

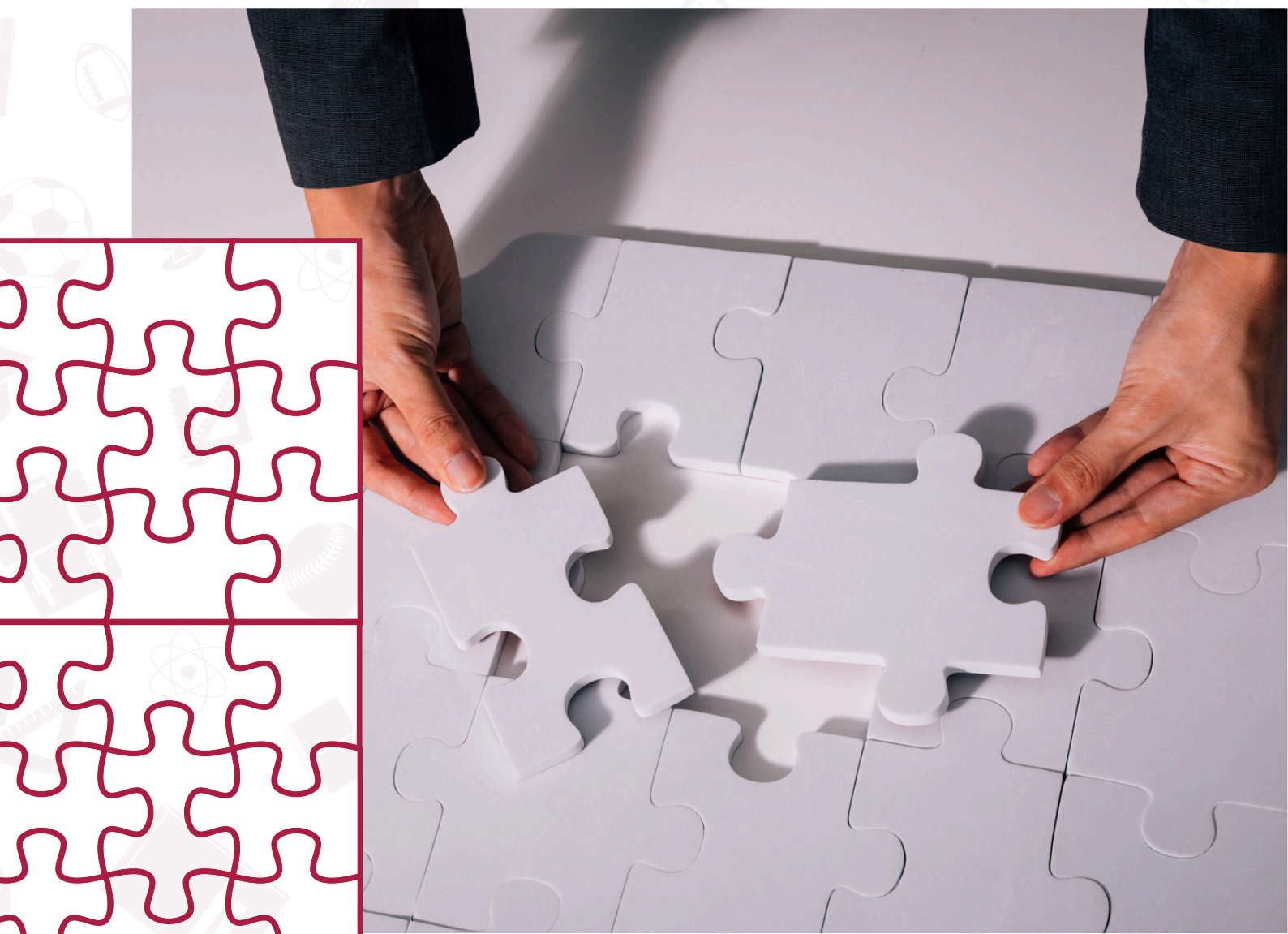


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INTEGRATING EDUCATION TRENDS TO SUPPORT 21 ST CENTURY LEARNING



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Preface

The conventional paradigms of education are radically changing in the fast-changing 21st-century world. The challenges of the modern world call for an educational strategy that gives students the skills and flexibility they need to navigate a dynamic and linked global society in addition to imparting knowledge. The emphasis on developing critical thinking, problem-solving skills, teamwork abilities, digital literacy, and adaptability—aspects essential for success in the modern world—is part of the transition towards 21st-century learning.

As technology is developing at a breakneck speed, new trends in education are starting to emerge. Acknowledging its function as a hub for remote and open education, SEAMOLEC recognizes the opportunity to incorporate contemporary educational practices to facilitate 21st-century learning. Through active teacher and student engagement, SEAMOLEC seeks to enhance the quality of education through remote and open learning, building a stronger culture for education in the future.

Given these advancements, educators, scholars, and thought leaders are cordially invited by SEAMOLEC to participate in the conversation on "Integrating Education to Support 21st Century Learning." This talk aims to investigate cutting-edge methods that provide students the abilities and information necessary to succeed in the fast-paced global marketplace.

ODELIA seeks to compile a wide range of viewpoints and research results on this volume that look at the integration of innovative educational trends. We hope that the articles on this volume will help the readers to explore cutting-edge approaches, new paradigms, and transformative activities that help students develop 21st-century abilities. By providing insights into contemporary educational trends and how they might be integrated to enhance 21st-century learning, the findings published in ODELIA are meant to enhance scholarly contributions.

July 2024

Director, SEAMEO SEAMOLEC



Southeast Asia Journal on Open and Distance Learning

Article 1

REVITALIZATION OF 21ST CENTURY LEARNING: ENHANCING TEACHERS' DIGITAL LITERACY AND TECHNOLOGY SKILLS THROUGH CANVA DESIGN TRAINING

Rahmadona Safitri, Denny Kurniadi,



Revitalization of 21st Century Learning: Enhancing Teachers' Digital Literacy and Technology Skills through Canva Design Training

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Abstract

The demands of 21st-century education necessitate educators to possess robust digital literacy and pertinent technological competencies. This paper explores initiatives aimed at bolstering educators' digital literacy and technological adeptness through Canva design training utilizing the development study approach. The primary issue addressed is the deficiency in digital literacy and technological skills among educators, which hampers their ability to create engaging and interactive learning materials. By concentrating on the online graphic design platform during training sessions, educators can hone their abilities in crafting captivating and interactive learning materials. The activity was conducted face-to-face/offline at the Convention Hall Hospitality of Universitas Negeri Padang from February 29 to March 1. The population under study consisted of pre-service teachers (PPG) in the First Wave of the 2023/2024 academic year, with the participation of 200 trained individuals. The sampling technique employed was purposive sampling, selecting participants based on specific criteria aligned with the research objectives. The development process of the training material included planning, implementation, and evaluation stages. Research findings reveal that 90% of the 50 participating educators attested to their capability to generate compelling learning resources catering to the needs of 21st-century learners. Surveys among students further illustrate an 80% increase in interest and engagement in learning subsequent to Canva utilization. Consequently, Canva training substantially elevates the quality of learning materials and student involvement in the educational process. Targeted training equips educators to adeptly address the requisites of 21st-century education, thus facilitating an enhanced learning experience for students. This research contributes to discussions surrounding the professional development of educators in the digital age.

Keywords: Digital literacy, Technological competencies, Canva design training, 21st-century education, Professional development.

Background

In the era of the 4.0 industrial revolution and the advancement of Information and Communication Technology (ICT), education has undergone dramatic changes (Rachmadtullah et al., 2020). The 4.0 industrial revolution has altered paradigms in various industrial sectors by leveraging digital technology, automation, and higher connectivity (Munirathinam, 2020). Alongside this, the evolution of ICT has accelerated access to information and communication, empowering individuals to access and utilize information from almost anywhere (Çetin et al., 2021). In this context, education faces the challenge of rejuvenating or revitalizing existing learning approaches to meet the demands of the times.

The impact of ICT transformation affects the education domain, triggering a paradigm shift in the teaching and learning process (Mhlanga, 2023). Historically, education tended to be static with the one-way dissemination of knowledge from teacher to student. However, with the advancement of ICT, education has evolved into a dynamic and interactive process (Haleem et al., 2022). Digital literacy and technological proficiency have become crucial competencies, enabling students to master the skills required in the ever-changing digital era (Churchill, 2020).

The importance of digital literacy and technological proficiency for educators in the contemporary era cannot be overlooked (Cetindamar Kozanoglu & Abedin, 2021). Educators need to be adept at effectively utilizing technology to deliver dynamic and relevant learning experiences (Marougkas et al., 2024). In a continuously changing context, educators must be capable of adapting teaching methods to accommodate diverse student learning styles (Costa et al., 2020). Integrating technology into the learning process can enhance student engagement, facilitate deeper understanding, and assist students in developing skills relevant to the increasingly digitized future (Statti & Torres, 2020)(Al-Abdullatif & Gameil, 2021).

In this challenge, Canva emerges as a multifunctional design platform that aids in the revitalization of 21st-century learning (Selvam et al., 2023). Educators can utilize Canva to create engaging learning materials tailored to students' needs (Titiyanti et al., 2022). The various features and customization options on this platform enable teachers to design learning materials according to students' learning styles (Huerta-Guerrero et al., 2020). By applying design principles and design briefs, teachers can compose learning materials more effectively, ensuring that the learning materials are not only informative but also fully meet students' learning needs (Lee & Griffin, 2021).

This study investigates the effectiveness of using the Canva design platform in enhancing teachers' digital literacy and technology skills while focusing on creating learning materials suitable for 21st-century students' needs (Alfia et al., 2020). The research adopts a development study approach as the primary method. The study provides direct training to a group of pre-service teachers using Canva to create engaging and student-centered learning materials (Kushnazarov et al., 2021). The research findings indicate that training using Canva significantly enhances teachers' ability to create engaging learning materials tailored to students' needs and positively impacts students (Alshahrani, 2023).

Further research on the benefits of Canva training and its impact on student learning in the digital era is still needed (Hinchcliff & Mehmet, 2023). This study addressed the problem of insufficient digital literacy and technological skills among pre-service teachers, which hampers their ability to create engaging and interactive learning materials. Through the development study method, we aimed to develop and evaluate the effectiveness of Canva training for pre-service teachers. Our findings indicate that Canva training significantly improved the digital literacy and technological competencies of pre-service teachers, enabling them to produce compelling learning materials that meet the demands of 21st-century education. Specifically, 90% of the 50 participating educators reported an enhanced capability to generate engaging learning resources, and student surveys showed an 80% increase in interest and engagement following the use of Canva. Future research should continue to explore how Canva training influences educators' ability to create relevant and engaging learning materials. Additionally, examining the long-term effects of this training on students' learning experiences can provide valuable insights for further educational development. Ensuring synchronization between the problem, methods, and results in future studies will strengthen the overall understanding of the impact of digital literacy initiatives in education.

