor yang mempengaruhi cara tindakbalas individu terhadap tekanan bergantung kepada latar belakang, sokongan sosial yang wujud, keadaan kewangan, latar belakang kesihatan dan emosi serta faktor komuniti (*Centres of Disease Control and Prevention atau CDC*, 2020). Cara individu berhadapan dengan sesuatu perkara buruk dalam hidup mereka untuk mengurangkan rasa kesakitan, penderitaan dan tekanan adalah disebut strategi daya tindak atau *coping strategy* (de Ridder et al., 2012). Terdapat pelbagai bentuk strategi daya tindak yang boleh dilakukan termasuklah dalam aspek pengurusan masa (membuat jadual harian di rumah untuk pengurusan diri, keluarga dan kerja, menyediakan pelan tindakan kecemasan dan kontingensi barangan dan keperluan asas serta menyediakan ruang untuk relaksasi diri dan minda (Abdul Rashid, 2020). Justeru, aplikasi Katarsis jiwa ini merupakan salah satu bentuk strategi daya tindak yang boleh digunakan oleh individu dalam menyediakan ruang untuk relaksasi diri dan minda.

4.0 KESIMPULAN

Kemurungan serta isu kesihatan mental yang lain merupakan isu kesihatan global yang menjadi polemik masa kini. Aspek kesihatan mental ini sering kali diabaikan dan dipandang enteng oleh masyarakat kita kerana ia biasanya tidak terzahir secara fizikal. Namun, apabila masalah ini berlaku secara terus menerus dalam tempoh masa yang lama, ia semestinya akan memberikan kesan terhadap kesihatan fizikal. Justeru, pembinaan aplikasi ini dapat menjadi solusi kepada tekanan yang disembunyikan. Secara perlahan, klien akan lebih terbuka dan memahami sesuatu isu yang dihadapi menerusi perspektif yang baru.

MODEL [PUSAKA]: KHIDMAT MASYARAKAT KLINIK PUSAKA

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1.0 PENGENALAN

Penubuhan klinik pusaka bagi penyebaran hukum faraid bertujuan untuk merealisasikan kemaslahatan manusia sama ada melibatkan individu, keluarga atau masyarakat. Kedangkalan pemikiran manusia mungkin tidak mengetahui secara mendalam berkaitan perkara di sebalik pensyariatan faraid mahupun perinciannya yang telah ditetapkan oleh wahyu Ilahi. Justeru, penyampaian maklumat yang tepat dan betul adalah sangat signifikan bagi memastikan kesedaran celik faraid berlaku dalam setiap keluarga Muslim.

Pengenalan kepada model [PUSAKA] merupakan satu inovasi dalam mengendalikan konsultasi kes pusaka dan seterusnya menjadi medium komunikasi dan kaunseling pusaka kepada masyarakat. Komunikasi dan kaunseling yang sering dikaitkan dengan percakapan, perbualan mahupun penjelasan maklumat adalah penting dalam agihan faraid kerana peraturan tersebut mempunyai tatacara, syarat dan hukum yang harus dipatuhi oleh setiap waris seperti maklumat berkaitan formula dan waris yang berhak untuk memperolehi harta pusaka si mati.

2.0 PERINCIAN INOVASI

2.1 Isu dan Permasalahan

Usaha untuk mewujudkan model ini adalah kerana tiada garis panduan khusus untuk khidmat masyarakat berkaitan klinik pusaka yang dijalankan secara fizikal sebelum era pandemik dan secara e-konsultasi sepanjang era pandemik. Klinik pusaka yang merupakan sebahagian unit di Klinik Guaman Fakulti Syariah dan Undang-undang (FSU) USIM perlu memberi sesi konsultasi yang sistematik bagi setiap kes pusaka yang didaftarkan.

Sepanjang sesi konsultasi, klien tidak ada idea awal bagaimana sesuatu konsultasi pusaka dijalankan iaitu sejauhmana manfaat konsultasi percuma yang diperolehi. Dengan adanya model ini, klien dapat dipandu untuk memperolehi maklumat pusaka dengan baik dan penggerak konsultasi juga dapat memastikan perjalanan lakukan dengan lancar.

Selain daripada itu, pelajar yang dilantik sebagai ahli jawatankuasa klinik guaman FSU secara amnya dan klinik pusaka khususnya silih bertukar ganti. Pembinaan model yang ada menjadi sebahagian panduan dalam mempersiapkan diri sebagai bakal peguam muda atau perunding pusaka.

2.2 Objektif Inovasi

Pembangunan model [PUSAKA] bertujuan untuk mencapai objektif berikut:

i. Menyediakan garis panduan yang sistematik bagi urusan konsultasi pusaka.
ii. Menjadi rujukan yang mengandungi maklumat asas guaman dan khidmat nasihat pusaka agar dunia perundangan terasa lebih dekat dan mesra masyarakat.

iii. Melatih pelajar untuk terlibat secara langsung dengan industri perundingan pusaka secara khusus dan sebagai peguam secara amnya.

2.3 Kaedah Pembentukan Model Inovasi [PUSAKA]

Pembentukan model inovasi [PUSAKA] ini menggunakan dua kaedah yang Panjang iaitu pendekatan penulisan faraid dan pembangunan saluran *youtube* "celik faraid". Kaedah pertama memfokuskan kepada usaha mengumpul, menulis dan menerbitkan maklumat berkaitan harta pusaka dan faraid sama ada dalam bentuk buku, artikel jurnal atau penulisan popular.

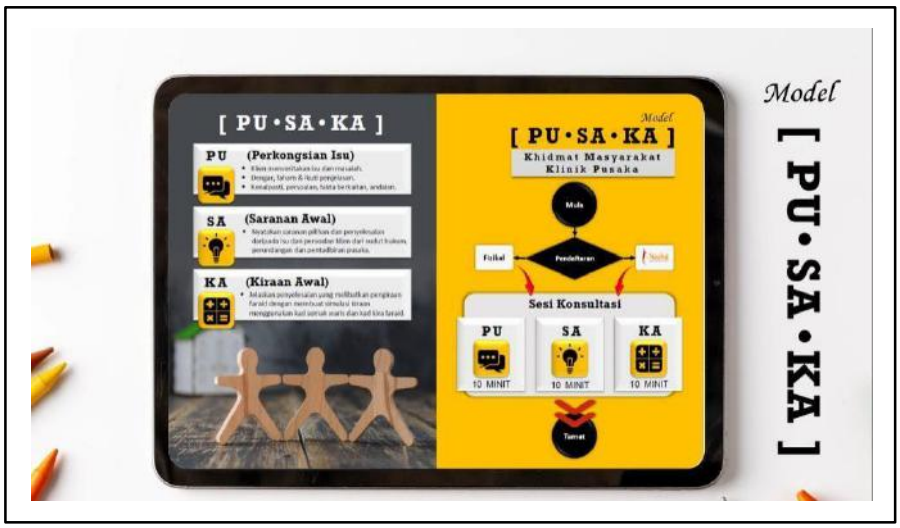
Rajah 25.1 Contoh-contoh Penerbitan Pusaka

Manakala kaedah kedua pula ialah penyampaian maklumat pusaka dan faraid dalam bentuk santai melalui saluran youtube. Semua video tentang ilmu faraid dipaparkan untuk paparan umum melalui alamat:
[https://www.youtube.com/channel/UCHE6IAWL7QwMGm4rlwstX8Q/videos?view_as=subscriber] atau melalui carian kata kunci "celik faraid" atau nama penggubal video "zahari musa". Saluran "Celik Faraid" merupakan projek rintis di YouTube yang hanya memaparkan video berkaitan ilmu faraid dan harta pusaka Islam sepenuhnya.

Rajah 25.2 Saluran Celik Faraid

Kedua-dua kaedah ini menjadi asas penting kepada pembentukan model inovasi yang dibangunkan. Keduanya menjadi rujukan kepada penggerak konsultasi pusaka jika berdepan dengan sebarang kes dan pertanyaan semasa konsultasi dan khidmat masyarakat yang dijalankan.

2.4 Kerangka Model Inovasi [PUSAKA]



Rajah 25.3 Kerangka Model Inovasi [PUSAKA]

2.5 Sumbangan Projek Model Inovasi [PUSAKA]

Khidmat masyarakat klinik pusaka melalui sesi konsultasi lebih efisyen kerana kerangka khidmat nasihat pusaka lebih sistematik.

3.0 PENUTUP

Projek inovasi model [PUSAKA] merupakan kesinambungan berterusan dalam pengendalian konsultasi yang dijalankan oleh Klinik Pusaka FSU. Perkongsian khidmat masyarakat dalam dijalankan secara fizikal mahupun secara maya mengikut acuan yang USIM yang mementingkan integrasi ilmu naqli dan aqli.

GUARDYS SAFETY APPS FOR TEENS (UJIANSARINGAN.COM)

Norsaleha Mohd Salleh[1], Norbahiah Misran[2] Juzlinda Ghazali[3], Noor Hafizah Mohd Haridi[4],Zetty Nurzuliana Rashed[5], Nabilah Huda Zaim[6] dan Kamal Azmi Abd. Rahman[7]

[1,3,4,5]Universiti Islam Selangor (UIS), [2]Universiti Kebangsaan Malaysia, [6]Universiti Teknologi Mara, [7]Universiti Sains Islam Malaysia.

1.0 PENGENALAN

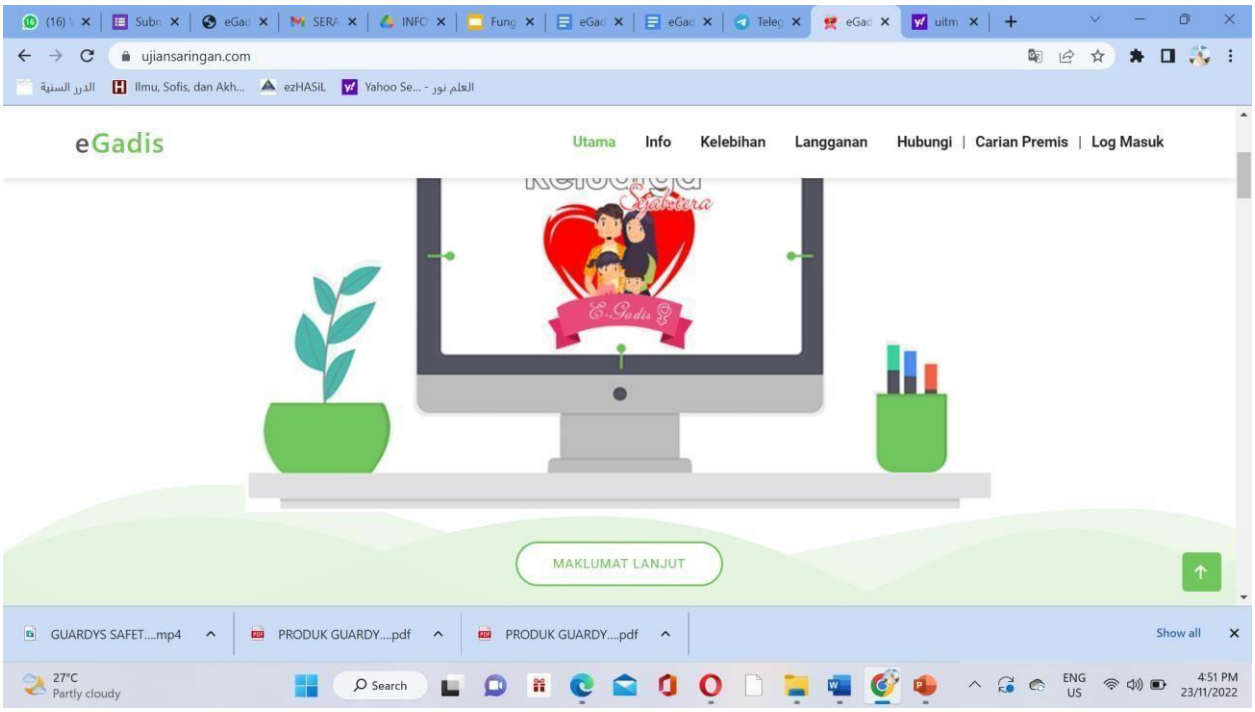
Produk ini berkaitan pembangunan laman web Guardys safety apps for teens melalui ujiansaringan.com. Ia dibangunkan untuk membantu guru, kaunselor, doktor dan juga mereka yang berautoriti bagi mengenalpasti masalah gangguan seksual yang berlaku dalam kalangan remaja perempuan di rumah. Produk ini disediakan untuk kegunaan pentadbir sekolah dan hospital serta guru dan pegawai kesihatan. Ia boleh diakses melalui telefon dan komputer. Pengguna boleh membuat pilihan dalam langganan dan mengisi butiran maklumat sekolah atau hospital dan butiran pengguna sendiri. Pengguna juga boleh memasukkan nama- nama pelajar atau pesakit yang berkaitan. Pelajar atau pesakit yang berkaitan boleh mengisi soal selidik yang disediakan setelah mendapat kod akses yang telah diberikan oleh admin. Admin boleh melihat status keselamatan pelajar atau pesakit, dan menyimpan data tersebut sebagai rekod. Produk ini dahulu dikenali sebagai aplikasi mobil e-Gadis dengan nombor hak cipta LY2019005625. Ia telah dijenamakan semula dengan nama Guardys Safety Apps for Teens dengan cap dagangan bernombor TM2022030479. Produk ini terhasil daripada Geran Penyelidikan GPPSTI, Negeri Selangor di bawah tajuk Indikator Keluarga Sejahtera dalam Keluarga Melayu di Negeri Selangor.

2.0 PENERANGAN PRODUK

Produk ini bernama Guardys Safety Apps for Teens. Ia adalah sebuah laman web ujiansaringan.com. Ia mengandungi 8 bahagian iaitu utama, info, kelebihan, langganan, hubungi, cari premis, log masuk dan maklumat lanjut. Di bahagian utama mengandungi ucapan selamat datang ke laman web Guardys. Bahagian info pula mengandungi informasi tentang ujiansaringan.com. Bahagian kelebihan pula mengandungi keistimewaan sistem iaitu reka bentuk kreatif, mudah digunakan, langganan percuma dan simpanan data. Bahagian langganan mengandungi 3 pilihan kepada user iaitu basic, standard dan premium. Bahagian hubungi pula mengandungi alamat premis dan juga ruang pertanyaan masalah dan cadangan untuk dihantar kepada admin. Carian premis pula adalah mengandungi jenis sekolah dan hospital yang mendaftar dengan ujiansaringan.com. Manakala bahagian log masuk akan digunakan oleh user/ admin untuk memasuki laman web bagi mendaftar, menambah pelajar atau pesakit. Maklumat lanjut boleh diperolehi melalui Apple Store, Google PlayStore dan website. Laman web ini juga dibekalkan dengan video penerangan e-Gadis dan testimoni pengguna.

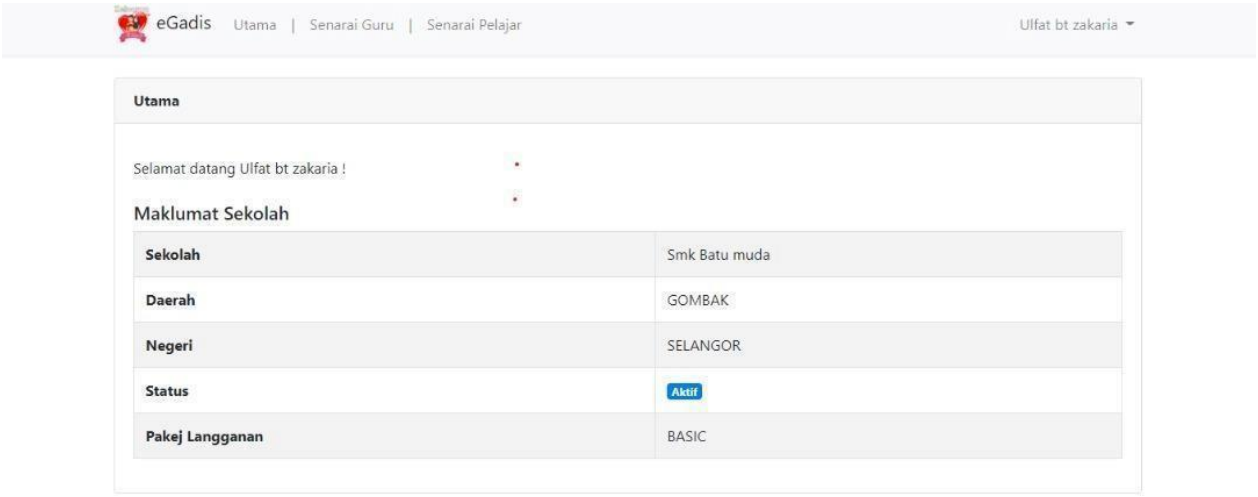
3.0 HASIL PRODUK

Ini adalah laman sesawang ujiansaringan.com Guardys Safety Apps for Teens. Pengguna boleh terus pergi ke bahagian langganan untuk melanggan dan meneruskan proses ujian.



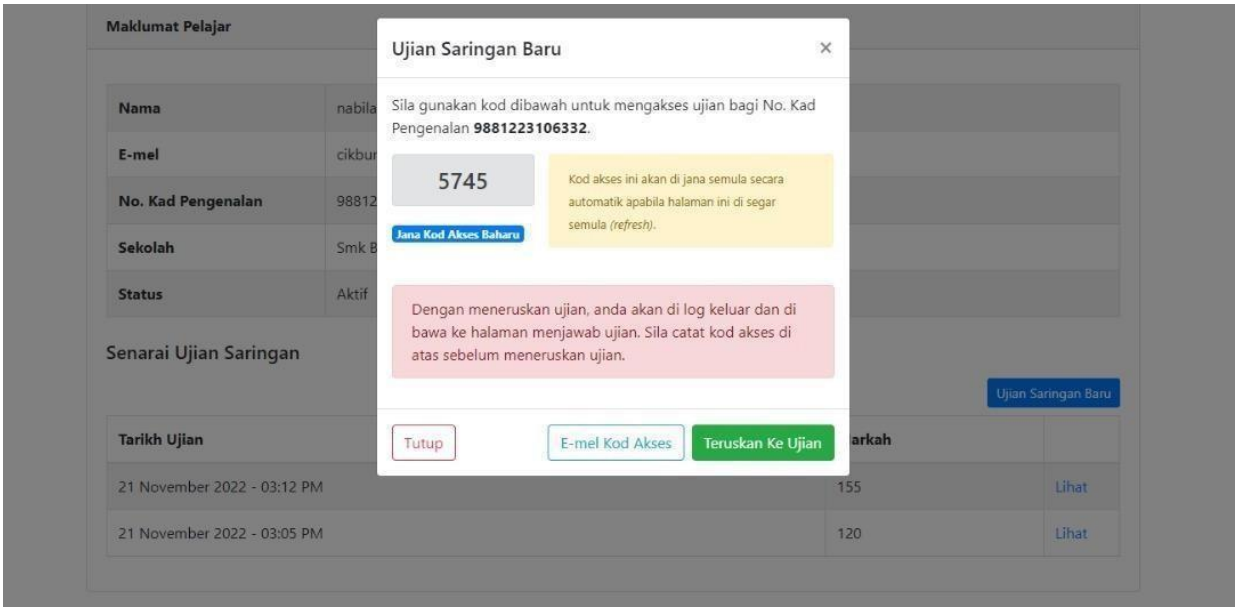
Rajah 26.1 Laman sesawang ujiansaringan.com

Pengguna perlu mengisi maklumat sekolah dan peribadi sebelum mendapat kebenaran menjadi admin.



Rajah 26.2 Maklumat yang perlu diisi oleh pengguna

Ini adalah kod akses yang akan dihantar kepada email pelajar bagi mengisi ujian saringan sehingga selesai.



Rajah 26.3 Kod akses yang akan diberikan oleh admin kepada pelajar atau pesakit

Pelajar akan mengisi ujian saringan dan akan mendapat keputusan status keselamatan berdasarkan kepada markah yang diperoleh. Makin tinggi markah yang diperoleh makin berisiko kepada pelajar. Skor selamat bagi pelajar ialah 89 ke bawah. Skor berisiko ialah 101 – 120, skor tidak selamat adalah 120 – 150 dan skor amat tidak selamat adalah 150 ke atas.

Rajah 26.4 Salah satu keputusan hasil ujian saringan yang di isi oleh pelajar

4.0 KESIMPULAN

Produk ini telah didaftarkan dengan Cap Dagangan Kelas 35 dengan No Pendaftaran TM2022030479. Semuga produk ini boleh membantu ramai guru dan pegawai kesihatan bagi mengenalpasti masalah pelajar dan pesakit masing-masing yang mengalami gangguan seksual di rumah.

PENGHARGAAN

Penghargaan kepada Kerajaan Negeri Selangor yang telah menganugerahkan Geran sebanyak RM23100 untuk Program Pembudayaan Inovasi bagi Pengkomersialan Inovasi Aplikasi Mobil eGadis Tahun 2021 dengan Kerjasama Jawatankuasa Tetap Pembudayaan Inovasi Negeri Selangor dan Universiti Islam Selangor.

eSTiK-I

Mohd Norfaeezwan bin Buang[1] & Ninie Amira binti Drahim[2]

[1,2] Politeknik Mukah, Sarawak

1.0 PENGENALAN

Kursus MPU23052 Sains, Teknologi dan Kejuruteraan dalam Islam merupakan antara satu kursus mata pelajaran umum yang ditawarkan kepada pelajar dalam bidang kejuruteraan di Politeknik Malaysia. Pelajar yang mengambil kursus ini kebanyakannya sukar memahami topik yang disampaikan oleh pensyarah yang masih menggunakan teknik tradisional. Inovasi STKI WIX adalah aplikasi pendidikan yang dibangunkan untuk para pelajar yang mendaftar kursus MPU23052 di Politeknik. Perisian inovasi ini dapat membantu para pelajar menghuraikan topik yang dibincangkan kerana ia dibantu oleh nota-nota berbentuk grafik yang menarik, efektif dan lebih interaktif. Ini adalah kerana ia dihasilkan daripada gabungan beberapa elemen interaktif seperti komik, peta i-Think dan penggunaan warna-warna yang menarik. Selain itu, eSTKi-I juga mengandungi video-video penerangan berkenaan topik yang terpilih. Paparan inovasi ini lebih mesra pengguna kerana ia menggunakan paparan telefon pintar dan boleh juga menggunakan paparan komputer bagi mereka yang menggunakan peranti seperti komputer riba. Kaedah penyampaian pendidikan pada masa kini berbeza dengan kaedah tradisional seperti "*chalk and talk*" dilihat tidak lagi relevan dan kurang menarik minat para pelajar generasi kini. Oleh itu, inovasi ini menggalak pembelajaran kendiri para pelajar atau pembelajaran tidak segerak dijalankan.

2.0 KAEDAH PELAKSANAAN INOVASI

Proses pelaksanaan inovasi ini dijalankan secara berperingkat melalui beberapa fasa. Fasa pertama, penulis menyenaraikan topik yang terkandung dalam kursus MPU23052. Topik-topik ini dibahagikan kepada dua untuk penyediaan bahan. Peringkat kedua adalah peringkat penyediaan bahan berbentuk nota bacaan. Peringkat ini penulis bersama menyediakan nota-nota huraian topik perbincangan. Nota-nota yang disediakan adalah ringkasan daripada kandungan kursus sebagai rujukan para pelajar bagi memahami topik. Nota rujukan kursus juga dibangun menggunakan pelbagai medium termasuk video interaktif penerangan topik. Video tersebut yang dihasilkan menggunakan aplikasi *powtoon* telah memudahkan pelajar memahami sesuatu tajuk yang dirasakan agak sukar untuk difahami. Video ini juga dibangun mengambil suasana kehidupan di kampus politeknik sebagai latar belakang video Nota-nota ini dapat memudahkan para pelajar membuat pembacaan awal sebelum perbincangan bersama pensyarah yang mengajar.

Fasa seterusnya adalah menyusun atur reka bentuk laman web. Penulis membuat pembahagian untuk menyusun atur reka bentuk dalaman bagi setiap topik perbincangan. Reka bentuk adalah berdasarkan kandungan kursus itu sendiri dengan mengambil kira konsep *mobile friendly* bagi menambah minat para pengguna untuk membuat pembacaan.

Setelah susunan dan reka bentuk diatur, penulis telah membuat uji lari penggunaan eSTiK-I kepada pelajar yang mengambil kursus MPU23052 di Politeknik Mukah. Uji lari ini dijalankan bertujuan mengenal pasti tahap kesukaran menggunakan inovasi tersebut. Proses penambahbaikan dari segi susun atur dan reka bentuk dilakukan selepas uji lari dijalankan. Seterusnya penulis telah memohon untuk pendaftaran hak cipta melalui Perbadanan Harta Intelek Malaysia.

2.1 Perbezaan Antara Perkara/Proses Sebelum dengan Sekarang.

SEKARANG

Sebelum pelaksanaan inovasi	Selepas pelaksanaan inovasi
 **Buku modul yang menjadi rujukan utama para pelajar Politeknik Mukah**	 **Nota topik di dalam bentuk digital menggunakan keratan komik dan bentuk-bentuk lain.**
 **Latihan pengukuhan menggunakan kaedah konvensional**	 **Latihan pengukuhan dan penilaian formatif menggunakan kaedah digital iaitu quizziz. Pelajar boleh diberi secara live atau secara assignment untuk di jawab di kolej kediaman sebagai kaedah tidak segerak.**
 Pelajar mengulangkaji menggunakan buku modul	 Pelajar boleh mengulangkaji dan mendapatkan nota serta latihan hanya menggunakan telefon bimbit.

Rajah 27.1 Perbezaan sebelum proses dan sekarang

3.0 KESIMPULAN

Berdsarkan hasil dapatan kajian menunjukkan pelajar bersetuju bahawa hasil inovasi ini membantu dan memberi kesan terhadap pembelajaran mereka. Dengan hasil kajian tersebut diharap penggunaan eSTiK-I dan teknologi lain dalam proses pengajaran dan pembelajaran dapat diperluas. Justeru semua pihak terutama warga pendidik perlu menguasai penggunaan teknologi demi mendepani arus perubahan dalam dunia pendidikan. Pendidik perlu berusaha mewujudkan persekitaran pembelajaran abad ke-21 dalam usaha menarik minat para pelajar mendalami topik pembelajaran. Ia secara tidak langsung membuka ruang dan peluang kepada pensyarah untuk menerokai idea baharu dalam menambah baik serta mewujudkan persekitaran pembelajaran yang lebih kondusif (Lay Ah Nam 2017).

CE-BME UNTUK STRATEGI DAYA TINDAK KANAK-KANAK DAN REMAJA
(CE-BME: CS FOR CHILDREN AND ADOLESCENTS)

Maznah Ibrahim[1] & Azizah Abdullah[2]

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1.0 PENGENALAN

Masalah kesihatan mental pada masa kini bukan sahaja dialami oleh orang dewasa malahan golongan lebih muda lagi iaitu kanak-kanak dan remaja, dengan 10% dari kanak-kanak dan remaja mengalami gangguan kesihatan mental (who,2021). Malahan di Malaysia sendiri, dari Laporan Kajian Tinjauan Kesihatan dan Morbiditi Kebangsaan; *National Health and Morbidity Survey* (NHMS) 2017 mendapati 1 dalam 5 remaja di Malaysia mengalami kemurungan, 2 dalam 5 mengalami keresahan dan 1 dalam 10 mengalami tekanan (Institut Kesihatan Umum, 2020).Susulan itu, NHMS 2019 yang melibatkan kanak-kanak dan remaja berusia 5-15 tahun pula mendapati seramai 424,000 (7.9%) atau 1 dalam 13 kanak-kanak dan remaja ini mengalami masalah kesihatan mental dengan kelompok usia yang lebih bergejala; usia 10-15 tahun, perempuan dan luar bandar. Masalah utama mereka ialah berkaitan interaksi dengan rakan sebaya (42.9%), masalah tingkah laku (15.9%), masalah emosi (8.3%) dan masalah hiperaktif (2.3%) (Institut Kesihatan Umum KKM, 2017).
Apabila diperhatikan lebih mendalam, terdapat kesan berpanjangan bagi pengalaman negatif sewaktu zaman kanak-kanak. Kajian tentang pengalaman awal kanak-kanak dan kesan berbalik kepada kehidupan orang dewasa, ACEs (*Adverse Childhood Experiences*) telah membuktikan bahawa pengurangan pengalaman tekanan dan trauma awal kanak-kanak mampu mengurangkan sehingga 44.1% kes kemurungan orang dewasa, dan permasalahan kesihatan fizikal yang lain (Merrick et al., 2019). Ia disahkan melalui satu kajian berskala besar ke atas 144 017 ribu orang dewasa dari 25 buah negara bagi perkaitan antara pengalaman berbalik awal kanak-kanak, ACEs dan kesannya semasa dewasa (Merrick et al., 2019). Untuk itu, keperluan terapi yang berkesan sewaktu fasa cabaran sedang dilalui oleh kanak-kanak dan remaja amatlah penting dititikberatkan agar aspek pencegahan kepada penyakit mental dapat dilakukan dengan lebih awal. Maka pendekatan alternatif melalui terapi yang melibatkan elemen kreatif secara berkesan sememangnya akan membantu para terapis yang melakukan rawatan berkesan kepada kanak-kanak dan remaja ini (Gladding, 2016; Pearson & Wilson, 2008; Sherman, 2015; Maznah & Ruhana, 2013).

2.0 BAHAN DAN KAEDAH

2.1 Bahan

Alatan seni '*Body outline, emotions and physical health'* merupakan satu alatan lakaran badan-emosi yang telah mula digunakan di *setting* KKM semenjak tahun 2013 (Maznah & Ruhana, 2013). Alatan ini menggunakan sehelai kertas dengan lakaran badan, krayon dan lima langkah mudah yang dituruti oleh para terapis kesihatan mental untuk klien mereka dari kanak-kanak sehingga dewasa. Alatan ini kemudiannya dilakukan kajian di peringkat doktor falsafah pada tahun 2019 dan ditambah baik proses penggunaannya, dan diberi nama *'Creative Expressive-Bodily Maps of Emotions'* (CE-BME) bersama konsep asas, prinsip dan teori yang lebih kukuh [9-10].

2.2 Kaedah

Para peserta kajian terdiri daripada terapis kesihatan mental KKM yang telah menjalani satu latihan

intensif pada November 2020. Setelah itu, 18 terapis telah menjalankan sesi intervensi bersama kanak-kanak dan remaja (usia 7 hingga 19 tahun) yang dirujuk sewaktu tempoh Perintah Kawalan Pergerakan (PKP). Sesi temubual separa berstruktur secara atas talian dilakukan menggunakan protokol temubual yang telah dinilai oleh 3 orang pakar bidang. Para peserta terapis ini berkongsi 20 kes kanak-kanak dan remaja yang diaplikasikan alatan ini di dalam sesi intervensi mereka (Disember sehingga Mei 2021). Hasil temubual ini dirakam, dilakukan transkripsi dan diperiksa semula oleh para peserta kajian (terapis kesihatan mental). Ia kemudian dianalisis menggunakan kaedah analisis konten bagi dokumen CE-BME. Hasil analisis mendapati komponen strategi daya tindak adalah unik bagi setiap kanak-kanak dan remaja ini menerusi pemetaan 4 emosi yang difokuskan di dalam panduan aplikasi CE-BME tersebut.

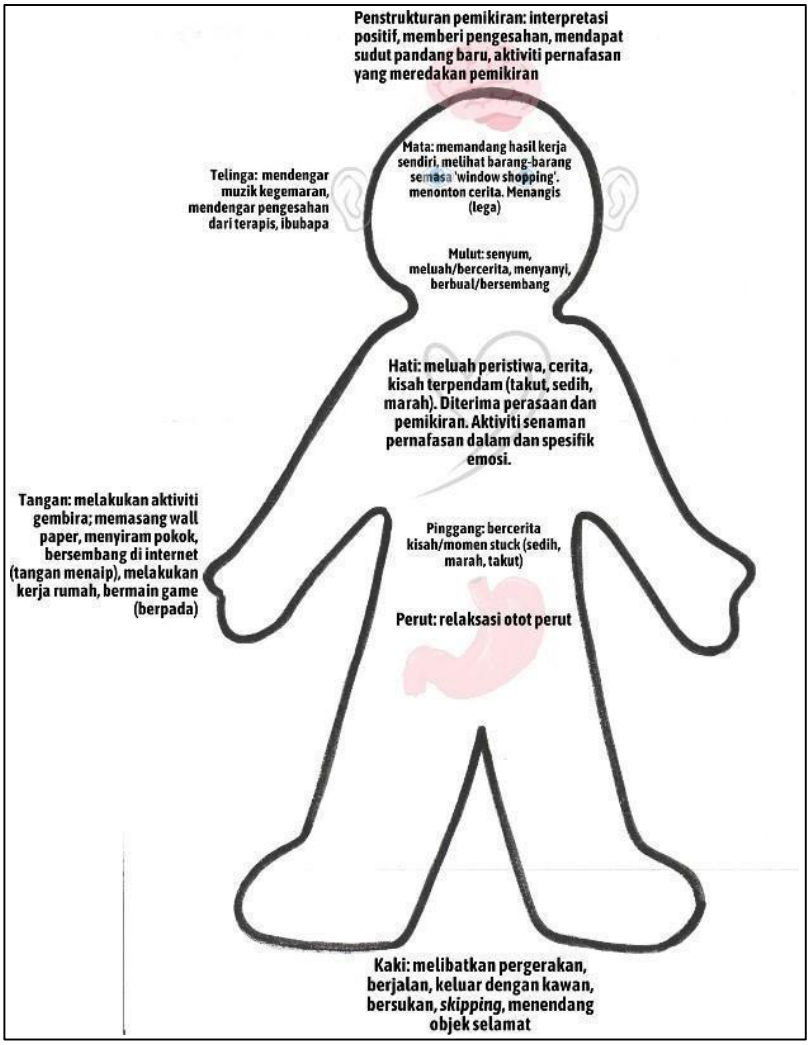
3.0 DAPATAN DAN PERBINCANGAN

3.1 Pemetaan emosi yang menjadi sumber perubahan & daya tindak

Hasil analisis konten bagi dokumen CE-BME adalah dari 20 kes dan 4 emosi asas (gembira, sedih, marah dan takut) serta emosi tambahan lain. Emosi yang dijadikan fokus kepada intervensi sebenarnya juga merupakan strategi daya tindak utama untuk kanak-kanak dan remaja yang yang berbeza mengikut keperluan semasa. Dari isu dan hasil CE-BME, terapis memfokus kepada emosi tertentu sebagai intervensi dan strategi daya tindak utama mengikut keperluan semasa klien. Ini menjadi petunjuk awal bahawa tidak semua orang menggunakan satu-satu emosi khusus, seperti ‘gembira’ sebagai strategi daya tindak utama. Keperluan semasa klien ketika itu menunjukkan hasil yang hampir sama rata bagi keempat-empat emosi, menunjukkan tiada mana-mana emosi yang dominan sebagai sumber utama strategi daya tindak.

3.2 Aktiviti kepada strategi daya tindak mengikut lokasi badan

Rajah 28.1 menunjukkan aktiviti mengikut lokasi badan yang diperolehi daripada 20 kes kanak-kanak dan remaja yang menggunakan CE-BME di dalam psikoterapi bersama terapis. Aktiviti ini merupakan strategi daya tindak khusus bagi setiap kes secara individual. Sebagai contoh emosi gembira merupakan sumber dalaman sedia ada dalam diri individu, sebagai strategi daya tindak khusus, seperti melihat hasil kerja tangan memasang ‘*wall pape*r’ (mata dan tangan). Terdapat juga emosi gembira di kepala apabila tidak menggaru kepala sehingga berdarah dan luka, yang juga merupakan lokasi yang sama (kepala) bagi takut dan sedih. Emosi negatif seperti sedih, marah, dan takut di hati yang terpendam dengan peristiwa khusus traumatik menjadi lega apabila dapat diluahkan di mulut dan diproses bersama terapis di dalam bilik terapi dengan teknik pernafasan emosi khusus. Ia menjadi strategi daya tindak khusus untuk digunakan pada masa hadapan apabila klien mengalami emosi yang sama dan sebagai *‘tool’* yang dibekalkan kepada mereka dari pengalaman dipelajari di dalam bilik terapi.



Rajah 28.1 Aktiviti daya tindak positif dan lokasi badan

4.0 KESIMPULAN

CE-BME dalam proses terapi kanak-kanak dan remaja boleh membantu mengenalpasti sumber strategi daya tindak sedia ada dalam diri klien serta pemprosesan emosi unik individu bagi penstrukturan semula emosi dan aktiviti pengurusan emosi. Kerjasama dua pihak (klien dan terapis) melengkapkan strategi proses perubahan dalam setiap kes. Penggunaan CE-BME untuk daya tindak boleh dikembangkan kepada peringkat pencegahan di sekolah, rumah dan komuniti agar lebih ramai mendapat manfaat dan isu kesihatan mental tidak semakin merosot.

PENGHARGAAN

Penghargaan kepada Kementerian Kesihatan Malaysia atas kelulusan etika penyelidikan oleh Medical Research and Ethics Committee *(MREC)* [(NMRR-19-3598-50125 (IIR)].

ANALISIS TEKNIK FUZZY DELPHI DALAM PEMBANGUNAN DADU GERGASI IMBUHAN PAK21

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1.0 PENGENALAN

Dadu Gergasi Imbuhan PAK21 merupakan inovasi sulung yang dibangunkan untuk menyelesaikan masalah penguasaan imbuhan yang kian lama membelungi murid. Kaedah pembelajaran sambil bermain ini telah dibangunkan untuk mengungkitkan perasaan ingin tahu serta mencetuskan kreativiti murid dalam pembelajaran imbuhan, terutamanya alomorf yang terlibat dalam proses pengimbuhan (Vijayaletchumy Subramaniam & Ooi Chwee Hwa, 2017). Dadu yang mengandungi enam permukaan telah dipilih sebagai satu aktiviti kepada murid untuk menguasai alomorf yang terlibat dalam proses pengimbuhan. Pengenalan aktiviti penghasilan dadu dapat menguatkan pemahaman murid terhadap alomorf yang terlibat dalam imbuhan beserta dengan huruf yang mengikut imbuhan tersebut serta konsep penggantian yang menggunakan teknik akrostik dengan simbol tangan (Vijayaletchumy Subramaniam & Pavitira Nagaraju, 2019). Selain itu, aktiviti ini turut menepati konsep PAK21 yang ditekankan oleh KPM, iaitu pembelajaran berpusatkan murid. Guru hanya memainkan peranan yang penting dalam membuatkan murid bergiat aktif semasa PdPc. Aktiviti penghasilan dadu ini dapat membuatkan murid melibatkan diri secara langsung dalam proses pembelajaran dan guru hanya bertindak sebagai pembimbing. Hal ini secara langsung mewujudkan perhubungan dua hala antara guru dengan murid.

2.0 KAEDAH & ALAT

2.1 Pendekatan & Teori

Kajian ini menggunakan pendekatan Penyelidikan Reka Bentuk dan Pembangunan (Richey & Klein, 2007), iaitu suatu kajian yang amat teratur yang melibatkan proses reka bentuk, pembangunan dan penilaian berasaskan kepada kajian yang emperikel bagi sesuatu produk. Pendekatan ini secara asasnya terbentuk melalui empat fasa iaitu:

a) Fasa pertama dikenali sebagai fasa analisis keperluan

b) Fasa kedua dikenali sebagai fasa reka bentuk

c) Fasa ketiga dikenali sebagai fasa pembangunan

d) Fasa keempat dikenali sebagai fasa penilaian kebolehgunaan

Kaedah persampelan bertujuan (purposive sampling) yang dikenali sebagai judgement sampling telah digunakan kerana melibatkan pertimbangan individu untuk memilih sampel kajian berdasarkan pengetahuan pengkaji dan keperluan kajian. (Noraini, 2010). Seramai 15 orang pakar dalam bidang Bahasa Melayu telah dipilih untuk menilai kebolehgunaan teknik pembelajaran imbuhan yang telah dibangunkan. Menurut Booker dan Mc Namara (2004), pakar merupakan individu yang berkelayakan, berilmu dan mempunyai pengetahuan hasil daripada latihan, praktikal dan pengalaman yang mereka lalui. Menurut Cantrill, Sibbald & Buetow (1996), pakar merupakan mana-mana individu yang mempunyai pengalaman, pengetahuan yang berkaitan dengan sesuatu topik atau bidang tertentu. Mereka juga diklasifikasikan sebagai pakar rujuk dalam sesuatu perkara yang memerlukan penelitian,

pengesahan berdasarkan kemahiran yang dimilikinya (Sackman, 1975). Pandangan daripada 15 orang pakar telah diambil kira untuk menentukan keperluan dan keutamaan bagi kriteria penilaian item diukur dengan pemboleh ubah linguistik.

Teori kognitif pemprosesan maklumat telah digunakan sebagai asas untuk membangunkan Dadu Gergasi Imbuhan PAK21 supaya elemen yang diterapkan dalam inovasi tersebut dapat membantu murid untuk mengingati proses pembentukan kata untuk jangka masa yang panjang. Teori kognitif pemprosesan maklumat yang diperkenalkan oleh Miller (1956) telah dikembangkan dan dimajukan oleh Atkinson dan Shiffrin (1968) berpandukan proses kognitif yang mengetengahkan otak sebagai komputer dalam menerima dan memproses sesuatu maklumat yang diterima serta menyimpan maklumat dalam ingatan jangka pendek dan panjang. Model memori ini telah dibangunkan untuk menjelaskan cara pengaliran sesuatu maklumat dalam otak dan menghuraikan proses atau langkah penyimpanan maklumat bagi jangka masa yang panjang. Atkinson dan Shiffrin (1968) mengatakan bahawa lebih lama sesuatu maklumat yang disimpan dalam ingatan jangka pendek, maka peluang maklumat tersebut dipindahkan ke ingatan jangka panjang lebih besar. Oleh sebab itu, pemindahan maklumat daripada ingatan jangka pendek kepada ingatan jangka panjang bergantung kepada persembahan sesuatu maklumat. Kegagalan persembahan yang menarik boleh menyebabkan maklumat terkeluar sebagai tindak balas output daripada ingatan jangka pendek sebelum dapat disalin kepada ingatan jangka panjang. Hal ini menunjukkan persembahan maklumat memainkan peranan yang penting dalam menentukan penyimpanan maklumat dalam ingatan jangka pendek secara kekal atau sementara. Justeru, penggunaan elemen grafik telah diadaptasikan dalam Dadu Gergasi Imbuhan PAK21 supaya dapat mengukuhkan pemahaman murid dan membantu untuk mengingati proses pengimbuhan kata untuk jangka masa yang panjang.

2.2 Kaedah & Alat

Seterusnya, Teknik Fuzzy Delphi telah diaplikasikan untuk mendapatkan pandangan dan cadangan pakar dalam bidang Bahasa Melayu serta mendapatkan kesepakatan pakar terhadap pembangunan Dadu Gergasi Imbuhan PAK21. Borang soal selidik yang mengandungi persetujuan skala Fuzzy 5 mata telah digunakan untuk mendapatkan kesepakatan pakar terhadap pembangunan Dadu Gergasi Imbuhan PAK21. Hasil dapatan kuantitatif yang diperoleh telah dianalisis untuk mengetahui kesepakatan pakar terhadap pembangunan inovasi.

3.0 DAPATAN DAN PERBINCANGAN

3.1 Fasa Analisis Keperluan

Jadual 18.1 menunjukkan dapatan yang diperoleh daripada pakar yang telah dipilih dalam mengenal pasti keperluan pembangunan alat bantu mengajar untuk mempelajari imbuhan yang dapat diaplikasikan dalam pembelajaran dan pemudahcaraan (PdPc).

Jadual 18.1 Dapatan Kajian bagi Sub Soalan Kajian dalam Soalan Kajian Fasa Analisis Keperluan

Bil.	Item	Skor min	Sisihan Piawai (SP)	Aras Keperluan
1	Adakah terdapat keperluan murid menguasai imbuhan?	4.30	0.67	Sangat Perlu

2	Adakah terdapat keperluan aktiviti secara didik hibur untuk pembelajaran imbuhan kata nama?	4.50	0.71	Sangat Perlu
3	Adakah terdapat keperluan kaedah khusus dalam pembelajaran imbuhan?	4.50	0.71	Sangat Perlu
4	Adakah terdapat keperluan penerapan elemen baharu dalam pembelajaran imbuhan?	4.50	0.53	Sangat Perlu
5	Adakah terdapat keperluan pembangunan aktiviti pembelajaran yang menjurus secara langsung terhadap imbuhan?	4.40	0.84	Sangat Perlu
Skor Purata Persetujuan		4.44	0.69	Sangat Perlu

Jadual di atas memaparkan skor min persetujuan 15 orang pakar yang berpendapat bahawa terdapat keperluan pembangunan sesuatu aktiviti pembelajaran imbuhan yang mengandungi elemen dan kaedah khusus supaya dapat membantu murid menguasai imbuhan dengan nilai skor min persetujuan 4.44 (SP=0.69). Maka, berdasarkan daripada dapatan kajian dalam fasa analisis keperluan memperlihatkan bahawa terdapat kewajaran pembangunan Dadu Gergasi Imbuhan PAK21 agar dapat memudahkan pemahaman murid tentang pembentukan imbuhan kata nama secara didik hibur.

3.2 Analisis Teknik Fuzzy Delphi terhadap Pembangunan Dadu Gergasi Imbuhan PAK21

Jadual 18.2 Kedudukan Item dalam Analisis Teknik Fuzzy Delphi dalam Pembangunan Dadu Gergasi Imbuhan PAK21

	Item	**Peratusan Kesepakatan Kumpulan Pakar, %**	**Kesepakatan Pakar**	**Kedudukan**
1	Dadu Gergasi Imbuhan PAK21 menepati objektif pembelajaran	**100%**	TERIMA	2
2	Dadu Gergasi Imbuhan PAK21 berimpak tinggi	**100%**	TERIMA	3
3	Dadu Gergasi Imbuhan PAK21 memudahkan proses PdP guru.	**100%**	TERIMA	5

4	Dadu Gergasi Imbuhan PAK21 dapat membantu guru merancang dan melaksanakan Pembelajaran Abad Ke-21.	**93.3%**	TERIMA	1
5	Dadu Gergasi Imbuhan PAK21 sesuai dijadikan sebagai bahan bantu mengajar dalam pembelajaran imbuhan.	**86.7%**	TERIMA	3
	Peratusan kesepakatan pakar	**96 %**		
	Cadangan item daripada panel pakar	Penghasilan dadu perlu dilakukan mengikut aras perkembangan minda murid dari tahap lemah, sederhana, dan cemerlang		

Hasil analisis Teknik Fuzzy Delphi mendapati Dadu Gergasi Imbuhan PAK21 telah memperoleh kesepakatan pakar untuk semua elemen yang ditengahkan. Kesepakatan pakar telah diambil berasaskan empat bahagian, iaitu kandungan, hasil pembelajaran menggunakan Dadu Gergasi Imbuhan PAK21, reka bentuk, dan penilaian kendiri Dadu Gergasi Imbuhan PAK21. Beberapa syarat telah ditetapkan untuk memenuhi kesepakatan pakar dalam kaedah Fuzzy Delphi, iaitu nilai purata threshold (d) mesti diperoleh kurang daripada 0.2 (Cheng & Lin, 2002) dan (Chang, Hsu & Chang, 2011), peratusan kesepakatan perlu melebihi 75% (Chang, Hsu dan Chang, 2011), dan kesemua nilai *defuzzification* Alpha-Cut (average of fuzzy response) mesti melebihi 0.5 (Tang dan Wu, 2010). Secara keseluruhannya, kesemua empat bahagian tersebut mendapat kesepakatan pakar melebihi 75% dan telah memenuhi syarat kesepakatan pakar terhadap item tersebut. Selain itu, nilai d konstruk keseluruhan menonjolkan 0.135 (<0.2). Dalam pada itu, peratusan keseluruhan kesepakatan pakar berada pada nilai 100% kesepakatan iaitu melebihi (75%). Selain itu, kesemua nilai *defuzzification* Alpha-Cut (average of fuzzy response) melebihi 0.5. Hal ini menjelaskan item-item tersebut telah mendapat kesepakatan golongan yang terlibat dengan nilai persetujuan yang baik dan memenuhi syarat yang ditetapkan.

4.0 KESIMPULAN

Secara keseluruhannya, analisis Teknik Fuzzy Delphi membuktikan Dadu Gergasi Imbuhan PAK21 yang dibangunkan untuk memenuhi keperluan pembelajaran imbuhan murid telah memperoleh kesepakatan pakar yang tinggi daripada semua aspek yang telah diuji. Justeru kajian akan datang boleh dilakukan untuk menguji keberkesanan Dadu Gergasi Imbuhan PAK21 dalam penguasaan imbuhan yang berlainan agar kegunaan inovasi tersebut dapat diluaskan sepenuhnya dalam semua aspek imbuhan.

PENGHARGAAN

Setinggi-tinggi penghargaan dan ucapan terima kasih kepada pihak SISC+ dari Pejabat Pendidikan Daerah (PPD), Pusat Bahasa Melayu Singapura, Ketua Panitia Bahasa Melayu dan guru- guru Bahasa Melayu yang terlibat dalam menyempurnakan kajian ini.

BORANG CUKAI ELEKTRONIK VERSI PELAJAR 1.0

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1.0 PENGENALAN

Proses pendidikan membolehkan seseorang individu itu mengetahui tentang sesuatu peristiwa, tugas atau aktiviti sebelum melaksanakannya. Dalam konteks percukaian, pembayar cukai perlu diberikan pendidikan asas tentang percukaian sebelum sistem pembayaran cukai diperkenalkan, sebagai contoh, seseorang itu perlu mempunyai pengetahuan asas tentang kadar cukai, potongan, pelepasan dan rebat sebelum membayar cukai (Hamid et al., 2022). Pelaksanaan Sistem Taksir Sendiri (SAS) pada tahun 2004 memerlukan pembayar cukai untuk mempunyai kefahaman penuh berkaitan percukaian. Di bawah sistem ini, pembayar cukai bertanggungjawab untuk mengira, membayar dan melaporkan cukai mereka sendiri. Dengan kata lain, pembayar cukai perlu mempunyai pengetahuan cukai yang mencukupi untuk membolehkan mereka menunaikan tanggungjawab memfailkan penyata cukai dengan tepat dan tepat pada masanya (Saad, 2014). Melihat kepada kepentingan pendidikan cukai kepada pengetahuan dan kesedaran cukai dikalangan rakyat, banyak program-program pendidikan cukai yang telah dilaksanakan oleh pihak LHDN seperti seminar, video pengajaran tentang bagaimana menggunakan sistem *e-filing* LHDN, bahan pendidikan cukai yang interaktif dalam bentuk brosur, slaid powerpoint dan poster, program kolaborasi bersama pihak sekolah dan institusi pendidikan tinggi, *TaxCamp*, *EduZone* dan banyak lagi. Tambahan lagi, bermula tahun 2021 pendidikan cukai telah diperkenalkan di sekolah melalui subjek Matematik Tingkatan 5 dibawah tajuk Matematik Kepenggunaan. Pelajar diajar tentang apa itu cukai, peranan cukai kepada negara, pelepasan dan rebat cukai, dan asas pengiraan cukai individu.

Berdasarkan kepada perbincangan di atas, walaupun pelbagai inisiatif telah dilaksanakan oleh kerajaan dalam meningkatkan pengetahuan dan kesedaran cukai dikalangan individu, namun, pematuhan kepada cukai memerlukan seseorang individu itu untuk mengisytiharkan pendapatan, mengisi borang cukai dan membayar cukai secara elektronik (*e-filing*) melalui laman sesawang ez.hasil.gov.my. Oleh yang demikian, adakah pendidikan cukai sedia ada cukup untuk membantu rakyat dalam melaksanakan tanggungjawab mereka sebagai pembayar cukai?. Bagaimanakah seseorang individu itu boleh menggunakan borang cukai elektronik jika mereka tidak didedahkan tentang penggunaannya itu secara praktikal?. Mengikut kajian yang telah dijalankan oleh Othman et al., (2020) hanya 40% daripada 75 responden yang mengisi borang cukainya sendiri, manakala, 60% yang lain meminta bantuan daripada ejen cukai dan para kenalan untuk mengisikannya. Hal ini menunjukkan pengetahuan tentang penggunaan borang cukai secara elektronik adalah pada tahap yang kurang memuaskan. Oleh itu, pertandingan inovasi kali ini ingin mengetengahkan idea tentang inovasi dalam pendidikan cukai (yang mana pada masa kini hanya diajar secara teori di dalam kelas) dengan cara memperkenalkan satu sistem *e-filing* (Borang B) versi pelajar yang hampir serupa dengan sistem *e-filing* sedia ada yang digunakan oleh pembayar cukai sebenar. Hal ini adalah sejajar dengan hujah Abdul Razak et al., (2019) yang menegaskan bahawa kesinambungan dalam mewujudkan aktiviti praktikal bagi kursus-kursus yang berasaskan teori adalah perlu untuk membantu para pelajar memahami dan memperolehi hasil pembelajaran dengan lebih baik, sekaligus merealisasikan pembelajaran di era Revolusi Industri 4.0.

2.0 BAHAN DAN KAEDAH

Sistem *e-filing* (Borang B) versi pelajar ini diberi nama Borang Cukai Elektronik Versi Pelajar 1.0. Sistem prototaip akan dibangunkan dengan menggunakan aplikasi *excel* dimana ianya mempunyai 4

bahagian. Bahagian pertama ialah untuk merekod pendapatan berkanun dan mengira jumlah pendapatan. Bahagian yang kedua pula ialah proses mengisi pelepasan cukai yang layak dituntut berdasarkan perbelanjaan yang telah dilakukan oleh pembayar cukai. Seterusnya, dibahagian ketiga adalah pengisian rebat dan pelepasan- pelepasan yang lain. Akhir sekali adalah bahagian rumusan dimana pengiraan cukai akan dikira secara automatik oleh aplikasi *excel* tersebut. Penggunaan sistem ini akan diterangkan secara terperinci didalam video pembentangan idea inovasi.

Bagi memastikan idea inovasi ini sesuai untuk dilaksanakan, satu kajian yang melibatkan 30 orang alumni Diploma Perakaunan Kolej Yayasan Pelajaran Johor (KYPJ) dijalankan bagi mendapatkan maklum balas mereka tentang pengetahuan dan kesediaan mereka terhadap penggunaan sistem *e-filing* LHDN untuk melaporkan cukai pendapatan mereka sendiri. Pemilihan alumni ini adalah secara rawak berdasarkan senarai nama alumni yang berdaftar yang telah menamatkan pengajian dari tahun 2015 hingga 2022. Kajian ini dijalankan dengan menggunakan instrumen soal-selidik terbuka. Antara soalan yang diajukan kepada responden adalah:

1. Adalah anda pernah mempelajari Kursus Percukaian 1 (atau Kursus Percukaian Individu)?
2. Adakah anda yakin untuk menggunakan sistem *e-filing* LHDN untuk melaporkan cukai pendapatan anda sendiri?
3. Adakah anda perlu mengikuti kursus tambahan bagi meningkatkan keyakinan dalam melaporkan cukai pendapatan anda sendiri?
4. Adakah anda bersetuju sekiranya pelajar didedahkan kepada penggunakan sistem *e-filing* sewaktu sesi pengajaran dan pembelajaran?

3.0 HASIL DAN PERBINCANGAN

Hasil kajian yang dilaksanakan terhadap 30 orang alumni Diploma Perakaunan KYPJ adalah seperti berikut:

Kesemua responden telah bersetuju bahawa mereka telah mempelajari Kursus Percukaian sewaktu pengajian mereka dia KYPJ

Jadual 19.1 Jumlah responden yang pernah mampelajari Kursus Percukaian

1.Adalah anda pernah mempelajari Kursus Percukaian 1 (atau Kursus Percukaian Individu)?		
	Jumlah	Peratusan(%)
Pernah	30 orang	100%
Tidak pernah	-	0%

Merujuk kepada soalan tentang keyakinan mereka tentang penggunaan sistem *e-filing* LHDN, hanya 8 orang responden sahaja yang menyatakan keyakinan mereka terhadap mengisi *e-filing* LHDN bagi melaporkan cukai pendapatan mereka. Hal ini adalah kerana 8 orang responden ini sedang bekerja di firma pengauditan/percukaian/perakaunan yang mana mereka sering terdedah kepada sistem-sistem berkaitan.

Jadual 19.2 Jumlah responden yang mempercayai sistem *e-filing* LHDN

2.Adakah anda yakin untuk menggunakan sistem *e-filing* LHDN untuk melaporkan cukai pendapatan anda sendiri?		
	Jumlah	Peratusan(%)

Ya	8 orang	26.7%
Tidak	22 orang	73.3%

Bagi responden yang tidak yakin untuk mengisi borang *e-filing* LHDN untuk tujuan pelaporan cukai pendapatan, mereka memerlukan kursus tambahan untuk tujuan tersebut.

Jadual 19.3 Jumlah responden yang memerlukan kursus tambahan penggunaan *e-filing* LHDN

3.Adakah anda perlu mengikuti kursus tambahan bagi meningkatkan keyakinan dalam melaporkan cukai pendapatan anda sendiri?		
	Jumlah	Peratusan(%)
Ya	8 orang	26.7%
Tidak	22 orang	73.3%

Jika ditanyakan tentang adakah satu keperluan untuk pelajar-pelajar masa kini didedahkan kepada elemen digitalisasi dalam sesi pengajaran dan pembelajaran Kursus Percukaian, majoriti responden (93.3%) bersetuju dengan cadangan itu kerana apabila memasuki dunia pekerjaan, semua pengiraan yang berkaitan dengan cukai adalah melibatkan menggunakan aplikasi seperti *excel*, *software* dan serahan borang cukai secara atas talian.

Jadual 19.4 Jumlah responden yang bersetuju sistem *e-filing* didedahkan kepada pelajar

4.Adakah anda bersetuju sekiranya pelajar didedahkan kepada penggunakan sistem *e-filing* semasa sesi pengajaran dan pembelajaran?		
	Jumlah	Peratusan(%)
Ya	28 orang	93.3%
Tidak	2 orang	6.7%

4.0 KESIMPULAN

Berdasarkan kepada hasil dapatan diatas, ianya dapat disimpulkan bahawa penggunaan aplikasi digital sewaktu sesi pengajaran dan pembelajaran akan meningkatkan tahap kefahaman dan kesediaan pelajar terhadap penggunaan sistem ini apabila mereka memasuki dunia pekerjaan kelak. Oleh itu, idea inovasi ini perlu dilaksanakan dengan baik dengan bantuan pakar-pakar dalam bidang Sains Komputer agar ianya dapat digunakan oleh semua tenaga pengajar dalam bidang percukaian di Malaysia.

CAREER CLASS: KE ARAH KEBOLEHPASARAN GRADUAN

Sangin Anak Juat[1]

[1]Universiti Malaysia Sarawak

1.0 PENGENALAN

Penubuhan Kolej Vokasional (KV) bermatlamat sebagai satu agen perubahan Transformasi Pendidikan Vokasional di bawah Kementerian Pendidikan Malaysia (Mohd Amiruddin & Muhd Khaizer, 2019) Sama seperti institusi pengajian tinggi yang lain, kebolehpasaran graduan merupakan petunjuk prestasi kepada keberkesanan kurikulum. Dalam pelan strategik penubuhan KV, KPM melalui Bahagian Pendidikan dan Latihan Teknikal Vokasional (BPLTV) telah menyasarkan 70% graduan akan terus bekerja (Syahrizan et. al, 2020), 20% melanjutkan pengajian dan 10% menjadi usahawan. Pengajaran dan pembelajaran di KV berteraskan kemahiran sebanyak 70% dan akademik 30% (Kementerian Pendidikan Malaysia, 2017). Walau bagaimanapun, kemahiran dan pakej lengkap masih diperlukan memandangkan kualiti graduan bukan hanya tergantung kepada kecemerlangan akademik semata-mata (Mat Yazid et. al., 2010). Justeru, Unit Psikologi dan Kerjaya Kolej Vokasional Betong merasakan perlu digubal satu bimbingan terancang dalam membantu menyediakan graduan KV Betong ke arah kebolehpasaran.

2.0 BAHAN DAN KAEDAH PELAKSANAAN

Career Class ini dijalankan mengikut kelas. Memandangkan ia bukan merupakan subjek yang terkandung di dalam silibus pembelajaran dan dimasukkan di dalam jadual kuliah, UPK mengambil inisiatif menggunakan waktu lompang pelajar. Tidak terdapat bahan spesifik yang digunakan. Edaran disediakan oleh Kaunselor selaku pelaksana. Di pihak pelajar, mereka hanya memerlukan komputer riba dan telefon bimbit sebagai punca akses internet bagi sesetengah modul.

2.1 Sampel Kajian

Career Class ini diadakan untuk semua pelajar Tahun 1 dan Tahun 2 (Tahun Akhir) Diploma Vokasional Malaysia, Kolej Vokasional Betong. Ia telah dipersetujui oleh pihak pengurusan KV sebagai langkah mempersiapkan graduan sebelum mereka bergraduat. Walaupun bukan subjek wajib yang dinilai di dalam peperiksaan, tetapi sambutan ke atas *Career Class* ini dalam kalangan pensyarah dan pelajar adalah amat baik.

2.2 Modul / Pengisian

Terdapat banyak bahan / sumber untuk melaksanakan *Career Class* ini. Tetapi Kaunselor mengambil inisiatif untuk meneroka bahan sedia ada dan disesuaikan supaya ia *fit* dengan keperluan pelajar KV Betong. Modul / pengisian boleh dilihat pada Jadual 20.1 di bawah:

Jadual 20.1 Pengisian *Career Class*

Bil	Sesi / Minggu	Topik / Pengisian	Bahan
1	1	Ice Breaking & Penstrukturan	Jadual *Career Class*
2	2	Self-Directed Search	Inventori SDS
3	3	Inventori Kematangan Kerjaya	Inventori IKM
4	4-5	Resume – Konvensional	*Template Resume, Handout*
5	6-7	Resume - Infographic	*Template Resume, Handout*

6	8-9	Cover Letter	Contoh Iklan Jawatan Kosong
7	10	Eksplorasi Kerjaya – jobstreet.com	Laman Web jobstreet.com, Laptop
8	11	Eksplorasi Kerjaya – My Future Job	Laman Web https://myfuturejobs.gov.my/ms/utama/
9	12	Eksplorasi Kerjaya – SPA	Laman Web https://spa.gov.my/spa/
10	13	Eksplorasi – Peluang Melanjutkan Pengajian	Laman Web https://upu.mohe.gov.my/
11	14	Permohonan Kerja Melalui E-mail	Komputer Riba & Akaun E-mail Pelajar
12	15	Penyusunan Folder Temu duga	Contoh Surat Tawaran Panggilan Temuduga
13	16	*Grooming*	Slaid *Grooming*
14	17	*Mock Interview*	Setting Temu duga

3.0 HASIL KAJIAN DAN PERBINCANGAN

3.1 Sebelum Pelaksanaan *Career Class*

UPK Kolej Vokasional Betong telah melaksanakan program bimbingan kaunseling dan kerjaya seperti mana kolej vokasional yang lain. Cuma ianya tidak konsisten, tidak berfokus. Justeru, semasa graduan kohort pertama iaitu ambilan tahun 2013 yang bergraduat pada tahun 2017, hanya 165 graduan bekerja daripada 198 jumlah keseluruhan graduan. Manakala 10 orang menjadi usahawan, 7 menyambung pengajian dan seramai 16 graduan tidak bekerja menjadikan peratus kebolehpasaran kohort pertama ini hanyalah 88.3%.

3.2 Selepas Pelaksanaan *Career Class*

Selepas pelaksanaan *Career Class* secara terancang dengan modul yang disesuaikan mengikut keperluan dan trend semasa, kadar kebolehpasaran menunjukkan peningkatan positif. Kadar kebolehpasaran ini dikesan melalui sistem yang dibangunkan oleh Kementerian Pengajian Tinggi yang diselaraskan untuk semua Institusi Pengajian Tinggi (IPT) di Malaysia. Jadual 20.2 menunjukkan kadar kebolehpasaran graduan KV Betong bagi tahun 2018 sehingga 2020 yang mana kohort 2018-2020 ini telah menjalani intervensi atau dalam erti kata lain Career Class.

Jadual 20.2 Kadar Kebolehpasaran Graduan Kolej Vokasional Betong

Tahun	Jumlah Graduan	Bekerja	Usahawan	Sambung Pengajian	Tidak Bekerja	Peratus
2020	140	114	10	16	0	100%
2019	158	125	5	28	0	100%
2018	185	140	11	34	0	100%

Rujukan: Laporan Kajian Pengesanan Graduan TVET, 2021

4.0 KESIMPULAN

Kesimpulannya, kebolehpasaran graduan merupakan agenda dan KPI penting bagi KV sama seperti institusi TVET yang lain di Malaysia. Walaupun tidak terkandung dalam silibus pembelajaran, aspek kemahiran kebolehpasaran tidak seharusnya diabaikan. Justeru, adalah diharapkan agar KV lain di Malaysia boleh menjadikan ini sebagai panduan dan juga penanda aras dalam mencapai kadar kebolehpasaran graduan.

PENGHARGAAN

Terima kasih kepada Unit Psikologi dan Kerjaya Kolej Vokasional Betong, Sarawak.

PEMBUDAYAAN ORGANISASI BEBAS TEKANAN DI NEGERI PERAK DENGAN MENGGUNAKAN INOVASI *ROSTED CUPS*

Effa Rina binti Mohd Matore[1], Hamshah bin Noraini[2], Nurzaimimah binti Pahmi[3] Saleha binti Md Noor[4] dan Hartini binti Arbain[5]

[1]Pejabat Pendidikan Daerah Muallim
[2]Pejabat Pendidikan Daerah Perak Tengah
[3]Jabatan Pendidikan Negeri Perak
[4]Pejabat Pendidikan Daerah Larut, Matang dan Selama
[5]Pejabat Pendidikan Daerah Manjung

1.0 PENGENALAN

Pembudayaan organisasi bebas tekanan merupakan salah satu elemen dalam kluster kelima Perancangan Strategik Jabatan Pendidikan Negeri (JPN) Perak 2020-2024. Walau bagaimanapun, dalam melaksanakan tanggungjawab yang diberi, pasti berlaku pelbagai cabaran sesama ahli dalam organisasi. Sokongan psikologi dilihat amat penting untuk mewujudkan sebuah organisasi bebas tekanan. Tidak dapat dinafikan impak pandemik yang terjadi telah memberi impak emosi kepada warga pendidikan. Pengendalian sesi kaunseling menunjukkan kes Covid-19 dan kerjaya mencatat sebagai dua skor tertinggi. Apabila berlaku perubahan kepada sistem pendidikan dan status kesihatan awam, warga pendidikan adalah golongan yang turut terkesan dalam melaksanakan tugas mereka. Suasana di organisasi turut terkesan.

Oleh itu, satu inovasi telah dicipta iaitu Rosted CUPS atau *Roshaimmi's Team Development CUPS* yang digunakan sebagai modul dalam Program Kesejahteraan Psikologi. Inovasi ini bertujuan untuk mewujudkan celik akal tentang realiti cabaran yang wujud dalam organisasi, cara mengurus cabaran dan seterusnya mewujudkan organisasi bebas tekanan. Inovasi ini terdiri daripada 5 buah cawan sebagai alatan utama dan telah digunakan kepada 5 daerah dalam Program Kesejahteraan Psikologi di Perak.

Seramai 398 orang responden terlibat iaitu terdiri daripada 281 orang perempuan dan 117 orang lelaki. Daripada jumlah ini, sebanyak 2 kategori jawatan yang menjadi fokus iaitu guru dan AKP. Jumlah guru adalah seramai 307 orang manakala 91 orang terdiri daripada AKP di sekolah. Secara keseluruhan, responden memberi purata skor yang positif iaitu 98.6% bagi 6 item penilaian modul. Respon bagi 6 item penilaian kecekapan fasilitator pula menunjukkan purata skor 99.1%. Dapatan catatan responden juga menyatakan keseronokan dan keselesaan mengaplikasi modul ini. Responden sangat bersetuju modul ini digunakan dalam membantu memantapkan organisasi. Novelti idea inovasi ini adalah bagaimana hanya dengan menggunakan cawan mampu mewujudkan celik akal kepada peserta. Respon ahli kelompok sangat positif dan menyatakan inovasi ini telah berjaya mengurangkan tekanan mereka. *Rosted CUPS* berpotensi untuk dikembangkan kepada kelompok bersasar yang lain seperti dalam kalangan ibu bapa dan murid-murid

2.0 PENDEKATAN DAN KAEDAH

2.1 Pendekatan Teori

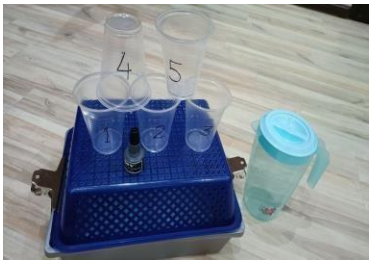
Teori Pilihan (*Choice Theory*) dan Terapi Realiti (*Reality Therapy*) telah diasaskan oleh William

Glasser. Beliau seorang doktor klinikal psikologi kelahiran Cleveland Ohio, California pada 11 Mei 1925. Terapi Realiti (*Reality Therapy*) mula diberi pengiktirafan produk yang terapeutik melalui penggunaan terapi ini oleh Glasser ke atas perempuan yang delinkuen dan rawatan oleh penyelia Harrington ke atas pesakot psikotik yang kronik (Glasser dan Zunin, 1979). Aspek utama dalam Teori Pilihan (*Choice Theory*) ialah keyakinan secara dalaman dan bukan termotivasi secara luaran. Teori ini mengajarkan bahawa peristiwa luar tidak pernah "membuat" kita untuk melakukan apa-apa pun. Teori ini mementingkan persekitaran kaunseling yang tulen, benar, mesra, mengambil berat dan bertanggungjawab. Kepercayaan dan *rapport* dimantapkan dengan mendengar apa yang diceritakan oleh klien sama ada dalam sesi individu atau kelompok.

2.2 KAEDAH PENGGUNAAN *ROSTED CUPS.*

2.2.1 Langkah Satu

- Semua peserta dikehendaki berdiri di hadapan Fasilitator
- Susun semua cawan di atas meja seperti dalam RAJAH 29.1.
- Minta peserta memberi komen tentang apa yang mereka lihat.
- Jemput semua peserta datang ke hadapan untuk melihat dengan lebih dekat
- Perhatikan tingkah laku peserta. Terdapat peserta yang sambal lewa dan ada yang datang ke hadapan.
- Kesimpulannya ialah Apabila menerima sesuatu berita, perlu diteliti terlebih dahulu sebelum membuat kesimpulan. Organisasi akan menjadi huru hara hanya kerana salah faham daripada berita yang tidak tepat kerana hanya memerhati dan mendengar dari jauh



Rajah 29.1 Susunan cawan

2.2.2 Langkah dua

- Tuangkan air paip mengikut turutan nombor Cawan 1 : Isian penuh

Cawan 2 : Isian separuh
Cawan 3 : Isian penuh
Cawan 4 : Cawan ditelangkupkan. Air dituangkan ke atas cawan
Cawan 5 : Air paip dituang ke dalam cawan yang telah dilubangkan

- Cawan 3 diketepikan
- Minta peserta memberi komen terhadap situasi cawan 1, 2, 4 dan 5 sahaja
- Minta peserta membuat perkaitan situasi itu dengan apa yang berlaku dalam organisasi mereka
- Kesimpulannya terdapat pelbagai isu dalam organisasi sama ada kita sedar atau tidak sedar

2.2.3 Langkah tiga

- Isi jug dengan air paip
- Ambil cawan 3 yang telah diasingkan tadi
- Keadaan cawan 1 dan 3 adalah sama iaitu diisi penuh dengan air. Namun berlaku perkara yang negatif atau tidak elok dalam organisasi

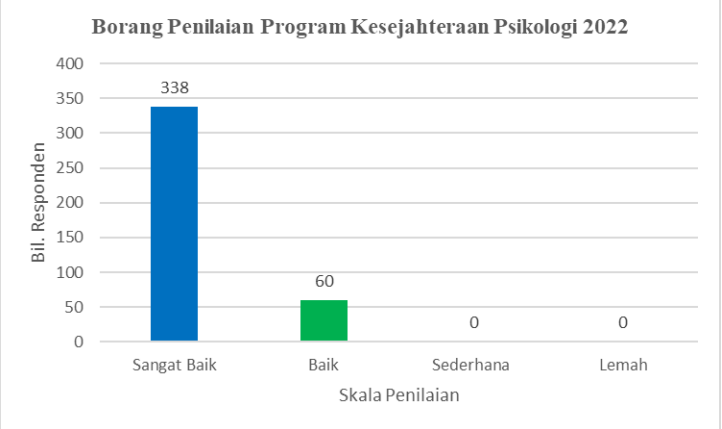
- Fasilitator meminta peserta menyebut perkara-perkara negatif tersebut satu persatu secara sukarela
- Setiap kali disebut, fasilitator menitiskan setitis dakwat hitam dalam cawan 3.
- Titisan dakwat hitam mewakili masalah / cabaran
- Warna air paip akan bertukar menjadi warna hitam yang membawa erti kiasan sesebuah organisasi itu sedang berhadapan masalah perhubungan
- Fasilitator bertanya tentang cadangan untuk menyelesaikan isu
- Setiap kali peserta menyatakan cadangan, Fasilitator akan menuangkan air paip daripada jug ke dalam cawan sehinggalah air yang hitam tadi berubah menjadi jernih kembali
- Air paip mewakili kaedah penyelesaian
- Kesimpulannya ialah Untuk membentuk organisasi bebas tekanan, semua subordinat perlu bersikap positif dan bertekad untuk berubah

3.0 DAPATAN DAN PERBINCANGAN

3.1 Dapatan Kajian

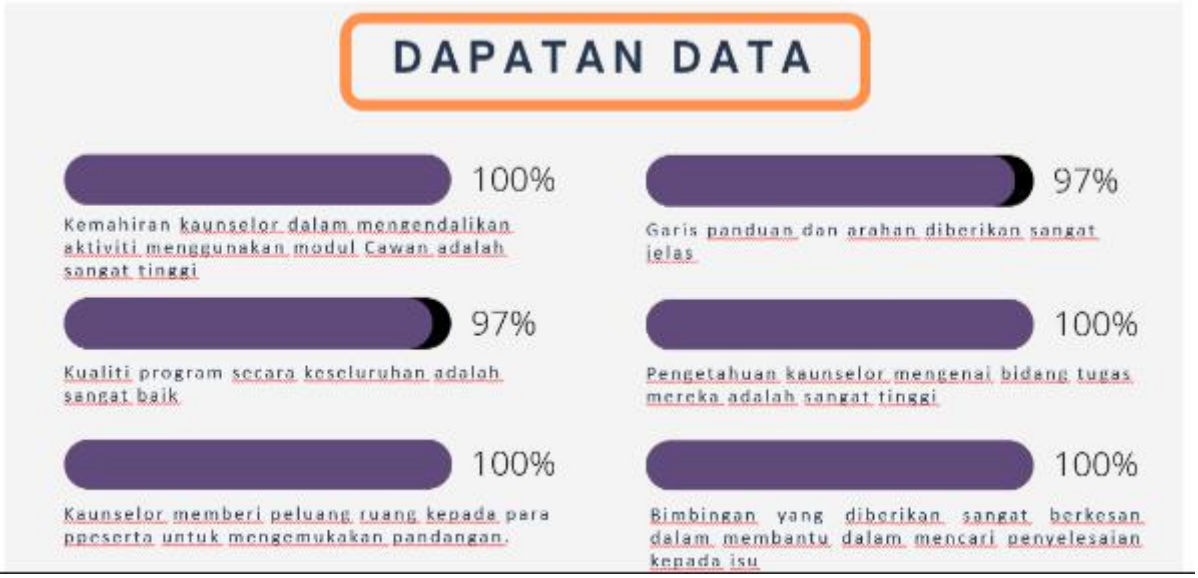
3.1.1 Penilaian Program (*Post*)

Penilaian program diberikan secara atas talian melalui *Aplikasi Iform* kepada semua responden selepas selesai menjalani Program Kesejahteraan Psikologi 2022. Bentuk soalan dalam penilaian adalah berbentuk terbuka dan jawapan dalam bentuk bentuk 4 skala kepuasan iaitu Sangat Baik, Baik, Memuaskan dan Lemah. Terdapat 17 soalan yang dikemukakan kepada para peserta disamping 5 soalan berbentuk demografi dan 1 soalan terbuka iaitu berbentuk kualitatif.
Hasil daripada Penilaian yang dilakukan kepada semua responden daripada 5 buah sekolah daripada 5 daerah yang berbeza. Penilaian melibatkan 398 orang responden yang menjawab borang penilaian ini. Rumusan keseluruhan adalah seperti berikut:



Rajah 29.2 Rumusan Keseluruhan Penilaian Program

Carta di atas menunjukkan dapatan rumusan keseluruhan bagi 11 item yang dikemukakan kepada 398 responden. Daripada jadual di atas terdapat 84.9% yang menjawab Sangat Baik, 15.1% menjawab Baik, 0% menjawab Sederhana dan 0% menjawab Lemah.