Research Method

The research methods show the research stages from the research design, procedures until how to analyze the data itself. On describing the research method, credible references were used for better results. The primary issue addressed in this research is the deficiency in digital literacy and technological skills among pre-service teachers, which hampers their ability to create engaging and interactive learning materials. To tackle this problem, this research applies the development study method with the aim of developing and evaluating the effectiveness of pre-service teachers' training in using Canva as a learning media tool. The activity was conducted face-to-face/offline at the Convention Hall Hospitality of Universitas Negeri Padang from February 29 to March 1. The population under study consisted of pre-service teachers (PPG) in the First Wave of the 2023/2024 academic year, with the participation of 200 trained individuals. The sampling technique employed in this research was purposive sampling, where participants were selected based on specific criteria aligned with the research objectives, namely pre-service teachers (PPG) in the First Wave of the 2023/2024 academic year from various fields of educational sciences.

The development process of the training material included the following stages:

1. Planning: During this phase, we identified the training needs of the pre-service teachers through preliminary surveys and literature reviews (Castro & Tumibay, 2021). Specific criteria for participant selection were established to ensure alignment with the research objectives.
2. Implementation: The training sessions were conducted face-to-face at the Convention Hall Hospitality of Universitas Negeri Padang from February 29 to March 1. The sessions involved direct interaction with the pre-service teachers, focusing on practical applications of Canva for creating educational content (Paetsch & Drechsel, 2021; Mumford & Dikilitaş, 2020).
3. Evaluation: The effectiveness of the training was assessed through pre-and post-training surveys and tests. Participants' abilities to create engaging learning materials were evaluated, along with their digital literacy and technological competencies. Feedback from participants and observations during the sessions were also used to refine the training program.

Data Analysis

The data analysis involved quantitative methods to evaluate the training's effectiveness. Pre-and post-training survey results were analyzed using paired t-tests to determine the significance of changes in participants' digital literacy and technological skills. Descriptive statistics were used to summarize the feedback and engagement levels reported by participants. Additionally, qualitative analysis of open-ended survey responses provided insights into participants' experiences and suggestions for improvement.

The study concludes that the Canva design training significantly improved the digital literacy and technological competencies of pre-service teachers. The development and evaluation process demonstrated that targeted training can effectively address the deficiencies in digital skills among educators, thereby enhancing their ability to create interactive and engaging learning materials. The findings underscore the importance of integrating practical technology training in teacher education programs to meet the demands of 21st-century education.

Result and Discussion

The research findings indicate the following: **Needs identification**, initial surveys were conducted, and in-depth analysis was carried out to obtain a comprehensive understanding of pre-service teachers' technology skills and digital literacy, as well as the main constraints they face when using technology in the learning process. 75% of participants in the initial survey stated they knew how to use digital tools, but only 45% felt confident incorporating them into everyday teaching. Furthermore, the analysis findings indicate that two main factors hindering the use of technology in teaching are the lack of instruction and resource constraints. Additionally, the findings show that there is a need for additional training. 85% of respondents expressed a desire to learn to use creative tools like Canva, and 60% found it challenging to create engaging learning materials with the latest technology. Therefore, these findings indicating these needs serve as a strong basis for creating and implementing training that meets the field's needs. The training **plan** has been comprehensively developed to ensure the achievement of goals and to meet participants' needs as much as possible. The primary goal of this training is to enhance pre-service teachers' abilities in using the Canva learning media to create engaging and effective learning materials. This training plan includes an in-depth introduction to Canva's features and functions and how to use them to design effective learning materials. To help participants understand the potential and creativity they can apply, they will be shown some inspirational design examples that they can use with Canva. During the hands-on practice sessions provided in this training, participants can use Canva to create their own learning materials under instructor guidance. To assess participants' progress in designing learning materials using Canva, interactive lectures, group discussions, and practical demonstrations will be used. Participants will be evaluated through questionnaires before and after training, as well as an analysis of their practice results. This training plan is carefully designed to ensure that participants benefit from using Canva. During the planning process, several challenges and advantages need to be considered. Participants may not yet understand Canva technology or how to use it to design learning materials. They may not know how to use the platform or the design concepts required to create engaging learning materials. However, participants' enthusiasm for learning and mastering new technology makes it easier.

Many of them are very interested in learning to create innovative learning materials using Canva. By providing the necessary support and guidance to participants during the training sessions, discussions will focus on overcoming these challenges. Additionally, it will be explained how to address these challenges and use the available conveniences to achieve the set learning goals. **Implementation**, during the training held at the Convention Hall of Hospitality, Universitas Negeri Padang, participants were given the opportunity to directly participate in demonstrations of using Canva to design engaging learning materials. They were also shown how to practically use various features and their functions and provided with inspirational design examples to help them understand the potential and creativity they can apply on the Canva platform. **Evaluation** indicates that participants gained a better understanding of how to use Canva to create engaging learning materials; however, data from pre-training surveys show that the majority of participants have a basic understanding of Canva's features and functions, and a small portion of them have used it before the training session.

After the training concluded, participants were asked to provide feedback on the usefulness and effectiveness of the training by obtaining evaluation results from participants as shown in the following table:

Table 1.
Pre- and Post-Training Feedback on Canva Usage

Question	Pre-training (%)	Post-training (%)
Do you have experience using Canva?	25	75
How familiar are you with Canva's features?	35	80
How confident are you in using Canva?	40	85
How prepared are you to design learning materials using Canva?	30	75

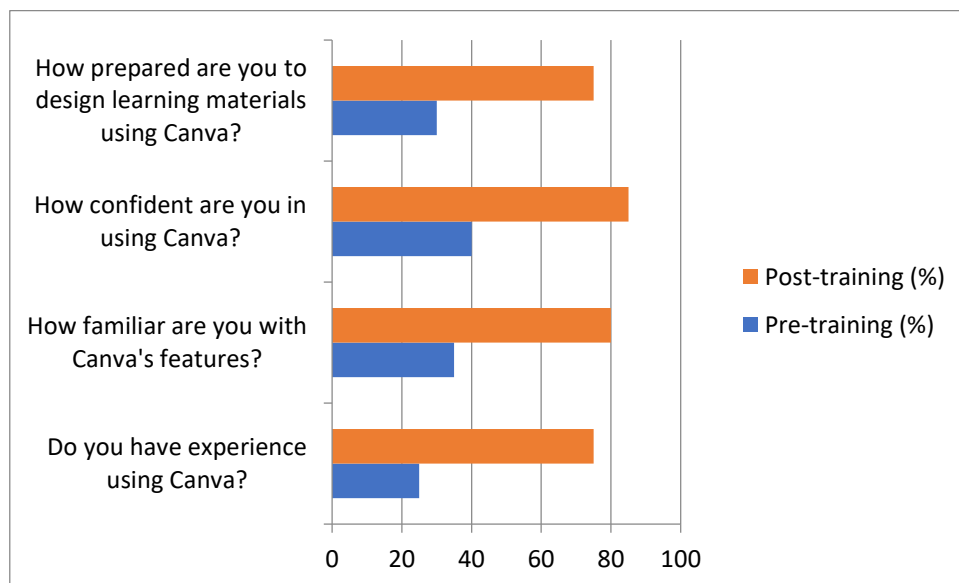


Image 1. (Pre- and Post-Training Feedback on Canva Usage)

Based on Table 1 and Image 2, out of 50 teachers who participated in the Canva training, 90% stated that they could create engaging learning materials that meet the needs of 21st-century students. Surveys of students also indicate that 80% of them are more interested and engaged in learning after using Canva. Although this training is important in addressing educational issues, it cannot be considered as a sole solution. Further studies are needed to explore additional design platforms. Evaluation shows that Canva training effectively enhances participants' understanding and skills in creating effective learning materials. The evaluation results and performance analysis indicate the participants' need for better understanding and skills.

Based on participant feedback, identifying participants' needs is the first step in developing further training. Variations in teaching methods, such as practical activities, case studies, and interactive discussion sessions, can enhance participant participation. Problem-based approaches allow participants to overcome difficulties in creating learning materials and relate them to real-world situations. Ongoing support after training is crucial, such as consultation sessions, online discussion forums, or additional resources to help participants address issues and answer questions.

The findings of this research have a significant impact on the development of digital literacy, teachers' technological skills, and 21st-century learning. Canva training has proven effective in assisting teachers in creating engaging and relevant learning materials. This helps teachers become more proficient in integrating technology into their teaching, which is appealing to students. Additionally, this research can enhance access to and the use of technology in the classroom by providing adequate training to teachers. Teachers who are proficient in using Canva can create more engaging and interactive learning materials, thereby improving overall learning quality and encouraging student engagement in the learning process. Canva training also promotes collaborative and creative learning, preparing students for the increasingly digitized challenges of the future.

Conclusion and Suggestion

Based on the findings of this study on enhancing teachers' digital literacy and technology skills through Canva design training, it is evident that such training significantly improves educators' ability to create engaging learning materials. The development study method employed in this research facilitated the planning, implementation, and evaluation of Canva training sessions, emphasizing direct interaction and practical applications with pre-service teachers (Castro & Tumibay, 2021).

However, there remains a crucial need for deeper exploration into Canva's features and the diversification of teaching methodologies to maximize its educational impact. Survey results highlighted increased student interest and engagement post-Canva training, suggesting opportunities for educators to tailor materials to student needs and enhance instructional strategies (Paetsch & Drechsel, 2021; Mumford & Dikilitaş, 2020).

Further research should explore alternative design platforms and delve into the broader implications of digital literacy and effective training on 21st-century learning paradigms. This ongoing investigation is crucial for continuously refining educational practices to meet evolving technological demands and student learning needs.

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Article 2

MED-PHARM GAMES APPLICATION AS LEARNING MEDIA FOR DEPARTMENT OF PHARMACY STUDENTS

Dessy Ratna Sari, Rani Tiara Desty



Med-Pharm Games Application as Learning Media for Department of Pharmacy Students

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Abstract

This study aims to produce game-based science learning media, namely Med-Pharm Games for use in learning for Diploma Students Department of Pharmacy. Med-Pharm Games is a knowledge game about the names and uses of drugs, especially in the field of Pharmacy. This game is able to sharpen the brain by finding the appropriate answer based on the statement. This research is a type of development research (research and development). The development model used in this research is ADDIE which consists of (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation. This research was conducted to produce the Med-Pharm Games application and the Med-Pharm Games application was validated by media experts and material experts. The data analysis technique used was a questionnaire instrument and descriptive analysis techniques. This games application is easy to use (user friendly) for Android smartphones or laptops or PCs (Windows). Based on media expert validation and material on the feasibility of Android-based learning media, namely Med-Pharm Games with an ideal percentage of 90.90% which is included in the feasible category with a very good predicate.