Rajah 29.3 Dapatan data aktiviti The Rosted Cup

Rajah diatas menunjukkan 6 item yang dibina bagi tujuan penilaian kepada kaunselor yang mengendalikan aktiviti *The Rosted Cup* ini. Hasil menunjukkan bahawa 100% bagi item 1, 3,5 dan 6. Manakala 97% bagi item 2 dan 4.

4.0 KESIMPULAN

Bahan inovasi yang diasaskan adalah bagi menyelesaikan isu yang dinayatakan dalam Perancangan Strategik JPN Perak. Produk ini terbukti mampu mengawal masalah tekanan di organisasi. *Rosted CUPS* adalah signifikan, sesuai dan mudah dilaksanakan oleh semua Kaunselor Pendidikan. Selain itu, *Rosted CUPS* adalah murah, alatannya boleh dibina sendiri dan sesuai dengan konsep psikologi dan kaunseling. Natijahnya, wujud satu modul khas di JPN yang dibina dan dimurnikan oleh semua Kaunselor Pendidikan di Perak untuk membantu mengurus tekanan warga Pendidikan. Hasil inovasi telah memberi sumbangan nilai tambah psikologi dan kaunseling dari aspek kreativiti dan teknik kontemporari

PENGHARGAAN

Sebagai pengkaji kami ingin menzahirkan penghargaan kepada Pengarah Pendidikan Negeri Perak dan Ketua Kaunselor Pendidikan Negeri Perak.

MODEL KEBAHAGIAAN RUMAHTANGGA (MEKAR)

Abdul Rashid Abdul Aziz[1], dan Nurun Najihah Musa[2]

[1,2]Universiti Sains Islam Malaysia

1.0 PENGENALAN

Setiap rumahtangga yang didirikan tidak dapat lari daripada dilanda krisis. Setiap krisis yang dialami oleh pasangan juga tidak semestinya berakhir dengan pengakhiran yang buruk kerana krisis rumahtangga adalah perkara yang biasa terjadi dalam sesuatu hubungan. Bahkan konflik boleh menggalakkan sesebuah pasangan untuk memahami punca dan jalan penyelesaian (Rose & Mustaffa, 2018). Namun, krisis yang berterusan akan menyebabkan tekanan yang boleh menjejaskan kesihatan dan kesejahteraan keluarga. Oleh itu, Model Kebahagiaan Rumahtangga (MEKAR) ini diwujudkan bagi mengenalpasti punca sebenar krisis rumahtangga dan bagaimana krisis tersebut dapat ditangani. Model Kebahagiaan Rumahtangga (MEKAR) ini juga membolehkan pasangan membuat saringan awal berkaitan punca dan cara menangani krisis dalam masa yang singkat dan tanpa perlu keluar dari rumah. Selain itu, implikasi dari peristiwa negatif masa lalu rentetan penularan wabak Covid-19 seperti kehilangan pekerjaan, masalah kewangan, isu kesihatan dan tekanan di tahap kronik juga memberi kesan pada kesejahteraan perkahwinan (Karney, Story, & Bradbury, 2005). Manakala, kajian yang dijalankan oleh Hassan, Yusooff dan Alavi (2012) mendapati masalah dalam perkahwinan juga berpunca disebabkan masalah kesihatan mental yang meningkat berpunca dari tekanan hidup yang serius.

1.1 Pernyataan masalah

Institusi kekeluargaan di Malaysia dilihat semakin goyah dan hampir musnah oleh kerana krisis rumahtangga yang gagal diselesaikan. Isu ini dilihat semakin meningkat semenjak pandemik COVID-19 melanda. Kes perceraian dilaporkan sebanyak 77,786 kes sepanjang Mac 2020 sehingga Ogos 2022. Jumlah ini bukanlah jumlah yang kecil. Bahkan isu disetiap konflik yang berlaku juga adalah berbeza bagi setiap pasangan. Strategi daya tindak yang tepat perlu diambil bagi menangani setiap krisis yang berlaku agar tidak berakhir dengan perceraian. Setiap pasangan yang mendirikan rumahtangga juga pastinya mempunyai matlamat untuk mengekalkan rumahtangga tersebut (Marziah et al., 2018). Hasil dapatan kajian Rogayah (2021) mendapati bahawa punca perceraian berlaku adalah disebabkan kegagalan memberi nafkah dan menjalankan tanggungjawab, masalah ketagihan dadah, campur tangan pihak ketiga dan isu keganasan rumah tangga. Selain itu, punca perceraian juga turut dikenalpasti oleh Moktar dan Omar, (2018) tercetus disebabkan faktor kedangkalan ilmu agama, masalah kesihatan, faktor seksual, masalah kewangan dan pembawaan akhlak yang cetek. Justeru, pentingnya pembinaan Model Kebahagiaan Rumahtangga (MEKAR) untuk menerapkan elemen kesejahteraan dalam sesebuah keluarga bagi mengatasi masalah perceraian yang berlarutan mencatat statistik tinggi saban tahun.

1.2 Objektif

1) Mengatasi konflik rumahtangga
2) Mengenal pasti punca keretakan rumah tangga
3) Kebahagiaan pasangan suami dan isteri
4) Panduan kepada kesejahteraan keluarga

2.0 BAHAN DAN KAEDAH

2.1 Penerangan Idea

Tahap 1

Pembinaan model sebagai garis panduan kepada kesejahteraan keluarga ini dijalankan dalam bentuk tinjauan dan penerokaan bagi pasangan yang telah berumah tangga selama lebih 20 tahun. Tahap Pasangan ini diberikan set soal selidik kebahagiaan dan mencapai skor maksimum untuk melayakkan mereka menjadi sebahagian daripada informan

Tahap 2

Hasil daripada tinjauan dan penerokaan yang dijalankan secara temubual, tema dibentuk bagi membangunkan model kebahagiaan rumahtangga

Tahap 3

Model yang dibangunkan berupaya untuk melahirkan produk seterusnya seperti instrumen pengukuran, kit manual mahupun modul.

Jasmani - fizikal: makan bersama, riadah, gotong-royong, memasak bersama Emosi - efektif: cara didikan, hubungan ibubapa dan anak-anak
Rohani - spiritual: solat jemaah, perkongsian ilmu, membaca al-quran, menuntut ilmu, pembentukan akhlak (ibubapa sebagai model)
Intelek - kognitif: tahap pendidikan, menyediakan pendidikan untuk anak-anak, berfikiran positif
Sosial: saling memberi sokongan, mengurangkan penggunaan gajet

2.2 Keaslian

Cetusan inovasi Model Kebahagiaan Rumahtangga (MEKAR) merupakan idea asli bagi membantu menangani isu perceraian pasangan berkahwin. Krisis rumahtangga yang semakin meruncing menjadi asbab kepada model ini dicipta. Justeru, Model Kebahagiaan Rumahtangga (MEKAR) ini direalisasikan untuk mengatasi masalah perceraian yang kian meningkat kini. Pembangunan model ini membantu pasangan berkahwin untuk mengemudi rumah tangga secara harmonis dan sejahtera bagi mengelakkan perceraian menjadi pilihan terakhir setiap kali berlaku konflik rumah tangga.

3.0 HASIL DAN PERBINCANGAN

3.1 Praktis dan Kegunaan

Model Kebahagiaan Rumahtangga (MEKAR) digunakan untuk membantu pasangan berkahwin menangani masalah rumah tangga dengan bijaksana tanpa berlakunya perceraian. Keluarga yang harmoni dan bahagia perlu diterapkan dalam masyarakat kini bagi melahirkan generasi yang sihat mental, berdaya saing dan kompetitif dalam membangunkan negara. Selain itu, Model Kebahagiaan Rumahtangga (MEKAR) boleh dipratikkan di tempat yang sering menjadi rujukan pasangan berkahwin seperti di Jabatan Agama Islam Negeri, Lembaga Penduduk dan Pembangunan Keluarga Negara (LPPKN) dan di pusat perkhidmatan kaunseling digunakan Isu masalah rumah tangga merupakan aspek penting yang perlu dipandang serius kerana institusi kekeluargaan menjadi asas penting pembangunan diri individu yang sihat. Justeru, Model Kebahagiaan Rumahtangga (MEKAR) digunakan bagi merealisasikan hasrat negara dalam melahirkan masyarakat yang berwibawa, komited dan sejahtera.

3.2 Impak

Model Kebahagiaan Rumahtangga (MEKAR) dilihat berimpak tinggi dalam mengatasi isu perceraian yang semakin menular dalam kalangan masyarakat. Hal ini membantu dalam melahirkan individu yang dapat membangunkan diri dengan baik tanpa dibelenggu masalah isu rumah tangga yang bermasalah

dan memberi kesan secara tidak langsung kepada kebajikan anak-anak. Potensi diri setiap individu akan terganggu sekiranya masalah yang bermula dari rumah tidak dapat diselesaikan dengan baik. Oleh itu, pembangunan model ini memberi impak tinggi dalam pembangunan masyarakat yang sejahtera.

3.3 Nilai Komersial

Pembangunan model ini menjadi aset penting kepada pembangunan masyarakat yang sejahtera dan memberi nilai manfaat yang tinggi dalam menangani krisis rumah tangga yang semakin meruncing. Pembangunan modul ini dapat membantu mengatasi masalah kadar perceraian yang tinggi sekaligus melahirkan masyarakat sejahtera dan berdaya saing dalam membangunkan negara. isu perceraian yang kerap berlaku saban hari terus meningkat walaupun didapati banyak kajian telah dijalankan bagi mengenal pasti punca berlaku perceraian. Namun, solusi bagi isu ini masih hambar dan tiada tindakan proaktif oleh pihak bertanggung jawab. Justeru, pembangunan Model Kebahagiaan Rumahtangga (MEKAR) ini berpotensi menjadi garis panduan yang bakal digunakan di dalam perkhidmatan kaunseling dan pejabat agama negeri bagi menangani mengatasi masalah perceraian.

3.4 Perbincangan

Krisis rumahtangga merupakan perkara basa yang berlaku dalam sesebuah hubungan. Namun krisis yang tidak ditangani dengan baik dan berterusan dapat mengakibatkan perceraian. Isu perceraian ini bukanlah perkara yang baik jika berlanjutan dan semakin bertambah. Bahkan ianya dapat memberi kesan kepada pasangan yang terlibat dan anak-anak. oleh itu, strategi daya tindak yang bersesuain amat penting dalam mengatasi krisis rumahtangga dan memastikan rumahtangga berada dalam keadaan bahagia. Dalam aspek strategi daya tindak ini, Lazarus dan Folkman (1984) telah mengklasifikasikan strategi daya tindak kepada dua aspek iaitu strategi berfokuskan masalah dan strategi berfokuskan emosi. Strategi berfokuskan masalah ini dilihat berkesan dalam menguruskan tekanan yang boleh diubah seperti konflik dalam hubungan, terutamanya hubungan dalam keluarga atau mengurangkan kesan negatif stres terhadap kesihatan dan kesejahteraan individu (Folkman & Moskowitz, 2004; Penley, Tomaka, & Wiebe, 2002). Manakala strategi berfokuskan emosi dilihat dapat meningkatkan tahap keselesaan individu dalam berdepan dengan stress berbanding fungsinya dalam mengurangkan stres (DeGraff & Schaffer, 2008). Ini menunjukkan strategi yang tepat dalam menguruskan sesuatu krisis dapat menjamin kebahagiaan rumah tangga. Justeru, model ini dibina untuk membantu pasangan dan pihak berkaitan dalam menangani krisis rumahtangga sekaligus mewujudkan rumahtangga yang harmoni dan bahagia.

4.0 KESIMPULAN

Setiap pasangan pasti akan menghadapi krisis rumahtangga. Setiap krisis yang dihadapi bagi setiap pasangan juga berbeza. Berdasarkan punca krisis yang berbeza tersebut, pastinya daya tindak dan jalan penyelesaian yang diperlukan juga berbeza. Namun tidak semua pasangan mengambil penting atau mencari punca kepada krisis yang berlaku. Justeru, model ini dibina bagi membantu pasangan dalam menguruskan rumahtangga dengan lebih berkesan. Model ini juga diharapkan dapat membantu pihak yang berkaitan seperti kaunselor dan pejabat agama dalam menyelesaikan isu rumahtangga yang sering terjadi.

PENGIKTIRAFAN (*ACKNOWLEDGEMENT*)

Sekalung penghargaan ditujukan kepada Kementerian Pengajian Tinggi atas pembiayaan Skim Geran Penyelidikan Fundamental (FRGS) dengan kod (FRGS/1/2021/SS0/USIM/02/3) yang bertajuk ‘Model Baharu Pengurusan Krisis Rumahtangga Keluarga B40 dalam Memacu Kesejahteraan Holistik’.

KIT INFO KERJAYA (KIK)

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1.0 PENGENALAN

Pandemik COVID-19 yang melanda dunia telah meninggalkan impak yang sangat besar dalam sektor pekerjaan di Malaysia. Sektor pekerjaan antara sektor yang terjejas dengan kenaikan kadar pengangguran di mana Jabatan Perangkaan Malaysia telah merekodkan terdapat peningkatan kadar pengangguran kepada 4.9 peratus pada Januari 2021 berbanding 4.8 peratus pada Disember 2020.

Kajian yang dibuat oleh sebuah firma penyelidikan pasaran (IPSOS) pada tahun 2021 juga mendapati bahawa kebimbangan terhadap pengangguran meningkat kepada 40 peratus semasa pandemik COVID-19 berbanding tahun sebelumnya. Data tinjauan yang dibuat ini juga menunjukkan sebanyak 62 peratus rakyat Malaysia mencatatkan kebimbangan terhadap wabak COVID-19 yang turut sama mempengaruhi ekonomi negara disebabkan kebimbangan untuk membuat sebarang bentuk aktiviti luar termasuklah bekerja. Selain itu, statistik, kadar kebolehpasaran graduan di Malaysia berada pada kadar melebihi 80 peratus dicatatkan sejak tahun 2018 iaitu sebanyak 80.2 peratus. Manakala kebolehpasaran belia pada tahun 2020 sebanyak 84.4 peratus berbanding 86.2 peratus pada tahun 2019 iaitu tahun sebelum krisis.

Secara terperinci, menurut Jabatan Perangkaan Malaysia (DOSM), lebih ramai siswazah dalam guna tenaga tidak penuh dan siswazah menganggur meningkat ketara sebanyak 22.5 peratus pada 2020. Laporan ini memperihal keseluruhan penawaran buruh siswazah pada 2020 mengikut ciri-ciri demografi dan sosioekonomi. Siswazah dalam laporan ini ditakrifkan sebagai individu yang memperoleh sijil tertinggi daripada universiti, kolej, politeknik, badan yang diiktiraf atau setaraf, dengan tempoh pengajian sekurang- kurangnya dua tahun. Persekitaran ekonomi yang kurang memberangsangkan pada 2020 dan kesannya kepada kedudukan pasaran buruh telah menyebabkan bilangan siswazah menganggur meningkat ketara sebanyak 22.5 peratus (37 ribu orang) kepada 202 ribu orang (Jabatan Perangkaan Malaysia, 2020). Justeru, kadar pengangguran siswazah pada 2020 naik sebanyak 0.5 peratus kepada 4.4 peratus berbanding 3.9 peratus pada tahun sebelumnya. Selain itu, lebih 75 peratus daripada siswazah menganggur adalah mereka yang aktif mencari kerja yang mana hampir separuh menganggur bagi tempoh kurang dari tiga bulan. Oleh yang demikian aspek pencarian kerja menjadi satu perkara penting bagi setiap individu apatah lagi setelah dilanda wabak COVID-19 yang mempengaruhi sektor pekerjaan di Malaysia.

1.1 Pernyataan masalah

Walaupun pelbagai program telah dilaksanakan bagi membantu graduan mendapatkan pekerjaan misalnya, program Skim Latihan 1 Malaysia, Program Pelan Jana Semula Ekonomi Negara (PENJANA), Program Jamin Kerja Keluarga Malaysia, Program Agropreneur Muda dan sebagainya, namun masih terdapat sebilangan belia yang masih tidak berjaya mendapatkan peluang kerjaya bagi meneruskan kelangsungan hidup mereka. Faktor yang membawa kepada kegagalan belia sebegini dalam mendapatkan pekerjaan harus dikaji dan seterusnya diselesaikan agar mereka tidak menjadi golongan yang tercicir. Hal ini kerana, golongan belia berusia di bawah 30 tahun merupakan golongan yang terjejas teruk menganggur berikutan tempias daripada wabak COVID-19 yang lalu (Junaidi dan Amirul, 2020).

Tambahan itu, pencapaian akademik yang baik juga merupakan kayu ukur dalam memastikan kejayaan belia mendapatkan pekerjaan. Hal ini dibuktikan dalam kajian yang dijalankan oleh Narad dan Abdullah (2016) menyatakan bahawa kejayaan sesebuah institusi pendidikan itu bergantung kepada pencapaian akademik pelajar yang menjadi kriteria utama kebolehpasaran graduan. Sementara itu, isu keyakinan diri yang lemah dan kekurangan dalam menonjolkan diri semasa sesi temuduga menjadi faktor penyumbang kepada kegagalan untuk diambil kerja oleh majikan (Fazilah, Rozita & Riska, 2020). Hamidah, Rohailin, Siti & Rusyda (2017), turut menemukan punca pengangguran adalah disebabkan tiada persiapan yang lengkap dan sempurna ditambah dengan persediaan pengetahuan yang lemah dalam kalangan graduan.

Universiti telah mengambil peranannya dalam menerapkan kemahiran tinggi dalam kalangan pelajar serta memberikan perkhidmatan sokongan dalam pembangunan kerjaya. Namun begitu, usaha ini masih terhad kepada pelaksanaan program berjadual seperti bengkel kerjaya serta ceramah menyebabkan perancangan ini masih belum dapat menyumbangkan impaknya kepada graduan secara menyeluruh. Sumber rujukan yang tidak dikemaskini serta tidak tersusun juga menyebabkan kesedaran pelajar terhadap pendedahan kerjaya ini juga hanya menjadi kesedaran dan usaha bermusim, serta tidak dipraktikkan secara menyeluruh. Bagi pelajar atau belia yang ingin membuat keputusan berkaitan kerjaya atau pun mereka yang sedang berada di ambang memasuki pasaran kerjaya buat kali pertama, pendapat individu lain yang berkaitan merupakan aspek penting yang mempengaruhi pemilihan kerjaya mereka (Azzura et al., 2020). Belia mempunyai pengalaman peribadi yang sangat terhad untuk dijadikan asas pemilihan kerjaya dan memerlukan bantuan daripada sumber lain untuk mendapatkan idea dan inspirasi berkaitan kerjaya. Sebarang keputusan yang dilakukan oleh belia berkait rapat dengan ketidakpastian. Dalam keadaan ketidakpastian, individu biasanya mengalami kebimbangan dan ketakutan, yang cenderung menghalang mereka dari membuat tindakan dan membawa kepada penangguhan dan tidak bertindak (Paulus, 2007). Justeru, keseluruhan masalah ini dilihat dapat diselesaikan dengan membina suatu kit yang dapat memberikan pendedahan awal serta maklumat kepada belia berkaitan kerjaya. Inovasi Kit Info Kerjaya (KIK) ini dapat membantu para graduan untuk membuat persediaan rapi menempuh peringkat awal mencari pekerjaan sekaligus menyelesaikan isu pengangguran yang menjadi dilema setiap individu bergelar graduan.

Objektif

1) Memberi pendedahan dan maklumat berkaitan kerjaya kepada para pelajar
2) Membantu pelajar mengenalpasti kerjaya yang bersesuaian dengan mereka
3) Persediaan pelajar menghadapi alam kerjaya
4) Memudahkan dan membantu kaunselor dalam menyampaikan maklumat berkaitan kerjaya.
5) Memastikan pelajar mendapat maklumat berkaitan kerjaya yang menyeluruh dan terkini

2.0 BAHAN DAN KAEDAH

2.1 Penerangan Idea

Kit ini terdiri daripada gabungan beberapa elemen penting yang diperlukan oleh setiap pelajar sebagai persediaan mereka dalam menempuh alam pekerjaan. Ia mengandungi:

1) Inventori Minat Kerjaya
   Di bahagian ini, disediakan Inventori Minat Kerjaya Sidek dan Ujian Kecenderungan Bakat. Menerusi dua inventori ini individu akan memilih salah satu atau menjawab kedua-dua inventori bagi mengenalpasti kecenderungan kerjaya dan bakat untuk memilih kerjaya yang tepat.
2) Penyediaan CV (curriculum vitae)
   Curriculum vitae merupakan perkara penting yang menjadi kewajipan untuk individu sediakan pada setiap kali memohon pekerjaan. Kit Info Kerjaya (KIK) menyediakan contoh resume atau template CV yang membantu individu melihat contoh terbaik penyediaan CV. Hal ini dapat membantu

individu mempersembahkan CV yang baik dan memberi keyakinan kepada majikan untuk memilih individu tersebut bekerja. Individu hanya perlu meletakkan pencapaian yang dimiliki di ruangan dalam CV yang telah dibahagikan mengikut pembahagian yang spesifik.

3) Persediaan temuduga
   Berdasarkan penyataan masalah yang dikemukakan, kebanyakan kajian mendapati persediaan temuduga yang terhad menjadi faktor kegagalan penempatan diri dalam pekerjaan. Justeru, Kit Info Kerjaya (KIK) memberi informasi bermanfaat untuk graduan mengetahui tips persediaan menghadiri temuduga dengan mantap dan berkeyakinan tinggi. Oleh itu, kemahiran insaniah (*soft skills*) diberikan penekanan untuk individu peka dan 167nivers sedia memenuhi permintaan majikan.
4) Simulasi Video
   Individu boleh memilih untuk menonton video ringkas berkaitan jenis-jenis pekerjaan di Malaysia dan video berkaitan perkara yang dibolehkan dan dilarang semasa menyediakan CV dan menghadiri temuduga.
5) Inisiatif Kerajaan
   Di dalam kit ini, terdapat senarai inisiatif yang telah dilakukan oleh 167niversi seperti program Skim Latihan 1 Malaysia, Program Pelan Jana Semula Ekonomi Negara (PENJANA), Program Jamin Kerja Keluarga Malaysia, Program Agropreneur Muda. Di dalam membantu para belia mendapatkan peluang pekerjaan, setiap inisiatif tersebut disertakan bersama link ke laman web program berkenaan dan individu boleh terus mengisi borang permohonan di laman web berkenaan.

KIK ini dibina secara digital di mana setiap pelajar perlu mengimbas QR code yang telah diletakkan di setiap bilik kaunseling, *one stop career centre* atau pusat kerjaya di 167niversity dan setempat, dan boleh dipamerkan semasa promosi-promosi berkaitan kerjaya sewaktu di lapangan. Setelah mengimbas QR code, pelajar perlu membuat pendaftaran untuk membuat log masuk ke dalam KIK ini. Setelah berjaya log masuk, setiap pelajar boleh melihat paparan pilihan informasi kerjaya yang terdapat di dalam kit ini.

2.2 Keaslian

Kit Info Kerjaya menawarkan perkhidmatan sokongan semua dalam satu bagi melestarikan usaha menyediakan graduan berkualiti. Inventori Minat Kerjaya, rujukan asas penyediaan CV, persediaan temuduga serta simulasi video dapat diakses melalui satu kit yang mudah didapati.

3.0 HASIL DAN PERBINCANGAN

3.1 Praktis dan Kegunaan

Bagi memastikan para siswa dapat mengembangkan kemahiran kerjaya mereka kepada paras yang optimum, Kit Info Kerjaya ini dapat digunakan ketika sesi kaunseling berkaitan karier. Selain itu, ia boleh digunakan dalam pengajaran dan pembelajaran dikelas atau kuliah. Pengaplikasian KIK ini dapat memudahkan para graduan di dalam menelusuri minat kerjaya serta kemahiran mereka kerana telah dilengkapi dengan alat bantuan semua dalam satu (*all in one*). Malah persediaan awal juga dapat dilaksanakan agar graduan lebih bersedia dalam sesi temuduga untuk kerjaya yang dipilih.

3.2 Impak

Pelaksanaan Kit Info Kerjaya ini dapat menyelesaikan isu pendedahan bermusim yang lazim berlaku terutamanya melibatkan pendedahan kerjaya terhadap graduan. Para siswa bakal beroleh input yang sama yang didapati di dalam bengkel-bengkel kerjaya lain dalam satu alat bantuan yang lengkap.

Selain itu, dengan adanya kit ini juga, para graduan akan lebih jelas matlamatnya dalam memilih sesuatu kerjaya. Kit yang dilengkapi inventori minat kerjaya ini membantu dalam membimbing para graduan dalam memilih kerjaya yang sesuai dengan mereka.
Justeru, para graduan yang bersedia dari aspek akademik serta kemahiran akhirnya dapat dilahirkan. Ini memenuhi hasrat negara dalam mewujudkan graduan bermutu khususnya dalam sektor kerjaya masing- masing. Seterusnya, menjamin masa depan kerjaya mereka buat jangka masa yang lebih panjang melihatkan asas kesedaran karier yang kukuh hasil daripada Kit Info Kerjaya sebagai alat bantuan serta sokongan dalam membina kerjaya.

3.3 Nilai Komersial

Kit ini merupakan suatu aplikasi yang bersifat holistik yang boleh dikomersialkan penggunaannya di seluruh sekolah dan institusi pendidikan tinggi awam mahupun swasta.

3.4 Perbincangan

Pengurusan kerjaya yang baik dapat mengelakkan individu daripada mengalami tekanan terutamanya dalam era digital masa kini yang seterusnya mengakibatkan gangguan fizikal, mental dan emosi. Persediaan awal untuk merancang kerjaya dari awal amatlah penting dalam mencapai masa depan yang cemerlang. Malah, dalam membincangkan aspek kebolehdapatan kerja, aspek kemahiran dan nilai merupakan elemen yang penting. Hal ini kerana, indikator seperti daya saing, kebolehan, nilai, kelulusan, kecekapan, kepakaran dan kemahiran adalah antara faktor dan ciri utama dalam menentukan seseorang mendapat pekerjaan disebabkan persaingan dalam pasaran tenaga kerja (Abd Rahim Rashid, 2006).

Teori Jangkaan-Nilai atau Expectancy-Value Theory (EVT) yang diperkenalkan oleh Martin Fishbein pada pertengahan tahun 1970 merupakan teori berasaskan kognitif-motivasi yang menghubungkan tahap atau kekuatan motivasi individu untuk berusaha mencapai tujuan tertentu berdasarkan jangkaan, nilai insentif dan kekuatan terhadap matlamat yang diinginkan tersebut. Contohnya mencari pekerjaan untuk mendapatkan wang bagi sumber pendapatan dan kehidupan. Menurut Feather (1992) kekuatan sesuatu matlamat adalah berasal dari nilai (manfaat yang akan diperolehi) dari matlamat tersebut kerana nilai ini akan berfungsi sebagai kriteria yang menentukan sikap dan tingkah laku individu.

4.0 KESIMPULAN

Belia mempunyai pengalaman hidup yang sangat terhad terutamanya dalam bidang kerjaya untuk dijadikan asas pemilihan kerjaya dan memerlukan bantuan daripada sumber lain untuk mendapatkan idea dan inspirasi. Disebabkan oleh itu, sebarang keputusan yang dilakukan oleh belia berkait rapat dengan ketidakpastian. Sementelah, kerjaya merupakan salah satu aspek penting yang menentukan hala tuju dan matlamat yang diingini dalam kehidupan setiap belia. Gagal merancang kerjaya akan membawa kepada kegagalan masa hadapan mereka. KIK ini diharap dapat membantu lebih ramai belia diluar atau di institusi pengajian mendapat pendedahan dan informasi berkaitan kerjaya.

JOM FAHAM GENETIK: PENGGUNAAN PETA MINDA DAN MEDIA SOSIAL DALAM PEMAHAMAN TOPIK GENETIK DI PERINGKAT SEKOLAH MENENGAH

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1.0 PENGENALAN

Jika seseorang pelajar tidak mengambil subjek sains tulen di tingkatan empat, mereka masih lagi berpeluang mempelajari ilmu Fizik, Biologi dan Kimia dengan mengambil subjek Sains. Antara daripada topik Biologi yang agak susah dan agak rumit adalah bab ke 5 iaitu bab Genetik, Sains tingkatan 4. Bab genetik yang dipelajari oleh pelajar-pelajar ini hampir sama dengan bab di dalam subjek Biologi SPM tingkatan 5 iaitu Bab 11 Pewarisan, Bab 12 Variasi dan Bab 13 Teknologi Genetik (Khalib et al., 2020).

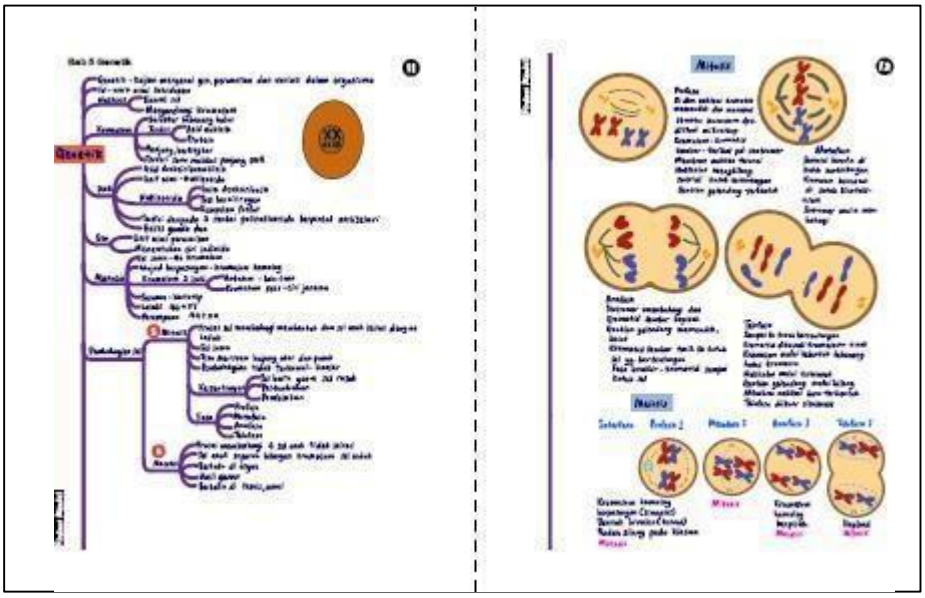
Pada awal bab Genetik, para pelajar perlu memahami beberapa istilah genetik seperti kromosom, DNA, gen, kariotip, autosom, dan nukleotida. Seterusnya para pelajar akan belajar konsep mitosis dan meiosis yang terlibat dalam pembahagian sel. Di dalam pembahagian sel ini juga terdapat banyak istilah-istilah baru yang perlu difahami terlebih dahulu sebelum meneroka lebih mendalam. Topik mitosis dan meiosis ini juga merupakan bahagian yang rumit kerana terdapat proses-proses yang berlaku dalam sebelum mitosis, meiosis, semasa dan selepas. Seterusnya para pelajar akan belajar tentang pewarisan. Disini adanya Hukum Mendel. Sekali lagi, untuk memahami dengan bagus topik ini para pelajar perlu bagus pemahaman mereka pada topik yang sebelumnya iaitu mitosis dan meiosis. Seterusnya, para pelajar akan belajar tentang mutasi, aplikasi genetic, teknologi kejuruteraan genetik, dan variasi. Kesemua topik ini sangat berkait rapat antara satu sama lain (Abdullah et al., 2019).

Berkuat kuasa pada 18 March 2020, Malaysia secara rasmi melaksanakan langkah kawalan pergerakan yang melibatkan larangan menyeluruh pergerakan dan perhimpunan ramai di seluruh negara termasuk aktiviti keagamaan, sukan, sosial dan budaya. Perkara ini memaksa para guru untuk mengadakan sesi pengajaran dan pembelajaran secara atas talian (Batan et al., 2022). Disebabkan larangan ini, inovasi pengajaran dan pembelajaran subjek Sains bab Genetik menggunakan peta minda telah dihasilkan bagi membantu para guru dan para pelajar untuk memahami bab ini secara menyeluruh. Video pengajaran berdurasi 2 jam 38 minit telah dihasilkan berdasarkan peta minda bab Genetik ini.

2.0 METODOLOGI KAJIAN

2.1 Peta Minda

Nota bab Genetik menggunakan konsep kaedah peta minda telah dihasilkan. Peta minda yang dihasilkan dimuatkan dalam 7 mukasurat. Peta minda ini dihasilkan menggunakan Ipad Pro 12 inci dan perisian Notability telah digunakan dalam penulisan peta minda ini. Peta minda ini telah diubahsuai dari peta minda jenis peta minda aliran. Rujukan utama dalam menyiapkan nota ini adalah buku teks Sains tingkatan 4. Peta minda yang cuba dihasilkan menggunakan semua maklumat yang ada dalam buku teks tanpa meninggalkan sebarang maklumat. Maklumat yang banyak disusun satu persatu mengikut subtopik. Cabang dibina untuk menghubungkan satu tajuk sub topik dengan subtopik yang lain. Contoh nota ini dapat dilihat dalam rajah dibawah.



Rajah 30.1 Contoh peta minda bab Genetik Sains tingkatan 4

Selepas peta minda ini disiapkan, penulis telah menghasilkan video pengajaran untuk menggunakan Ipad Pro 12 inci. Video ini telah disiapkan dengan mengambil masa selama 2 jam 38 minit. Data dari segi jumlah tontonan, jumlah jam tontonan dan setiap komen telah dianalisa untuk mendapatkan kesimpulan dari penggunaan peta minda dan video untuk membantu para pelajar untuk lebih faham tentang subjek genetik ini.

2.2 Media Sosial Youtube

1. Video berdurasi 2 jam 38 minit yang dihasilkan dimuat naik di dalam Saluran Youtube FIRDAUS pada 12 Mac 2020. Rajah 30.2 dibawah adalah Kod QR untuk ke video yang telah dimuat turun di saluran Youtube.