Keywords : ADDIE, Game based Science Learning, Med-Pharm Games

Background

In this digital era, consciously or unconsciously, everyone is connected and dependent on the world of technology. Technology also influences the world of education so that the current generation is expected to take part in the digital era. Education must also have an important role in developing the quality of human resources. It is hoped that educational units will not only focus on carrying out teaching and learning processes using print media, but will be more creative/innovative and dynamic. So that students not only hear, see, but must practice it in everyday life. Digital skills and literacy as a form of transformation in the field of education are really needed in the 21st century to improve the quality and competence of students and lecturers (Sari, 2021). The young generation born in the 21st century is the digital generation or Internet generation (Bennett, et al., 2008). The trend of using digital games is increasing in this era (Corbett, 2010; McGonigal, 2011). Millions of people have been immersed in playing digital games for both entertainment and education (Huang, Hew, & Lo, 2019) and it was reported in their study that around 90% of students' phones are connected to digital games.

Apart from that, many teachers use digital games as a teaching medium in the classroom to involve students during the teaching and learning process, or what is usually called Digital Game-Based Learning (DGBL). Learning media is one of the supports in the learning process so that the process is successful or not learning is largely determined by the media used (Atsani, 2020). Students also get feedback such as improvements and wins after completing games. Digital Game-Based Learning which specifically focuses on Science is called Game-Based Science Learning (GBSL). Apart from preventing boredom, learning activities using game media will leave a long-lasting impression in students' memories and provide opportunities for students to study in a more enjoyable atmosphere without abandoning learning objectives (Noviarni, et al., 2012).

Independent game-based learning resources can not only be used as learning aids but can also be used by students with or without lecturers (Sari, et al., 2013). In the context of science, Li and Tsai (2013), reviewed research articles on game-based science learning (GBSL) published from 2000 to 2011. The focus of the review was qualitative results including research objectives and design, theoretical foundations, game design, and learning focus. Based on this review, GBSL can provide effective learning in a collaborative problem solving environment.

From the explanation above the Med-Pharm Games application, namely finding the right answers regarding the names of drugs and their uses, is expected to make Diploma students majoring in Pharmacy more interested in understanding, studying and memorizing the names of drugs and their uses. Med-Pharm Games is a word guessing game that involves finding the right answer regarding the names of medicines and their uses. This game can sharpen the brain by looking for groups of letters that contain meaning. Guess the word is a question in the form of a sentence, a question in the form of a story or picture and so on which is a brain teaser aimed at finding something (Subarna and Sunarti, 2012). Based on research by Alifiar et al (2020), board games can improve the understanding and motivation of pharmacy students in studying metabolic pathways because educational games can help complement and strengthen the material taught. Based on research by Bagus et al (2023), the use of an Android-based Interactive Quiz Learning Application for Pharmaceutical Sciences for pharmacy students can be useful for teachers and students in vocational schools majoring in Pharmaceutical Sciences. So based on the understanding above, it can be concluded that the guessing or word search game application developed into the Med-Pharm Games application is expected to be an educational game for searching or finding the right answers regarding the names of medicines and their uses which can be used by students as a games-based learning medium. so that it can increase student motivation and interest in learning.

This research aims to design and create Game-Based Science Learning media using the Research and Development method with the ADDIE model which is then validated or assessed by media experts and material experts so that the quality of the learning media, namely the Med-Pharm Games application created, can be known. The aim of this research is to produce game-based learning media and the characteristics of the Med-Pharm Games application as a learning media for Diploma students majoring in Pharmacy. The creation and design of the Med-Pharm Games application provides practical benefits, including increasing student learning motivation, helping to improve learning understanding by presenting material in an interesting way and making it easier to interpret material that is considered difficult. And as an alternative science learning media that is more innovative and creative.

Research Method

This research uses the Research and Development method, namely the process used to develop and validate educational products (Borg and Gall, 1989) and test the effectiveness of these products. The development model that researchers use in this research is the ADDIE model developed by William Lee (2004) explaining that in the ADDIE development model there are several stages, namely analysis, design, development, implementation and evaluation. The hope is that after an analysis is carried out, the product being developed can be put to use by consumers or the subjects of the product. In this research, a product will be produced in the form of an Android Games Application "Med-Pharm Games" as a games-based learning media application so that students can find the right answers regarding the names of drugs and their uses.

Participants are subjects who are involved in physical activities as participants in providing responses to activities carried out in the teaching and learning process and supporting the achievement of learning objectives. In this research, the researcher involved several participants or research subjects, namely: media and material expert validators. The object of research using the Research and Development method is the quality of the Android Games Application product "Med-Pharm Games" as a game-based science learning media, namely guessing or searching for words by finding the right answer regarding the names of drugs and their uses.

The instrument used in this research is an instrument in the form of a questionnaire for media experts and material for the Med-Pharm Application. Research instruments for media and materials experts are used to determine the level of appropriateness and quality of media and materials created by researchers. This instrument was given to two media and material experts, namely lecturers at the Pharmacy Department.

This research instrument was prepared based on the LORI dimensions. There are several aspects that make up instruments for media and material experts, namely learning objectives, content quality, and feedback and motivation.

The data collection procedure used in this research is product validity data. The data obtained in this research are quantitative data and qualitative data. Quantitative data was obtained from the results of evaluation questionnaires from material experts and media experts. This data uses a Likert Scale with response information, namely a score of 5 if the predicate is very good, a score of 4 if the predicate is good, a score of 3 if the predicate is sufficient, a score of 2 if the predicate is poor, and a score of 1 if the predicate is very poor. After obtaining data originating from the research results, then descriptive data analysis was carried out. Data in the form of a questionnaire needs to be calculated so that it can be presented in the form of qualitative data.

Result and Discussion

This research uses the Research and Development method, namely research used to produce certain products and test the effectiveness of these products. The product developed in this research is learning media in the form of an Android-based Med-Pharm Games application that discusses material regarding the names and uses of drugs, especially in the field of Pharmacy. The results of this research use the ADDIE model, namely; (1) At this stage, content and software requirements analysis activities were carried out by observing level 1 students majoring in pharmacy for one month. To analyze content requirements, an analysis of the syllabus and RPS for students majoring in pharmacy was carried out. Software analysis aims to analyze the functional requirements of the system, namely the learning game application. Analysis of the problems and characteristics of Pharmacy Department Diploma students regarding problems in the material on drug names and uses. Technology analysis shows that all students have Android cellphones. Material analysis is carried out based on the curriculum implemented based on competencies and learning achievement indicators. Using Android-based games as learning media can support innovative learning processes. Android-based games as a learning medium are expected to be able to make a concept more interesting so as to increase student learning motivation. (2) Material design for the names and uses of drugs in the pharmaceutical sector based on their types as well as creating game designs using Android-based game software. (3) Development by creating an Android-based Med-Pharm Games application with material on the names and uses of drugs in the pharmaceutical field. Prepare your laptop and open the website for the Android-based game application creation platform, namely QuickAppNinja. Enter the application by logging in via email then selecting a game in the form of searching for words, and inputting the name of the game application created, namely "Med-Pharm Games", which is a game for searching for names and uses of medicine. Arrange several levels by including pictures and questions regarding the name and use of drugs. The Med-Pharm Games application has been generated and the application can be downloaded via email link. (4) Implementation was carried out by validation of the Android-based Med-Pharm Games by Media and Materials Experts, namely diploma lecturers in the pharmacy department. Validate media and material experts to provide grades, comments and suggestions regarding the suitability of Android-based Med-Pharm Games as learning media. (5) Evaluation is used to provide feedback to product users. The formative evaluation stage was carried out in a review test after revisions were made to the Android-based Med-Pharm Games application.

Product development was made using QuickAppNinja as an Android-based game application creation platform. The title of this game is “Med-Pharm Games”, which is a word guessing game that contains questions about the names and uses of drugs in the pharmaceutical field which can be seen in Image 1.



Image 1. (Med-Pharm Games Application)

In this game there is an introductory part of the game which consists of the main menu options, namely play, about, sound, levels and social media. To complete this game, it is in the form of a template or has been designed and cannot be changed or added to. This games application is easy to use (user friendly) for Android smartphones. Students who use a laptop or PC (Windows) can also use these games by downloading additional software, namely NOX. This games application also does not use cellular data after being downloaded so students do not use up their internet quota so this game is easy to apply. Android-based learning media, namely the Med-Pharm Games application, can increase student learning motivation, be more attractive and use the application repeatedly. The Med-Pharm Games application has 21 levels that have been created and can be added further to be grouped based on the type and class of pharmaceutical preparations. The levels in the Med-Pharm Games application can be seen in Image 2.

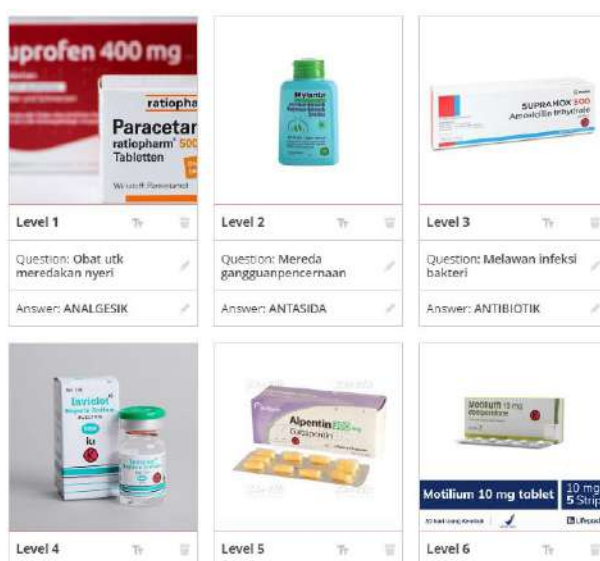


Image 2. (Med-Pharm Games Application Level)

The game application was validated by two media and materials experts who are diploma lecturers in the Pharmacy Department, Poltekkes Kemenkes Surakarta. Applications are assessed for suitability through the questionnaire in Table 1.

Table 1 Validation Results by Media and Material Experts

No	Question	Media and Material Expert 1	Media and Material Expert 2	Media and Material Expert 3
1	The questions displayed in the game are in accordance with learning objectives	5	5	5
2	The questions displayed in the game are in accordance with competency achievement	5	4	4
3	This game can give rise to independent learning initiatives	5	4	4
4	This game covers a little pharmacology material	5	4	4
5	The level of difficulty of the questions in this game is in accordance with the abilities of students in general	4	5	4
6	The questions presented are appropriate to current conditions	4	4	4
7	Questions are arranged coherently according to student understanding	5	4	5
8	The grammar used is in accordance with Indonesian and pharmaceutical rules	4	5	5
9	This game can help lecturers in carrying out learning activities in class	5	5	5
10	This game can help students understand pharmacology courses	5	5	5
11	This game can develop student learning motivation	5	4	4

Description: 5 = very good; 4 = good; 3 = sufficient; 2 = poor; 1 = very poor

Identification of tendencies for high and low scores is determined on ideal criteria based on research data scores on a Likert scale with a data range of 1 to 5. So an ideal score is obtained which ranges from 11 to 55 so that an ideal mean value (Mi) is 33.00 and a standard deviation is obtained. (SDi) of 0.09. Based on calculations, the level of feasibility of Android-based learning media, namely Med-Pharm Games, according to media and material experts, is included in the appropriate category with a very good (SB) predicate with an average score for the overall assessment aspect of 50.00 from a maximum average score of 55.00 percentage ideality is 90.90%, which means that learning media has a reality value greater than 75% so that learning media is worthy of development. Based on criticism and suggestions from media and material experts, several revisions can be made in accordance with media and material experts' suggestions, namely regarding adding drug classes, dosages and side effects as well as adding questions to the Med-Pharm Games application. Based on data calculations from media and material experts with a total of 11 assessment criteria items with 3 criteria aspects as in Table 2.