Rajah 30.2 Kod QR video pengajaran Genetik Sains tingkatan 4

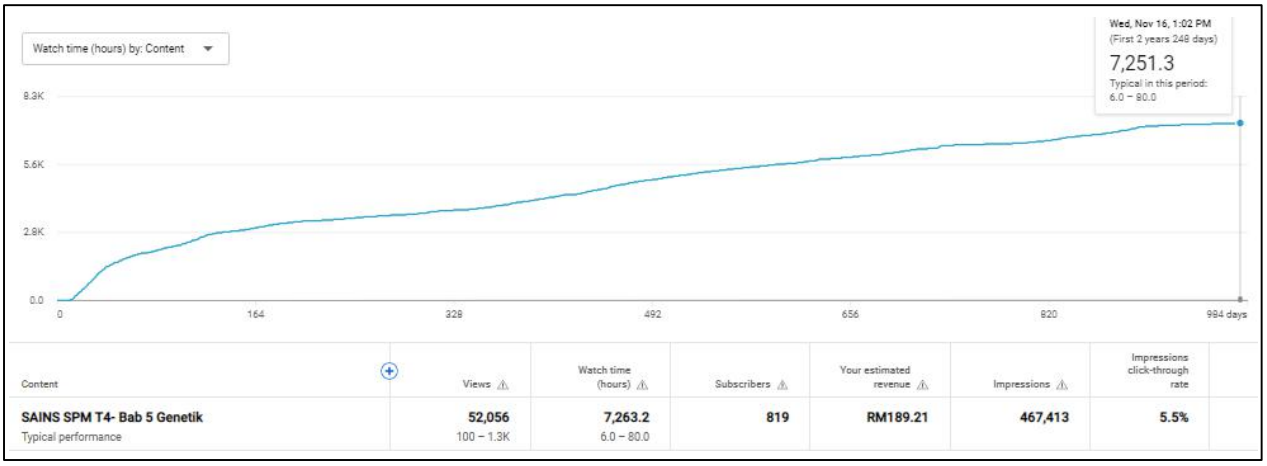
3.0 DAPATAN KAJIAN DAN PERBINCANGAN

3.1 Jumlah Tontonan, Jumlah Jam Tontonan dan Hasil Pendapatan Iklan

Setakat 19 November 2022 sebanyak 52,056 jumlah tontonan telah terkumpul. Daripada jumlah

tontonan itu terdapat 7,263 jam tontonan telah terkumpul. Hasil jumlah tontonan dan jumlah jam tontonan sebanyak RM189.21 hasil iklan telah berjaya diperoleh.

Rajah 30.3 dibawah menunjukkan jumlah tontonan, jumlah jam tontonan dan hasil pendapatan dari video ini.

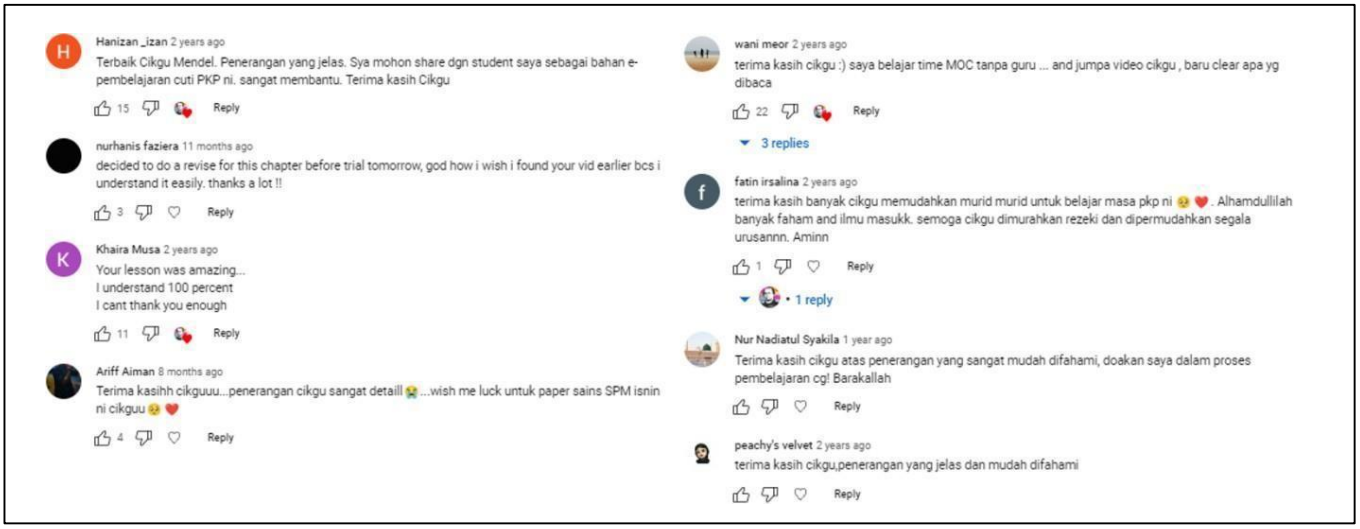


Content	Views	Watch time (hours)	Subscribers	Your estimated revenue	Impressions	Impressions click-through rate
SAINS SPM T4- Bab 5 Genetik	**52,056**	**7,263.2**	**819**	**RM189.21**	**467,413**	**5.5%**
Typical performance	100 – 1.3K	6.0 – 80.0				

Rajah 30.3 Jumlah tontonan, jumlah jam tontonan dan hasil pendapatan iklan video Sains SPM tingkatan 4 bab Genetik

3.2 Komen Penonton

Terdapat 79 komen keseluruhan yang diterima daripada video pengajaran Sains bab Genetik. Kesemua komen yang diberikan adalah bersifat positif. Sebahagian dari komen-komen ini dimasukkan dalam rajah 30.4.



Rajah 30.4 Antara komen dari penonton

4.0 KESIMPULAN

Penggunaan peta minda dalam proses pengajaran dan pembelajaran subjek Sains khususnya bab Genetik dilihat berkesan membantu para pelajar untuk memahami dengan lebih bagus subjek ini. Saluran Youtube juga kelihatan dapat memudahkan lagi akses pelajar kepada video yang telah disediakan.

PENGHARGAAN

Penulis mengucapkan terima kasih kepada Universiti Teknologi MARA Cawangan Perlis

MODUL TERAPI BERMAIN KOGNITIF TINGKAH LAKU

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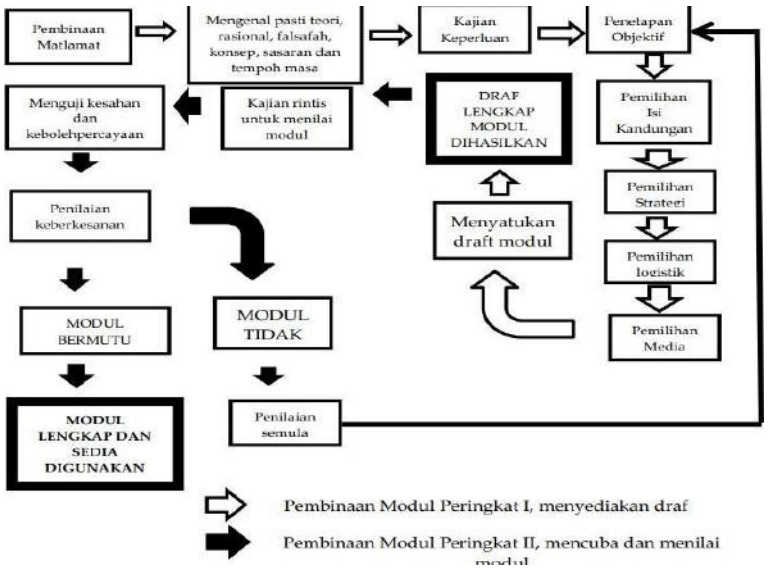
1.0 PENGENALAN

Pelajar pintar berbakat (PPB) merupakan pelajar yang dikategorikan sebagai pelajar berkeperluan khas. Pelajar ini memiliki tahap perkembangan dan pertumbuhan kognitif, emosi dan sosial yang berbeza jika dibandingkan dengan pelajar biasa (Rorlinda, Noriah, Siti Aishah & Afifah 2016). Walau bagaimanapun, di sebalik kelebihan yang dimiliki terpalit tekanan dan konflik dalaman yang membantutkan perkembangan sosial dan emosi mereka. Perkara ini membawa kepada masalah seperti rasa rendah diri, rendah motivasi kendiri, pencapaian bawah tahap (underachievement) dan kebimbangan.

2.0 BAHAN DAN METODOLOGI

2.1 Model Pembinaan Modul

Menurut Sidek Mohd Noah & Jamaludin Ahamad (2005) pembinaan modul yang baik hendaklah mengambil kira pelbagai peraturan dan prosedur bagi menghasilkan kesan terbaik. Peraturan dan prosedur merupakan asas kepada pembinaan sesuatu modul bagi memastikan modul yang dihasilkan berasaskan kepada sumber yang sah dan boleh dipercayai. Dalam kontek kajian ini, pengkaji menggunakan Model Pembinaan Modul Sidek-MPMS (Sidek Mohd Noah & Jamaluddin Ahmad, 2005) sebagai asas dalam pembinaan modul kajian ini. Rajah 31.1 menerangkan proses pembinaan modul MPMS yang mencadangkan dua fasa iaitu fasa penyediaan draf modul dan fasa mencuba dan menilai modul.

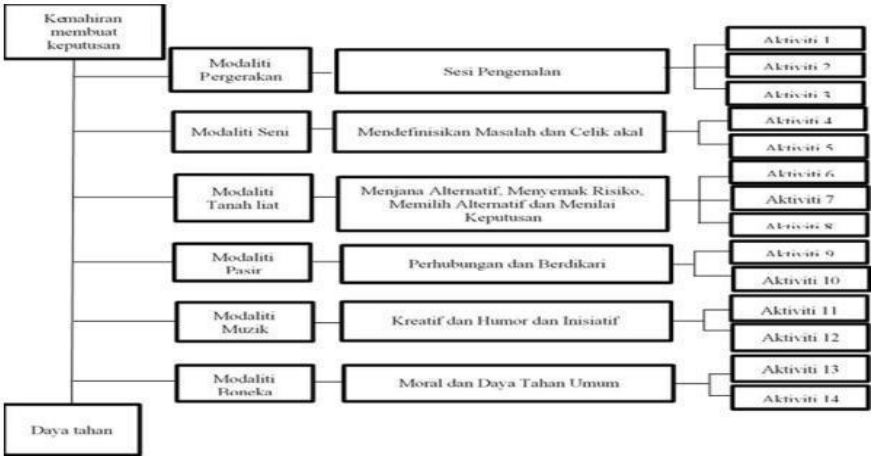


Rajah 31.1 Proses pembinaan modul MPMS

2.2 Metodologi

Perkhidmatan bimbingan kaunseling telah dijalankan bersama dengan sekumpulan 8 orang pelajar pintar yang telah dikenal pasti memiliki tahap membuat keputusan dan daya tahan yang rendah. Satu

intervensi berbantukan modul iaitu Modul Terapi Bermain Kognitif Tingkahlaku (Modul TBKT) dijalankan. Intervensi ini merupakan sesi bimbingan kelompok yang mengandungi 6 sesi iaitu mewakili 6 kali pertemuan. Setiap pertemuan akan memfokuskan kepada domain tertentu yang merangkumi keupayaan membuat keputusan dan juga daya tahan. Berikut adalah perjalanan bimbingan kelompok yang telah dijalankan bersama sekumpulan pelajar ini.



Rajah 31.2 Perjalanan bimbingan kelompok

3.0 DAPATAN DAN PERBINCANGAN

Kemahiran membuat keputusan dan daya tahan adalah salah satu faktor penyumbang kepada kekuatan diri yang perlu dipertingkatkan dalam usaha untuk menangani isu sosial dan emosi dalam kalangan PPB. Setelah tamat intervensi selama 6 kali pertemuan, kesemua PPB diberi alat ujian untuk mengukur perubahan yang berlaku. Dapatan menunjukkan terdapat peningkatan terhadap membuat keputusan (mendefinisikan masalah, menjana alternatif, menyemak risiko dan akibat, memilih alternatif dan menilai keputusan) dan juga daya tahan (celik akal, sifat berdikari, corak perhubungan, inisiatif diri, kreativiti & humor). Berdasarkan kajian lepas, pendekatan terapi bermain telah menunjukkan keberkesanan dalam meningkatkan kemahiran dalam kehidupan termasuk kemahiran membuat keputusan (Fazio-Griffith et al. 2017) dan daya tahan (Folostina et al. 2015). Di samping itu, berdasarkan kajian-kajian lepas juga mencadangkan pendekatan yang diperlukan oleh PPB adalah pendekatan yang selari dengan ciri-ciri mereka. Oleh itu, berdasarkan kepada elemen pendekatan terapi bermain yang bersifat kreatif dan multi sensori (Rosselet & Stauffer 2013) serta fantasi (Knell 1998) telah menjadikan pendekatan ini sebagai salah satu pendekatan yang sesuai terhadap PPB. Ini kerana, pendekatan terapi bermain merupakan salah satu pendekatan yang selari dengan ciri-ciri PPB di samping dapat memenuhi keperluan PPB. Dapat disimpulkan bahawa pendekatan terapi bermain yang menjadi asas dalam perjalanan bimbingan kelompok kajian ini adalah bertepatan dengan populasi kajian iaitu PPB. Oleh yang demikian, para kaunselor, khusus nya kaunselor di institusi pintar dan berbakat perlulah menguasai pendekatan terapi bermain dalam usaha memberi perkhidmatan yang berkesan

4.0 KESIMPULAN

Terapi bermain yang kaya dengan elemen kreatif, multisensori, fantasi adalah pendekatan yang selari dengan ciri-ciri PPB. Justeru pendekatan ini merupakan salah satu pendekatan yang sesuai untuk diaplikasikan terhadap golongan PPB. Oleh itu, adalah menjadi peranan para kaunselor untuk memperkasa kemahiran yang ada dengan menguasai pendekatan yang pelbagai termasuk pendekatan terapi bermain.

Q&E CAKE DECORATING KIT

Siti Hajar Zakaria[1], Mazlifah Ahmad[2], Mariam Jamilah Kamaruddin[3], dan Noor Hanisah Adenan[4]

[1,2,3,4]Kolej Vokasional Sungai Petani 2

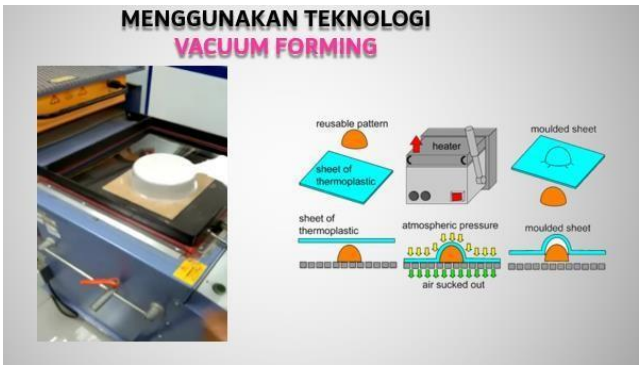
1.0 PENGENALAN

Q&E Cake Decorating Kit merupakan alat bantuan mengajar (ABM) yang direka khusus bagi kursus yang melibatkan hiasan kek. Tercetusnya idea penghasilan *Q&E Cake Decorating Kit* ini adalah kerana terdapat kekangan kepada pelajar untuk berlatih menghias kek, dan hanya tertumpu pada waktu PdP di bengkel sahaja. Menyedari hakikat bahawa latihan sukar dijalankan kerana pelbagai kekangan, kumpulan kami telah mengambil inisiatif menghasilkan *Q&E Cake Decorating Kit* bagi memudahkan pelajar mengasah kemahiran mereka. Produk ini merupakan sebuah kotak berbentuk bulat seperti kek yang diperbuat daripada plastic *acetate*, yang mana hanya mempunyai ruang untuk meletak templat (boleh ubah) di bahagian tepi dan atas serta peralatan menghias kek.

Produk ini dikategorikan sebagai inovasi penciptaan. Ini kerana, produk yang direka merupakan suatu produk yang baharu. *Q&E Cake Decorating Kit* belum pernah digunapakai oleh mana-mana pihak di Malaysia, khususnya dalam proses pengajaran dan pembelajaran. Penghasilan kit ini adalah khusus bagi mengatasi masalah ketidak mahiran dan kurangnya latihan menghias kek dalam kalangan pelajar Program Bakeri dan Pastri, KVSP2. Hiasan kek merupakan satu bentuk seni makanan yang memerlukan kemahiran menghias dan berfikir yang tinggi. Penghasilan produk inovasi ini adalah sangat penting bagi membantu pelajar dalam meningkatkan kemahiran dengan menguasai pelbagai teknik menghias kek.

2.0 BAHAN DAN KAEDAH

Dalam usaha menghasilkan *Q&E Cake Decorating Kit* sama ini, kami menggunakan teknologi *Vacuum Forming* dengan kerjasama UiTM Merbok. Mesin tersebut digunakan untuk membentuk plastik akrilik menjadi bentuk seperti kek berbentuk bulat. Ini memberi perasaan yang sama seperti menghias kek sebenar kepada pelajar ketika menggunakannya.



Rajah 32.1 Kaedah *vacuum forming*

2.1 Peralatan Q&E Cake Decorating Kit

i. Bekas akrilik lutsinar
ii. Template hiasan bahagian atas dan tepi
iii. Nozzle pelbagai bentuk

iv. Washable piping bag
v. Spatula besi
vi. Magnet

Kesemua bahan yang didatangkan adalah bertujuan untuk menghias kek.

3.0 DAPATAN DAN PERBINCANGAN

Pelajar Program Bakeri dan Pastri Kolej Vokasional Malaysia perlu mengambil 3 kursus yang berkaitan hiasan kek sepanjang 4 tahun pengajian mereka di kolej. Kursus yang dimaksudkan tahun adalah HBP 2033 *Cake Decoration*, DHB 1054 *Cake Decorating* dan DHB 3323 *Advance Cake Decoration and Special Pastry*. Secara dasarnya, pensyarah mengharapkan kemahiran yang diperoleh dari kursus hiasan kek sebelumnya dapat menjadikan pelajar semakin mahir dan produk yang dihasilkan semakin baik dari segi kualiti penghasilannya. Namun, apa yang diharapkan tidak semestinya menjadi realiti.

Sebilangan kecil pelajar memang dilahirkan dengan bakat semulajadi, setiap dekorasi yang dihasilkan pada kek akan menampakkan peningkatan secara terus. Namun, bagi pelajar yang kurang berbakat, mereka masih boleh meningkatkan kemahiran yang telah dipelajari. Caranya adalah dengan mengadakan latihan secara konsisten. Acapkali ditanya, ini juga merupakan selari dengan kehendak pelajar akan tetapi mereka tiada upaya untuk berlatih dengan kekangan yang pelbagai kerana kebanyakkan pelajar tinggal di asrama.

3.1 Kemahiran Pelajar

Rajah 32.2 Dapatan soal selidik pra dan pasca penggunaan *Q&E Cake Decorating Kit*

Satu kajian ringkas telah diadakan dalam kalangan pelajar yang mengambil kursus berkaitan menghias kek untuk semester ini bagi melihat keberkesanan penggunaan *Q&E Cake Decorating Kit*. Melalui borang soal selidik yang diedarkan, terdapat peningkatan terhadap kemahiran pelajar yang ketara seperti yang dapat dilihat pada rajah 32.2. Jumlah pelajar yang yakin dengan kemahiran menghias telah bertambah dengan sangat signifikan.

3.2 Pengurusan Masa

Selain peningkatan dari aspek kemahiran, pengurusan masa turut ditanya bagi mengukur tahap kecekapan pelajar.

Rajah 32.3 Perbezaan peruntukan masa menghias kek

Jika dilihat pada rajah 32.3, masih terdapat pelajar yang tidak mempunyai perubahan dari aspek masa penyediaan. Namun, rata-rata pelajar menunjukkan masa yang diambil untuk menghias kek bagi saiz yang sama dapat dikurangkan setelah penggunaan *Q&E Cake Decorating Kit* ini.

4.0 KESIMPULAN

Potensi *Q&E Cake Decorating Kit* adalah sangat tinggi dan boleh dikomersialkan. Ia merupakan alat yang pertama seumpamanya dan berpusatkan latihan menghias kek sebagai penggunaan utama. mampu menarik minat pelajar serta individu lain yang ingin menceburi bidang menghias kek. Mereka boleh mendalami serta mengasah bakat dengan cara melakukan latihan secara konsisten sehingga menunjukkan peningkatan.

PENGGUNAAN 'K2NOSS' UNTUK MENINGKATKAN KEMAHIRAN KONSEP ASAS NOMBOR DALAM KALANGAN KANAK-KANAK PRASEKOLAH

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1.0 PENGENALAN

Proses pengajaran berkesan terhasil dengan adanya sokongan alatan atau bahan-bahan pengajaran yang digunakan oleh guru. Produk/bahan inovasi yang dihasilkan ini merupakan satu pendekatan pengajaran dan pembelajaran berasaskan nombor yang menggunakan aplikasi dan buku (sebagai pengukuhan) untuk memperkenalkan asas nombor 1 hingga 10 kepada kanak-kanak. Idea ini tercetus apabila terdapat segelintir kanak-kanak yang lemah dalam penguasaan kemahiran mengenal dan mengira nombor asas 1 hingga 10 serta masih lagi menghafal turutan nombor. Justeru, kami telah cuba membangunkan satu bahan yang sesuai dengan tahap dan kemampuan segenap lapisan kanak-kanak serta bermanfaat untuk membantu guru-guru mempelbagaikan kaedah PdP untuk memastikan matlamat dan objektif pengajaran dapat dicapai. Bahan tersebut ialah **'K2NOSS. 'K2NOSS'** merupakan singkatan kepada "Kenal & Kira Nombor Asas". **'K2NOSS'** dibina bertujuan menekankan pembentukan sikap untuk memupuk minat dalam matematik, menguasai konsep dan kemahiran asas kemahiran asas nombor 1-10 melalui pelbagai aktiviti dan pengalaman seharian serta meningkatkan kemahiran berfikir dan menyelesaikan masalah kanak-kanak. Kami berharap agar dengan terhasilnya produk inovasi ini dapat membantu kanak-kanak mengenali asas nombor 1-10 dengan lebih cepat dalam suasana yang menyeronokkan.

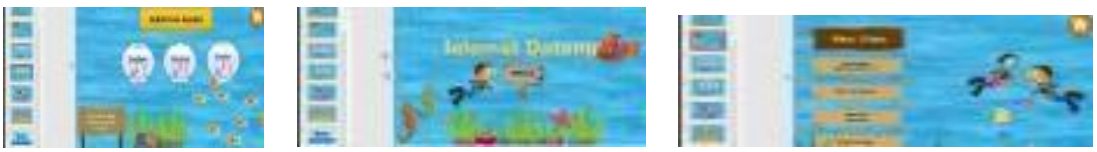
2.0 BAHAN DAN KAEDAH

2.1 BAHAN

Bahan inovasi '**K2NOSS'** yang diilhamkan terbahagi kepada 2 iaitu '**Aplikasi K2NOSS'** dan '**Buku K2NOSS Saya'**. Kedua- dua bahan ini mempunyai kepentingan dan kesinambungan dalam mengasah dan meningkatkan kemahiran penguasaan konsep asas nombor 1-10 kanak-kanak.

2.1.1 Aplikasi K2NOSS

'Aplikasi K2NOSS' seperti dalam Rajah 33.1 di bawah merupakan bahan multimedia interaktif yang bertemakan kehidupan dasar laut dan mesra pengguna yang menggunakan medium perantara Bahasa Melayu. '**Aplikasi K2NOSS'** menyediakan pengalaman yang berbeza kepada kanak-kanak di mana kanak kanak akan di bawa mengembara ke dasar laut sambil diperkenalkan dengan konsep asas nombor melalui permainan interaktif yang disediakan mengikut aras bermula daripada aras rendah ke aras tinggi.



Rajah 33.1 Paparan Aplikasi K2NOSS

2.1.2 Buku K2NOSS Saya

'**Buku K2NOSS Saya'** merupakan sebuah buku mesra alam (*eco-friendly)* yang telah dihasilkan daripada bahan-bahan terpakai seperti kain perca, butang-butang daripada baju lama, tali beg kertas serta pelbagai bahan kitar semula yang dapat menarik minat kanak-kanak dan memberikan pengalaman yang

bermakna dalam menguasai kemahiran asas nombor 1-10. Buku ini mengandungi pelbagai aktiviti yang melibatkan sensori, penyelesaian masalah, permainan imaginasi, dan pelbagai lagi aktiviti yang dapat menarik minat kanak-kanak.

Rajah 33.2 Antara Kandungan dalam 'Buku K2NOSS Saya'

2.2 KAEDAH

Kajian ini telah menggunakan reka bentuk kajian kes dan melibatkan lima orang kanak-kanak di prasekolah. Pengumpulan data merangkumi pemerhatian dan temu bual tidak formal dengan kanak-kanak semasa penggunaan bahan **K2NOSS**.

3.0 DAPATAN DAN PERBINCANGAN

3.1 DAPATAN

Segala rekod dan senarai semak di kumpul untuk dianalisis bagi melihat perubahan yang berlaku. Data yang diperoleh daripada pemerhatian melalui senarai semak daripada Ujian Pra dan Ujian Pos dikumpul dan dianalisis. Segala dapatan dinyatakan dalam bentuk jadual dan graf.

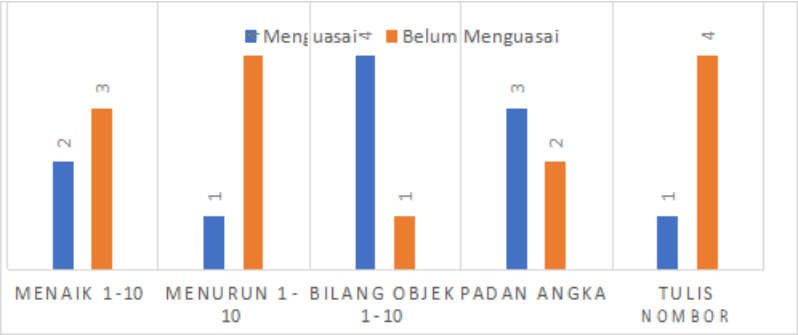
3.1.1 Ujian Pra

Ujian Pra telah dijalankan ke atas 5 orang murid prasekolah dalam Daerah Sepang yang berusia 6 tahun tetapi masih belum mengecam nombor 1-10. Ujian Pra ini dilaksanakan sebelum intervensi dilakukan menggunakan **'Aplikasi K2NOSS'** dan **'Buku K2NOSS Saya'**. Antara kemahiran yang dilihat semasa pemerhatian tersebut adalah berdasarkan Standard Pembelajaran yang terdapat dalam Tunjang Matematik Awal, KSPK (Semakan 2017) seperti dalam Jadual 21.1 dan Rajah 33.3 di bawah.

Jadual 21.1 Ujian Pra Penguasaan Kemahiran Asas Nombor Murid Prasekolah

Bil.	Nama Murid	Kemahiran (18/5/2022)				
		Membilang nombor 1-10 secara menaik	Membilang nombor 1-10 secara menurun	Membilang objek 1-10	Memadankan Angka dengan objek(1-10)	Menulis nombor 1-10 dengan betul
1.	Adra	/	/	/	X	X
2.	Aiman	X	X	/	/	X
3.	Seri	X	X	X	/	X
4.	Luthfi	/	X	/	/	/
5	Indah	X	X	/	X	X

/ - menguasai
X - belum menguasai



Rajah 33.3 Graf Ujian Pra Penguasaan Kemahiran Asas Nombor Murid Prasekolah

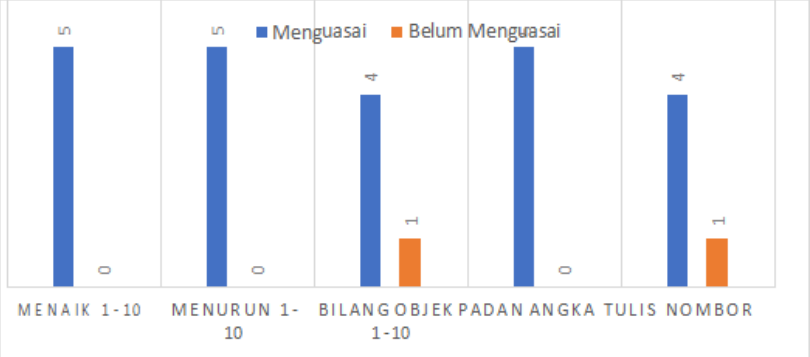
3.1.2 Ujian Pos

Ujian Pos telah dijalankan kepada murid prasekolah yang terlibat sebelum ini setelah intervensi melalui aktiviti 'K2NOSS' digunakan dalam sesi pengajaran dan pembelajaran. Aktiviti yang dilaksanakan dalam ujian pos diulangi semula dalam ujian pos untuk melihat tahap penguasaan murid setelah menggunakan bahan 'K2NOSS' pada sesi akhir pengajaran dan pembelajaran. Pemerhatian melalui senarai semak direkodkan seperti yang dilakukan dalam Ujian Pra. Dapatan data Ujian Pos yang dijalankan selepas intervensi melalui penggunaan bahan 'K2NOSS' ditunjukkan dalam Jadual 21.2 dan Rajah 33.4 di bawah:

Jadual 21.2 Ujian Pos Penguasaan Kemahiran Asas Nombor Murid Prasekolah

Bil	Nama Murid	Kemahiran (25/5/2022)				
		Membilang nombor 1-10 secara menaik	Membilang nombor 1-10 secara menurun	Membilang objek 1-10	Memadankan angka dengan objek (1-10)	Menulis nombor 1-10 dengan betul
1.	Adra	/	/	/	/	/
2.	Aiman	/	/	/	/	/
3.	Seri	/	/	/	/	X
4.	Luthfi	/	/	/	/	/
5.	Indah	/	/	/	/	X

/ - menguasai
X - belum menguasai



Rajah 33.4 Graf Ujian Pra Penguasaan Kemahiran Asas Nombor Murid Prasekolah

Berdasarkan pemerhatian yang telah dijalankan dapat dilihat bahawa bilangan murid yang menguasai konsep asas nombor 1-10 meningkat selepas menjalani ujian pos. Secara keseluruhannya, penilaian semasa ujian pra jelas menunjukkan murid masih lemah dan tidak dapat menguasai kemahiran mengecam dan menulis nombor 1 hingga 10 dengan betul. Namun begitu, setelah intervensi dilaksanakan menggunakan bahan K2NOSS, penguasaan murid telah meningkat. Hal ini dapat dibuktikan melalui pertambahan bilangan murid yang menguasai kemahiran konsep asas nombor setelah ujian pos dijalankan. Secara kesimpulannya, berdasarkan peningkatan bilangan penguasaan murid dalam ujian pos membuktikan bahan K2NOSS mampu meningkatkan penguasaan konsep nombor murid secara memberangsangkan dalam masa yang singkat dengan menggunakan pendekatan belajar melalui bermain dalam suasana pembelajaran yang menyeronokkan.

4.0 KESIMPULAN

Projek inovasi **'Aplikasi K2NOSS'** dan **'Buku K2NOSS Saya'** ini sangat membantu guru-guru tadika dan prasekolah khasnya dalam meningkatkan kemahiran dalam pengajaran. Produk inovasi mesra alam *(eco friendly*) yang diilhamkan ini telah memanfaatkan sumber-sumber pakai semula yang terdapat di sekeliling seperti kain perca, butang, manik serta kain felt terpakai dan tidak memerlukan kos yang tinggi. Di samping itu, produk yang dihasilkan juga praktikal dengan cara atau kaedah menggunakannya. Bagi kami, produk inovasi ini akan dapat membantu kanak-kanak untuk menguasai kemahiran asas nombor 1 hingga 10 dalam pembelajaran Matematik Awal di samping menarik minat mereka untuk belajar terutama kepada kanak kanak yang lemah dan masih menghafal dalam menguasai kemahiran mengira dan mengenal nombor.

PINTAR AL-AFLAK: SINERGI ILMU FALAK, JAWI DAN STEM MANIFESTASI SAINS ISLAM ABAD 21

Mohammaddin Bin Abdul Niri[1], Mohd Hafiz Bin Saadon[2], Mohd Saiful Anwar Bin Mohd Nawawi[3] dan Muhammad Hanis Bin Mohd Amin[4]

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1.0 PENGENALAN

Ilmu falak atau astronomi terkenal dengan nisbah *the queen of sciences* (Zainuddin, M., 2008). Ini kerana ia sentiasa hadir dalam mana-mana tamadun dari Babylon, Mesir, Yunani, Parsi, India hinggalah Cina. Sehubungan itu, perkembangan ilmu falak dapat dilihat turut bergerak seiring dengan perkembangan tamadun manusia itu sendiri (Wilson, R., 2018). Dalam tamadun Islam, perkembangannya telah membawa kepada pembentukan bidang sains Islam dan peranannya cukup signifikan dalam membantu pelaksanaan ibadah umat Islam (King, D.A., 1978). Di alam Melayu, rekod perkembangannya dapat dilihat menerusi pelbagai hasil pengkaryaan ulama tradisional yang dicatat dengan tulisan jawi (Butar-Butar, A.J.R., 2017).

Akibat modernisasi dan kolonialisme Barat, peranan tulisan jawi sebagai wahana persuratan telah diambil alih oleh tulisan rumi (Rahim, R.A.A., 2019). Kesan daripada itu juga, ilmu falak turut mengalami perubahan daripada ilmu falak tradisional yang berasaskan tulisan jawi kepada ilmu falak moden yang menggunakan tulisan rumi (Senen, M.D., 2018). Semenjak itu, ilmu falak tradisional berasaskan tulisan jawi secara beransur-ansur terhakis penggunaannya sehingga kini. Sehubungan itu, kajian ini dilaksanakan dengan objektif utama untuk membangunkan medium bersepadu melestarikan ilmu falak tradisional sekaligus mendukung pemerkasaan jawi melalui pendekatan semasa iaitu berasaskan aktiviti STEM (*science, technology, engineering, mathematics*) (Niri, M.A., 2021).

2.0 METODOLOGI

Metodologi kajian berlandaskan pendekatan mentor-mentee (Deris, F.D., 2021) untuk membentuk sinergi ilmu falak, jawi dan STEM. Pembentukan itu telah dilakukan berasaskan kerangka sains Islam (Niri, M.A., 2022) dan mengambil kira keperluan kemahiran abad ke-21 (González-Pérez, L. I, 2022).

2.1 Kerangka Sains Islam

Sains ditakrifkan sebagai ilmu pengetahuan yang teratur yang boleh diuji atau dibuktikan kebenarannya. Ia adalah cabang ilmu pengetahuan yang berdasarkan kebenaran atau kenyataan semata-mata. Contoh ilmu sains adalah fizik, kimia dan biologi (Kamus Dewan Edisi Ketiga, 2022). Secara mendasar dan operasional, terdapat perbezaan makna diantara ilmu dan sains. Ilmu bersifat lebih umum dan universal, ia merangkum ilmu wahyu (*naqli/athar*) dan ilmu akal (*aqli/ra'y*). Manakala, sains bersifat lebih khusus dan tertumpu kepada analisis fenomena secara bersistem, logik dan objektif berasaskan kaedah khusus untuk menghasilkan himpunan pengetahuan yang boleh dipercayai dan boleh ditahkik (Zain, S.M., 1987). Adapun istilah sains Islam, Alparslan Acikgenc (1996) menjelaskan bahawa sains Islam adalah aktiviti saintifik yang berlaku dalam kerangka pandangan sarwa Islam yang juga boleh dirujuk sebagai konteks Islam terhadap sains. Dalam kajian ini, sains Islam dirumuskan sebagai ilmu pengetahuan yang mengkaji alam tabii berasaskan pengutamaan terhadap sumber wahyu, kemudian penaakulan akal dan ujikaji sistematik untuk menghasilkan dapatan cerapan yang boleh ditahkik kebenarannya. Dengan pengutamaan sumber wahyu, ia meliputi keutamaan mematuhi hukum syarak pada iktikad, fiqh dan

akhlak yakni adab. Berdasarkan rumusan itu, maka ilmu falak sebagai satu ilmu pengetahuan yang mengkaji alam angkasa dan objek-objek samawi merupakan satu juzuk daripada sains Islam (Niri, M.A., 2022).

2.2 Kemahiran Abad-21

Dalam realiti semasa, kemahiran abad-21 merupakan kemahiran yang begitu diperlukan untuk diaplikasi dalam apa jua keadaan terutamanya dalam pasaran kerja. Oleh itu, pembangunannya perlu bermula pada peringkat sekolah dan berterusan hingga ke peringkat pengajian tinggi (Arbaa, R., 2017). Ia terdiri daripada tiga kategori iaitu pertama, kemahiran pembelajaran dan inovasi (kemahiran berfikir, kemahiran menyelesaikan masalah, kemahiran belajar, kemahiran daya cipta, kemahiran kognitif, kemahiran asas dan teras, kemahiran saintifik). Kedua, kemahiran maklumat, media dan teknologi (kemahiran komunikasi, kemahiran teknikal, kemahiran visual, kemahiran maklumat). Ketiga, kemahiran hidup dan kerjaya (kemahiran kolaborasi, kemahiran interpersonal, kemahiran sikap dan amalan kerja, kemahiran antara budaya, kemahiran global, kemahiran sosial, kemahiran kepimpinan, kemahiran kendiri dan kemahiran akauntabiliti) (Ibharim, L.F.M., 2014). Salah satu pendekatan membangunkan kemahiran abad-21 adalah melalui aktiviti STEM (Khalil, N., 2017).

3.0 KEPUTUSAN DAN PERBINCANGAN

Satu model bersepadu diformulasikan dan dinamakan sebagai Pintar al-Aflak. Ia terdiri daripada 5 modul aktiviti iaitu STEM Falak, STEM & Pintar al-Qamar, STEM & Pintar al-Najm, Jawi STEM dan Sains Islam & STEM.

Jadual 22.1 Pintar al-Aflak Terdiri Daripada 5 Modul Aktiviti

Modul Aktiviti	Tarikh Pelaksanaan	Fokus Kandungan	Mod Pelaksanaan	Bilangan Peserta		Jumlah
				Pelajar	Dewasa	
STEM Falak	04.3.2020	Bumi dan Bulan	Fizikal	107	16	123
STEM & Pintar al-Qamar	26.5.2021	Bulan dan Ibadah Islam	Atas Talian	47	25	72
STEM & Pintar al-Najm	2.6.2021	Bintang dan Galaksi	Atas Talian	73	14	87
Jawi STEM	14.8.2021	Menaakul Alam Semesta	Atas Talian	252	168	420
Sains Islam & STEM	4.8.2022	Inovasi dan Rekacipta Sains Islam	Fizikal	308	12	320
Jumlah				787	235	1022
Peratusan (%)				77.1	22.9	100

Berdasarkan jadual 22.1 di atas, keseluruhan peserta yang terlibat dalam lima modul aktiviti Pintar al-Aflak adalah seramai 1022 orang iaitu 77.1 peratus kalangan murid sekolah dan pelajar prasiswazah serta 22.9 peratus kalangan dewasa yang terdiri daripada para guru dan orang awam. Disamping bertujuan melestarikan ilmu falak tradisional dan jawi, pembangunan Pintar al-Aflak turut mempertimbangkan keperluan semasa terhadap kemahiran abad-21. Pada peringkat asas peserta mentee kalangan murid sekolah rendah, Pintar al-Aflak memfokuskan kemahiran menghitung dan menaakul. Untuk peserta mentee peringkat menengah, kemahiran yang ditumpukan adalah kemahiran saintifik. Manakala kalangan pelajar prasiswazah yang terlibat sebagai mentor, pembangunan kemahiran tertumpu kepada kemahiran kolaborasi, kemahiran interpersonal, kemahiran sosial, kemahiran kepimpinan dan kemahiran kendiri. Pelaksanaan modul aktiviti telah berlangsung secara fizikal dan atas talian.

Pelaksanaan secara atas talian dibuat dalam tahun 2020 dan 2021 berkaitan dengan persekitaran ketika itu dalam Perintah Kawalan Pergerakan (PKP) ekoran pandemik Covid-19. Dalam kerangka lebih besar, pembangunan Pintar al-Aflak adalah sebagai satu usaha menyahut aspirasi dan iltizam Malaysia untuk mencapai kemajuan dalam sains, teknologi, inovasi dan ekonomi (STIE). Ini kerana ketika persekitaran semasa begitu memerlukan Malaysia memiliki kapasiti dan kompetensi dalam bidang STIE, berlaku kemerosotan jumlah pelajar yang mengambil jurusan Sains, Teknologi, Kejuruteraan dan Matematik (STEM). Keadaan ini membimbangkan kerana jurusan STEM merupakan wadah pembentukan modal insan untuk membantu merealisasikan aspirasi dan iltizam Malaysia mencapai visi ke arah negara berteknologi tinggi. Sebagai satu alternatif, peranan menyediakan dan memperkasakan modal insan untuk keperluan STIE sebenarnya boleh dimainkan secara tidak langsung oleh keilmuan dan modal insan Islam. Ini kerana persekitaran STIE pada hari ini yang dilatari oleh Revolusi Industri 4.0 turut memberi impak terhadap industri Islam seperti halal, kefatwaan, perundangan, perniagaan, pengurusan dan kewangan Islam. Bermakna, modal insan Islam pada masa kini seharusnya tidak lagi sekadar memetik dan memahami teks keilmuan Islam, bahkan berani maju ke hadapan melengkapkan diri dengan kemahiran abad-21 contohnya pengkomputeran, pengaturcaraan, penguji kajian dan analisis prediktif (Rahman, N.N.A, 2021).

4.0 KESIMPULAN

Pintar al-Aflak dibangunkan bukan sahaja untuk melestarikan ilmu falak tradisional dan jawi tetapi juga sebagai memenuhi keperluan semasa terhadap pembangunan modal insan berasaskan kemahiran abad 21 dan sebagai menyahut aspirasi dan iltizam Malaysia untuk mencapai kemajuan dalam sains, teknologi, inovasi dan ekonomi (STIE).

PENGHARGAAN

Penyelidikan ini dibiayai Geran GA008-2020 dibawah kelolaan Pusat STEM Universiti Malaya, Persatuan STEM Kebangsaan dan Kementerian Sains, Teknologi dan Inovasi Malaysia (MOSTI).

VAFABU MENINGKATKAN PENGUASAAN MURID TAHUN 5 TERHADAP KONSEP FASA BULAN

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1.0 PENGENALAN

Dua elemen penting dalam suatu proses PdP adalah kaedah pengajaran dan media pembelajaran. Media pembelajaran adalah media bermaklumat yang digunakan untuk tujuan pembelajaran dan penting bagi menjana minat terhadap pengajaran yang disampaikan, menjana motivasi, merangsang aktiviti pembelajaran, meningkatkan kefahaman serta menjadikan penyampaian maklumat lebih menarik (Arsyad, 2011). Salah satu bentuk media pembelajaran yang berupaya memberi nilai tambah dan impak kepada pembelajaran murid adalah video animasi. Video animasi merupakan satu bentuk media pembelajaran berasaskan TMK yang sesuai digunakan sebagai media pembelajaran yang menarik dan dapat memudahkan penyampaian pengajaran. Menurut Sudrajat (2010), video animasi merupakan aplikasi yang mengandungi gabungan elemen-elemen media seperti audio, teks, grafik dan video yang berupaya menyokong gaya pembelajaran murid sama ada yang bersifat visual, kinestetik mahupun auditori. Penggunaan video animasi sebagai media pembelajaran mampu mendorong murid untuk terlibat secara aktif dalam PdP memandangkan terdapatnya elemen hiburan dan keseronokan yang dicetus oleh aplikasi tersebut. Sukiyasa dan Sukoco (2013) menyatakan bahawa bahan pengajaran yang diolah ke bentuk video animasi akan menjadikan PdP yang mengaplikasi video animasi tersebut lebih bermakna dan menarik, lebih mudah difahami serta berupaya meningkatkan motivasi murid terhadap pembelajaran. Dengan itu, antara aplikasi yang sesuai digunakan bagi menghasilkan media pembelajaran berasaskan video animasi untuk diintegrasi dalam PdP masa kini adalah Powtoon. Menurut Pratiwi et al. (2020) dan Ardaningsih et al. (2022), penggunaan Powtoon berupaya mencetus impak positif terutama terhadap PdP terutama dalam membantu pelajar untuk memahami isi kandungan sesuatu tajuk pengajaran dengan lebih baik di samping berupaya meningkatkan motivasi pelajar untuk terlibat secara aktif dalam PdP.

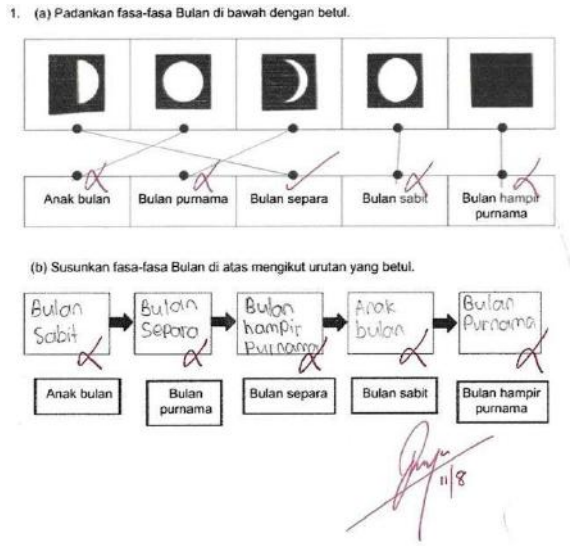
1.1 Pernyataan Masalah

Saya telah diberi kepercayaan oleh pihak pentadbir sekolah untuk mengajar subjek Sains bagi murid Tahun 5 Intelek yang terdiri daripada 12 orang murid pada tahun 2022. Dalam melaksanakan pengajaran dan pembelajaran (PdP) Sains di kelas tersebut, sebahagian besar pendekatan PdP saya lebih banyak menggunakan kaedah *chalk and talk* atau konvensional kerana saya beranggapan bahawa penggunaan kaedah tersebut sudah memadai untuk menyampaikan maklumat kepada murid saya. Namun demikian, setelah beberapa lama menggunakan kaedah tersebut, saya dapati bahawa tumpuan murid saya terhadap penyampaian pengajaran saya semakin berkurangan dan berdasarkan pemerhatian saya, murid saya seolah-olah bosan semasa berada dalam kelas ketika saya mengajar. Situasi ini telah memberi kesan terhadap keupayaan mereka untuk memahami dan menguasai konsep dan kemahiran Sains yang saya sampaikan terutama yang berkaitan dengan konsep fasa bulan khususnya yang melibatkan urutan dan bentuk fasa-fasa bulan. Dalam menyelesaikan soalan berkaitan urutan dan bentuk fasa-fasa bulan, saya dapati bahawa sebilangan besar murid tidak berupaya memadankan gambar fasa-fasa bulan dengan nama fasa-fasa bulan dengan tepat serta masih tidak mampu menyusun fasa-fasa bulan mengikut urutan yang betul dan masalah ini dikenal pasti berdasarkan pemerhatian yang saya lakukan terhadap hasil kerja murid dalam Rajah 34.1.

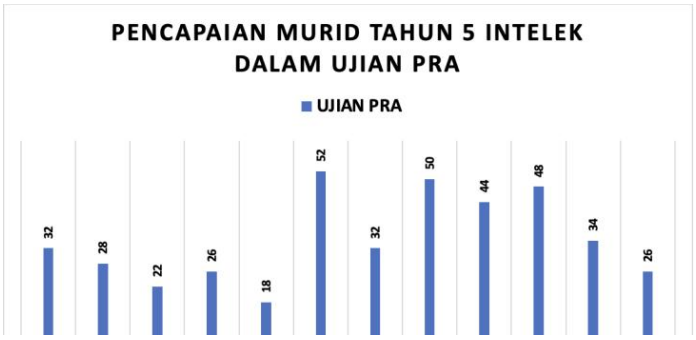
Setelah bertanya dan berbincang dengan murid, saya dapati bahawa kebanyakkan murid saya masih tidak memahami konsep yang berkaitan dengan perubahan bentuk bulan kesan disinari cahaya matahari

apabila mengelilingi bumi. Konsep fasa bulan adalah penting untuk dipelajari memandangkan konsep ini mempunyai kaitan secara langsung dengan konsep kalender khususnya kalender Qamari. Saya turut melaksanakan ujian pra untuk mendapatkan gambaran mengenai pengetahuan sedia ada murid berkenaan konsep fasa bulan setelah didedahkan dengan PdP menggunakan kaedah konvensional. Pencapaian ujian pra yang kurang memberangsangkan seperti yang ditunjukkan dalam Rajah 34.2 telah membuktikan bahawa murid saya sememangnya mengalami masalah untuk menyelesaikan soalan yang berkaitan dengan konsep fasa bulan. Berdasarkan analisis ujian pra, hanya 4 orang murid sahaja yang lulus daripada keseluruhan 12 orang murid.

Dengan itu, saya ingin memperkenalkan inovasi VAFABU yang dihasilkan menggunakan Powtoon khusus untuk menerangkan konsep fasa bulan memandangkan VAFABU merupakan media pembelajaran berbentuk interaktif yang dihasilkan menggunakan Powtoon yang mampu mencetus persekitaran PdP menarik, menyeronokkan dan menggalak keterlibatan aktif murid.



Rajah 34.1 Pemerhatian hasil kerja murid



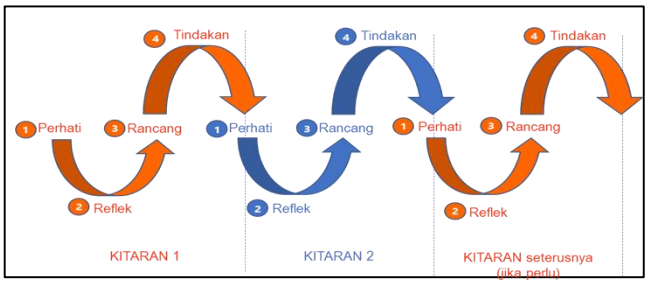
Rajah 34.2 Pencapain murid dalam ujian pra

2.0 METODOLOGI KAJIAN

2.1 Reka Bentuk Kajian

Kajian yang saya jalankan ini telah mengadaptasi model Kemmis dan McTaggart (1988) yang telah diubahsuai seperti dalam Rajah 34.3. Model Kemmis dan McTaggart (1988) yang telah diubahsuai

tersebut melibatkan aktiviti memerhati, mereflek, merancang dan tindakan. Kitaran 2 dan seterusnya akan dilaksanakan berpandukan dapatan kajian yang diperolehi.



Rajah 34.3 Pencapain murid dalam ujian pra

2.2 Kumpulan Sasaran

Kumpulan sasaran terdiri daripada 12 orang Murid Tahun 5 Intelek berpencapaian rendah dan sederhana yang bersekolah di kawasan luar bandar.

2.3 Instrumen Kajian

Instrumen kajian yang digunakan adalah ujian pra dan ujian pasca. Ujian pra yang ditadbir mengandungi 15 item respons terhad yang telah dibina oleh penyelidik berpandukan Jadual Spesifikasi Ujian (JSU) bagi tajuk ‘Fasa Bulan’ yang terdapat dalam sukatan pelajaran Sains Tahun 5. Ujian pasca pula ditadbir bagi mengenal pasti sama ada terdapat peningkatan pencapaian oleh murid setelah didedahkan dengan VAFABU. Ujian pasca tersebut menggunakan item yang sama dengan ujian pra namun telah diubah suai dari segi susunan item. Item yang sama telah digunakan dalam ujian pasca agar perbandingan yang berpadanan dapat dilakukan.

2.4 Prosedur Kajian

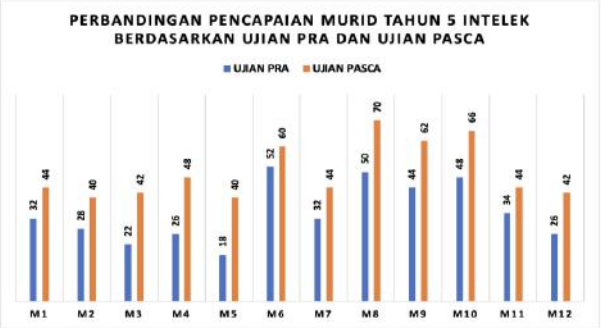
Kajian ini dilaksanakan selama tujuh minggu. Ujian pra ditadbir pada minggu pertama manakala ujian pasca ditadbir pada minggu keenam. Sesi PdP dilaksanakan selama empat minggu bermula dari minggu kedua hingga minggu kelima bagi tajuk ‘Fasa Bulan dan Buruj’. Rajah 34.4 menunjukkan video animasi yang digunakan semasa PdP bagi tajuk ‘Fasa Bulan dan Buruj’.

Rajah 34.4 VAFABU yang dihasilkan menggunakan Powtoon

3.0 DAPATAN DAN PERBINCANGAN

Dapatan kajian membuktikan bahawa penggunaan media pembelajaran yang inovatif serta interaktif adalah berpotensi untuk meningkatkan pencapaian akademik murid. Ini adalah selaras dengan kajian

Simaremare et al. (2018) dan somnuek (2014) yang menyatakan bahawa media pembelajaran yang inovatif khususnya yang diintegrasi teknologi mampu meningkatkan pencapaian murid memandangkan penggunaan media pembelajaran yang diintegrasi teknologi, khususnya TMK, menyediakan murid dengan maklumat yang lebih mudah diakses, memudahkan murid untuk melaksanakan pembelajaran kendiri serta menyediakan peluang yang menyeronokkan untuk mempraktikkan perkara yang telah dipelajari. Dalam kajian ini, pencapaian murid dapat ditingkatkan kesan penggunaan VAFABU disebabkan fleksibiliti dan kelebihan VAFABU sebagai sebuah video animasi yang berupaya menyokong pembelajaran murid selaras dengan kajian Netriwati dan Lena (2017) serta Basriyah dan Sulisworo (2018). Antara kelebihan dan fleksibiliti media pembelajaran yang dihasilkan menggunakan Powtoon adalah bersifat interaktif, mampu merangsang pelbagai deria secara serentak, praktikal, membolehkan maklumat disampaikan dengan lebih meluas, membolehkan berlakunya maklum balas segera antara guru dan murid, boleh digunakan pada bila-bila masa dan di mana sahaja serta membolehkan penghasilan persembahan media yang berkualiti dengan adanya elemen multimedia seperti audio, grafik, teks dan animasi.. Rajah 34.5 menunjukkan perbandingan pencapaian ujian pra dengan ujian pasca dengan murid memperoleh pencapaian yang lebih baik dalam ujian pasca.



Rajah 34.5 VAFABU yang dihasilkan menggunakan Powtoon

4.0 KESIMPULAN

Kajian yang telah dijalankan ini menunjukkan bahawa penggunaan VAFABU dalam PdP Sains bagi tajuk ‘Fasa Bulan dan Buruj’ telah memberikan impak positif khususnya terhadap pencapaian murid dalam tajuk berkenaan serta merupakan suatu bentuk inovasi proses yang mampu mentransformasi pelaksanaan PdP Sains. Dengan itu, golongan pendidik perlu mengambil inisiatif untuk menggunakan Powtoon sebagai suatu bentuk media pembelajaran berbentuk video animasi dalam PdP memandangkan pendekatan ini berpotensi menyokong dan menjadikan persekitaran pembelajaran lebih dinamik, menyeronokkan dan berkesan.

MUFFIN KELADI BUNGA TELANG

Radziah Binti Lateh[1], Muhammad Hazeem Ashraf Bin Johari[2], Muhammad Syahmi Bin Abdul Aziz[3] dan Syamira Balqish Binti Hashim[4]

[1,2,3,4]Kolej Vokasional Tanah Merah, Kelantan

1.0 PENGENALAN

Muffin merupakan sejenis makanan sampingan yang terkenal di kalangan masyarakat Malaysia. Ianya mempunyai khasiat tertentu mengikut kandungan bahan yang dimasukkan ke dalamnya. Keladi dan bunga telang yang digunakan dalam inovasi muffin ini memberikan sesuatu yang baru dalam penghasilan muffin. Muffin yang terdapat dipasaran kini seperti muffin berasaskan coklat, buah-buahan dan sebagainya. Projek ini bertujuan untuk mengkaji keberkesanan inovasi muffin keladi bunga telang sebagai makanan sampingan yang sangat berkhasiat. Penghasilan muffin keladi bunga telang ini diharapkan akan dapat dikomersialkan dan diperkenalkan kepada masyarakat tentang khasiat dan kebaikan keladi dan bunga telang. Idea inovasi menghasilkan muffin berasaskan keladi sebagai bahan utama telah menambah lagi variasi muffin berasaskan sayuran di pasaran. Memandangkan keladi mengandungi khasiat penting yang diperlukan oleh manusia setiap hari seperti karbohidrat, protein, vitamin B6 yang tinggi dan juga vitamin C. Idea inovasi muffin keladi bunga telang ini adalah satu pilihan bagi penggemar muffin kerana ianya sangat berkhasiat dan tinggi nilai nutriennya. Keladi dapat memberi sumber tenaga yang sihat dan mempunyai manfaat makanan yang penting kepada manusia. Keladi mempunyai kelebihan daripada segi khasiat, kualiti dan penghasilan sensori makanan. Kumpulan sasaran ialah penggemar muffin terdiri dari kanak-kanak dan remaja.

Pernyataan Masalah:

a) Banyak makanan ringan yang tidak berkhasiat di pasaran.

b) Masyarakat kurang arif mengenai khasiat dan kegunaan sayuran keladi

c) Kebanyakkan remaja kurang menggemari sayuran keladi.

d) Rasa keladi yang tidak menepati citarasa menyebabkan bukan menjadi sayuran pilihan masyarakat.

2.0 BAHAN DAN KAEDAH

RESEPI STANDARD PENYEDIAAN BAHAN-BAHAN

200 gm keladi cina direbus empuk dan dikisar 260 tepung gandum
5 biji telur
250 gm
mentega 220 gm gula halus 5 gm baking
powder 20 gm
bunga telang
1 sudu esen vanila
50 gm chocolate chip
15 gm susu segar

Rajah 35.1 Bahan-bahan membuat Muffin Keladi Bunga Telang

2.1 CARA PENYEDIAAN

Beberapa bahan dan peralatan digunakan sewaktu penghasilan produk. Setiap bahan dan peralatan mempunyai fungsi-fungsi yang tersendiri. Berikut merupakan senarai bahan-bahan dan peralatan yang digunakan serta fungsinya;

Jadual 23.1 Bahan-bahan membuat Muffin Keladi Bunga Telang

BIL	BAHAN	FUNGSI
1	Keladi	➢ Sebagai bahan utama kepada produk. ➢ Memberi rasa kepada produk.
2	Bunga Telang	➢ Sebagai bahan untuk warna dan khasiat
3	Mentega	➢ Memberi rasa lemak
4	Telur	➢ Menambahkan nilai nutrien
	Tepung gandum	➢ Untuk membentuk muffin
4	Gula	➢ Memberi rasa kepada produk.
5	Baking powder	➢ Melembut dan menaikkan muffin
6	Esen vanila	➢ Sebagai bahan mewangikan muffin
7	Susu UHT	➢ Menambahkan nilai nutrien dan melembutkan muffin

Jadual 23.2 Peralatan digunakan untuk membuat Muffin Keladi Bunga Telang

BIL	PERALATAN	FUNGSI
1	Penimbang	➢ Digunakan untuk menimbang kuantiti bahan dengan tepat.
2	Mangkuk stainless steel (besar & kecil)	➢ Digunakan untuk meletakkan bahan-bahan yang digunakan.

3	Senduk kayu	➢ Digunakan untuk menyebatikan doh
4	Pressure cooker	➢ Digunakan untuk merebus keladi ➢ Digunakan untuk merebus bunga telang
5	Sudu penyukat	➢ Digunakan untuk menyukat
6	Food Processor	➢ Digunakan untuk mengisar keladi yang telah direbus hingga halus.
7	Bekas muffin	➢ Untuk membakar muffin

3.0 HASIL DAN PERBINCANGAN

Rajah 35.2 Hasil produk

Produk ini sangat sesuai dijadikan sebagai salah satu perniagaan kepada masyarakat setempat. Selain bahan mudah didapati, diharapkan pengusaha yang ingin mencuba produk ini mendapat keuntungan dalam perniagaannya nanti. Kami berharap semoga terciptanya resipi baru ini dapat menyumbang kepada pembangunan ekonomi terutamanya dalam bidang pertanian di Malaysia.

3.1 FUNGSI DAN POTENSI

1. Muffin keladi bunga telang dapat memberikan pilihan kepada penggemar muffin di pasaran.
2. Mengkomersialkan produk berasaskan keladi kepada masyarakat.
3. Menambah nilai nutrien dalam muffin bunga telang agar lebih berkhasiat.
4. Berpotensi untuk dipasarkan dengan rasa dan khasiatnya yang banyak.

3.2 IMPAK/KEBERKESANAN

1. Produk muffin bunga telang ini memberi pilihan kepada penggemar muffin.
2. Dengan adanya produk inovasi ini memberi peluang dan dapat melahirkan Usahawan muda, pekedai runcit dan sebagainya untuk menjana pendapatan.
3. Memberi peluang kepada masyarakat untuk menikmati muffin keladi bunga telang dan khasiatnya.

3.3 SUMBANGAN KEPADA MASYARAKAT/ NEGARA/ IR 4.0

Dengan idea inovasi produk muffin keladi bunga telang ini adalah diharapkan ianya dapat:

1. Memberi peluang dan menjana pendapatan usahawan kecil dan sederhana.

2. Membantu pihak petani dan pengusaha tanaman menjana kewangan.
3. Mengkomersialkan muffin keladi bunga telang kepada masyarakat tempatan dan luar.
4. Memupuk masyarakat supaya memanfaatkan khasiat keladi dan bunga telang.
5. Memvariasikan jenis muffin yang terdapat di pasaran.
6. Memperkenalkan produk baru di pasaran.

4.0 KESIMPULAN

Dengan penghasilan muffin keladi bunga telang ini, penggemar dapat menikmati keenakkan keladi serta khasiat bunga telang. Selain itu, ia dapat membantu pengusaha muffin keladi bunga telang ini sendiri dan usahawan makanan tempatan dalam menjana pendapatan. Kami mengharapkan dengan terhasilnya muffin keladi bunga telang ini dapat menambahkan variasi muffin yang sedia ada di pasaran dan menjadi pilihan ramai.

NUGET PEDAL AYAM

Azhawati Binti Mohd Noor[1], Aini Wahdini Binti Zamree[2], Aisyah Maisarah Binti Khairol Anuar[3], Nur Amiesa Binti Amir[4] dan Aisyah Najihah Binti Abdul Razak[5]

[1,2,3,4,5]Kolej Vokasional Sungai Petani 2

1.0 PENGENALAN

Nuget merupakan makanan segera yang digemari oleh pelbagai lapisan masyarakat yang di perbuat dari daging ayam, perasa, sedikit tepung dan sayur – sayuran, kemudian digoreng. Kebanyakkan produk nuget yang sedia ada pada masa kini adalah dihasilkan daripada daging ayam, lembu atau isi ikan yang dikisar atau dihancurkan dan digaul bersama bahan-bahan lain dengan harga pasaran yang agak tinggi. Kepelbagaian bentuk yang menarik dan rasanya yang rangup menjadikan golongan kanak-kanak dan remaja menggemari dan tertarik untuk menikmati nuget. Idea inovasi bagi menggantikan protein ayam kepada pedal ayam dapat mengurangkan harga jualan 63% lebih murah berbanding penggunaan protein ayam di samping mempelbagaikan variasi produk yang sedia ada di pasaran. Penggunaan protein pedal ayam dalam pembuatan nuget dapat menggantikan protein ayam dan mengandungi nilai pemakanan yang rendah lemak, rendah sodium serta tinggi zat besi. Pemprosesan nuget pedal ayam terbahagi kepada dua peringkat iaitu penyediaan nuget pedal ayam dan diikuti dengan proses penyejukbekuan menggunakan blast freezer. Proses penyejukbekuan menggunakan blast freezer adalah teknik penyejukbekuan yang pantas kerana ia merupakan teknik yang terbaik untuk memanjangkan jangka hayat sesuatu produk makanan. Nuget di salut menggunakan Standard Breading Procedure, di susun di atas dulang untuk di masukkan ke dalam blast freezer dan ia perlu disejukbekukan dengan cepat kepada suhu (-18 º C) sebelum di bungkuskan.
Diharapkan idea inovasi produk nuget pedal ayam dapat mempelbagaikan variasi nuget yang sedia ada di pasaran sekaligus digemari oleh golongan kanak-kanak dan remaja.

2.0 BAHAN

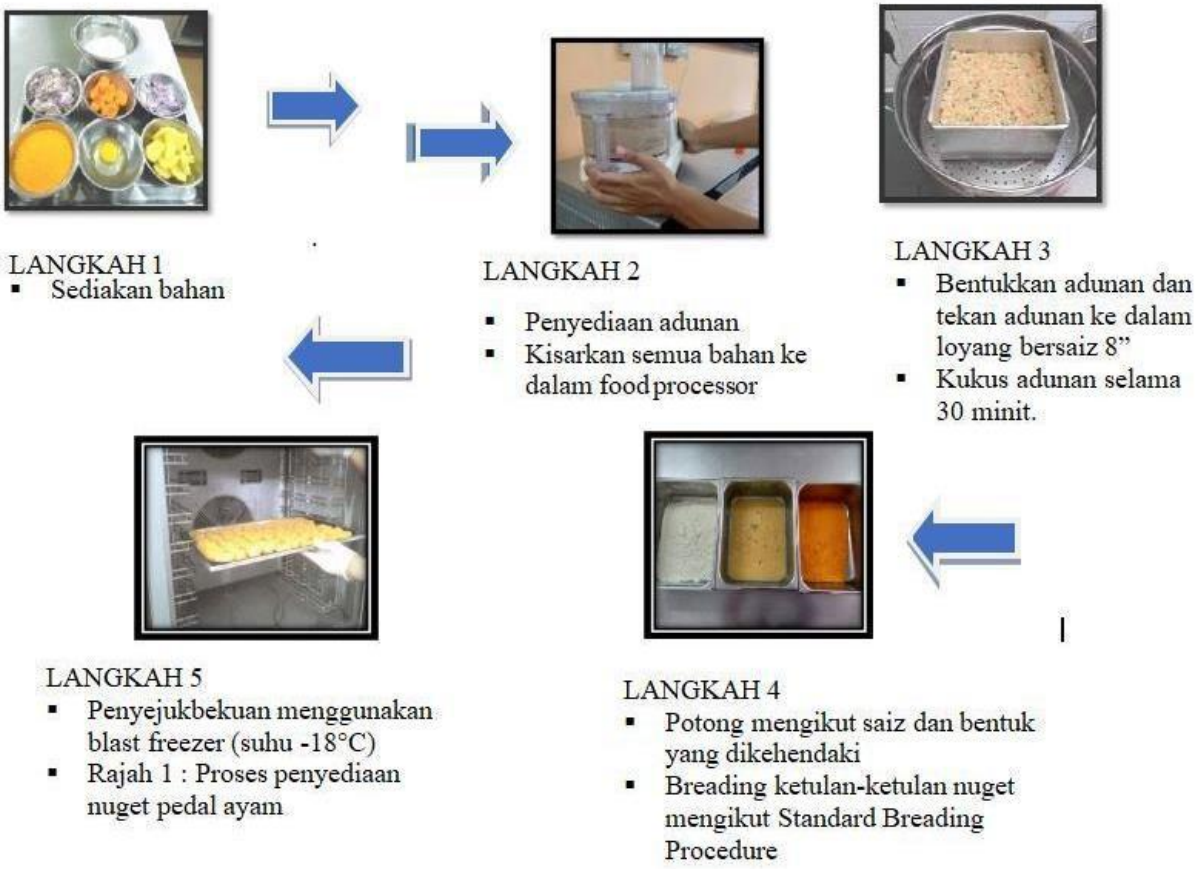
Jadual 24.1 Skop dan limitasi projek

Bil.	Skop Projek	Limitasi	GAMBAR
1.	Bahan utama 	a) Pedal ayam b) Kentang c) Telur d) Tepung gandum e) Serbuk roti f) Bawang merah	
2.	Kaedah pembuatan	Mengukus	

3.	Peralatan	Pengukus Food processor Blast freezer	
4.	Sasaran penggunaan	a) Golongan kanak-kanak b) Golongan remaja c) Golongan dewasa	

Jadual 24.2 Resepi Nuget Pedal Ayam

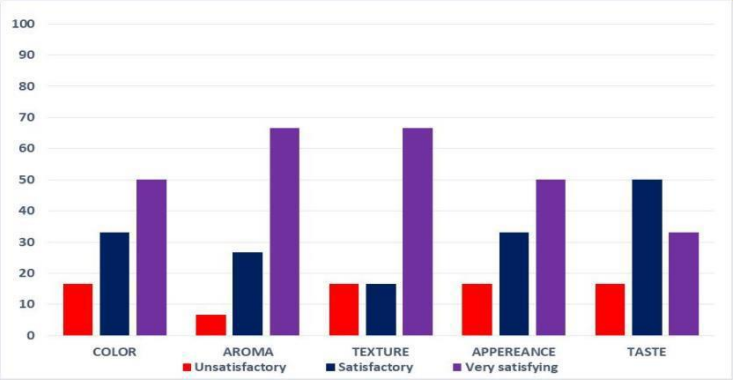
Bahan-bahan: -230 gram kentang Peralatan yang digunakan: Food processor, -1 biji telur ayam kuali dan 2 unit dulang pengukus 8 inci -175 gram lobak merah -120 gram bawang merah -200 gram serbuk roti -400 gram tepung gandum -400 gram pedal ayam	**Kaedah memasak**: Mengukus selama 30 minit. Peralatan yang digunakan: Food processor, pengukus dan2 unit loyang pengukus 8 “, blast freezer. 
Langkah penyediaan: 1. Masukkan kentang, telur, lobak merah, bawang merah, tepung dan pedal ayam ke dalam pengisar. 2. Kisar bahan- bahan yang dimasukkan sehingga lumat dan pindahkan ke dalam loyang.Kukus bahan-bahan tersebut sehingga 30 minit. 3. Potongkan adunan berikut mengikut bentuk yang sesuai. 4. Salutkan nuget menggunakan *Standard Breading Procedure*. (tepung, telur dan bread crumb), simpan di blast freezer pada suhu -18 ℃ 5. Goreng sehingga warna keemasan dan hidangkan semasa masih panas.	



Rajah 36.1 Penyediaan nuget pedal ayam

3.0 DAPATAN KAJIAN

Tinjauan kebolehpasaran produk yang dijalankan ke atas 30 orang responden yang terdiri dari penduduk kawasan Taman Sejati Indah mendapati 83.2 % responden memberi maklum balas yang memuaskan dan sangat memuaskan untuk tekstur pedal ayam yang sesuai dengan nuget dan 93.2% memberi maklumbalas memuaskan dan sangat memuaskan untuk kriteria aroma. Manakala 83 % responden memberi maklumbalas memuaskan dan sangat memuaskan untuk kriteria rasa, rupa dan warna yang menarik.



Rajah 36.2 Tahap penerimaan responden dari aspek warna, aroma, tekstur, rupa dan rasa

4.0 KESIMPULAN

Dengan terhasilnya produk inovasi nuget pedal ayam ini, kos jualan sebanyak 63% dapat dikurangkan bagi sepeket nuget pedal ayam yang sama berat dengan nuget ayam yang terdapat di pasaran. (tanpa mengambil kira kos pembungkusan). Penggunaan protein pedal ayam dalam pembuatan nuget juga dapat menggantikan protein ayam dan mengandungi nilai pemakanan yang rendah lemak, rendah sodium serta tinggi zat besi. Selain itu, produk inovasi ini dapat mempelbagaikan variasi nuget yang sedia ada di pasaran dengan harga yang jauh lebih murah.

KOMPES-MEDIA PENANAMAN AJAIB

Nor Abdi Bin Jaumi[1], Che Siti Yusnany Binti Abdullah[2], dan Jumaisah Binti Ware[3]

[1]Kolej Vokasional Lahad Datu
[2,3] Sekolah Menengah Kebangsaan Segama

1.0 PENGENALAN

Semua jenis tanaman umumnya memerlukan baja dan air untuk pertumbuhan. Kekurangan dua aspek ini akan menyebabkan pertumbuhan terbantut, layu dan mati. Penggunaan baja kimia merupakan alternatif yang sering digunakan untuk mengekalkan kesuburan. Penyiraman pula digunakan menggunakan air sungai, tasik, perigi, hujan malah air paip juga digunakan untuk menyiram tanaman. Namun masalah daripada penggunaan baja kimia dan penyiraman ini adalah, kedua-duanya melibatkan kos dan kualiti. Selain mahal, baja kimia perlu diberikan kepada pokok mengikut kuantiti dan Teknik tertentu. Penggunaan air paip pula dilihat sebagai tidak sesuai kerana menggunakan air yang mengandungi klorin. Namun seseorang yang menghadapi situasi tinggal di kawasan flat, bandar, perkampungan air (contohnya Kampung Simunul, Semporna, Sabah) selalunya tiada pilihan dan terpaksa menggunakan sumber baja kimia dan air paip untuk tanaman mereka.

2.0 BAHAN DAN KAEDAH

Kompes dihasilkan daripada bahan-bahan semula jadi seperti dibawah

2.1 Tanah Kompos

Bahan pertama dalam kompes adalah tanah kompos. Tanah kompos terkenal sebagai bahan media organik yang subur dan selamat untuk pokok. Namun kelemahannya ialah, kemampuan tanah kompos untuk mengekalkan kelembapan adalah rendah. Walaupun begitu, tanah kompos sangat berkualiti dan selamat untuk tanaman berbanding baja kimia.

2.2 Effective Microorganism

Effective Microorganisme atau EM pula merupakan bahan cecair yang utama untuk meningkatkan kualiti kesuburan tanah melalui pengalakkan aktiviti mikroorganisma berfaedah didalam tanah. EM yang kami gunakan adalah olahan rumput yang ada didalam *Rumen* perut lembu. Rumput atau makanan ini diperoses menggunakan kaedah tertentu sehingga sempurna menjadi EM.

2.3 Sodium Polyacrylate

Sodium Polyacrylate merupakan bahan yang kami gunakan untuk mengekalkan kelembapan tanah. Bahan ini mampu memegang air dan menyebabkan air tersimpan. Akar akan menyerap air didalam tanah yang dikumpul oleh *Sodium Polyacrylate.*

3.0 HASIL DAN PERBINCANGAN

Kompes sangat berkualiti

Kompes telah terbukti sangat berkualiti untuk tanaman. Kualiti dilihat daripada beberapa aspek seperti tempoh pertumbuhan (ketinggian pokok) atau penghasilan buah. Berdasarkan beberapa ujian dan percubaan yang kami jalankan, didapati pertumbuhan pokok menggunakan Kompes adalah yang terbaik

berbanding tanah biasa. Berikut merupakan keputusan perbandingan beberapa media penanaman dengan kompes.

Rajah 37.1 Perbandingan ketinggian pokok

Kami membandingkan 3 jenis media penanaman iaitu Kompes, Media 1 dan 2. Didapati pertumbuhan anak pokok menggunakan kompes sangat cepat berbanding menggunakan media lain. Berlaku peningkatan pada setiap hari dari segi ketinggian anak pokok yang menggunakan Kompes. Manakala bagi media 1 dan 2, berlaku kematian anak pokok selepas beberapa hari.