Table 2 Percent Ideal Value of Media and Material Expert Validation

No	Criteria Aspect	Percentage Ideality (%)			Average (%)
		Expert 1	Expert 2	Expert 3	
1	Learning objectives	100	86.67	86.67	91.11
2	Content quality	88	88	88	88
3	Feedback and motivation	100	93.33	93.33	95.56

The validation results of the Med-Pharm Games Android application from media and material experts stated that the Android-based Med-Pharm Games application developed was in the appropriate category with a very good predicate. This is in line with previous research by (Sari, Saputro and Hastuti, 2014) with a chemistry educational game based on Role Playing Game (RPG) which was developed to meet good criteria for independent chemistry learning with the assessment from the validator being said to be good. Based on previous research by (Harwanto, 2019), the 2D Educational Game Application for Learning Simple Chemical Elements and Compounds can teach knowledge of chemical compounds and elements effectively.

The Android-based Med-Pharm Games application motivates students to study the material provided carefully, memorize the names of medicines and their uses through games, and makes students happier in learning because the application is packaged interactively, so students can learn anytime and anywhere with using smartphones that students often use in their daily lives. The results of research by (Laila, Hb, & Irsadi, 2016) suggest that pictures and animations make it easier for students to understand the content of teaching material.

Conclusion and Suggestion

Med-Pharm Games application has the characteristics of a word guessing game which contains questions regarding the names and uses of drugs in the pharmaceutical field. This games application is easy to use (user friendly) for Android smartphones or laptops or PCs (Windows). The feasibility of Android-based learning media, namely Med-Pharm Games, is based on media and material expert validation with an ideal percentage of 92.67% which is included in the feasible category with a very good predicate. The suggestion that can be given to future researchers is to add levels to the games so that students can know more about the names and uses of drugs. Apart from that, it is necessary to add material in the form of modules or e-books as an introduction to pharmacology material. And games should be classified based on drug class, dosage and side effects.

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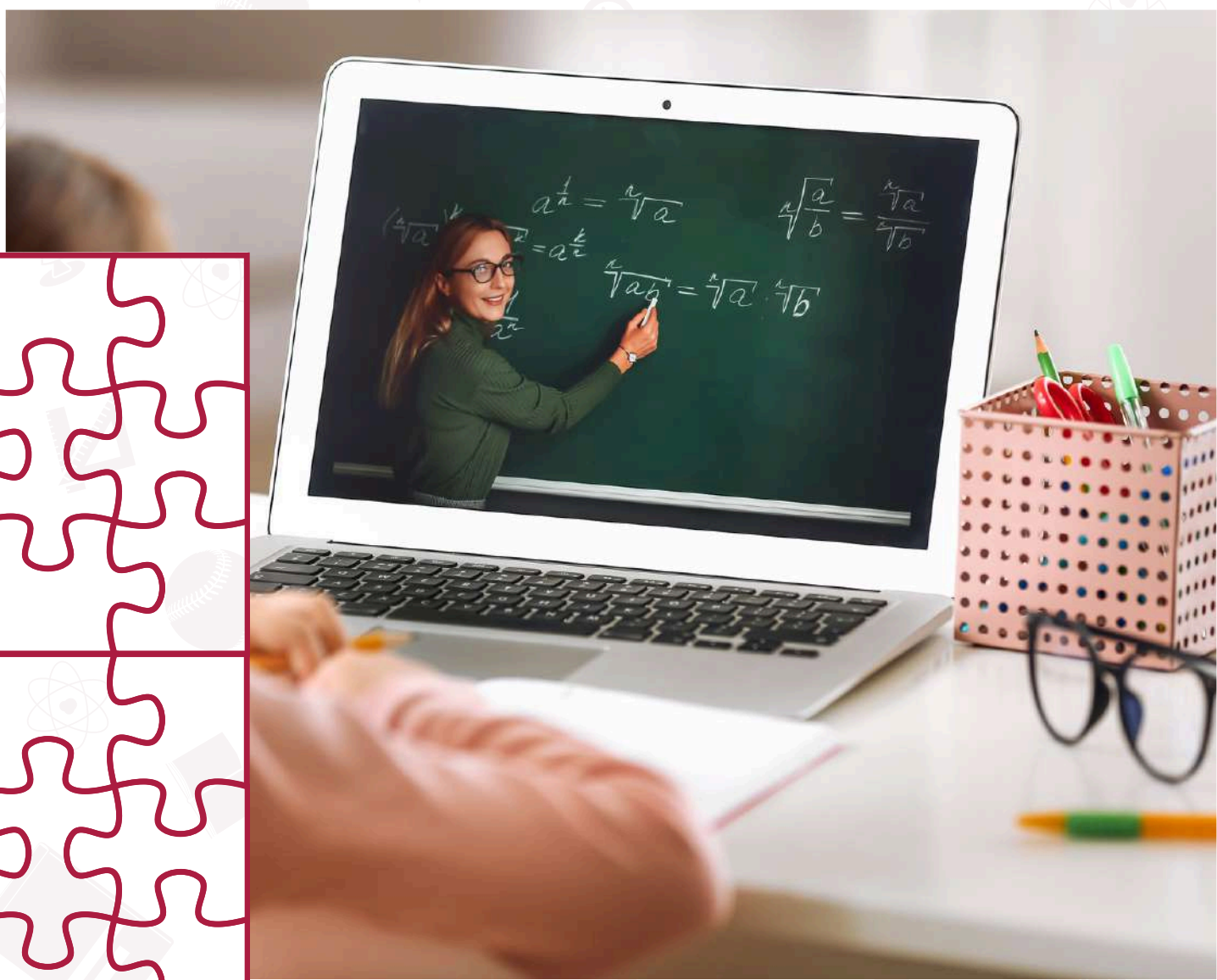
ODELÍA

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Article 3

STUDENTS' PERCEPTION OF THEIR MATH ANXIETY WHEN SHIFTED TO ONLINE LEARNING

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Students' Perception of their Math Anxiety when Shifted to Online Learning

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Abstract

Schools suddenly shifted from face-to-face to online classes because of the COVID-19 pandemic. The abrupt change may increase students' math anxiety. The paper aims to study junior high school students' perception of math anxiety when they shifted to online learning; 120 high school students were surveyed. The survey tool is a 4-point Likert scale consisting of 15-item statements. Descriptive statistics, ANOVA, and T-test were used for data analysis. Results show that students agreed that their math anxiety levels increased during online learning. There is a statistically significant difference in math anxiety levels between genders and among grade levels. Most students prefer face-to-face classes because they feel their math anxiety level increased during online classes. Teachers should implement different learning strategies to help students learn more effectively and decrease anxiety.

Keywords: Face-to-face learning, Math anxiety, Online learning

Background

One of the United Nations' Sustainable Development Goals is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (United Nations, 2015). In the Philippines, AmBisyon Natin 2040 envisions Filipino students equipped with foundational literacies, competencies, and character qualities; one of the foundational literacies is numeracy (National Economic and Development Authority, 2016). Regardless of whether students and teachers were prepared, most educational institutions worldwide have resorted to a sudden shift from traditional face-to-face classes to online teaching and learning between March and April 2020 due to the pandemic caused by COVID-19 (UNESCO IESALC, 2020). The face-to-face method of conducting classes was suspended; to continue education during the pandemic, the Department of Education implemented online and modular distance learning to deliver instruction (Sarmiento et al., 2021).

Even before the pandemic, Franklin et al. (2015) predicted the prevalence of online classes in the future. The advent of COVID-19 gave rise to a drastic change in the educational system; from traditional face-to-face classes, educational institutions were forced to shift to online classes.

Online and Traditional face-to-face learning

There are two modalities of learning: online and traditional face-to-face learning. Online and traditional face-to-face classes have similarities and differences. Both modalities require students to attend classes, study the lessons, and accomplish learning activities. Teachers still design the curriculum and assessment to ensure instructional quality. The two modalities differ from each other since it can be observed that traditional face-to-face classes are teacher-centered, while online classes tend to be more learner-centered.

Studies have shown contradicting results regarding online and traditional face-to-face classes. Ganesh et al. (2015) found that students rated traditional classes better than online classes in the following dimensions: overall evaluation, perceived competence, perceived communication, and perceived challenge.

The study by Bergstrand and Savage (2013) found that students feel they have learned less in online classes. Students' grades in online classes were slightly lower than their face-to-face counterparts (Fischer et al., 2020). On the contrary, other studies did not find a significant difference between students' academic performance in online and traditional face-to-face classes (Ni, 2013; Edwards et al., 2017; Nemetz et al., 2017).

Baum and McPherson (2019) mentioned that students with poor academic foundations struggle most in online classes. Prior online learning experience and sense of preparedness predicted students' anxiety in online classes (Abdous, 2019). Low technology readiness resulted in low self-efficacy in interaction with other students (Warden et al., 2022).

The study by Gherhes et al. (2021) has shown that students prefer face-to-face learning over e-learning. It was also interesting to note from the study that those who have only experienced e-learning favored face-to-face learning more than students who have experienced both face-to-face learning and e-learning. According to Dios & Charlo (2021), students would rather have face-to-face learning than e-learning due to the social interaction fostered in the classroom, which allows them to raise questions quickly, work on tangible learning materials, and learn collaboratively. In addition, the study by Joshi and Bodkha (2021) showed that students found online lectures to be monotonous, resulting in less satisfaction than face-to-face lectures. Moreover, they have noted that attending face-to-face lectures helped them to be more attentive and motivated, thus giving them a higher degree of satisfaction.

Muthukrishnan et al. (2021) found that students see e-learning as beneficial since it allows them to record lectures, access online learning materials, and learn at their own pace and preferred environment. However, this was also considered disadvantageous since the lack of social interactions and other technical issues contributed to students' compromised discipline in their studies. In the study by Tan et al. (2021), undesirable learning experiences were caused by insufficient communication and interaction. Harefa & Sihombing (2022) also saw limited social interaction negatively affecting students in the e-learning modality. With this, they suggest that teachers take thoughtful and creative steps to target the teaching objectives.

Math anxiety

Research on math anxiety has been around for decades. Extant literature shows how it affects math performance and the daily lives of individuals with math anxiety. Math anxiety affects students worldwide. It is characterized by apprehension, worry, aversion, and frustration from performing math tasks (Luttenberger et al., 2018). According to Westfall et al. (2021), math anxiety significantly hinders people from pursuing mathematics proficiency. Moreover, Mutlu (2019) states that having high math anxiety harms the mathematical performance of those who have it. Individuals with math anxiety find it challenging to handle math- or number-related information and tasks in everyday life and school. Math anxiety interferes with processing knowledge and activities relating to math or numbers. (Commodari & La Rosa, 2021). According to Aarnos & Perkkila (2012), "Mathematics anxiety refers to individual's negative affect when engaging in numerical and mathematical tasks" (p. 1495). Furthermore, Luttenberger et al. (2018) mentioned in their study that those with math anxiety are affected in the emotional, cognitive, and physiological aspects, resulting in fewer accomplishments.

Different factors cause math anxiety (Rozgonjuk, 2020). Math anxiety may be influenced by the environment, culture, educational system, parents' and teachers' attitudes toward math, their students, and children (Luttenberger et al., 2018). According to Luttenberger et al. (2018), "compared to men, women have higher prevalence rates across all anxiety-disorder categories" (p. 312). Several theories explain why girls tend to have higher math anxiety levels than boys. Some discuss genetic-biological differences and social-environmental factors (Levy et al., 2021).

Math anxiety has been known to impact individuals' mathematical abilities negatively. Pizzie and Kraemer (2017) found that when exposed to mathematics, highly math-anxious individuals lead to a reaction related to threat avoidance. Mathematically anxious students exhibited lower numerical intelligence and exposed mathematical deficits (Schillinger et al., 2018). Similarly, students with high levels of math anxiety were associated with poor academic performance (Núñez-Peña & Bono, 2019). The 2015 study by Wang et al. showed a modest negative association between math anxiety and performance in respondents with low levels of intrinsic motivation. Associations between Mathematics and anxiety were stronger than those between Mathematics and calmness (Schmitz et al., 2019). The study by John et al. (2020) discovered that individuals with consistent positive experiences with math report lower math anxiety, while others with consistent negative experiences tend to avoid math in the future.

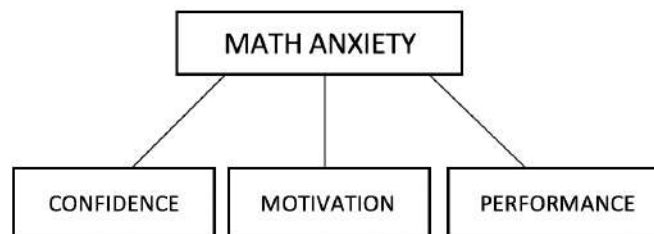
Research Method

The current study is based on Attentional Control Theory (Derakshan & Eysenck, 2009) and Control-Value Theory (Pekrun, 2006). On the one hand, Derakshan and Eysenck (2009) state that anxiety at the heart of attention control theory is projected to affect performance. On the other hand, Pekrun (2006) states that "the control-value theory implies that students' emotions can be positively influenced by fostering their perceptions of competence and control over academic activities and outcomes, and by shaping their appraisals of the values of these activities and outcomes" (p. 334).

In this research, the factors of math anxiety are based on the definitions given by Ashcraft (2002) and Maloney et al. (2011). Ashcraft (2002) explains that math anxiety is related to decreased motivation and self-confidence in mathematics, while Maloney et al. (2011) state that Math anxiety has negatively impacted mathematics performance. It was found that mathematics anxiety has consistently inhibited an individual's mathematics performance and attitudes toward the subject, including interest and confidence in mathematics (Novak & Tassell, 2017). The three clusters below contribute to math anxiety: confidence, motivation, and performance.

Figure 1

Math anxiety and its relationships with confidence, motivation, and performance



Confidence

People who are not confident or think they are not good at math are more likely to have anxiety (Dowker et al., 2016). Students who are highly confident in their mathematical abilities are less anxious about it.

Motivation

The findings of Meece et al. (1990) reveal that affective and motivational factors shape students' pursuit of mathematics; this means that motivation is a factor in math anxiety. Hembree (1990) states that higher math anxiety was related to less enjoyment and less motivation in math. If students are motivated, then they have less anxiety. The results of the study by Mamolo (2022) showed that "students in the online mode of instruction got a significant decrease in their motivation and self-efficacy while maintaining High Anxiety" (p. 7). Student motivation is a factor in which self-efficacy affects performance (Skaalvik et al., 2015).

Performance

The study of Ramirez et al. (2016) concludes that math anxiety can negatively affect students' academic performance. Higher math anxiety is associated with lower math performance (Foley et al., 2017). The research aims to determine whether there is an increase in junior high school students' perceived math anxiety when classes are shifted online. The study's results will enlighten teachers about students' perceptions regarding online learning. It will help plan, prepare, and modify learning plans to cater to students' learning needs and address math anxiety.

Few studies investigated how students' perception of math anxiety increased during the shift from traditional face-to-face classes to online classes. Most of the available research articles about math anxiety discuss Math anxiety and its relationship with motivation and achievement (Ramirez et al., 2016; Justicia-Galiano et al., 2017; Pantoja et al., 2020; Barroso et al., 2021), the role of parents and teachers (Novak et al., 2017; Szczygiel, 2020; Silver et al., 2021; Becker et al., 2022), and gender difference (Xie et al., 2019; Van Mier et al., 2019; Wang et al., 2021; Levy et al., 2021).

Current study

The research aims to determine students' perceptions of their math anxiety when transitioning from traditional face-to-face to online classes. The sudden shift to online classes may have increased the anxiety levels perceived by the students, which is why the researchers found this topic relevant to investigate.

This research study aims to address the following research questions:

1. Is there an increase in students' perceived math anxiety level when they shifted to online class learning?
2. Is there a significant difference in student's perception of their math anxiety level increase towards online learning across grade levels?
3. Is there a significant gender difference in perceived math anxiety during online learning?

Methodology

A survey tool was used to determine student's perceptions of their anxiety increase. The survey consists of 15-item statements, and the respondents must choose their level of agreement.

Procedure

The survey was conducted online through Google Forms. The link for the Google form was sent through the adviser for each section.

Instrument

The survey tool consists of 15 items divided into three clusters: confidence, motivation, and performance. The clusters were based on the definitions of Math anxiety from the studies of Ashcraft (2002) and Maloney et al. (2011). Each participant was asked to rate each item based on their agreement using a 4-point Likert scale. The descriptive ratings of the 4-point Likert scale were as follows: 1 - Strongly Disagree, 2 - Disagree, 3 - Agree, and 4 - Strongly Agree. The survey tool has a Cronbach alpha of 0.886.

Participants

The survey respondents were junior high school students from grades 7 to 10. A total of 120 junior high school students participated in the study. There were 46 males and 74 females. The participants were students from a private high school in Manila.

The figures below show the demographic information of the participants.

Figure 1
Gender

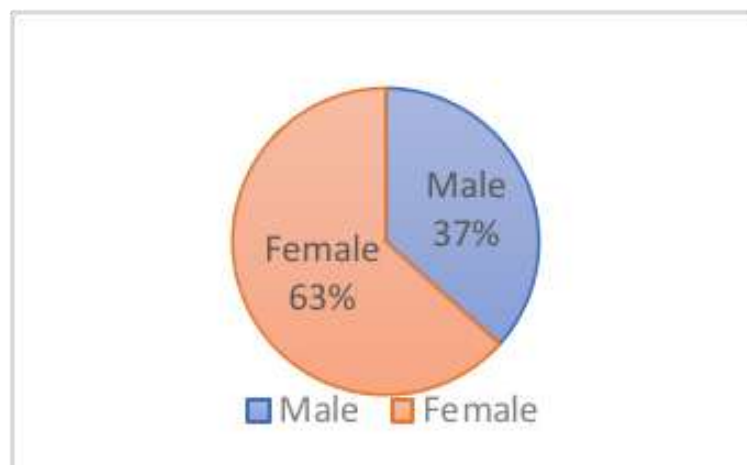


Figure 2
Grade level

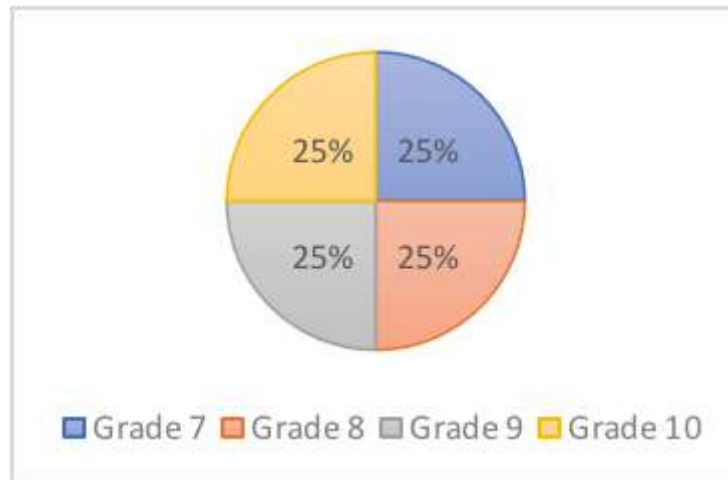
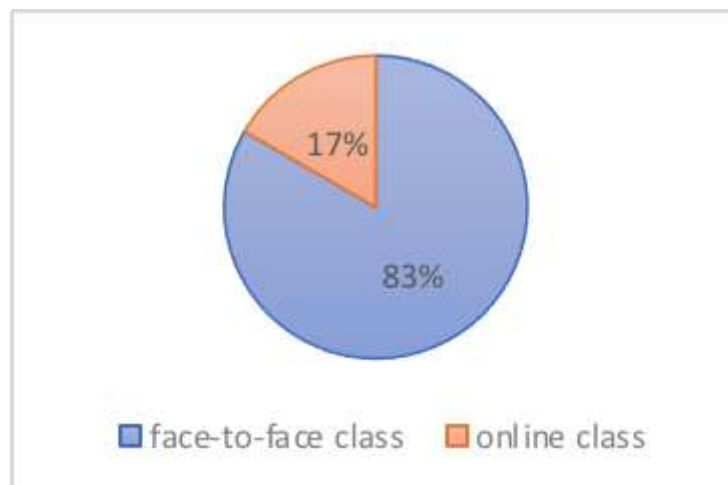


Figure 3
Learning preference



100 out of 120 respondents (83%) preferred face-to-face classes over online classes. It shows that most students would choose face-to-face classes over online classes if given an option.