Tempoh kelembapan yang sangat panjang

Kompes mampu mengekalkan kelembapan dalam tempoh masa yang lama. Kami telah menjalankan ujian terhadap 3 jenis media penanaman dengan 2 kaedah. Media penanaman yang kami uji ialah kompes, media 1 yang merupakan tanah penanaman biasa dan media 2 merupakan media yang menggunakan baja kimia. Kaedah yang kami jalankan pula ialah menguji kemampuan ketiga-tiga jenis media di dalam bangunan dan diluar bangunan. Jadual 25.1 dan jadual 25.2 dibawah menunjukkan hasil ujian yang kami telah jalankan:

Jadual 25.1 Perbandingan tempoh kelembapan di dalam bangunan

UJIAN PERBANDINGAN KETAHANAN KELEMBAPAN DALAM BANGUNAN			
Hari	**Kompes**	**Media 1**	**Media 2**
1	**1**	**1**	**1**
2	**1**	**1**	**1**
3	**1**	**1**	**X**
4	**1**	**1**	**X**
5	**1**	**X**	**XX**
6	**1**	**X**	**XX**
7	**1**	**XX**	**XX**
8	**1**	**XX**	**XX**
9	**1**	**XX**	**XX**
10	**1**	**XX**	**XX**
11	**1**	**XX**	**XX**
12	**1**	**XX**	**XX**
13	**1**	**XX**	**XX**
14	**1**	**XX**	**XX**

15	**1**	**XX**	**XX**
16	**1**	**XX**	**XX**
17	**1**	**XX**	**XX**
18	**1**	**XX**	**XX**
19	**1**	**XX**	**XX**
20	**1**	**XX**	**XX**
21	**1**	**XX**	**XX**
22	**1**	**XX**	**XX**
23	**1**	**XX**	**XX**
24	**1**	**XX**	**XX**
25	**1**	**XX**	**XX**
1		**Lembab**	
X		**Kering**	
XX		**Sangat kering**	

Berdasarkan maklumat ini, kompes mampu mengekalkan kelembapan selama 25 hari berbanding 4 hari untuk media 1 dan 2 hari untuk media 2. Ini merupakan suatu yang sangat membanggakan apabila projek ini berjaya mengekalkan kelembapan melebihi tempoh yang kami jangkakan.

Jadual 25.2 Perbandingan tempoh kelembapan di luar bangunan

Luar bangunan			
Hari	**Kompes**	**Media 1**	**Media 2**
1	**1**	**1**	**1**
2	**1**	**1**	**X**
3	**1**	**X**	**X**
4	**1**	**X**	**X**
5	**1**	**X**	**X**
6	**1**	**X**	**Xx**
7	**1**	**XX**	**XX**
8	**1**	**XX**	**XX**
9	**1**	**XX**	**XX**
10	**1**	**XX**	**XX**
11	**1**	**XX**	**XX**
12	**1**	**XX**	**XX**
13	**1**	**XX**	**XX**
14	**1**	**XX**	**XX**
1		**Lembab**	
X		**Kering**	
XX		**Sangat kering**	

Berdasarkan maklumat didalam jadual 25.2 ini, kompes mampu mengekalkan kelembapan selama 14 hari berbanding 2 hari untuk media 1 dan hanya 1 hari untuk media 2.

4.0 KESIMPULAN

Kompes sangat berpotensi untuk membantu meningkatkan industri pertanian serta membantu masyarakat terutama yang tinggal di kawasan bandar, kawasan perairan dan kawasan yang sempit. Selain mudah digunakan, kompes sangat berkualiti dan mampu mengekalkan kelembapan dalam tempoh yang sangat lama.

TEKNIK PUTARAN

Sarah Izzati[1], Shaza Alesya Maisarah[2], Nur Qistina Adenin[3], Muhammad Harith[4] dan Muhammad Qhalif Amsyar[5]

[1,2,3,4,5]Sekolah Kebangsaan Danau Kota (2)

1.0 PENGENALAN

Teknik Putaran merupakan kaedah yang digunakan bagi memudahkan murid-murid mengenal pasti nilai anu yang terdapat dalam soalan penolakan pecahan. Kebiasaannya, bagi nombor bulat, murid dapat menganggar nilai anu berdasarkan nilai yang lebih besar dan nilai yang lebih kecil bagi sesuatu angka itu. Tetapi tidak bagi pecahan yang memerlukan satu kaedah yang mudah untuk membezakan nilai terutamanya yang mempunyai penyebut yang berlainan. Menurut Shaharir (1984), beliau berpendapat bahawa semua teknik ataupun kaedah adalah baik sekiranya kaedah ataupun teknik itu mampu memberi kesan dalam membantu mengatasi permasalahan pembelajaran murid di sekolah. Kesan yang positif sudah tentunya akan memberi satu alternatif khususnya kepada murid-murid dalam memilih sesuatu kaedah yang lebih mudah dan senang bagi mereka untuk menggunakan kaedah tersebut. Teknik Putaran ini akan membantu murid-murid melakar dan melukis secara visual bacaan sesuatu pecahan. Kemudian, murid dapat mengaplikasikan penolakan pecahan melalui gambar rajah yang dilukis.

1.1 REKA BENTUK KAJIAN

1.1.1 Kemmis & McTaggart (1988)

Bagi menjayakan kajian yang dijalankan, pengkaji telahpun memilih model kajian tindakan Kemmis & McTaggart (1988). Faktor utama pemilihan model ini adalah berdasarkan kepada proses-proses yang terdapat dalam model ini. Pemilihan proses yang teratur disertai dengan peringkat-peringkat yang tertentu sudah tentunya akan membantu pengkaji untuk melancarkan proses kajian tindakan yang dijalankan. Model Kemmis & McTaggart ini terdiri daripada empat proses yang utama iaitu merancang, bertindak, memerhati dan mereflek. Keempat-empat proses ini sudah tentunya akan memberi panduan dalam memastikan kejayaan dan keberhasilan data yang diperoleh nanti.

Penyelidikan ini akan menggunakan reka bentuk kajian tindakan. Data dikumpulkan melalui pemerhatian, temubual separa berstruktur, ujian pra dan ujian pasca dalam menilai tahap pencapaian peserta kajian. Sebanyak 4 kali intervensi dijalankan sebelum ujian pasca diberikan kepada peserta kajian. Kajian tindakan dipilih bagi memberikan kefahaman yang mendalam kepada pengkaji melihat keberkesanan Teknik Putaran digunakan. Responden terdiri daripada 10 orang murid ini akan menjalani pra ujian dan pasca ujian setelah intervensi ataupun kaedah penggunaan Teknik Putaran ini diperkenalkan.
Kejayaan dalam kajian yang dijalankan ini akan ditentukan dengan mengukur peningkatan pencapaian murid hasil intervensi yang diberikan dengan menggunakan Kaedah yang digunakan ialah persampelan bertujuan (purposive sampling) di mana pengkaji berpendapat bahawa sampel ini amat bersesuai berdasarkan pengalaman dan pengetahuan pengkaji dalam bidang pengajaran matematik bagi sekolah rendah. Justifikasi pemilihan responden tersebut bagi mewakili populasi penyelidikan disebabkan sampel tersebut berupaya memberi data berasas dan bukan sembarangan responden yang dipilih bagi melihat keberkesanan penggunaan Teknik Putaran setelah ujian pasca diberikan.

1.1.2 Instrumentasi

Bagi melancarkan kajian yang akan dijalankan, pengkaji akan memperoleh data berkaitan maklumat demografi terlebih dahulu daripada setiap responden yang dikaji. Antaranya adalah berkaitan dengan umur, jantina, etnik dan agama. Maklumat sebegini sangat penting bagi mengetahui latar belakang dan juga kepribadian sampel yang telah dipilih.

1.1.3 Triangulasi Kaedah

Proses triangulasi data akan ditentukan melalui data yang diperoleh melalui pemerhatian, temu bual dan analisis dokumen. Kepentingan ketiga-tiga instrumen ini dapat membantu pengkaji memperoleh maklumat dengan lebih tepat dalam menjawab segala persoalan dalam kajian penyelidikan ini. Triangulasi kaedah dilaksanakan dengan membuat perbandingan data yang diperoleh dengan maklumat data yang dikutip. Hal ini membolehkan pengkaji menyemak kredibiliti data yang diperoleh dan mengesahkan kutipan data daripada kepelbagaian kaedah.

2.0 DAPATAN KAJIAN DAN PERBINCANGAN

Terdapat tiga persoalan penting yang perlu dijawab bagi mengupas kesemua objektif kajian yang telah ditetapkan. Kesemua aspek utama ini digunapakai dalam mengupas persoalan yang dikehendaki oleh pengkaji. Kesemuanya ini bertujuan untuk memastikan segala isu kajian dapat dijawab dengan baik dan jelas.

Penggunaan Teknik Putaran

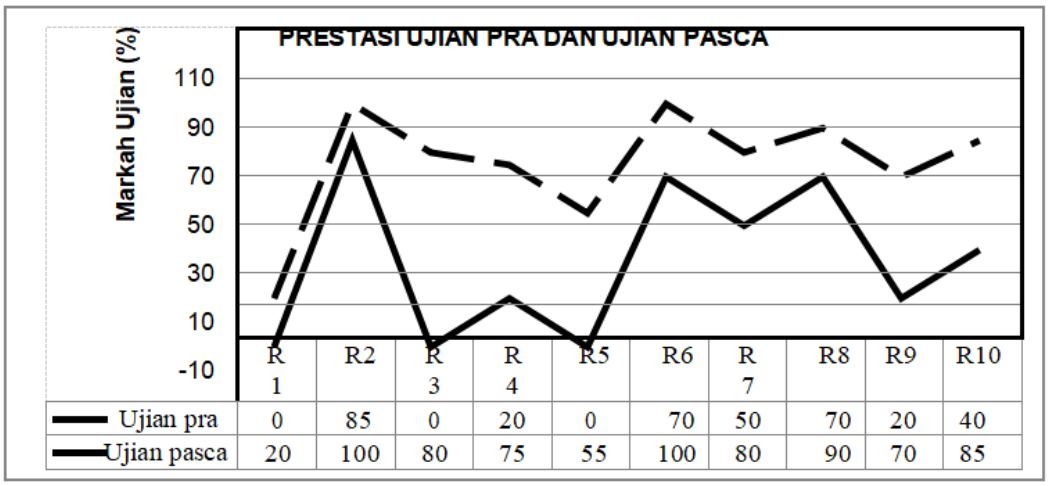
Dapatan kajian ini bertujuan menjawab persoalan kajian di bawah.
Soalan Kajian 1: Adakah penggunaan Teknik Putaran dapat mengurangkan kesilapan murid di sekolah pedalaman dalam menyelesaikan soalan mencari nilai anu bagi penolakan pecahan?

Bagi menjawab persoalan kajian yang pertama ini, pengkaji telah melaksanakan pemerhatian terhadap kesemua responden kajian dalam memastikan pelaksanaan kajian tindakan ini berjaya dan memberi kesan yang signifikan terhadap objektif kajian yang telah ditetapkan. Dalam memastikan keberkesanan pelaksanaan proses pemerhatian, rekod anekdot digunakan untuk mengutip data bagi setiap pemerhatian yang dapat dikesan sepanjang berlangsungnya kajian tindakan ini. Berdasarkan pemerhatian yang dijalankan, pengkaji mendapati bahawa terdapat perbezaan yang ketara terhadap jalan pengiraan peserta kajian dalam menyelesaikan masalah yang diberi. Penggunaan Teknik Putaran dilihat sebagai satu kaedah yang seragam dan teratur dalam membantu peserta kajian memperoleh jawapan yang dikehendaki dengan betul dan tepat. Seterusnya, berupaya untuk mengurangkan kesilapan yang dilakukan sebelum ini.

Peningkatan Prestasi Peserta Kajian

Soalan Kajian 2: Sejauh manakah peningkatan prestasi murid-murid dalam menyelesaikan nilai anu bagi soalan penolakan pecahan dengan menggunakan Teknik Putaran?

Markah Ujian (%)



Rajah 38.1 Prestasi Ujian Pra dan Ujian Pasca

Berdasarkan kepada Rajah 38.1, jelas menunjukkan bahawa prestasi ujian pasca lebih baik berbanding prestasi ujian pra. Peratusan yang diperoleh bagi setiap responden meningkat antara ujian pra dan ujian pasca setelah 4 kali intervensi dijalankan antara kedua-dua ujian tersebut. Jika dilihat pada graf pula, R3 dan R5 menunjukkan peningkatan yang tinggi dan sangat memberansangkan.

Pembentukan Kefahaman Konsep Pencarian Nilai Anu

Soalan kajian 3: Adakah penggunaan Teknik Putaran dapat membantu murid memahami konsep penolakan pecahan dan mampu menghasilkan jawapan yang tepat?

Bagi menjawab persoalan yang terakhir, pengkaji akan menggunapakai data yang dipungut dalam Ujian Pra dan Ujian Pasca dalam melihat sama ada responden berupaya memahami konsep penolakan pecahan ataupun tidak.

Jadual 26.1 Peningkatan Peratus Peserta Kajian

Peserta Kajian	Ujian Pra	Ujian Pasca	Peningkatan
R1	0	20	+20
R2	85	100	+15
R3	0	80	+80
R4	20	75	+55
R5	0	55	+55
R6	70	100	+30
R7	50	80	+30
R8	70	90	+20
R9	20	70	+50
R10	40	85	+45

Data yang diperoleh menunjukkan bahawa peratusan responden betul soalan dalam ujian pasca lebih tinggi jika dibandingkan dengan peratusan betul bagi ujian pra. Hal ini dengan jelasnya berupaya untuk membuktikan bahawa apabila responden berupaya memahami konsep penolakan dengan baik, maka responden berupaya menghasilkan jawapan bagi ujian pasca dengan lebih tepat dan betul. Keadaan ini disebabkan intervensi yang berterusan yang diberikan sebelum ujian pasca bagi

memastikan responden benar-benar memahami konsep penolakan pecahan.

Selain itu, melalui temubual separa struktur yang telah dijalankan, analisis menunjukkan semua responden kajian memberikan jawapan yang positif mengenai penggunaan Teknik Putaran dalam memudahkan mereka menyelesaikan soalan pencarian nilai anu bagi penolakan pecahan. Penggunaan Teknik Putaran sudah tentunya akan meningkatkan prestasi mereka berdasarkan tindak balas yang diberikan oleh mereka.

3.0 KESIMPULAN

Setelah kajian tindakan ini berjaya dilaksanakan, pengkaji mendapati bahawa penggunaan Teknik Putaran ini berupaya memberi sumbangan yang amat signifikan terhadap tiga kelompok utama di sekolah iaitu merangkumi guru, murid dan juga institusi pendidikan. Kesemua kelompok ini amat penting dalam menjayakan sesuatu agenda pendidikan di Malaysia. Sumbangan utama terhadap keberhasilan guru ialah guru berupaya mempelbagaikan teknik pengajaran dan pemudahcara semasa menjalankan pengajaran di dalam kelas. Kepelbagaian teknik atau kaedah akan memudahkan murid-murid untuk memahami sesuatu pengajaran dengan lebih baik dan konsisten. Seterusnya, kajian ini juga berupaya membentuk keyakinan dalam diri murid-murid. Tidak dapat dinafikan bahawa, keyakinan diri yang dibentuk berupaya menyerlahkan lagi potensi diri murid-murid serta membina motivasi tinggi dalam setiap jiwa murid-murid. Selain itu, pengkaji juga berpendapat bahawa melalui pelaksanaan kajian tindakan ini, ianya berupaya memberi impak yang maksimum kepada pengajaran guru-guru di dalam kelas. Sistem pengajaran guru di sekolah akan menjadi lebih kreatif dan berinovatif dengan kepelbagaian bahan pengajaran yang berinovasi tinggi melalui pelaksanaan kajian tindakan.

REFERENCES

Abdelmageed, M., E. Sulieman, A., O. Abdalla, H. & E. Salih, G., 2014. 'Effect of incorporating Chicken's Gizzards and Abdominal Fat in the Quality of Burger Meat product' *Journal of Microbiology Research, 4*(2), 68-71.

Abdul Rashid, A. A., Amin, A. H. S., Umi Hamidaton, M. S. L. & Raja Nur Syafiqah, R. A. (2020). Strategi Pembangunan Aspek Kesejahteraan Kendiri bagi Mendepani Tekanan Akademik Semasa Wabak COVID-19. *Malaysian Journal of Social Sciences and Humanities (MJSSH), 5*(12), 16-30. https://doi.org/10.47405/mjssh.v5i12.594

Abdul Razak, N. H., Mohd Zaki, S., Awang Kader, M. A. R., & Mazlan, F. F. (2019). Pembelajaran melalui aktiviti perniagaan di kalangan para pelajar MDAB. *Gading Journal for the Social Sciences*, *22*(00), 111-116.

Abdullah, A. (2021). Play therapy as a creative intervention with children: practice, training, and helpful factors. *International Journal of Creative Research Thoughts*, *10* (3), 5361 – 5369.

Abdullah, A. (2021). The helpful aspects of digital creative arts therapy during Covid 19 crisis: a qualitative investigation. *International Journal of Innovative. Science and Research*. 6(3),763 –767.

Abdullah, H., Ibrahim, M., Harun, H., Ishak, M., & Mohd Ali, S. (2022). A structural equation modelling (SEM) investigation of the L2 learning model of motivational development among Tahfiz students. *Issues in Language Studies, 11*(2), 1-19. https://doi.org/10.33736/ils.4359.2022

Abdullah, H., Ibrahim, M., Harun, H., Wahab, N. A. B., Idrus, M. M., Baharun, H., Baharudin, D. F., & Ishak, M. (2022). The Islamic drive and L2 motivational learning model among Tahfiz students. *International Journal of Health Sciences*, 6(S6), 4553–4564. https://doi.org/10.53730/ijhs.v6nS6.10460

Abdullah, M. N., & Sapuan, I. (2020). Stand-alone Solar Monitoring System using Internet of Things for Fertigation System. *Evolution in Electrical and Electronic Engineering, 1*(1), 106–115. https://publisher.uthm.edu.my/periodicals/index.php/eeee/article/view/374

Ackgenc, A. (1996). *Islamic science: Towards a definition*. International Institute of Islamic Thought and Civilization.

Afshar, H. S., & Asakereh, A. (2016). Speaking skills problems encountered by Iranian EFL freshmen and seniors from their own and their English instructors' perspectives. *Electronic journal of Foreign language teaching, 13*(1), 112-130. http://e-flt.nus.edu.

Ahmad Jazimin Jusoh, Mohammad Nasir Bistamam & Mohammad Aziz Shah Mohamed Arip (2016). *Modul Kaunseling Kelompok CTRT*. Sultan Idris Education University.

Ahmed, A. A. M., & Shah, S. M. (2017). Application of adaptive neuro-fuzzy inference system (ANFIS) to estimate the biochemical oxygen demand (BOD) of Surma River. *Journal of King Saud University - Engineering Sciences*, *29*(3), 237–243, 2017.

Akorede, M. F. (2022). Design and performance analysis of off-grid hybrid renewable energy systems. *Hybrid Technologies for Power Generation,* 35-68. Academic Press.

Al Ghawail, E. A., Ben Yahia, S., & Alrzini, J. R. (2021). Gamification model for developing E-learning in Libyan higher education. In *Smart Education and e-Learning 2021* (pp. 97-110). Springer, Singapore.Hutchinson, T. & Waters, A. (1987). *English for specific purposes: A learning-centred approach.* Great Britain: CUP.

Alakrash, H. M., Razak, N. A., & Bustan, E. S. (2020). The Effectiveness of Employing Telegram Application in Teaching Vocabulary: A Quasai Experimental Study. *Multicultural Education*, *6*(1).

Al-Amin, A. Q., Kabir Sarkar, M. S., Ahmed, A., & Doberstein, B. (2020). Comparative Analysis of Emission Reduction Targets toward INDC Implementation In Malaysia, Indonesia And Thailand By 2050. *Climate Change Economics*, *11*(2), 1–21.

Al-Azawi, R., Al-Fatili, F., & Al-Blushi, M. (2016). Educational Gamification Vs. Game Based

Learning: Comparative Study. *International Journal of Innovation, Management and Technology*, 132-136.

Alda, J. N., & Wati, S. (2021). Enhancing Learners' Vocabulary Acquisition by Crossword Puzzle Game. *JL3T (Journal of Linguistics, Literature and Language Teaching)*, *7*(1), 25-40.

Ali, S., Hussain, T., Zhang, G., Nurunnabi, M., & Li, B. (2018). The implementation ofsustainable development goals in 'BRICS' countries. *Sustain*, *10*(7).

Aliki, K., Panagiota, D. & Makrina-Nina, Z. (2021). A needs analysis questionnaire: Designing and evaluation. *Journal of English Literature and Language*, 1–9.

Aloy-Prósper, A., Pellicer-Chover, H., Balaguer-Martínez, J., Llamas-Monteagudo, O., & Peñarrocha-Diago, M. (2020). Patient Compliance to Postoperative Instructions After Third Molar Surgery Comparing Traditional Verbally and Written Form Versus the Effect of a Postoperative Phone Call Follow-Up A: A Randomized Clinical Study. *Journal of Clinical and Experimental Dentistry*, *12*(10), 909–915.

Alsadi, S. & Khatib, T. (2018). Photovoltaic power systems optimization research status: A review ofcriteria, constrains, models, techniques, and software tools. *Appl. Sci.*, *8*(10).

Alternative Energy Tutorials. (2014, February 24). *Stand Alone PV System.* https://www.alternative-energy-tutorials.com/solar-power/stand-alone-pv-system.html.

Alvira-Gonzalez, J., & Gay-Escoda, C. (2014). Compliance of Post-Operative Instructions Following the Surgical Extraction of Impacted Lower Third Molars: A Randomized Clinical Trial. *Medicina Oral Patología Oral Y Cirugia Bucal*, *20*, 2, E224–E230.

Amalina Hasbi, & Melor Md. Yunus. (2021). The Effectiveness of Augmented Reality for English (AR4E) in Vocabulary Learning among Primary 2 Pupils. *International Journal of Education 13*(3), 13.

Amri, A. N., Azman, M. N. A., Kiong, T. T., & Khairudin, M. (2019). Keberkesanan Alat Bantu Mengajar (SMART COT) dalam Asas Pembuatan Perabot Sekolah Menengah Kebangsaan Harian Pendidikan Khas Tingkatan Satu. *Journal of Vocational Education Studies*, *2*(1), 23-36.

Andres, C., AdeOluwa, O. O., & Bhullar, G. S. (2017). *Encyclopedia of Applied Plant Sciences.* (Second Edition), 435–441

Ang, F. N., & Hanita, H. I. (2022). Exploring Primary Pupils' Perception in Using Online Games to Improve Spelling. *International Journal of Academic Research in Progressive Education & Development*, *11*(2), 174-187.

Angelia Nicholas, B. & Khairul, J. (2022). Cabaran Mengaplikasi Kaedah E-Pembelajaran Di Sekolah Luar Bandar Semasa Pandemik Covid-19: Dari Perspektif Guru. *Jurnal Dunia Pendidikan 4*(3):1– 15.

Anis Shahirah Zulkifli & Suziyani Mohamed (2019). Tahap pengetahuan guru dalam mengurus tingkah laku Murid Berkeperluan Khas (LD). *Jurnal Wacana Sarjana*, *3*(4), 1-7

Anjie Cho. (2016, April 27). *The secret to flexible decorating: The picture ledge*. Anjie Cho. Retrieved November 8, 2022, from https://www.anjiecho.com/holistic-spaces-blog/2016/1/the- secret-to-flexible-decorating-the-picture-ledge.

AOAC (2015). *Official Methods of Analysis. Association of Official Analytical Chemists*. 18th Edition, AOAC, Arlington, 806-814.

Aqilah Mior Kamarulbaid. (2021, Januari 15). Norma Baharu Pendidikan Khas. *Utusan Malaysia.* https://www.utusan.com.my/rencana/2021/01/norma-baharu-pendidikan-khas/

Arbaa, R., Jamil, H., & Ahmad, M. Z. (2017). Model bersepadu penerapan kemahiran abad ke-21 dalam pengajaran dan pembelajaran. *Jurnal Pendidikan Malaysia*, *42*(1), 1-11.

Ardaningsih, L. A. N. & Adnyayanti, N. L. P. E. (2022). Use of Powtoon as the Learning Media in Teaching English in Elementary School. *Journal of Educational Study, 2*(1), 105-110.

Arefifar, S. A., Paz, F., & Ordonez, M. (2017). Improving solar power PV plants using multivariate design optimization. *IEEE J. Emerg. Sel. Top. Power Electron*, *5*(2), 638–650. doi: 10.1109/JESTPE.2017.2670500

Arono. (2014). Improving Students Listening Skill through Interactive Multimedia in Indonesia. *Journal of Language Teaching and Research*, 63-69.

Arsyad, A. (2011*). Media Pembelajaran*. Jakarta: Raja Grafindo Persada.

Ary, D. Jacobs, L. C., & Razavieh, A. (2002). *Introduction to research in education* (6th ed.). Belmont, CA: Wadsworth.

Atkinson, R.C., & Shiffrin, R.M. (1968). Human Memory: A Proposed System and its Control Processes. *Psychology of Learning and Motivation, 2*, 89-195.

Attia. E. (2010). Anorexia nervosa: current status and future directions. *Annual Review of Medicine, 61*(1), 425-435.

Azhar Wahid & Nordiana Hamzah. (2013). Kajian Emosi Dalam Kesusasteraan Melayu: Sumbangan Kepada Penghayatan Falsafah Pendidikan Kebangsaan. *Jurnal Antarabangsa Persuratan Melayu (RUMPUN)*, Jilid 1, 21-40.

Azizah, A. (2015), Creative art practices in Malaysia: Past, present and future movements. *Proceeding, 1st Asian Creative Arts Therapy Association Conference*, Bangkok, Thailand.

Azizah, A. (2015). *Therapist` perceptions of the processes and outcomes of contemporary person centred creative practices with children and young people*. Unpublish PhD`s Thesis. University of Strathclyde, UK.

Azizah, A. (2021) Faktor Yang Membantu & Faktor Risiko Dalam Aplikasi Terapi Kreatif Dimensi Baru Kaunseling. *E-Prosiding Webinar Konvensyen Kaunseling Kebangsaan Kali Ke-22*. Persatuan Kaunseling Malaysia-International. Kuala Lumpur.

Azuraida Shahadan (2020). Terapi minda penawar tekanan**.** *Sinar Harian.*https://www.sinarharian.com.my/article/67817/khas/pendapat/terapi-minda-penawar-tekanan

Azzurra, M., Riccardo, F., Maurizio, S., & Johan, W. (2020). How entrepreneurial intentions influence entrepreneurial career choices: The moderating influence of social context. *Journal of Business Venturing*, *35*(3). https://doi.org/10.1016/j.jbusvent.2019.105982

Babaian, C. S. & Chalian, A. A. (2014). "The thyroidectomy story": comic books, graphic novels, and the novel approach to teaching head and neck surgery through the genre of the comic book. *Journal of Surgical Education, 71*(3), 413-418.

Babakina, O. O., Otroshko, T. V., & Shcherbak, I. V. (2021). Using interactive scribe-presentations when teaching Ukrainian. *Journal of Physics: Conference Series*, 1840, 1-20

Babatunde, K. A., Said, F. F., & Nor, N. G. M. (2018). Reducing Carbon Dioxide Emissions from Malaysian Power Sector: Current Issues and Future Directions. *Engineering Journal*, *1*(6), 59–69.

Bakhsh, S. (2016). Using Games as a Tool in Teaching Vocabulary to Young Learners. *English Language Teaching*, *9*, 120. https://doi.org/10.5539/elt.v9n7p120

Bantilan Ms, R. C. D. (2019, August 5). 11 Health and Nutrition Benefits of Yams. *Healthline*. https://www.healthline.com/nutrition/yam-benefits

Barkley, R. A. (2020). *Attention deficit hyperactivity disorder*: A handbook for diagnosis and treatment.

Basriyah, K., Sulisworo, D. (2018). *Pengembangan Video Animasi Berbasis Powtoon Unutk Model Pembelajaran Flipped Classroom Pada Materi Termodinamika*. Universitas Muhammadiyah Semarang, Jawa Tengah – Indonesia

Bekai, W., & Harkouss, S. (2018). The role of motivation in teaching speaking in esp: a case study of a Lebanese Private University. *The journal of teaching English for specific and academic purposes. 6*(1), 141-150. Https://doi.org/10.22190/JTESAP1801141

Bello, S. A., Adeyemo, W. L., Bamgbose, B. O., Obi, E. V., & Adeyinka, A. A. (2011). Effect of Age, Impaction Types and Operative Time on Inflammatory Tissue Reactions Following Lower Third Molar Surgery. *Head & Face Medicine, 7*, 1. https://doi.org/10.1186/1746-160X-7-8

Berthelsen, D., Hayes, N., White, S.L.J. & Williams, K.E. (2017). Executive functions in adolesce:

Association with child and family risk factors and self-regulation in early childhood. *Frontier of psychology, 8*(903), 1-14

Bhol, S. & Charansahu, N. (2020). Performance Analysis and Cost Calculation of Standalone PV-DG Generation System without Storage. *International Conference on Computational Intelligence for Smart Power System and Sustainable Energy (CISPSSE),* 1-5. doi: 10.1109/CISPSSE49931.2020.9212216.

Bhoopal, N., Sumanjali, P., Kumar, D. G., Ganesh, A., Saravanan, S., & Prameela, M. (2021). Performance Evaluation of Optimal MPPT for PV System Considering Partial Shading Conditions. *International Conference on Computing, Communication and Green Engineering (CCGE),* 1-4. doi: 10.1109/CCGE50943.2021.9776353.

Biederman, J., DiSalvo, M., Vaudreuil, C., Wozniak, J., Uchida, M., Yvonne Woodworth, K., Green, A., & Faraone, S. V. (2020). Can the Child Behavior Checklist (CBCL) help characterize the types of psychopathologic conditions driving child psychiatry referrals. *Scandinavian journal of child and adolescent psychiatry and psychology*, 8, 157–165.

Biswas, A. K., Kumar, V., Bhosle, S., Sahoo, J., & Chatli, M. K. (2011). Dietary fibres as functional ingredients in meat products and their role in human health. *International Journal of Livestock Production, 2*, 45–54.

Blackburn, T. (1998). Flocculation and sedimentation in Li, G., Hart, A. ve Gregory, J., eds, *Physical Processes*, Technomics Press, 29-45, Lancaster PA.

Bond, K. S., Cottrill, F. A., Mackinnon, A., Morgan, A. J., Kelly, C. M., Armstrong, G., Kitchener, B. A., Reavley, N. J., & Jorm, A. F. (2021). Effects of the Mental Health First Aid for the suicidal person course on beliefs about suicide, stigmatising attitudes, confidence to help, and intended and actual helping actions: An evaluation. *International Journal of Mental Health Systems*, *15*(1), 36. https://doi.org/10.1186/s13033-021-00459-x

Booker, J.M., & McNamara, L.A. (2004). Solving black box computation problem using expert knowledge theory and methods. *Reliability Engineering & System Safety, 85*(1–3), 331-340.

Bowman, T. (2012). Poetry and bibliotherapy. In R. A. Neimeyer (Ed.), *Techniques of grief therapy: Creative practices for counseling the bereaved*, 303–305. Routledge/Taylor & Francis Group.

Branch, R. (2010). *Instructional Design: The ADDIE Approach*. Boston, MA, Springer US.

Brodley, B. T. (2006). Client-initiated homework in client-centered therapy. *Journal of Psychotherapy Integration*, *16*(2), 140–161. https://doi.org/10.1037/1053-0479.16.2.140

Buchalter, S. (2009). *Art therapy techniques and applications*, 31, Jessica Kingsley Publishers, London UK.

Bukhari, M. A. B., & Abdullah, M. N. (2021). Automated Photovoltaic Irrigation and Monitoring System with Internet of Things for Fertigation System. *Evolution in Electrical and Electronic Engineering, 3*(1), 579–586. Retrieved from https://publisher.uthm.edu.my/periodicals/index.php/eeee/article/view/6663/2088

Buletin TV3. (10 Oktober 2022). *Nasional: Masalah Kesihatan Mental Membimbangkan*. https://www.buletintv3.my/nasional/masalah-kesihatan-mental-membimbangkan/

Butar-Butar, A. J. R. (2017). *Mengenal Karya-Karya Ilmu Falak Nusantara*; Transmisi, Anotasi, Biografi. LKiS Pelangi Aksara.

Camacho Vásquez, G., & Ovalle, J. C. (2019). The Influence of Video Games on Vocabulary Acquisition in a Group of Students from the BA in English Teaching. *GIST Education and Learning Research Journal, 19*, 172–192.

Cantrill, J.A., Sibbald, B., & Buetow, S. (1996). The Delphi and nominal group techniques in health services research. *International Journal of Pharmacy Practice, 4*(2), 65-128.

Caponetto, I., Earp, J., & Ott, M. ―Gamification and education: A literature review. *Proceedings of the European Conference on Games-based Learning, 1*, 50–57.

Chafouleas, S. M., Christ, T., Riley-Tillman, T. C., Briesch, A. M., & Chanese, J. (2007). Generalizability and dependability of Direct Behavior Ratings to measure social behavior of

preschoolers. *School Psychology Review*, 36, 63–79.
Chang, P.L., Hsu, C.W., & Chang, P.C. (2011). Fuzzy Delphi method for evaluating hydrogen production technologies. *International Journal of Hydrogen Energy, 36*(21), 14172-14179.
Chen, S. P., & Li, X. Q. (2019). *A survey on self-acceptance of senior one student*, Mental Health Education in Primary and Secondary School, 28, 13-16.
Cheng, C.H., & Lin, Y. (2002). Evaluating the best main battle tank using fuzzy decision theory with linguistic criteria evaluation. *European Journal of Operational Research, 142*(1), 174-186.
Chin, M. K., Siew, N. M. (2014). Penggunaan 'Magic Hand' Dalam Membantu Murid Mengingat Fasa- Fasa Bulan Bagi Mata Pelajaran Sains Tahun 5: Satu Kajian Tindakan. Dalam *Prosiding International Conference on Education, 1*(2).
Chong, S. T., Mohamad, M. S., & Er, A. C. (2013). The mental health development in Malaysia: History, current issue and future development. *Asian Social Science, 9*(6), 1.
Coelho, G.M, Soares, E.A, & Ribeiro, B.G. (2010). Are female athletes at increased risk for disordered eating and its complications appetite. *Annual Review of Medicine, 55*(3), 379-387.
Cohen-Liebman, M. S. (2003). Drawing in forensic investigations of child sexual abuse in Gussak, D. E., *Art on trial: Art therapy in capital murder cases*, Columbia University Press, 221.
Cohen-Liebman, M. S. (2016). Forensic art therapy: Epistemological andontological underpinnings in Gussak, D. E., Rosal, M. L., eds, *The Wiley handbook of art therapy*, 45, John Wiley & Sons, Ltd, West Sussex UK.
Convery, F., Dunne, L., & Joyce, D. (2014). Ireland's Carbon Tax in the context of the Fiscal Crisis. *Cyprus Economic Policy Review, 8*(2), 135–143.
Crisp, A. H., Joughin, N., Halek, C., & Bowyer, C. (2014). *The wish to change, anorexia nervosa*. Psycology Press.
Cynthia P. M. & Lori M, B. (2021). Enhancing academic achievement in P-12 schools using as Choice Theory framework. *International Journal of Choice Theory and Reality Therapy, 41*(1), 48-58.
Davoodi, S., Ramazani, S.A. A., Soleimanian, A., & Fellah Jahromi, A. (2019). Application of a novel acrylamide copolymer containing highly hydrophobic comonomer as filtration control and rheology modifier additive in water-based drilling mud. *Journal of Petroleum Science and Engineering, 180*, 747–755. https://doi.org/10.1016/j.petrol.2019.04.069
de Oliveira Paula, M.M., Silva, J. R. G., de Oliveira, K. L., Massingue, A. A., Ramos, E. M., Júnior, A. A. B., … & Silva, V. R. O. (2019). Technological and sensory characteristics of hamburgers added with chia seed as fat replacer. *Ciencia Rural Journal, 49*, 1–10.
De Wilde, V. & Eyckmans, J. (2017). Game on! Young learners' incidental language learning of English prior to instruction. *Studies in second language learning and teaching, 7*(4), 673-694.
DeGraff, A. H., & Schaffer, J. (2008). Emotion-focused coping: A primary defence against stress for people living with spinal cord injury. *Journal of Rehabilitation, 74*, 19–24.
Deliverska, E. G., & Petkova, M. (2016). Complications After Extraction of Impacted Third Molars - Literature Review. *Journal of IMAB - Annual Proceeding (Scientific Papers), 22*(3), 1202–1211
Deris, F. D., Hasan, N., & Noor, N. A. M. (2021). Mentor-Mentee As A Strategy To Increase Willingness To Communicate Among Student Leaders: A Case Study. *e-BANGI, 18*(8), 119-135.
Diani Mardiana, M. Z., Amirah, Z., & Farhana, A. R. (2017). Tekanan Emosi dalam kalangan Pelajar Pintar Berbakat. *Jurnal Sultan Alauddin Sulaiman Shah* (Special Issue), e-ISSN: 2289-8042.
Dichev, C. & Dicheva, D. (2017). Gamifying education: What is known, what is believed and what remains uncertain: A critical review. *International Journal of Educational Technology in Higher Education, 14*(9), 1-36.
Donmus, V. 2010. The use of social networks in educational computer-game based foreign language

learning. *Social and Behavioral Sciences*, 9, 1497-1503.
Dornyei, Z (2009). *The motivational self-system in motivation, language identity and L2 self*. Bristol, Blue Ridge Summit: Multilingual Matters. doi.org/10.21832/9781847691293.
Dornyei, Z. (2001). *Teaching and researching motivation*. Harlow: Longman.
Dornyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Lawrence Erlbaum.
Dornyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah, NJ: Lawrence Erlbaum.
Edris, A. M., & Ibrahim, H. M (2012). Chemical analysis of chicken meat with relation to its quality. *Benha Veterinary Medical Journal, 23*, 87- 932.
Ekaniyere, E. B., & Ifeoma, A. N. (2020). Influence of Post-Operative Instructions on Wound Healing. A Randomized, Single-Blinded Clinical Trial. *Iraqi Dental Journal 42*(1), 1-9.
El Shazly, R. (2021). Effects of artificial intelligence on English speaking anxiety and speaking performance: A case study. *Expert Systems*, *38*(3), 1–16. https://doi.org/10.1111/exsy.12667
Eltaib Abdeen, Mohamed Orabi, & El-Sayed Hasaneen. (2017). Optimum tilt angle for photovoltaic systemin desert environment. *ScienceDirect*, 155, 267-280.
Embi, M. A., & Mohd Amin, M. Z. (2010*). Strategies for Successful English Language Learning (SELL)*. Karisma Publications Sdn. Bhd.
Energy Efficiency & Renewable Energy. (2015). *How Solar PV Systems Work*. http://www.ews-solarpower.co.uk/24-how-does-the-system-work.
Etcuban, J. O. (2013). Automated test generator for the faculty of the University of Cebu, Philippines. *IAMURE International Journal of Mathematics, Engineering & Technology*, *6*, 30. https://goo.gl/4kXMWm
Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, *5*, 1-4. https://doi.org/10.11648/j.ajtas.20160501.11
Fadi, A. K. (2019). The impact of vocabulary knowledge on the reading comprehension of Saudi EFL learner. *Journal of Language and Education, 5*(3), 24-34.
Fadilla, R. M., Oktafiandini, N. S. D., Adha, M., Kamelia, L., Firdaus, D. F., & Akmaliyah, A. (2021). *The Prototype of Smart Garden Fertigation System with Solar Photovoltaic System Based on IoT*. 7th International Conference on Wireless and Telematics (ICWT), IEEE. https://ieeexplore.ieee.org/document/9678421/figures#figures
Fahad (2020, January 4). 3 R's of environment - reduce, Reuse, Recycle. *Earth Reminder*. https://www.earthreminder.com/3rs-of-environment-reduce-reuse-recycle/#:~:text=In%20short%2C%20we%20can%20call%20three%20R%E2%80%99s%20as,making%20a%20few%20changes%20in%20your%20daily%20lifestyle.
Fariza Ezlin binti Zamri & Aliza binti Alias. (2022). Cabaran Guru Pendidikan Khas Melaksanakan Pengajaran dan Pembelajaran Dalam Talian. *Malaysian Journal of Social Science and Humanities, 7*(5), 1-10
Farooq, M. S., Riaz, S., Abid, A., Umer, T., & Bin Zikria, Y. (2020). Role of IoTtechnology in agriculture: A systematic literature review. *Electron*, *9*(2).
Fazilah, M. O., Rozita, A. M. & Riska, M. (2020). *Perspektif Mahasiswa Terhadap Faktor Pengangguran Siswazah di Malaysia.* Persidangan Antarabangsa Sains Sosial dan Kemanusiaan ke-5 (PASAK5 2020). e-ISBN: 978 967 2122 78 4
Fazio-Griffith, L. J. & Ballard, M. B. (2014). Cognitive Behavioral Play Therapy Techniques in School-Based Group Counseling: Assisting Students in the Development of Social Skills. *VISTAS* Online 18.
Feherbari, Z. (2009). Microbes Go Manga. *Cell*, *139*(7), 1219.
Felisberto, M. H. F., Wahanik, A. L., Gomes-Ruffi, C. R., Clerici, M. T. P. S., Chang, Y. K., & Steel, C. J. (2015). Use of chia (Salvia hispanica L.) mucilage gel to reduce fat in pound cakes,

LWT. *Food Science and Technology, 63*, 1049–1055.
Figoni, P. (2011) "*Eggs and Egg Products*." How Baking Works, 3rd edition, John Wiley & Sons, Ltd, 258–297.
Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Reviews, 55,* 745–774.
Folostina. R., Tudorache, L., Michel, T., Erzsebet, B., Agheana, V. & Hocaoglu, H. (2015). Using Play and Drama in Developing Resilience in Children at Risk. *Procedia - Social and Behavioral Sciences 197*: 2362–2368.
Fondo, M., & Konstantinidis, A. (2018). *Design of a MOOC on personal language learning environments for digital language skills development.* In P. Taalas, J. Jalkanen, L. Bradley, & S. Thouësny (Eds.), Future-proof CALL: Language learning as exploration and encounters–short papers from EUROCALL 2018 pp. (64–69). https://doi.org/10.14705/rpnet.2018.26.814
Gambrel, L. E., Burge, A., & Sude, M. E. (2020). Creativity, acceptance, and the pause: A case example of. Mindfulness and art in therapy with an adolescent. *Journal of Creativity in Mental Health, 15*(1), 81–89.
Gao, W. F., & Cong, C. (1999). The development of self-acceptance questionnaire and the test of its reliability and validity. *Chinses Journal of Behavioral Medical Science*, *8*(1), 20-22.
Genc Ersoy, B. & Belet Boyaci, S. D. (2021). Devising Gamification for Vocabulary Development and Motivation: An Experimental, Mixed-Model Study. *International Technology and Education Journal*, *51*, 32–49.
Genus Innovation Limited. (2022). *What Do You Need to Know About the Different Types of Solar PVSystems?* https://www.genusinnovation.com/blogs/types-of-solar- pv-systems
Gerovasiliou, F., & Zafiri, M. (2017). Adapting Board Games to Stimulate Motivation in Vocabulary Learning in Six Year Old Learners - A Case Study. *Journal o fStudies in Education*, *7*(3), 1. https://doi.org/10.5296/jse.v7i3.11323
Ghabanchi, Z., & Rastegar, R. (2014). The correlation of IQ and emotional intelligence with reading comprehension. *Reading Matrix: An International Online Journal*, *14*(2), 135–144.
Gisslen, W. (2011). *Chapter 34 – Pies and Pastries (Meringue).* Professional Cooking, 7th edition, John Wiley & Sons, Inc., pp. 1026.
Gladding, S. (2010). *The Creative Art in Counselling* (4 Ed.). Alexandria: American Counseling Association.
Gladding, S. T. (2016). *Creative in Counseling* (5 Ed). American Counseling Association.
Glasser, W. (1965). *Reality Therapy: A new approach to psychiatry*. New York: HarperCollins.
Glasser, W. (1990). Quality school: *Managing students without coercion.* New York : HarperCollins.
Glasser, W. (2000). *Reality therapy in action*. New York: Harper Collins
González-Pérez, L. I., & Ramírez-Montoya, M. S. (2022). Components of Education 4.0 in 21st century skills frameworks: systematic review. *Sustainability, 14*(3), 1493.
Google. (n.d.). *Google search*. https://www.google.com/search?q=picture+ledge&source=lmns&bih=912&biw=1920&rlz=1C1GCEU_enMY997MY997&hl=enGB&sa=X&ved=2ahUKEwjD69j8xMH7AhVMhNgFHbN8 AN QQ_AUoAHoECAEQAA.

Govindarajoo, M. V., Chin Hui, C., & A Aziz, S. F. (2022). Common Errors Made in English Writing by Malaysian Chinese Primary Year 6 ESL Learners at a Tuition Centre in Puchong, Malaysia. *Asian Journal of University Education, 18*(3), 674-690.
Grancieri, M., Martino, H. S. D., & Gonzalez de Mejia, E. (2019). Chia Seed (Salvia hispanica L.) as a Source of Proteins and Bioactive Peptides with Health Benefits. *Institute of Food Technologists, 18*, 480-499.
Gul, M., Kotak, Y., & Muneer, T. (2016). Review on recent trend of solar photovoltaic technology. *Energy Exploration & Exploitation, 34*(4), 485-526.
Gulzar, G. A. N., & Gull, A. (Eds.). (2020). *Antioxidants in Vegetables and Nuts - Properties and*

Health Benefits. Springer Nature.

Gussak, D. E. & Cohen-Liebman, M. S. (2001). Investigation vs. intervention: Forensic art therapy and art therapy in forensic settings. *American Journal of Art Therapy 40*(2), 123-135

Gussak, D. E. (2006). Effects of art therapy with prison inmates: A follow-up study. *The arts in psychotherapy, 33* (3), 188-198

Gussak, D. E. (2007). The effectiveness of art therapy in reducing depression in prison population. *International journal of offender therapy and comparative criminology*, *51*(4), 444-460

Gussak, D. E. (2013). *Art on trial: art therapy in capital murder cases*. Columbia University Press. 12, New York.

Gussak, D. E., & Rosal, M. L., (2016). An introduction,2, in D. E. Gussak, D.E., Rosal, M. L., eds, *The Wiley handbook of art therapy*. John Wiley & Sons.

Halim, M. S. A. A., Hashim, H., & Yunus, M. M. (2020). Pupils' Motivation and Perceptions on ESL Lessons through Online Quiz-Games. *Journal of Education and E-Learning Research, 7*(3), 229-234.

Hamid, N. A., Ismail, I. S., Yunus, N., Jali, M. N., & Rosly, A. S. (2022). Taxpayer Perceptions of Tax Awareness, Tax Education, and Tax Complexity among Small and Medium Enterprises in Malaysia: A Quadrant Analysis Approach. *Universal Journal of Accounting and Finance, 10*(1), 231-242.

Hamidah Norman, Rohailin Zainon, Siti Zuraydah Md Jenil, & Rusyda Yahya. (2017). Personaliti graduan yang menjadi tarikan organisasi. *Journal of Business Innovation Jurnal Inovasi Perniagaan*, *2*(1), 53–61.

Hamzah, M., Ghani, M. T. A., Daud, W. A. A. W., & Ramli, S. (2019). Digital Game-based Learning as an Innovation to Enhance Student's Achievement for Arabic Language Classroom. *International Journal of Recent Technology and Engineering (IJRTE), 8(*3), 2277-3878.

Hannah Aqilah Amran, Rosadah Abd Majid & Manisah Mohd. Ali. (2019). Cabaran Guru Pendidikan Khas Pada Abad Ke-21. *International Journal of Education, Psychology and Counseling, 4*(26), 113-122.

Harmer, J. (2008). *The Practice of English Language Teaching.* Pearson Longman. http://dx.doi.org/10.1093/elt/ccp007

Hartt, M., Hosseini, H., & Mostafapour, M. (2020). Game On: Exploring the Effectiveness of Game-based Learning. *Planning Practice & Research*, 589-604.

Hasan, K., Yousuf, S. B., Tushar, M. S., Das, B. K., Das, P., & Islam, M. S. (2021). Effects of different environmental and operational factors on the PV Performance: A Comprehensive Review. *Energy Science & Engineering*, *10*(2), 656–675.

Hasan, M. H., Jahidin, A. H., & Zakaria, Y. (2022). Student Perspective on Distance Online Learning Experience During the COVID-19 Pandemic in Undergraduate Pharmacy Program in UiTM: Pharmacology of CNS Drugs. *Journal On E-Learning and Higher Education*, 25.

Hassan, A. (2014). Analisis Gangguan Kesejahteraan Psikologi dan Pengaruhnya terhadap Kehibaan (Grieving) dalam Kalangan Keluarga Mangsa di Malaysia. *Jurnal Perspektif, 6*(2), 51-65.

Hassan, A., Yusooff, F., & Alavi, K. (2012). Keluarga sihat melahirkan komuniti sejahtera: Satu ulasan. *Geografia Malaysian Journal of Society and Space*, *8*(5), 51-63.

Hazar, E. (2020). Use of digital games in teaching vocabulary to young learners. *Educatia 21*(19), 98-104.

Health China Action Promotion Committee. (2019). *Health China Action (2019-2030),* Beijing - China.

Hermansson, H. & Lundblad, L. (2019). *Automatic irrigation system for plants.* [Unpublished bachelor's thesis]. KTH Royal Institute of Technology.

Herout, L. (2016). Application of gamification and game-based learning in education. In EDULEARN 2016*: 8th International Conference on Education and New Learning Technologies*, 978-984.

Hogg, D., Barth, J., Favoino, E., Centemero, M., Caimi, V., Amlinger, F., Devliegher, W., Brinton,

W., & Antler, S. (2002). *Comparison of compost standards within the EU, North America, and Australasia*. Waste and Resources Action Programme Committee (UK)

Hong, L. T., Ahmed, J., Nabipour-Afrouzi, H., & Kashem, S. (2018). Designing a PSCAD based PV simulator for partial shading to validate future PV application planning. *IEEE PES Asia-Pacific Power and Energy Engineering Conference (APPEEC),* 526-531. doi: 10.1109/APPEEC.2018.8566639.

Horgan, (1993). The Austere Ideology of Folk Psychology. *Journal for Mind & language, 8*(2) 282-297.

Horsch, C., Spruit, S., Lancee, J., van Eijk, R., Beun, R. J., Neerincx, M., & Brinkman, W. P. (2017). Reminders make people adhere better to a self-help sleep intervention. *Health and technology*, *7(*2), 173-188.

Hu, Y. T. (2020). Correlation between self-acceptance, social anxiety and self-esteem among Kazakh college students. *Chinese Journal of Health Psychology*, *28*(7), 5.

Ibharim, L. F. M., & Yatim, M. H. M. (2014). Kreativiti dan kemahiran kanak-kanak dalam mereka bentuk permainan digital bagi tujuan pembelajaran. *Journal of ICT in Education,* 1, 87-102.

Ibrahim, W. K. W., & Othman, Z. (2021). Error analysis on the Malaysian students' writing for ESL classroom. *LSP International Journal*, *8*(2), 55-65.

Indarjit, P., Neelakandan, S., Sayed, M., Ismail, & Gurudas, M. (2022). An Investigation of EFL Learners' Vocabulary Retention and Recall in a Technology-Based Instructional Environment: Focusing on Digital Games. *Education Research International*, 10.

Ingtyas, F. T. (2018). *Creative and Productive Learning Model of Cake Decorating Subject Cullinary* Art Departemen of State University of Medan.

Insam, H., Riddech, N., & Klammer, S. (Eds.): *Microbiology of Composting*. Springer Verlag.

Institut Kesihatan Umum KKM. (2017). *National Health & Morbidity Survey 2017*. In Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia, Kuala Lumpur: Vol. IV. http://iku.moh.gov.my/index.php/research-eng/list-of-research-eng/iku-eng/nhms-eng/nhms-2015

Institut Kesihatan Umum. (2020). *Tinjauan Kebangsaan Kesihatan dan Morbiditi (NHMS) 2019: Penyakit Tidak Berjangkit, Permintaan Jagaan Kesihatan, dan Literasi Kesihatan: Penemuan Utama* (pp. 3–40).

Interian, A., Chesin, M., Kline, A., St. Hill, L., King, A., Miller, R., Latorre, M., Gara, M., & Stanley, B. (2021). Coping with Suicidal Urges: An Important Factor for Suicide Risk Assessment and Intervention. *Archives of Suicide Research*, *25*(2), 224–237. https://doi.org/10.1080/13811118.2019.1678538

Ip online. MyIPO. (n.d.). Retrieved November 23, 2022, from https://iponline2u.myipo.gov.my/myipo/www/

Isa, S. S., Jamaludin, N. L., Ali, A. & Said, S. N. (2021). The usage of Games-Based Intervention in Improving the English Language Proficiency of High School B40 Student. *Environment Behaviour Proceedings Journal*, *6*(6), 11-15.

Ismail, N. Z., & Razak, M. R. (2021). The challenges of learning programming subject in online distance learning (ODL) environment at UiTM Pahang. *Gading Journal of Science and Technology*, *4*(2), 27-31.

Isometsä E. T. (2001). Psychological autopsy studies--a review. *European psychiatry: The Journal of the Association of European Psychiatrists*, *16*(7), 379–385. https://doi.org/10.1016/s0924- 9338(01)00594-6

J. Biederman. (1993). *Patterns of psychiatric comorbidity, cognition, and psychosocial Functioning in adults with attention deficit hyperactivity disorder*. Am J Psychiatry

Jacquet, S. (2016). *Walden Behavioral Care*. A Monte Nido

Jais, N. F. M., Ishak, S. A., & Yunus, M. M. (2022). Developing the Self-Learning Interactive Module using ADDIE Model for Year 5 Primary School Students. *International Journal of Academic Research in Progressive Education and Development, 11*(1), 615–630.

James Lock, Daniel Le Grange. (2013). *Treatment manual for anorexia nervosa. A family based approach*. The Guilford press, 13- 24.

Jariah, K., Rodiah, A. W., & Sudani, S. (2020). *BIOLOGI TINGKATAN 5*. My Bookpal Sdn. Bhd.

Jasa, H., Harahap, P., & Medan, U. N. (2018). The Increase of Writing Ability Through the Development of Learning Media. *1st International Seminar on Foreign Language Teaching, Linguistics, and Literature*, 331 - 336.

Jayasinghe, C. V. L., & Silva, S. S. G. (2011). Quality Improvement of Tilapia Fish Nuggets by Addition of Legume Flour as Extenders. *Journal of Food and Agriculture, 6*, 32–44.

Jevi Nugraha (2021, Oktober 6). *Cara menghilangkan depresi menurut Islam, umat Muslim wajib tahu*. Merdeka.com. https://www.merdeka.com/jateng/cara-menghilangkan-depresi-menurut-islam-umat- muslim-wajib-tahu-kln.html

Jimenez, E. P., Alarcon, R. De Vicente-Yague, M. I. (2019). Reading Intervention: Correlation Between Emotional Intelligence and Reading Competence in High School Students. *RevPsicodidáct*, *24*, 24–30. https://doi.org/10.1016/j.psicod.2018.10.001

Johar, N. A., & Yunus, M. M. (2021). Revisiting the effectiveness of drilling for the Malaysian ESL classroom. *Journal of Contemporary Social Science and Education Studies (JOCSSES), 1*(2), 76-86.

Johari, S. H., Karim, D. N. F. M., Akhwan, S. N. A., Nabila, R., & Apdal, J. (2019). Peranan Kaunselor dalam Menangani Masalah Ponteng Sekolah. *International Journal of Education, Psychology and Counseling*, *4*(32), 367-378. DOI: 10.35631/IJEPC.4320031

Johnson, A., & Sandford, J. (2005). Written and Verbal Information Versus Verbal Information Only for Patients Being Discharged from Acute Hospital Settings to Home: Systematic Review. *Health Education Research, 20*(4), 423–429.

Johnston, P. H., Champeau, K., Helmer, S., Hartwig, A., Komar, M., McCarthy, L., & Krueger, T. (2020). *Engaging Literate Minds: Developing Children's Social, Emotional, and Intellectual Lives, K-3*. Stenhouse Publishers.

Jonathan O. E. & Leocineza D. P. (2018). The Effects of Mobile Application in Teaching High School Mathematics.*International Electronic Journal of Mathematics Education, 13*(3), 249-259. https://doi.org/10.12973/iejme/3906

Joyce, L. DiGiangi, H. & Norman S. (2021). Trauma Treatment from a Choice Theory/ Reality Therapy Perspective. *International Journal of Choice Theory and Reality Therapy*, *40*(2), 15-21.

Junaidi Mansor & Mohd Amirul Rafiq Abu Rahim (2020). Cabaran & Strategi Pasca-Pandemik untuk Belia. *Khazanah Research Institute (KRI), 5*(20), 1-21.

Kamus Dewan Edisi Ketiga. (2022*). "Sains."*. https://prpm.dbp.gov.my/cari1?keyword=sains.

Kannan, B., Shanmugavelu, G., Arumugam, S., Baskaran, S. M., Balakrishnan, A., & Parasuraman, L. (2021). Students' Learning Styles in the Classroom and It's Importance to Educators in the Teaching and Learning Process: An Overview. *International Journal of Multidisciplinary Research.*

Karademir, T., Alper, A., Soğuksu, A. F., & Karababa, Z. C. (2019). The Development and Evaluation Of Self-Directed Digital Learning Material Development Platform For Foreign Language Education. *Interactive Learning Environments, 29*(4), 600-617. Https://Doi.Org/10.1080/10494820.2019.1593199

Karakedo, A. P., Saukah, A. & Muhtar, A. (2020). *Crossword puzzle games as a learning tool for improving students' vocabulary in reading comprehension.* (Doctoral dissertation), Universitas Negeri Malang.

Karin, I., Collette, T. & John, B. (2010). Quality and Early Childhood Education and Care: A Policy Initiative for the 21st Century. *International Journal of Child Care and Education Policy* 4, 67-80.

Karmila Rafiqah, M. R., Harwati, H., Melor, Y. & Fetylyana, N. M. (2019). Developing a MOOC for Communicative English: A Battle of Instructional Designs. *International Journal of*

*Innovation, Creativity and Change, 7(*7), 29 - 39.

Karney, B. R., Story, L. B., & Bradbury, T. N. (2005). Marriages in Context: Interactions Between Chronic and Acute Stress Among Newlyweds. In Revenson, T. A., Kayser, K., & Bodenmann, G. (2005). Couples coping with stress: Emerging perspectives on dyadic coping (pp. 13–32). *American Psychological Association.* https://doi.org/10.1037/11031-001

Katzman et al. (2017). *Adult ADHD and comorbid disorder: clinical implicatons of a dimesional approach.* BMC Psychiatry

Kawamura, N., Naganuma, Y. (2019). Undergraduate students' understanding of the Moon phase change in a course for trainee teachers in compulsory education. *EJP Web of Conferences*, 200, 1-5

Kementerian Pelajaran Malaysia. (2011). *Pelan Strategik Transformasi Pendidikan Vokasional*. Putrajaya, Penerbit Kementerian Pelajaran Malaysia.

Kementerian Pendidikan Malaysia. (2016). *Kurikulum Standard Prasekolah Kebangsaan* (Semakan 2017). Putrajaya. BPK.

Kementerian Pengajian Tinggi (2021). *Laporan Kajian Pengesanan Graduan TVET.* https://www.mohe.gov.my

Kemmis, S. & Mc Taggart, R, (1988). *The action research reader* (3rd ed). Australia: Deakin University Press.

KH Muhammad Abdullah Faqih. (2018). *Majmu'ah Maqruat Yaumiyah Wa Usbu'iyah*, Lamongan: Langitan Press.

Khairul Hamimah, M. J., Mohd Afifuddin, M. & Azizi, C. S. (2014). Penerapan agama dalam modul psikospiritual dan kesannya terhadap kesihatan spiritual. *Jurnal Syariah*, *22*(1), 107–127

Khalil, N., & Osman, K. (2017). STEM-21CS module: Fostering 21st century skills through integrated STEM. K-12 *STEM Education, 3*(3), 225-233.

King, D. A. (1978). *Essay Review: Islamic Mathematics and Astronomy*, Islamic Science: An Illustrated Study.

Kirtley, S. E., Antero, G., & Peter, E. C. (2020). With Great Power Comes Great Pedagogy: Teaching, Learning, and Comics. *Studies in Comics, 11*(1), 223-227. Univ. Press of Mississippi

Kobus-cisowska, J., Taczanowski, M., & Kmiecik, D. (2019). The Chemical Composition and Nutritional Value of Chia Seeds — Current State of Knowledge. *Nutrients, 11*(6), 1242.

Koole, S.L., Schlinkert, C., Maldei, T. & Baumann, N. (2019). Becoming who you are: An integrative review of self-determination theory and personality systems interactions theory. *Journal of Psychology Special Issue Manuscript*, 87,15-36

Kuhl, J., Kazen, M. & Koole, S.L. (2006). Putting self-regulation theory into practice: A user's manual. *Applied Psychology, 5*(3), 408 – 418

Kumar, R. S., Chaturvedi, K. R., Iglauer, S., Trivedi, J., & Sharma, T. (2020). Impact of anionic surfactant on stability, viscoelastic moduli, and oil recovery of silica nanofluid in saline environment. *Journal of Petroleum Science and Engineering*, *195*, 107634. https://doi.org/10.1016/j.petrol.2020.107634

Kumar, S., Tiwari, P., & Zymbler, M. (2019). Internet of Things is a revolutionary approach for future technology enhancement: a review. J. *Big Data, 6*(1), 111.

Kurt, S. (2019). *An introduction to the addie model: Instructional design: The addie approach.* Independently Published, 60.

Lau, C., Schwartzburg, Y., Shaji, A., Sadeghipoor, Z., & Süsstrunk, S. (2014). *Creating personalized jigsaw puzzles.* Proceedings of the Workshop on Non-Photorealistic Animation and Rendering.

Lawrence, C. (2016). Using the ADDIE Model of Instructional Design to Teach Chest Radiograph Interpretation. *Journal of Biomedical Education*, 1-6.

Lazarus, R. S., & Folkman, S. (1984). *Stress appraisal, and coping*. New York: Springer.

Li, G., Hart, A. & Gregory, J. (1998). *Flocculation and sedimentation*, 295. Technomics Press, Lancaster PA.

Linden, J., & Fletcher, R. (2022). 'Implanting' knowledge - how best to aid patient understanding and retention of information regarding peri-implantitis. *Evid Based Dent, 23*, 66–67.

Lindsey Hall, Monika Ostroff. (1999). *Anorexia nervosa a guide to recovery*. Gurze Books, 17-61.

Llorens, D. (2019). Do solar panels work in cloudy weather? *Solarpowerrocks*. https://www.solarpowerrocks.com/solar-basics/how-do- solar-panels-work-in-cloudy-weather/%0Ahttps://solarpowerrocks.com/solar- basics/how-do-solar-panels-work-in-cloudy-weather/.

LoCicero, J. (2011). *Cake decorating for dummies*. John Wiley & Sons.

Lynch, M., Stretesky, P. & Long, M. (2016). *Defining crime: A critique of the concept and its implication*. Springer, New York.

Maahad Al-Tahzib wa al-ta'alim (2020, November 2). *30 Fadhilat dan kelebihan berselawat ke atas Nabi Muhamad S.A.W.* https://mtwt.edu.my/2020/11/02/30-fadhilat-dan-kelebihan-berselawat-ke-atas-nabi-muhamad-s- a-w/

Maceviciute, E. & Manzuch, Z. (2018). Conceptualising the role of digital reading in social and digital inclusion. *Information Research, 23*(4), 1805. http://InformationR.net/ir/23-4/isic2018/isic1805.html (Archived by WebCite® at http://www.webcitation.org/74IB8THdy)

Made Tegeh, Nyoman Jampel & Ketut Pudjawan (2014). *Model Penelitian Pengembangan*. Universitas Pendidikan Ganesha Press.

Maimun Aqsha Lubis., & Md Yusoff Daud. (2011). *Pembelajaran Yang Inovatif Berbantukan ICT dalam Modul P&P Pendidikan Islam di Bilik Darjah*. Seminar International Politeknik Medan.

Malaysia Versus Waste. (n.d.). *Brunel University London.* Retrieved September 11, 2022, from https://www.brunel.ac.uk/news-and events/news/articles/Malaysia-Versus-Waste

Malchiodi, C. (2022). *Handbook of Expressive Arts Therapy.* New York: Guilford Press.

Malchiodi, C. A. (2011). *Handbook of art therapy*, 2. Guilford Press, New York US.

Malchiodi, C. A. (2014). Creative arts therapy approaches to attachment issues in Malchiodi, C., Crenshaw, D., eds, *Creative Arts and Play Therapy for Attachment Problems*, Guilford Press, 3-18. New York US.

Mandasari, B., & Wahyudin, A. Y. (2021). Flipped Classroom Learning Model: Implementation and Its Impact on EFL Learners' Satisfaction on Grammar Class. *Ethical Lingua: Journal of Language Teaching and Literature, 8*(1), 150-158.

Many, J. N., & Sarasvathi, V. (2016). Analysis of Chia Seed' – Physiochemical and Proximate Analysis. *Research Journal of Recent Science, 5*, 39–41.

Mar, R. A., Oatley, K., & Peterson, J. B. (2009). Exploring the link between reading fiction and empathy: Ruling out individual differences and examining outcomes. *Communications*, 34, 407-428. DOI 10.1515/COMM.2009.025

Mar, R. A., Oatley, K., Hirsh, J., Dela Paz, J., & Peterson, J. B. (2006). Bookworms versus nerds: Exposure to fiction versus nonfiction, divergent associations with social ability, and the simulation of fictional social worlds. *Journal of Research in Personality*. *40*(5), 694-712.

Marcinek, K., & Krejpcio, Z. (2018) Chia seeds (Salvia hispanica): health-promoting properties and therapeutic applications – a review. *National Institute of Public Health, 68*, 123–129.

Martínez-gracia, A., Bayod-rújula, A. A., & Antoñanzas, J. (2016). An innovative urban energy systemconstituted by a photovoltaic / thermal hybrid solar installation: Design, simulation and monitoring. *Applied Energy, 186*, 140-151.

Marziah, S., Jaafar, J. R., Shafurdin, N. S., & Hidayat, N. D. (2018). Indikator Kualiti Perkahwinan daripada Pelbagai Perspektif. *Prosiding Seminar Antarabangsa Keagamaan*. 26-32, USIM, Nilai. Malaysia.

Mason C. P., Hughey A. W. & Burke M.G. (2020). Decreasing the Academic Achievement Gap in P-12 Schools by Implementing Choice Theory and Focusing on Relationships. *International Journal of Choice Theory and Reality Therapy, 39*(1), 20-26.

Mat Bistaman, I. N., Syed Idrus, S. Z., & Abd Rashid, S. (2018). The Use of Augmented Reality Technology for Primary School Education in Perlis, Malaysia. *Journal of Physics: Conference Series,* 1019.

Matijević, M., Uzarević, Z., Gvozdić, V., Mikelić, V. M., Leović, D., & Macan, D. (2013). The Influence of Surgical Experience, Type of Instructions Given to Patients and Patient Sex on Postoperative Pain Intensity Following Lower Wisdom Tooth Surgery. *Acta Clinica Croatica, 52*(1), 23–28.

Mazidah Mat Rejab, Suriayati Chuprat, & Nurul Huda Firdaus Mohd Azmi. (2018). A Review for Improving Software Change using Traceability Model with Test Effort Estimation. *International Journal of Academic Research in Business and Social Sciences, 8*(4), 1198-1208.

Maznah Ibrahim & Azizah Abdullah. (2022). *A preliminary qualitative study on helpful processes of creative expressive - bodily maps of emotions in psychotherapy with children and adolescents.* Person-Centered & Experiential Psychotherapies. https://doi.org/10.1080/14779757.2022.2138774

Maznah Ibrahim & Azizah Abdullah. (2022). Helpful effects of Creative expressive-Bodily maps of emotions in psychotherapy with children and adolescents: a preliminary qualitative study. *International Journal of Education, Psychology and Counseling, 7*(46), 384–396. https://doi.org/10.35631/ijepc.746029

Maznah, I., & Ruhana, M. (2013). *Application of 'body outline, emotions and physical health' in helping the counseling process. Innovation in International Counselling Convention 2013.* Akademi Kenegaraan Malaysia, Kuala Lumpur.

McCulliss D. (2012). Bibliotherapy: Historical and research perspectives. *Journal of Poetry Therapy*. *25*(1), 23-38.

McGrath, C., Comfort, M. B., Lo, E. C. M., & Luo, Y. (2003). Changes in Life Quality Following Third Molar Surgery – The Immediate Postoperative Period. *British Dental Journal, 194*(5), 265– 268.

McNealy, T. L. (2013). Connecting Music, Art, and Science for Increased Creativity and Topic Engagement. *Journal of Microbiology & Biology Education, 14*(2), 267–268. doi: 10.1128/JMBE.V14I2.611

Med Clin North American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th Ed). American Psychiatric Association.

Mediapro, J. F. (2022). *Healthy Life In Islam Based from The Holy Quran and Al-Hadith.* America: Blurb.

Mehta, N., Ahlawat, S. S., Sharma, D. P., & Dabur, R. S. (2015). Novel trends in development of dietary fibre rich meat products — a critical review. *Journal of Food Science and Technology, 52*, 633–647.

Meidiana Dwidiyanti, Badrul Munif, Agus Santoso, Ashri Maulida Rahmawati, & Rikhan Luhur Prasetya. (2021). DAHAGA: An Islamic spiritual mindfulness-based application to reduce depression among nursing students during the COVID-19 pandemic. *Belitung Nursing Journal, 7(3)*, 219-226.

Melasari., Krisna, I., & Deri., S. N. (2019). The Effect of Using Crossword Puzzle towards Students' Vocabulary Mastery in the Eleventh Grade Students of SMA Muhammadiyah 2 Bandar Lampung in Academic Year 2017 - 2018. *JEES: Journal of English Education Studies, 2(*1), 67 - 73.

Mental Disorders. (2022). *World Health Organisation*. https://www.who.int/news-room/fact-sheets/detail/mental-disorders

Merrick, M. T., Ford, D. C., Ports, K. A., Guinn, A. S., Chen, J., Klevens, J., Metzler, M., Jones, C. M., Simon, T. R., Daniel, V. M., Ottley, P., & Mercy, J. A. (2019). *Vital Signs: Estimated Proportion of Adult Health Problems Attributable to Adverse Childhood Experiences and Implications for Prevention — 25 States, 2015–2017.* MMWR Morb Mortal Wkly Rep. DOI:

http://dx.doi.org/10.15585/mmwr.mm6844e1.

Metcalf, G.E. (2019). *On the economics of a carbon tax for the United States.* https://doi.org/10.1353/eca.2019.0005

Metraglia, Riccardo, and Valerio Villa. (2014). Engineering Graphics Education: Webcomics as a Tool to Improve Weaker Students' Motivation. *Research Journal of Applied Sciences, Engineering and Technology, 7*(19), 4106-4114.

Michaud, C. M. (2009). Global Burden of Infectious Diseases. *Encyclopedia of Microbiology*, 444. doi: 10.1016/B978-012373944-5.00185-1

Miller, G. (1956). The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information. *The psychological Review, 63*, 81-97.

Ministry of Education (2013). M*alaysia Education Blueprint 2013-2025. Preschool to Post-Secondary Education, 6-20*. Kementerian Pendidikan Malaysia, Kuala Lumpur.

Ministry of Education. (2020). *Kurikulum Standard Sekolah Menengah. Bahasa Inggeris. Dokumen Standard Kurikulum dan Pentaksiran Tingkatan 5*. Kementerian Pendidikan Malaysia, Kuala Lumpur.

Ministry of Environment and Water (2020). *Malaysia. Biennial update report (BUR). BUR 3.* | *UNFCCC*. Ministry of Environment and Water. https://unfccc.int/documents/267685

Mirica, M. C., Tudoran, M. A., & Putz, M. V. (2020). Photovoltaic System. *Nanochemistry*, 347–358. doi: 10.1201/9780429022951-23

Misbah, N. H., Mohamad, M., Yunus, M. M., & Ya'acob, A. (2017). Identifying the Factors Contributing to Students' Difficulties in the English Language Learning. *Creative Education, 8*(13), 1999-2008.

Miyatake, M., Watanabe, A., & Kawahara, Y. (2020, June). Interactive Cake Decoration with Whipped Cream. In *Proceedings of the 12th Workshop on Multimedia for Cooking and Eating Activities* (pp. 7-11).

Mohamad Zahari, N., Ahmad, S. & Hassan, H. (2012). '*Processing of sweet potato nugget'.* Bil 2.Bulletion Teknologi MARDI, 77-82

Mohamad, M., Arif, F. K. M., & Noor, N. M. (2020). Online Game-Based Formative Assessment:Distant Learners Post-Graduate Students' Positive Perceptions towards Quizizz. *International Journal of Scientific & Technology Research*, 9, 1438-1444.

Mohamad, S. N. M., Sazali, N. S. S., & Salleh, M. A. M. (2018). Gamification approach in education to increase learning engagement. *International Journal of Humanities, Arts and Social Sciences, 4*(1), 22-32.

Mohamed Amin Embi. (2011). *Aplikasi Web 2.0 dalam Pengajaran dan Pembelajaran*. Pusat Pembangunan Akademik, Universiti Kebangsaan Malaysia.

Mohammad Zain, S. (1987). *Pengenalan sejarah dan falsafah sains*. Akademi Sains Islam Malaysia, Universiti Kebangsaan Malaysia, 24-25

Mohammad, T. A. G., Wan Ab, A. W. D., & Mohd, A. M. Y. (2022). Employing ADDIE Instructional Model for Educational Digital Game-Based Learning. *Journal of Algebraic Statistics, 13(*3), 5296-5306.

Mohammed, A. S. (2018). Electrical resistivity and rheological properties of sensing bentonite drilling muds modified with lightweight polymer. *Egyptian Journal of Petroleum, 27*(1), 55–63. https://doi.org/10.1016/j.ejpe.2017.01.002

Mohanty, A. (2021). Impacts of climate change on human health and agriculture in recent years. *IEEE Region10 Symposium (TENSYMP), 1-4*. doi: 10.1109/TENSYMP52854.2021.9550876.

Mohd Amiruddin & Muhd Khaizer Omar. (2019). *Meneroka Impak dan Cabaran Pensyarah Terhadap Pelaksanaan E-Pembelajaran di Kolej Vokasional Zon Tengah, Malaysia.* The 5th International Conference on Educational Research and Practice (ICERP).