Statistical Techniques

The research utilized both descriptive statistics and inferential statistics. For descriptive statistics, the Measures of Central Tendency and Variation were used to measure students' agreement regarding their perceived math anxiety level (mean and standard deviation). Suitable scales were generated to describe students' agreement. These scales describe the data gathered: 0.01 - 0.10, absolutely no agreement; 1.01 - 2.00 without agreement; 2.01 - 3.00, approaching agreement; 3.01 - 4.00 totally in agreement. For inferential statistics, One-way ANOVA was used to determine the significant difference in student's perception of their Math anxiety level across grade levels. In contrast, an independent sample t-test was used to examine gender differences. All analyses were performed in SPSS, and the level of confidence is at $\alpha = 0.05$.

Results and Discussion

Students' perception

Table 1
Mean and Standard deviation of Students' perception

Factors	M	SD
Confidence	2.897	0.881
Motivation	3.208	0.764
Performance	2.635	0.877
Overall Perception	2.913	0.840

Table 1 shows the mean and standard deviation of each factor affected by math anxiety and students' overall perception.

Confidence. The mean of 2.897 shows that students agree that their confidence in mathematics decreased during online classes. Due to adjustments brought about by the sudden shift in the educational system, students might be less confident with their math ability.

Motivation. The mean of 3.208 shows that students agree that their motivation in mathematics declined during online classes. The lack of physical interaction and engagement with peers and teachers may cause decreased motivation.

Performance. The mean of 2.635 shows that students agree that their performance in mathematics was negatively affected by the shift to online classes. Fischer et al. (2020) stated that students' inability to self-direct their learning experiences may cause performance gaps between online and face-to-face coursework.

Among the three factors affected by math anxiety, motivation garnered the highest mean score of 3.208, meaning that motivation was the most affected. The overall perception of 2.913 means that students agree that there was an increase in their perceived math anxiety level when schools shifted from traditional face-to-face classes to online classes. Because of familiarity and conventionality, students may be more inclined to face-to-face classes than online classes. The sudden shift of learning may have brought significant adjustments to students regarding academic and social interaction, resulting in increased perceived math anxiety levels.



Grade levels

Table 2

One-way analysis of variance of mean scores of students by Grade level

Source	df	SS	MS	F	p
Between groups	3	4.513	1.504	4.393	0.006
Within groups	116	39.725	0.342		
Total	119	44.239			

Table 2 shows data analysis by One-Way ANOVA, which was conducted to compare the mean scores on students' perception of Math anxiety across different grade levels. Analysis of variance showed a statistically significant difference at the $p < 0.05$ level in mean scores for the four grade levels: $F(3, 116) = 4.393$, $p = 0.006$. Since the level of confidence chosen is **0.05** and the One-way ANOVA generated p-value is 0.006, it means there is a statistically significant difference between the grade levels.

Gender Difference

Table 3

*Independent t-test
Gender difference*

Gender	n	Mean	SD	SE	t	p
Male	44	2.7500	0.63557	0.09582	-2.031	0.44
Female	76	2.9816	0.58116	0.06672		

Table 3 shows the computed p-value of 0.44, which is greater than 0.05; we can conclude from this that insufficient evidence shows a statistically significant difference between the genders. The results are contrary to the finding of Else-Quest et al. (2010), which states that girls had significantly higher math anxiety than boys despite the minimal gender differences in math performance.

Conclusion

Based on the findings, most students preferred face-to-face classes over online ones. It was also found that there was an increase in the perceived math anxiety level of students when they shifted to online learning. According to Bower (2019), a lack of confidence in using technology or a lack of sense of cognitive and social interaction may affect students' learning; this is a possible reason why most students prefer face-to-face classes. Due to the sudden shift in the teaching and learning modality, students were surprised and unprepared to participate in online classes. We expect that, through time, learners will be able to adapt to the new learning environment with the guidance and help of their teachers. The findings also show a statistically significant difference in the perception of math anxiety level increase across the four grade levels, probably due to the different Math topics and learning encounters experienced in each grade level. Lessons and activities in Mathematics also vary in ease; some are easily transferred to the online setup, while others are not. Lastly, the findings of this research paper also show that female students' perception of their math anxiety level increase did not differ significantly from their male counterparts, which is contrary to the study of Hill et al. (2016). The study by Hill et al. (2016) indicated that girls had higher math anxiety scores than boys in primary and secondary students, but there was no gender difference in math performance.

In conclusion, there was an increase in the math anxiety level of students when they shifted to online learning based on their perceptions. Moreover, there is a statistically significant difference in the perception of math anxiety level increase across the four grade levels. Furthermore, no significant gender difference exists in their perception of math anxiety level increase.

Limitations and Recommendations

The current study is limited to students' perspective of their math anxiety level increase. This research does not measure students' exact math anxiety levels nor its relation to performance and achievement. It only focuses on students' attitudes toward the increase in their math anxiety level when they shifted to online classes. Other researchers may focus on factors contributing to increasing math anxiety for further studies. They may also measure the specific amount of math anxiety level increase felt by the students during online classes. They can also conduct a comparative study regarding the math anxiety levels of students in online and traditional face-to-face learning.

Educational Implications

Finding that students perceived their math anxiety levels increased, teachers should innovate different learning strategies to help students learn better and lessen their anxiety. In line with this, teachers should help students increase their self-efficacy. The study of Rozgonjuk et al. (2020) states that math self-efficacy has a significant impact on math anxiety, and improving students' self-efficacy can help lessen anxiety. The teacher is essential in alleviating students' math anxiety.

The study by Johnson & vanderSandt (2011) discussed how the teacher could influence students' anxiety. If teachers have math anxiety, they may pass it to their students, negatively affecting their math achievement. It is a must that teachers should have low math anxiety levels or be utterly devoid of it.

Gamification in teaching and learning is recommended to increase students' motivation and engagement online. Castillo et al. (2020) state that gamification strategies in education can bring higher student motivation and engagement. Through gamification, students will enjoy and have fun while learning. Teachers can provide online collaborative activities that will stimulate interaction among the students.

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Article 4

EXPLORING THE ACE CURRICULUM AS AN INNOVATIVE PEDAGOGICAL APPROACH

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Exploring the ACE Curriculum as an Innovative Pedagogical Approach

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Abstract

The government and society have a responsibility to achieve national education goals by providing quality education programs that are tailored to local needs, potential, and situations. However, traditional curricula often fail to cater to individual differences in students' abilities and do not effectively integrate moral and spiritual education. Community Learning Centers (CLC) with specific curriculum systems have produced various educational innovations. The Accelerated Christian Education (ACE) Curriculum is one such innovation that has been implemented in various schools around the world to improve the quality of education. This study addresses the problem of frequent curriculum changes and the lack of integration between character and spiritual education in the national curriculum. Using a qualitative descriptive approach, this research describes the planning, development, implementation, and evaluation of the ACE curriculum at Destiny Institute Salatiga. Data were collected through interviews with administrators, principals, vice principals of curriculum, and teachers, as well as document studies from the ACE curriculum guidebook. The results of the study showed that the ACE curriculum planning was based on a needs analysis, its development and implementation followed the curriculum structure using the Packet of Accelerated Christian Education (PACE) in learning, and the evaluation was conducted by the school regarding the implementation of the ACE Curriculum. The implementation of the ACE curriculum at Destiny Institute Salatiga has been carried out well in terms of planning, development, implementation, and evaluation.

Keywords: ACE Curriculum, Education Innovation, Quality Education.

Background

Education is the most important thing in human life. Education guides and directs humans towards certain goals, aligning with their potential and the human resources they possess. According to Sujana (2019), education is a joint effort to develop the potential and human resources possessed by students to increase their maximum potential. In education, participants are formed through a process of continuous mentoring by educators to produce quality, character, and roots in complete and comprehensive cultural values.

The statement above is in accordance with national education goal number 20 of 2003, namely: students develop into individuals who have faith and devotion to God Almighty, have noble character, are healthy, intelligent, have feelings, have the will, and are able to produce certain works. The implications of this law bind all elements of the nation to struggle in realizing national education goals, specifically for education providers. Noor (2018) explains the same thing about the goals of national education: all those involved in providing education should pay attention to the goals of national education, which reflect three things: affective, psychomotor, and cognitive.

According to Azis (2018), realizing the aspirations outlined in national education goals hinges on the development of a well-structured and systematic curriculum that can be effectively implemented across all regions.

This necessitates a robust curriculum management system encompassing meticulous planning, efficient organization of learning materials and resources, faithful implementation of the curriculum in classrooms, and continuous monitoring and evaluation to ensure its effectiveness in achieving the desired learning outcomes. Such a comprehensive approach ensures a unified educational experience for students nationwide while allowing for regional adaptations to cater to specific needs and contexts.

Nurhasanah et al. (2021) provide an explanation of the meaning of curriculum in their journal. Etymologically, the word curriculum comes from the Greek *curere*, which means the distance covered by a runner from start to finish. If this is related to curriculum management, it means planning, organizing, implementing, and evaluating education. We can compare this with Azis's (2018) statement in his journal: the curriculum provides guidance, direction, and guidance in the implementation of education, starting from the type and scope of educational units, the sequence of content, and the process of implementing education.

In its implementation, Suryono et al. (2016) found that the community has participated in developing education in Indonesia, and the government provides opportunities for the community to plan, organize, implement, and control the education curriculum according to the needs and type of education desired by the community. Society and government have a responsibility to provide quality education for students. The community realizes this responsibility with the existence of the "Community Learning Activity Center" as a non-formal education and learning institution, and all its management resources are formed and developed by the community, which is centered on empowering local potential and human resources for the sake of increasing knowledge, skills, social, economic, and cultural.

Liana (2020) says one of the curricula developed at the Community Learning Activity Center is the Accelerated Christian Education curriculum. This curriculum integrates Biblical principles, developing divine character, learning based on academic mastery, building a strong learning system, individual learning, developing critical thinking skills, and opportunities to socialize in an educational environment. The Accelerated Christian Education (ACE) curriculum has been able to answer the need for children's education to become like Christ. Students undergo a process of sanctification through their learning.

The problem addressed in this research is twofold: the frequent changes in the national curriculum and the lack of integration between character and spiritual education. However, traditional curricula often fail to cater to individual differences in students' abilities and do not effectively integrate moral and spiritual education. This research explores the ACE curriculum as a potential solution to these problems by investigating four key aspects of its implementation at Destiny Institute: (1) Planning: We examine the processes involved in tailoring the ACE curriculum to align with Destiny Institute's specific goals and the national education standards; (2) Development: We investigate how the Institute adapts and expands upon the core ACE framework to create a learning environment that fosters innovation; (3) Implementation: We explore the pedagogical strategies employed at Destiny Institute to deliver the ACE curriculum effectively within the classroom setting; (4) Evaluation: We analyze the methods used by Destiny Institute to assess the effectiveness of the ACE curriculum and ensure it continuously meets the needs of its students.