Mohd Ariff, N., Abu Bakar, M. A., Syed Mahbar, S. F., & Mohd Nadzir, M. S. (2019). Clustering Of Rainfall Distribution Patterns in Peninsular Malaysia Using Time Series Clustering Method. *Malaysian Journal of Science, 38*(Sp2), 84–99. https://doi.org/10.22452/mjs.sp2019no2.8

Moktar, W. M. B. W., & Omar, A. F. B. (2018). Analisis Punca Perceraian dalam Kalangan Remaja: Kajian Kes di Kota Bharu 2010-2014. *Fikiran Masyarakat*, *6*(2), 57-62.

Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., Cannon, M., Correll, C. U., Byrne, L., & Carr, S. (2020). How mental health care should change as a consequence of the COVID-19 pandemic. *The Lancet Psychiatry*, *7*(9), 813-824.

Morgan, J. (2020). Ideas Concerning How One Might Satisfy His/Her Needs During This Coronavirus Pandemic. *International Journal of Choice Theory and Reality Therapy, 40*(1), 45-47.

Nair, S. & Mathew, J. (2021). A Theoretical Framework for Gamified Learning. *International Journal of Innovative Technology and Exploring Engineering (IJITEE), 8*(12), 2846-2851.

Narad, A., & Abdullah, B. (2016). Academic performance of senior secondary school students: Influence of parental encouragement and school environment. *Rupkatha Journal on Interdisciplinary Studies in Humanities*, *8*(2), 12-19.

Nee, C., & Yunus, M. (2020). RollRoll dice: An effective method to improve writing skills among year 3 pupils in constructing SVOA sentences. *Universal Journal of Educational Research*, *8*(6), 2368-2382.

Netriwati, M., Lena, S. M. (2017). *Media Pembelajaran Matematika*. Bandar Lampung: Permata Net

Nguyen, N. T. T. (2021). A review of the effects of media on foreign language vocabulary acquisition. *International Journal of TESOL & Education*, *1*(1), 30–37 https://i-jte.org/index.php/journal/article/view/5

Ni, C. K., Jong, B., Dison, M. A., Thomas, S. A., Yunus, M. M., & Suliman, A. (2020). Enhancing Malaysian Primary Pupils' Vocabulary Skills using Pocable Game and Pear Deck. *International Journal of Learning, Teaching and Educational Research, 19*(6), 145–160. https://doi.org/10.26803/ijlter.19.6.9

Nik Azis, N. P. (2014). *Penghasilan disertasi berkualiti dalam pendidikan matematik*. Kuala Lumpur: PenerbitUniversiti Malaya.

Nik Farid, N.D., Ahmad Zaki, R., Yahya, A., Yakub, N.A., Hamzah, N.S.A., Muhamad, H., Hussain, R.B.M., Mohd Noor, A.A., Noor, Jali, Z.M., Mohd Shuib N.L., Othman, M.K., Mohd Noor, N.F. & Dahlui, M. (2020). *2Heal - Mobile Application for Promoting the Prevention of Mental Health Problems and Early Intervention for Malaysian Youth.* 6th International Conference on Public Health 2020.

Niri, M.A., Nawawi, M.S.A.M, Saadon, M.H.M. (2021). *Keunggulan Ilmu Falak dan Jawi Menerusi Aktiviti STEM*, Dewan Kosmik, Kuala Lumpur: Dewan Bahasa dan Pustaka, Edisi Digital: https://dewankosmik.jendeladbp.my/2021/12/08/pintar-al-aflak-serlah-ilmu-falak-dan-jawi-melalui-stem/

Niri, M.A., Ramli, M.A., Zaki, N.A., Saadon, M.H.M. (2022). Pengoperasian Sains Islam Berasaskan Penyelidikan Syariah: Satu Konstruksi. *Seminar Hukum Islam Semasa Ke-11 Peringkat Antarabangsa 2022* (SHISXI 2022). E-ISSN: 2948-5479

Nor Azah Abdul Aziz. (2011). Kaedah menangani stress dengan solat. *Journal of Islamic and Arabic Education 3(2)*, 1-10.

Noraini Idris, (2005). *Penyelidikan dalam pendidikan edisi kedua*. Selangor: McGraw-Hill Education (Malaysia) Sdn.Bhd.

Noraini Idris. (2010). *Penyelidikan dalam Pendidikan*. Kuala Lumpur: McGraww Hill Malaysia.

Noraini, A., Nor Mazliana, A. H., Mohammad Amirul, A. & Shamsulikram, A. H. (2019). *SAINS TINGKATAN 4.* (1st ed). OdonataPublishing Sdn. Bhd.

Noramlah Ali & Nurfaradilla Mohamad Nasri. (2021). Halangan Yang Dihadapi oleh Guru Aliran Perdana dalam Melaksanakan Program Pendidikan Inklusif. *Jurnal Dunia Pendidikan, 3*(3), 74-82.

Noriati A. R., Boon, P. Y., & Sharifah, F. S. A. (2009). *Murid dan Alam Belajar*. Kuala Lumpur: Oxford Fajar Sdn. Bhd.

Norul Haida Reduzan, Robe'ah Yusuf & Hidayah Hasim. (2016). *Aplikasi model VAK dalam gaya*

pengajaran dan pembelajaran komsas Bahasa Melayu. http://conference.kuis.edu.my/recit201 6/images/eproceeding/DR-NORULHAIDA.pdf

Nur Hazira Hamsi, Mohd Izwan Mahmud & Ruhizan Mohd Yasin. (2022). Meneroka Pengetahuan, Kompetensi Dan Cabaran Guru Bimbingan Dan Kaunseling Terhadap Pelajar Pendidikan Khas. *Jurnal Dunia Pendidikan, 4*(2), 269-279.

Nur Syazwana Md.Paing (2022, Julai 1). *Ubati depresi dengan mendekati ajaran Islam*. https://www.utusan.com.my/rencana/forum/2022/07/ubati-depresi-dengan-mendekati-ajaran-islam/

Nurul, F. B., & Aliza, A. (2021). Pengetahuan dan Kemahiran Guru Mengenai Bahan Bantu Mengajar bagi Matematik Awal di Prasekolah [The Knowledge and Skills of Teachers about Teaching Aids for Early Mathematics at Preschool]. *BITARA International Journal of Civilizational Studies and Human Sciences, 4*(4), 124-132.

Nzenguet, A. M., Aqlil, M., Essamlali, Y., Amadine, O., Snik, A., Larzek, M., & Zahouily, M. (2018). Novel bionanocomposite films based on graphene oxide filled starch/polyacrylamide polymer blend: structural, mechanical and water barrier properties. *Journal of Polymer Research, 25*(4). https://doi.org/10.1007/s10965-018-1469-7

O'English, Lorena, J., Gregory, M., & Elizabeth, B. L. (2006). Graphic Novels in Academic Libraries: From Maus to Manga and Beyond. *The Journal of Academic Librarianship 32*(2), 173-182.

Olariike, K., Folake, F., & Adeoye, A. A. (2022). Anorexia nervosa: Opportunity and challenges in treatment. *Licensee IntechOpen*, 3-11.

Othman, R. D., Ismail, Z., & Nawawi, N. H. A. (2020). Introducing formal tax education in secondary school: A survey on Malaysian public's perception. In *ICO-ASCNITY 2019: Proceedings of the 1st International Conference on Applied Social Sciences, Business, and Humanity, ICo-ASCNITY, 2 November 2019, Padang, West Sumatra, Indonesia* (p. 273). European Alliance for Innovation.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Administration and policy in mental health and mental health services research, 42,* 533–544. https://doi.org/10.1007/s10488-013-0528-y

Panigrahi, R., Srivastava, P. R., & Sharma, D. (2018). Online learning: Adoption, continuance, and learning outcome—A review of literature. *International Journal of Information Management, 43,* 1-14

Papavlasopoulou, S. & Giannakos, M. (2020). *Looking at the Design of Making-Based Coding Activities through the Lens of the ADDIE Model in Non-Formal and Informal Science Learning in the ICT Era*. Springer, Singapore.

Parish, T.S. (2021). William Glasser, M.D., and his impact on education. *The International Journal of Choice Theory and Reality Therapy, 41*(1), 4-12.

Partnership for Market Readiness (2017). *Carbon tax guide: A handbook for policymakers, Washington*. World Bank.

Patricia Graham, Cristopher Freeman. (2019). *Overcoming anorexia nervosa 2nd edition: a self-help guide using cognitive behavioral techniques*. Brown Book Group.

Paulus, M.D. (2007). Decision-making dysfunctions in psychiatry-altered homeostatic processing. *Science*, 318. 602-606.

Pazilah, F. N. P., Hashim, H., & Yunus, M. M. (2019). Using Technology in ESL Classroom: Highlights and Challenges. *Creative*. https://doi.org/10.4236/ce.2019.1012244

Pearson, M., & Wilson, H. (2008). Using expressive counselling tools to enhance emotional literacy, emotional wellbeing and resilience: Improving therapeutic outcomes with Expressive Therapies. *Counselling, Psychotherapy and Health, 4*(1), 1–19.

Pelton, L. F., & Timothy, P. (2009). *EdMedia+ Innovate Learning*. Association for the Advancement of Computing in Education (AACE).

Penley, J. A., Tomaka, J., & Wiebe, J. S. (2002). The association of coping to physical and

psychological health outcomes: A meta-analytic review. *Journal of Behavioral Medicine, 25*, 551–603.

Persatuan Psikiatri Amerika. (2013). *Manual diagnostik dan statistik gangguan mental* (Ed 5th). Washington DC

Piaget, J. (1962). *Play, dreams and imitation in childhood*. New York, NY: W. W. Norton.

Pintado, T., Herrero, A. M., & Cavalheiro, C. P. (2017). Chia and oat emulsion gels as new animal fat replacers and healthy bioactive sources in fresh sausage formulation. *Meat Science, 135*, 6-13.

Pommiera, S., Chenub, D., Quintardb, M. & Lefebvre, X. (2007). Modelling of moisture-dependent aerobic degradation of solid waste. *Waste Management, 28*(7), 1188-1200

Ponnusamy, S. & Shazli, E. G. (2010). *Psikologi Kehibaan*. Penerbit Universiti Kebangsaan Malaysia.

Pratiwi, M. S., Zulherman, Z., Amirullah, G. (2021). The Use of the Powtoon Application in Learning Videos for Elementary School Students. *Journal of Physics: Conference Series*, 1783, 1-8

Prensky, M. (2001). Fun, play and games: What makes games engaging. *Digital game-basedlearning, 5*(1), 5-31.

Proserpio, L., & Gioia, D. A. (2007). Teaching the virtual generation. *Academy of Management Learning & Education, 6*(1), 69-80. https://doi.org/10.5465/amle.2007.24401703

Provost, K. & Robey P. (2021). Maintaining effective leadership under stress, *The International Journal of Choice Theory and Reality Therapy*, *41*(1), 24-34.

Psychological First Aid: Guide for Field Workers. (2011). *World Health Organization (WHO)*

Quecan, L. (2021). *Visual Aids Make a Big Impact on ESL Students: A Guidebook for ESL Teachers* [Unpublished Master Dissertation]. University of San Francisco.

Radhi, M. H., Mahdi, E. J., & Mftwol, A. K. (2019). Design and Performance Analysis of Solar PV System Size 2.56 kWp. *4th Scientific International Conference Najaf (SICN)*, 70-73. doi: 10.1109/SICN47020.2019.9019373.

Rafiq, K. R. M., Nor Pazilah, F. N., Ying Tong, G., Md Yunus, M., & Hashim, H. (2020). Game On! Development and Evaluation Of Computer Games For ESL Classroom. *International Journal of Scientific & Technology Research, 9*(2), 1976–1980.

Rahim, R. A. A., Pawi, A. A. A., Jalal, A. F. A., & Malik, M. P. B. A. (2019). *Kitab Jawi Sebagai Karya Kearifan Tempatan Melayu: Analisis Sejarah Intelektual*. *Al-Banjari: Jurnal Ilmiah Ilmu-Ilmu Keislaman, 18*(1), 49-84.

Rahman, N.A & Niri, M.A. (2020). Cabaran Intitusi Fatwa Dalam Era Revolusi Industri 4.0 in Saadan Man (Ed.) E-Prosiding *Seminar Hukum Islam Semasa ke-10 Peringkat Antarabangsa*, Universiti Malaya, Kuala Lumpur (pp.59-74). Kuala Lumpur, Malaysia: Universiti Malaya.

Rahman, Othman Ab., Asiah Sufian & Zuliana Kamaruzaman. (2019). Depression, anxiety and stress among firefighters at one of fire and rescue department in Negeri Sembilan: A Case Study. *Journal of Education and Social Sciences, 13*(1), 86-94.

Ramasamy, J., & Amanullah, M. (2020). Nanocellulose for oil and gas field drilling and cementing applications. *Journal of Petroleum Science and Engineering*, *184*(July 2019). https://doi.org/10.1016/j.petrol.2019.106292

Ramlan, N. A. (2016). Vocabulary on the Move: The Use of Mobile Applications in Learning Vocabulary, *National Conference on Research on Language Education 2016*, Melaka: Universiti Teknologi MARA, 200-206.

Rangkuti Freddy. (2006). *Measuring Customer Satisfaction*. PT Gramedia Pustaka Utama.

Ratika, A., Isma, A., & Nawir, M. S. (2021). Students' Perception on the Use of Puzzle in Teaching Vocabulary Mastery. *English Language, Linguistics, and Culture International Journal*, *1*(1), 43.

Richey, R. C., & Klein, J. D. (2005). Developmental research methods: Creating knowledge from instructional design and development practice. *Journal of Computing in higher Education, 16*(2), 23-38.

Richey, R. C., & Klein, J. D. (2014). *Design and development research: Methods, strategies, and issues.* Routledge.

Richey, R., & Klein, J. D. (2007). *Design and Development Research: Methods, Strategies,and Issues.* Lawrence Erlbaum Associates.

Richey, R.C., & Klein, J. (2007). *Design and Development Research: Methods, Strategies, and Issues* (1st ed.). Routledge. https://doi.org/10.4324/9780203826034

Ritchie, H., & Roser, M. (2020). *CO2 and Greenhouse Gas Emissions - Our World in Data*. Our World Wide in Data.

Rogayah Estar Mohamad. (2021). Punca Penceraian Pasangan Dewasa Islam: Perspektif Badan Pelaksana. *Journal of Fatwa Management and Research*, *26*(2), 368-380. https://doi.org/10.33102/jfatwa.vol26no2.422

Rogers, N. (1993). *The Creative Connection: Expressive Art as Healing*. California: Science & Behavior Books,Inc.

Rogers, N. (2016). *Person-centered expressive arts therapy: A path to wholeness*. In Approaches to art therapy, 230- 248, Routledge, London UK.

Rogers, N., Tudor, K., Tudor, L. E., & Keemar, K. (2012). Person-centered expressive arts therapy: A theoretical encounter. *Person-Centered & Experiential Psychotherapies*, *11*(1), 31-47.

Rooij, D. D. (2017). *Solar Hybrid System: comparison with grid-tied and standalone systems.* https://sinovoltaics.com/learning-center/consumers/solar-hybrid- system-vs-grid-tied-vs-standalone- choose.

Rorlinda, Y., Noriah, M.I., Siti Aishah, H. & Afifah, M.R. (2016). Kajian Jati Diri dan Tekanan Isu Sosio-Emosi dalam Kalangan Pelajar Pintar dan Berbakat. *Jurnal Psikologi Malaysia 30*(2): 42–60.

Rose, N. N. & Mustaffa, M. Y. (2018). Tekanan dalam Keluarga: Faktor-faktor, Kesan dan Strategi Daya Tindak Menangani Tekanan. J*ournal of Human Development and Communication*, 7, 135-142.

Rosmawati, M. Y., & Yahya, B. (2010). *Penerapan Kemahiran Personal Qualities Dalam Kalangan Pelajar Pendidikan Kejuruteraan melalui Aktiviti Pembelajaran.* Bachelor's thesis, Universiti Teknologi Malaysia.

Rosnani Jusoh & Nor Mashila Idris. (2017). Kajian Terhadap Pengajaran dan Pembelajaran Berasaskan Teknologi Kursus Pengurusan Perniagaan di Kolej Vokasional. *International Research Journal of Education and Sciences (IRJES)*, *1*, 71-82.

Ross, R. (2020). What Is a Monsoon? *Live Sci.*, 1–5. https://www.livescience.com/56906-monsoon.html.

Rosselet, J. G. & Stauffer, S. D. (2013). Using Group Role-Playing Games with Gifted Children and Adolescents : A Psychosocial Intervention Model International. *Journal of Play Therapy 22*(4): 173–192.

Rosu, P. V., Plesca, A. T., Gabor, G., & Chiriac, G. (2020). Optimizing the Operation of Photovoltaic Panel Systems. *International Conference and Exposition on Electrical and Power Engineering (EPE),* 318-321. doi: 10.1109/EPE50722.2020.9305534.

Rosyafirah Hashim; Munirah Sha'ban; Zainul Ibrahim Zainuddin. (2017). Healing with sound: Exploring possible applications of qur'anic recitation in cell culture. *Revelation and Science, 07*, 32-41.

Russell, A. B. (2014). *Attention-deficit hyperactivity disorder: Buku panduan untuk diagnosis dan rawatan* (Edisi Keempat). The Guildford Press

Russell, S. T., & Joyner, K. (2001). Adolescent sexual orientation and suicide risk: Evidence from a national study. *American Journal of Public Health, 91*(8), 1276–1281. doi:10.2105/AJPH.91. 8.1276.

Ruta, D. A., Bissias, E., Ogston, S., & Ogden, G. R. (2000). Assessing Health Outcomes after Extraction of Third Molars: The Postoperative Symptom Severity (Posse) Scale. *British Journal of Oral and Maxillofacial Surgery, 38*(5), 480–487.

Sabda.S. (2011). *202 Khasiat Herba*. Alaf 21.

Sackman, H. (1975). *Delphi Critique*. Lexington Books.

Saedah Siraj, Norlidah Alias, Dorothy DeWitt, & Zaharah Hussin. (2013). *Design and development research: Emergent trends in educational research.* Pearson Malaysia.

Saikia, K. (2016). Environmental factor affecting the performance of solar photovoltaic module. *Central University of Jharkhand, 4*(225), 1-2.

Sakamoto, Y., Yokota, C., Miyashita, F., Amano, T., Shigehatake, Y., Oyama, S., ... & Minematsu, K. (2014). Effects of stroke education using an animated cartoon and a manga on elementary school children. *Journal of Stroke and Cerebrovascular Diseases 23*(7), 1877-1881.

Samsudin, M. S. N., Rahman, M. M., & Abdul Wahid, M. (2016). Power Generation Sources in Malaysia : Statusand Prospects for Sustainable Development. *Journal of Advanced Review on Scientific Research*, *25*(1), 11–28.

Sanders, S., Ennis, R. P., & Losinski, M. (2018). Effects of TWA on Science Text Comprehension of Students with Emotional and Behavior Disorders in a Special Day School. *Education and Treatment of Children*, *41*(4): 483-505

Saqlain, N., Shafqat, A., & Hassan, A. (2020). Perception Analysis of English Language Teachers about Use of Contextualized Text for Teaching ESP. *The Asian ESP Journal, 16*(5.1), 275-299.

Satsangi, K. P., Sailesh Babu, G. S., Das, D. B., & Saxena, A. K. (2018). Performance Evaluation of Grid Interactive Photovoltaic System. *International Conference on Computing, Power and Communication Technologies (GUCON),* 691-695, doi: 10.1109/GUCON.2018.8674959.

Schrank, F. A., & Engels, D. W. (1981). Bibliotherapy as a counseling adjunct: Research findings. *Personnel & Guidance Journal, 60*(3), 143147. https://doi.org/10.1002/j.2164-4918.1981.tb00766.x

Selvakumaran, L., Shukri, R., Ramli, N. S., Pak Dek, M. S., & Ibadullah, W. Z. W. (2019). Orange sweet potato (Ipomoea batatas) puree improved physicochemical properties and sensory acceptance of brownies. *Journal of the Saudi Society of Agricultural Sciences*, *18*(3), 332–336. https://doi.org/10.1016/j.jssas.2017.09.006

Senen, M. D. (2018). Tulisan Jawi Sebagai Warisan Intelektual Islam Melayu Dan Peranannya Dalam Kajian Keagamaan Di Nusantara. *Tamaddun: Jurnal Kebudayaan dan Sastra Islam, 18*(2), 87-99.

Seriayuna Sa'don Zubir. (2019). Isu Dan Cabaran Guru Pendidikan Khas Di Malaysia dan Amerika Syarikat: Satu Kajian Perbandingan. *Jurnal al-Sirat, 18*(1), 170-184.

Services, P. Z. T. (n.d.). *English to Malay: Mechanics / Mech Engineering*: Kudoz™ Terminologyhelp. ProZ.com | Freelance translators and interpreters. Retrieved November 9, 2022, from https://www.proz.com/kudoz/english-to-malay/mechanics-mech-engineering.

Shaharir Mohammad Zain, (1982). *" Pengajaran dan Pembelajaran Matematik Universiti di Malaysia "*. Kertaskerja yang dibentangkan dalam Simposium Kebangsaan Matematik: UKM

Shamim, T., Golden, N. H., Arden, M., Filiberto, L., & Shenker, R. (2003). Resolution of Vital Sign Instability: An objective measure of medical stability in anorexia nervosa. *Journal Adolesc Health*, 1-5.

Shamsuddin, N. A. M., & Abdullah, M. N. (2020). Development of Solar-powered Automatic Fertilizer System in Chili Fertigation Technology. *Evolution in Electrical and Electronic Engineering, 1*(1), 35–45. Retrieved from https://publisher.uthm.edu.my/periodicals/index.php/eeee/article/view/115

Sharima Abdullah, N., Hassan, C.Z., Arifin, N. & Huda Faujan, N. (2018). Physicochemical Properties of Imitation Chicken Nuggets Produced from Different Ratio of Chickpeas Flour and Textured Vegetable Protein. *International Food Research Journal, 25*, 1016–1025.

Sharma, S.K., Bansal, S., Mangal, M., Dixit, A.K., Gupta, R.K., & Mangal, A.K. (2016). Utilization of Food Processing By-products as Dietary, Functional, and Novel Fiber: A Review, *Critical*

Reviews in Food Science and Nutrition, *56*(10), 1647-1661, DOI: 10.1080/10408398.2013.794327

Sherman, L. (2015). *Skills in Counselling & Psychotherapy with Children & Young People.* SAGE Publications Ltd.

Shigehatake, Y., Yokota, C., Amano, T., Tomii, Y., Inoue, Y. et al. (2014). Stroke education using an animated cartoon and a manga for junior high school students. *Journal of Stroke and Cerebrovascular Diseases*, *23*(6), 1623-1627.

Shrodes C. (1950). *Bibliotherapy: A theoretical and clinical experimental study*. [Unpublished doctoral dissertation]. University of California, Berkeley.

Shultz, J. M., & Forbes, D. (2014). Psychological First Aid: Rapid proliferation and the search for evidence. *Disaster Health*, *2*(1), 3–12. https://doi.org/10.4161/dish.26006

Sidek Mohd Noah. (2002). *Perkembangan Kerjaya: Teori & Praktis*. Serdang: UPM.

Simaremare, S., Situmorang, M., Tarigan, S. (2018). Innovative Learning Material with Project to Improve Students Achievement on the Teaching of Acid-Base Equilibrium. January. *Advances in Social Science, Education and Humanities Research*, 200, 43-436

Smets, W. (2017). High Quality Differentiated Instruction - A Checklist for Teacher Professional Development on Handling Differences in the General Education Classroom. *Universal Journal of Educational Research, 5* (11), 2074-2080

Smith, M., & Segal, J. (2012). Coping with Grief and Loss. *Early Years Educator*, *14*(8), 28-30.

Somnuek, P. (2014). The Development of Teaching and Learning Innovation by Using Instructional Media for Enhancement of Learning Achievement towards Tourism Product Knowledge in Tourism Marketing Class, *SHS Web of Conferences*, 12, 1-7

Sowder, T & Sowder. (1982). Children's strategy use in computational estimation. Washington DC: Author. Moses, B. (1997). *Algebra for a new century*. Teaching children mathematics. United Stated: Thomson Delmar Learning.

Staf Editorial. (2022, March 30). *Kelebihan dan Khasiat Bunga Telang. Tips Kesihatan.* https://tips-kesihatan.com/kelebihan-dan- khasiat-bunga- telang/

Stantiall, S. E.; Dale, K. J.; Calizo, F. S. et al. (2018). *"Application of pulses cooking water as functional ingredients: the foaming and gelling abilities". European Food Research and Technology*, 97–104. doi:10.1007/s00217-017-2943-x.

Stene-Larsen, K., & Reneflot, A. (2019). Contact with primary and mental health care prior to suicide: A systematic review of the literature from 2000 to 2017. *Scandinavian Journal of Public Health*, *47*(1), 9–17. https://doi.org/10.1177/1403494817746274

Struwig, M. C., Beylefeld, A. A., & Joubert, G. (2016). Reasons for suboptimal learning in medical microbiology. *Teaching in Higher Education*, *21*(5), 590–609. https://doi.org/10.1080/13562517.2016.1163670

Sudrajat (2010). *Media Animasi Pembelajaran*, Rineka Cipta, Jakarta

Sukarno, K., Teong, K. V., & Dayou, J. (2017). The Monsoon Effect on Rainfall and Solar Radiation inKota Kinabalu. *Transactions on Science and Technology*, *4*(4), 460 - 465.

Sukiyasa, K., & Sukoco, S. (2013). Pengaruh Media Animasi Terhadap Hasil Belajar dan Belajar Siswa Materi Sistem Kelistrikan Otomotif. *Jurnal Pendidikan Vokasi, 3*(1), 126-137

Sulistianingsih, E., Febriani, R., & Pradjarto, J. C. S. (2019). The Effect on Interactive Board Games (IBG) on Vocabulary Achievement. *Langkawi Journal of The Association for Arabic and English*, *5*(2), 127-139.

Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education, 94*, 252- 275. https://doi.org/10.1016/j.compedu.2015.11.008

Syahrizan Ariffin, Azli Ariffin, Abdul Talib Mohamed Hashim, Mohd Ridhuan Mohd Jamil, & Mohd Firdaus Mustaffa Kamal (2020). Pembangunan Modul Kurikulum Projek Tahun Akhir Kolej Vokasional Berasaskan Industri Pembinaan di Malaysia: Analisis Keperluan. *Jurnal IPDA,*

27(1), 178-194.

Tachishige, H. and Shoji, O. (2004). *PHP laboratory*. Kyoto.

Tahiri, F. E., Chikh, K., Khafallah, M., Saad, A., & Breuil, D. (2017). Modeling and performance analysis of a solar PV power system under irradiation and load variations. *14th International Multi-Conference on Systems, Signals & Devices (SSD),* 234-238. doi: 10.1109/SSD.2017.8166952.

Tang, C. W. & Wu. C. T. (2010). Obtaining a picture of undergraduate education quality: A voice from inside the university. *Higher Education*, *60*, 269–286.

Tanjung, M. A. P., & Sitompul, O. S. (2020). "Kian Santang" Game As Historical Educational Media Using Digital Storytelling Concept. *Education and Information Technologies*, *25*(6), 5379–5388. Https://Doi.Org/10.1007/S10639-020-10209-0

Tarver et al. (2014). *Attention-deficit hyperactivity disorder (ADHD): an update review of the essential facts*. Child:care, health, and development

Tatalovic, M. (2009). Science comics as tools for science education and communication: a brief, exploratory study. *Journal of Science Communication 8*(4).

The Culinary Institude of America. (2016). *Garde Manger: 'The Art and the Cold Kitchen'* Ed.4. John Wiley & Sons.

Ukom, A.N. Adiegwu, E.C., Ojimelukwe, P.C., & Okwunodulu, N. (2019). Quality and sensory acceptability of yellow maize ogi porridge enriched with orange-fleshed sweet potato and African yam bean seed flours for infants. *Scientific African*, e00194

Umar MukhtarRed, Ani Nursalikah (2021, Ogos 22). *Apakah mengatasi depresi cukup dengan dzikir*. Republika.Co.Id. https://www.republika.co.id/berita/qy8gmn366/apakah-mengatasi-depresi-cukup- dengan-dzikir

UNFCCC. (2020). *Paris Agreement*. United National Framework Convention on Climate Change (UNFCCC). https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

United Nations. (2022). *What is Renewable Energy?* https://www.un.org/en/climatechange/what-is renewable-energy.

Van Spijker, B. A. J., Batterham, P. J., Calear, A. L., Farrer, L., Christensen, H., Reynolds, J., & Kerkhof, A. J. F. M. (2014). The Suicidal Ideation Attributes Scale (SIDAS): Community-Based Validation Study of a New Scale for the Measurement of Suicidal Ideation. *Suicide and Life-Threatening Behavior*, *44*(4), 408–419. https://doi.org/10.1111/sltb.12084

Vandergrift, L., & Tafaghodtari, M. H. (2010). Teaching L2 learners how to listen does make a difference: An empirical study. *Language Learning, 60*, 470–497, https://doi.org/10.1111/j.1467- 9922.2009.00559.x

Vargo, D., Zhu, L., Benwell, B., & Yan, Z. (2021). Digital technology use during COVID-19 pandemic: A rapid review. *Human Behavior and Emerging Technologies*, *3*(1), 13-24.

Vee, Q. (2016, March). *Khasiat Ubi Keladi. Hidup Untuk Memberi Manfaat*. https://qaseh-wanita.blogspot.com/2016/03/khasiat- ubi-keladi.html

Versaci, R. (2001). How Comic Books Can Change the Way Our Students See Literature: One Teacher's Perspec. *The English Journal 91(*2) 61-67.

Vijayaletchumy Subramaniam & Ooi Chwee Hwa. (2017). Faktor Timbulnya Pengaruh Bahasa Pertama dalam Mempelajari Bahasa Melayu sebagai Bahasa Kedua. *Ulum Islamiyah*, *20*, 35-35.

Vijayaletchumy Subramaniam & Pavitira Nagaraju. (2019). *Grafik dalam Penguasaan Kata Nama Terbitan.* Majalah Pelita Bahasa, 6, 37-40.

Vilella, M. (2021, August 30). Zero Waste – a Key Solution for a Low-Carbon Economy. *Zero Waste Europe*. https://zerowasteeurope.eu/2015/03/zero-waste-a-key-solution-for-a-low- carbon-economy/Android

Vincenzes, K., MacGregor, I., & McKenzie, M (2020). A Beacon of Light: Applying Choice Theory

to the COVID-19 Pandemic. *International Journal of Choice Theory and Reality Therapy, 40*(1), 32-40.

Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of counseling psychology, 53*(3), 325.

Vygotsky, L. (1978). *Interaction between learning and development.* California: W. H. Freeman Company.

Vygotsky, L. (1978). *Mind in society*. Cambridge, MA: Harvard University Press

Wahyuningsih, A. N. (2012). Pengembangan Media Komik Bergambar Materi Sistem Saraf Untuk Pembelajaran Yang Menggunakan Strategi Pq4R. *Journal of Innovative Science Education 1*(1).

Walker, W. (2020). Coronavirus. *International Journal of Choice Theory and Reality Therapy, 40*(1), 48-49.

Waluyo, B. & Bucol, J. L. (2021). The impact of gamified vocabulary learning using Quizlet on low-proficiency students. *Computer Assisted Language Learning Electronic Journal, 22*(1), 164185.

Wan Hilmi Wan Abdullah & Hidayah Zaki. (2020). Depression Symptoms: Methods of treatment through Al-Tibb Al-Nabawi medicine. *Jurnal Islam dan Masyarakat Kontemporari, 21(3).* 215-234.

Wang, H. Y., Zhang, F. B., Dilidaer, K., Chen, F., Zhao, Y. J., & Ding, J. B. (2018). Using a Variety of Modern Teaching Methods to Improve the Effect of Medical Microbiology Teaching. *Procedia Computer Science,* 154, 617–621. doi: 10.1016/J.PROCS.2019.06.097

Wang, S., Nie, S., & Zhu, F. (2016). Chemical constituents and health effects of sweet potato. *Food Research International,89* (1), 90-1.https://doi.org/10.1016/j.foodres.2016.08.032

Wang. (2016). Anti-aging and Cholesterol-lowering Activities of Cranberry and Purple Sweet Potato Anthocyanins.

Wardana. S. H. (2016). *The Analysis of Implementing Crossword Puzzle at Seventh Grades on MtsSutrya Buana Malang*. Unpublished Thesis. http://eprints.umm.ac.id › jiptummpp - gdl – radens

White, B. A., Jarrett, M. A. & Ollendick, T. H. (2012). Self-regulation deficits explain the link between reactive aggression and internalizing and externalizing behaviours problems in children. *Journal of psychopathology behavioural assessment*, 35, 1-9.

WHO. (2021). *Improving the mental and brain health of children and adolescents.* World Health Organization. https://www.who.int/activities/improving-the-mental-and-brain-health-of-children-and-adolescents

Wichadee, S., & Pattanapichet, F. (2018). Enhancement of performance and motivation through application of digital games in an English language class. *Teaching English with Technology, 18*(1), 77-92.

Wilson, R. (2018). *Astronomy through the Ages: The story of the human attempt to understand the Universe*. CRC Press.

Workplace Testing. (2018, May 3). What Does Human Error Mean ? https://www.workplacetesting.com/definition/2271/human-error.

Wu, Q., Zhang, J., & Wang, C. (2020). The Effect of English Vocabulary Learning with Digital Games and its Influencing Factors based on the Meta- Analysis of 2 , 160 Test Samples. *International Journal of Emerging Technologies in Learning (iJET) 15*(17),85–100.

Wubbolding, R.E. & Brickell, J. (1999). *Using Reality Therapy*. New York: HarperCollins.

Wubbolding, R.E. (1988). *Using reality therapy*. New York: HarperCollins.

Wubbolding, R.E. (2000). *Reality Therapy for the 21st century*. New York: HarperCollins.

Wubbolding, R.E. (2019). Multicultural Guidelines and Choice Theory/Reality Therapy. *International Journal of Choice Theory and Reality Therapy, 38*(2).36-42.

Yaccob, N. S. & Yunus, M. M. (2019). Students' perspectives on challenges and solutions to learning English in Malaysian Esl context. *Journal of Language and Communication (JLC), 6*(2),

487-496.

Yadav, S., Pathera, A. K., Islam, R. U., Malik, A. K., & Sharma, D. P. (2018). Effect of wheat bran and dried carrot pomace addition on quality characteristics of chicken meat sausage. *Nutrition & Food Science, 31*, 729–737.

Yahoo, M., & Othman, J. (2015). Carbon and Energy Taxation for CO2 Mitigation: A CGE Model of the Malaysia. *Environment, Development and Sustainability*, *19*(1), 239–262.

Yang, J. C., Chien, K. H., Liu, T. C. (2012). A digital game-based learning system for energy education: an energy conservation pet. *The Turkish Online Journal of Educational Technology, 11(*2), 29-37.

Yetter, I. H., Livengood, K. K., & Smith, W. S. (2017). State Science Standards and Students' Knowledge of What States Value: Lunar Phases. *Electronic Journal of Science Education, 21*(1), 36-55

Yıldız, Ş., & Balahorli, V. (2009). Treatment of the waste water seepage with membrane systems: Istanbul example, *Membrane Technologies and Implementation Symposium*, Istanbul – Turkey.

Yu, H. H. (2017). A study on the effectiveness of painting art therapy in stress relief for high school students. *Education and Teaching Forum*, 37, 3.

Yu, L. (2018). Matlab Programming Environment Based on Web. *IEEE 4th Information Technology and Mechatronics Engineering Conference (ITOEC),* 509-512. doi: 10.1109/ITOEC.2018.8740716.

Yükseltürk, E., Altıok, S., & Başer, Z. (2018). Using Game-Based Learning with Kinect Technology in Foreign Language Education Course. *Educational Technology & Society, 21*(3), 159-173.

Yunus, C. C. & Hua, T. K. (2021). Exploring a Gamified Learning Tool in the ESL Classroom: The Case of Quizizz. *Journal of Education and e-Learning Research*, *8*(1), 103-108.

Yusoff, N. M. R. N., & Ghani, K. A. (2008). Penggunaan alat bantu mengajar dan hubungannya dengan pencapaian kemahiran mendengar bahasa arab. *Jurnal Teknologi*, 141-154.

Zainuddin, M. Z., Mohamad, A., & Niri, M. A. (2008). Pentafsiran ilmu astronomi dalam sorotan sains moden dan Islam. *Jurnal Pengajian Sains dan Teknologi Malaysia*, *6*, 35-46.

Zhang, T., Taub, M., & Chen, Z. (2021, April). Measuring the impact of COVID-19 induced campus closure on student self-regulated learning in physics online learning modules. In *LAK21: 11th International Learning Analytics and Knowledge Conference*, 110-120.

Zhuang, J., Lu, J. Wang, X., Wang, X., Hu, W., Hong, F., Zhao, X., & Zheng, Y., (2019). Purple sweet potato color protects against high-fat diet-induced cognitive deficits through AMPK-mediated autophagy in mouse hippocampus. *The Journal of Nutritional Biochemistry*, 65, 35- 45. https://doi.org/10.1016/j.jnutbio.2018.10.015

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Published by
FAKULTI KEPIMPINAN DAN PENGURUSAN,
UNIVERSITI SAINS ISLAM MALAYSIA

e ISBN 978-629-7636-05-4