Research Method

The research uses a qualitative approach with descriptive methods. Qualitative research methods aim to discover, develop, and prove a process, action, or interaction based on the views of the participants in the research (Sugiyono, 2018). The research location is the Destiny Institute, which is located at Jl. Aliwijayan No. 3-4, Mangunsari, Kec. Sidomukti, Salatiga City, Central Java. The data collection techniques used in this research were interviews and document studies. The initial data for this research was obtained through observations with key informants, including the principal of the Destiny Institute school. Next, researchers conducted interviews with five respondents, including administrators, school principals, deputy heads of curriculum, elementary school teachers, and middle school teachers. The documentation study includes the "Procedure Manual I" document.

The data analysis technique in this research uses the Miles & Huberman model data analysis technique (2014). Research stages, according to Miles and Huberman, include data collection, data reduction, data modeling, and drawing conclusions. Data collection means collecting various types of information needed in research. Data reduction means summarizing, selecting what is essential, focusing on what is essential, looking for themes and patterns, and eliminating what is unnecessary.

Data modeling involved interpreting the results from the field, and conclusions were drawn to illuminate the problem under investigation (Sugiyono, 2018). This method ensured a systematic and thorough analysis of the ACE curriculum implementation at Destiny Institute Salatiga.

The interviews covered curriculum activities in the KTSP context, namely (1) the planning stage, (2) the development stage, (3) the implementation stage, and (4) the evaluation stage. Furthermore, the research instruments are presented in Table 1.

Table 1
Interview Instrument

Aspect	Interview Items
Planning	(1) Needs analysis (2) Curriculum design (3) Implementation plan
Development	(1) Formulation of vision and mission (2) Curriculum structure (3) Material selection (4) Organizing learning activities (5) Measurement of learning outcomes
Implementation	(1) Preparation of the syllabus (2) Determining learning methods (3) Provision of learning resources, tools, and facilities (4) Determining tools for assessing learning processes and outcomes (5) Learning environment
Evaluation	(1) Evaluate curriculum implementation (2) Strategies for improving curriculum implementation

Result and Discussion

Based on the results of interviews with respondents from the school's founder, who currently also serves as the Destiny Institute school administrator, the initial need to implement the ACE curriculum came from his attention to his children's education, which he felt did not match the national curriculum. By looking at the child's learning needs, he looked for a solution and found the ACE curriculum, which was considered appropriate for his child's education rather than the national curriculum. The reason the national curriculum is not yet appropriate is because the national curriculum tends to change frequently, so children must always adapt to changes in the curriculum. Building on Anggraini's (2019) research, which highlighted the multifaceted nature of curriculum change on educational quality, this study acknowledges the potential for both positive and negative impacts. A key concern lies in the possibility of student learning achievement declining due to difficulties adapting to the new curriculum's learning system.

This lack of integration between character and spiritual education is a second critical concern. Currently, these subjects are delivered as separate courses with limited allocated time, deemed inadequate to effectively cultivate children's moral and spiritual development. This concern aligns with Hutahae et al. (2021), who highlight the scarcity of dedicated hours allocated to religion lessons. They emphasize the vast amount of material to be covered within these lessons and the crucial role they play in fostering character development.

A third rationale for the ACE Curriculum lies in the recognition of individual differences in student abilities. Traditional, standardized curricula may not cater to these variations effectively. The ACE approach prioritizes individualized learning, ensuring each student progresses based on their unique strengths and weaknesses. The ACE Curriculum is underpinned by five core principles, known as the Five Laws of Learning. These laws provide a structured framework for effective individualized instruction. (1) Students must learn according to the curriculum level based on their abilities; (2) Students must set targets or goals in accordance with their abilities within a certain period of time; (3) Students must be supervised and motivated in the learning process; (4) Student learning must be measurable; and (5) Student learning must be valued.



Based on these five principles, it can be seen that each child can learn at different levels according to their abilities. Students will also study and work on learning materials through a book called the Packet of Accelerated Christian Education (PACE), with English as the language of instruction. Students can work on PACE independently and in their own way of learning. Apart from that, in every PACE that is carried out, there are characters studied and Bible verses that underlie these characters and the material taught. This is explained in the article "What is a PACE?" (Anonymous, 2022): PACE integrates character education and academic content, which is packaged in independent learning, so that PACE allows students to absorb lesson material according to their own learning abilities. By looking at the main features provided by this curriculum, the founder then decided to implement it, starting with his children in Salatiga. In its planning, the ACE curriculum is designed to be implemented over five school days. In addition, the implementation of the ACE curriculum is accompanied by the provision of national curriculum or K13 learning materials as a learning supplement. The integration of the K13 curriculum is implemented in students' independent learning while still prioritizing the implementation of the ACE curriculum. This is similar to the research of Simanjuntak et al. (2022), who found that effective curriculum integration will be considered successful if it is carried out within a certain period of time without disrupting the implementation of the main curriculum in schools. Curriculum integration at the Destiny Institute has been running for 13 years, but the main curriculum implemented is the ACE curriculum.

Apart from that, in order to have legal permission to provide education from the education office, the Destiny Institute applied for permission to become a Community Learning Activity Center (CLC) under the Non-Formal Education Unit of the Salatiga City Education Office. By granting CLC permission and achieving "A" accreditation, Destiny Institute can also hold Equivalency Education Examinations for students.

Overall, innovations in ACE curriculum planning include: (1) providing character and spiritual education that is integrated with academics; (2) facilitating learning at different levels according to students' abilities; (3) learning material through books called PACE, which can be studied independently and in which there are characters and Bible verses that underlie these characters; (4) the implementation of the ACE curriculum is still accompanied by the implementation of K13 as a supplement.

The ACE curriculum implemented at the Destiny Institute was not developed independently but was developed in the United States by Drs. Donald and Esther Howard in 1970. The deputy head of curriculum also added that the ACE curriculum is quite an old curriculum when viewed from the beginning of its development and is currently being used in various parts of the world. For example, the ACE curriculum is implemented in the UK (Scaramanga & Reiss, 2018), the Philippines (Maming & Panaligan, 2021), and Africa (Headman, 2021).

According to the results of interviews with administrator respondents, in establishing the Destiny Institute, he expressed his hopes for the vision and mission of the Destiny Institute. The vision of the Destiny Institute is to empower the next generation to walk in their god-given destiny and lead with godly character. To achieve this vision, the mission of the Destiny Institute was formulated, namely to educate the next generation with divine principles and knowledge to achieve their life goals. The deputy principal for curriculum also added that this vision and mission can be achieved by implementing the ACE curriculum, because this curriculum is a program that emphasizes (1) Bible-based learning by instilling the character of faith, (2) individual approach, (3) independent learning, mastery learning-based curriculum, (4) parental involvement in learning, (5) training and conferences, and (6) student opportunities to develop character and service. This is in line with research by Puteri and Prihantini (2020) that the school's vision and mission need to be made with a clear, attractive editorial, adapted to school conditions, describing the school's hopes and ideas, and containing expected performance results. In other words, the school's vision and mission need to be made in accordance with the circumstances of school development.

Interviews with five participants yielded valuable insights into the structure of the ACE curriculum. This curriculum prioritizes the holistic development of each child, aiming to unlock their full potential by integrating character and spiritual education seamlessly with academic learning. Students engage with specially designed learning materials known as the Package of Accelerated Christian Education (PACE). These PACE units, formatted as student workbooks, guide independent study and mastery of concepts. In this curriculum, students study seven main subjects, namely math, English, word building, science, social studies, literature, and the Bible. Students will work on these subjects until they enter credit subjects, which will be more directed and focused on the student's interests. The PACE number indicates a student's learning level. Student learning levels consist of levels 1 to 12.

In one level, students work on 12 books for one subject. In total, in one year, students are expected to be able to complete 84 PACEs. Overall, in the curriculum structure, there are four components, namely, objectives, learning materials, teaching and learning processes, and assessment (Syaifudin, 2017). The choice of the ACE curriculum at the Destiny Institute is the basis for determining objectives, teaching materials, learning processes, and assessments.

In the learning process, there are several activities that students do every day from morning to afternoon. In the morning, before learning activities begin, students will take part in morning reflection, or what is called morning devotion, which discusses and deepens the 90 characters in the Bible according to the ACE curriculum. The activity is then continued with PACE work, or what is also known as PACE time. Before the pandemic, students studied at school from 8:00 to 14:00. However, with the direction of the education office regarding learning during the pandemic, students' study time at school has been shortened from 08.00 to 12.00. These class hours apply to online and offline students. There is also a 15-minute break in the middle of study time. After that, on certain days after study hours, students will take extra mandatory classes, such as English clubs and life skills classes, as well as electives, such as coding, Mandarin, music, etc. Apart from that, there are student convention activities held by regional ACE where students from various ACE schools can compete with each other in various fields. This student convention was also held to build friendship and good relations between students from various regions. Organizing learning activities includes intracurricular and extracurricular activities with structured character and skills development activities every day. Organizing learning needs to be supported by facilities and infrastructure, collaboration between teachers and parents of student participants, and growing student interest in learning (Hidayat, 2020). Therefore, there needs to be synergy between schools, students, and parents to realize organized curriculum development.

In assessment, the ACE Curriculum has also been structured. In each PACE, students will carry out a small test called a checkup, which consists of three checkups spread across the PACE. The purpose of this checkup is to see students' understanding of the material they have studied. After the checkup, students will take a test called a self-test to measure the student's own abilities before taking the final assignment from a book, namely the PACE Test.

Based on this data, the innovations in developing the ACE Curriculum in the Destiny Institute are (1) developing a vision and mission and implementing it through the application of the ACE Curriculum; (2) PACE material with 7 main subjects, namely Math, English, Word Building, Science, Social Studies, Literature, and Bible; (3) the structure of learning activities consisting of morning reflection, PACE work, and extra activities; (4) student assessment is included in PACE, which consists of checkups, self-tests, and PACE tests.

In the ACE curriculum, all systems and procedures for implementing learning have been regulated in Procedure Manuals I and II. Teachers play an important role because they are the ones who implement the curriculum directly for student learning. Based on interviews with teacher respondents and in Procedure Manual I regarding how to implement the ACE curriculum, it is explained that learning begins with students writing down a goal for the number of pages to be completed that day. After that, students work on the PACE book according to the targets that have been set. This activity aims to teach students to have goals in life, including every day, before carrying out a series of daily activities. By having goals, students can learn to be more focused, orderly, and organized.

In the PACE that students work on, the learning goals or objectives, the characters being studied, and the Bible verses that underlie the learning in the book are stated. These are listed on page 1 of each PACE. Before students work on the book, they must read the learning objectives page in front of the teacher, and when finished, the teacher will sign as a sign that the student has understood the learning objectives that the student must achieve. By knowing the learning objectives, students can manage their time and focus attention according to the competencies to be studied (Budiastuti, Soenarto, Muchias, Ramadani, 2021). Apart from that, PACE also contains learning explanations, examples, and practice questions so that students can learn independently by reading and doing activities in PACE according to the explanations and examples provided. This curriculum also regulates the PACE work system. One of the ACE systems is to give students the freedom to check the results of their own work with the answer key provided. This checking procedure means that after students work according to the specified page, they will ask for the supervisor's signature as permission to check their work. Then students will come out of their study tables to the assessment table, or scoring table.

Then they take the answer key and check their work themselves. If there is a wrong answer, they will put a cross on the number with the wrong answer and go back to their desk to correct their work. The philosophy of this self-assessment system is to teach honesty to students and maintain the trust given by supervisors to students. Students are also taught to be thorough or pay attention to detailed orders and procedures. Education is expected to bring about changes in the character of students for the better (Kanji, Nursalam, Nawir, Suardi, 2019). Integrating character development with the daily learning process will further help students practice good character in everyday life.

To measure student understanding, students will be tested on their understanding through checkups, self-tests, and PACE tests, which are also found in the PACE book. All questions tested are taken from material in PACE. Before taking the test, the teacher will ask students several questions regarding the material to gauge the students' readiness. Once deemed ready, the teacher will sign the checkup or self-test page and staple the previous page to avoid the opportunity for students to copy the previous page. Students will do a checkup first after studying some of the material in PACE. After completing the three checkups, students will take a self-test to test their understanding of all the material in PACE and to prepare themselves before taking the PACE test. Then students will take the PACE test as the final test stage in a PACE. The PACE Test is an assessment to measure the achievement of learning objectives from the PACE that has been carried out. The results of the PACE test will be assessed by the teacher. Students must meet a score of 80% or above to be considered capable of completing a book. If it is below the 80% standard, then the student must repeat. If students have completed one PACE book, then they will work on another PACE at the next level.

With a learning process that prioritizes independent learning, students are also facilitated with facilities so that the learning environment can help them concentrate and focus while working on PACE. Schools provide study desks that are divided into several partitions, which are called offices. The office is a place where students study, which is expected to help students focus more. Apart from that, the ACE Curriculum has also regulated class procedures to create a calm and comfortable learning environment for students. Classroom regulations require students to interact using the Christian flag and the Indonesian national flag as a means of communication. The Christian flag will be raised if you want to ask questions or carry out instructions related to PACE. The national flag will be used if students need to leave the office, such as for scoring, going to the toilet, etc. With this flag system, noise can be minimized during study hours so that students can study calmly and teachers can serve children with a personal approach. The learning environment has been proven to influence students' concentration while learning. The results of research conducted by Novianti (2019) found that there is a significant influence between the learning environment and students' level of learning concentration. These results show that the better the learning environment, the greater the student's concentration.

In implementing the ACE curriculum, teachers are also required to understand the characteristics of each student and help students if they experience learning difficulties. This was also stated by Ardianingsih, Mahmudah, and Rianto (2017): teachers must be able to understand the characteristics of students so that students can achieve learning goals optimally. With this individual and personal approach, students can focus on learning according to their respective abilities.

Looking at the implementation of the ACE Curriculum, there are several innovations, including: (1) students set targets for working on PACE in the morning; (2) students read the learning objectives or objectives, characters, and underlying verses before working on PACE; (3) an assessment system that encourages the development of student character; (4) assessment is carried out in three stages, namely checkup, self-test, and PACE Test as the final test of a PACE; (5) the learning environment is conditioned so that students can concentrate; and (6) interaction between teachers and students is carried out with a personal approach.

Curriculum evaluation plays an important role in education because this evaluation can become a reference for improvements in the curriculum so that student learning can run more effectively (Hamdi, 2020). Based on the results of interviews with administrators, school principals, and the head of curriculum, it was agreed that the school could not evaluate the reducing elements in the ACE curriculum system because this curriculum was patented and the only person who could evaluate it was the ACE developer itself. What the school can do is evaluate how the ACE curriculum is implemented in learning.

The principal explained that evaluation of implementation in schools is carried out in the form of monthly evaluation meetings, evaluation meetings at the start of each semester, and daily supervision by the principal. In the evaluation meeting, teachers will report on the progress of each student and what problems they face in class.

Apart from that, teachers also convey what the needs of students and teachers are for improving the quality of learning. Then the principal and other fellow teachers will provide each other with feedback and reinforcement that builds learning in the classroom and handles children who need special attention.

With the information obtained from the evaluation results, the school leadership also holds negotiations to discuss what still needs to be corrected or improved in the learning process or other things that can complement the child's learning process. To date, several corrective steps have been taken, namely (1) adding Indonesian Language and Citizenship Education subjects through the K13 module, as well as the routine of reading Pancasila every morning due to the lack of discussion about Indonesia in PACE; (2) providing various activities such as extra classes as a forum and opportunity for children to develop their interests and psychomotor skills; (3) providing activities that are informative and educational, such as conducting webinars with interesting and current topics; and other activities to deepen students' insight into Indonesia, such as celebrating Kartini Day, National Film Day, Independence Day, Youth Oath, and others.

Conclusion and Suggestion

Destiny Institute's implementation of the Accelerated Christian Education (ACE) curriculum prioritizes integrating character and spiritual development with academics while catering to individual student abilities. The curriculum itself, with its focus on individualized, character-based, and Bible-based learning, allows students to progress at their own pace. However, Destiny Institute supplements the ACE curriculum with elements from the national K–13 curriculum. The development of the ACE curriculum aligns with the institute's vision and mission, shaping learning objectives, materials, processes, and assessments. Daily activities incorporate both curricular and extracurricular elements, with a structured focus on character and skill development. Evaluation utilizes "checkups," "self tests," and "PACE tests," though Destiny Institute lacks autonomy in modifying the core curriculum structure. While focusing on daily implementation effectiveness and student needs beyond the curriculum, the institute provides additional materials related to national identity, extracurricular activities, and other programs to further equip students. This approach demonstrates flexibility within a pre-determined structure, highlighting the need for future research on its long-term impact on student learning outcomes.

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Article 5

UTILIZATION OF SENJANG IN TEACHING: LANGUAGE AND CULTURAL PRESERVATION IN THE DIGITAL ERA

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Utilization of *Senjang* in Teaching: Language and Cultural Preservation in the Digital Era

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Abstract

Senjang is an oral tradition of cultural practices and a representation of the people of Musi Banyuasin, South Sumatra. In today's digital era, oral literature has eroded because of technological advances. Therefore, steps must be taken to keep *Senjang* alive in society. By utilizing digital technology, this research will observe how effective TikTok and Instagram Reels are in teaching *Senjang* in a school environment. In both social media applications, users will collaborate with other users through the Stitch tool. One person makes the video, and others will most likely respond, and so on. This research is done by giving special treatment to the students to achieve specific goals, namely by giving assignments with digital applications that aim to improve students' oral literary abilities. This study aims to investigate the effectiveness of using TikTok for teaching *Senjang* in a school. The study results show that direct practice has a good effect on students and increases students' self-confidence. In addition, using social media is a means of promoting literacy, especially *Senjang*.

Keywords: *Senjang*, language preservation, culture, digital era, technology

BACKGROUND

According to Sarwono et al. (2020), oral literature is a type of literary work with predominantly oral dissemination. In other words, the messages conveyed by oral literature are usually received through the sense of hearing. Danandjaya (1994, 81) states that oral literature is a tool or means to enhance a sense of kinship within a group. Oral literature is also considered capable of regulating and observing societal norms; therefore, it plays a role in education. Oral literature can also be utilized as a tool or medium to enhance and develop language skills. The skills referred to pertain to matters related to written or oral communication.

Indonesia has many unique and diverse oral traditions. These oral traditions can also be found in one of South Sumatra's districts, Musi Banyuasin. In this district, several cultural expressions are oral traditions. Gaffar's research (1989, 13–21) notes that the district has various oral traditions. Among these oral traditions are pantun (*rhyming quatrains*), mantras, long hypotheticals, *nyambai*, *serambah*, and *Senjang*. The language used to convey these oral traditions is the Musi dialect of the Malay language.

From several oral traditions in Musi Banyuasin, *Senjang* remains a prevalent oral tradition that is often performed. However, not all residents, especially teenagers, are familiar with this tradition. The Musi Banyuasin Local Government has made various efforts to preserve the existence of *Senjang* and continue introducing *Senjang* to the public. The Randik Festival, held annually, is a manifestation of the government's efforts to preserve the existence of *Senjang* among the Musi Banyuasin community. In this festival, *Senjang* is one of the branches that compete. Each sub-district will send its best *Senjang* performers to participate in the festival.

In addition to the local government, the residents of Musi Banyuasin also play an important role in preserving the oral tradition of *Senjang*, promoting the existence of this tradition, and bringing back the *Senjang* oral tradition to the surface. The contribution of the Musi Banyuasin community to the preservation of *Senjang* can be seen from the performances of *Senjang* held at important family and institutional events, such as weddings, business inaugurations, circumcisions, and birthdays.

Senjang is an oral tradition that spreads across Musi Banyuasin. *Senjang* takes the form of sung pantun accompanied by music. This tradition can be performed solo or in pairs. When performed in pairs, the performers will sing the *Senjang* lyrics responsively, akin to exchanging pantun verses (Kurniawan & Saputra, 2020). *Senjang* can be performed planned or spontaneously, but nowadays, most *Senjang* performances are planned because it requires composing verses with meaningful messages that can be sung. *Senjang* performers will execute simple movements from Malay dances when the music is playing. When the music stops, they will sing the *Senjang* verses. Currently, the musical instrument used to accompany *Senjang* is the piano keyboard. However, initially, *Senjang* used a set of traditional musical instruments called *jidor* consisting of two trumpets, one *jidor*, one tambourine/string drum, two clarinets, two tenor saxophones, two alto saxophones, one double bass, and two alto horns (Sukma & Suparno, 2018). Unfortunately, *Senjang*, accompanied by traditional musical instruments, is now challenging to find.

The Challenges of Cultural Preservation in the Digital Era

In this digital era, *Senjang*'s oral literature is beginning to be eroded by technological advancements. Although *Senjang* is often performed at community events, only a few people understand and appreciate this tradition. The younger generation, especially Generation Z, seems more interested in foreign arts/cultures they see on the internet than in witnessing the oral literary art of their own culture. The advent of technology and gadgets influences the younger generation's mindset in Indonesia. Therefore, efforts are needed to protect *Senjang* and ensure its sustainability within the community. This research is created as a written idea to preserve oral tradition, stemming from issues regarding the preservation of oral literary traditions for the younger generation, particularly the preservation of *Senjang* for Generation Z.

In this digital era, implementing conventional teaching methods should ideally adapt to the times, including the selection of learning media that align with the material, objectives, and teaching methods. Technological advancements can be synchronized and utilized to teach oral literary traditions. Teachers should leverage technology to create engaging learning media. The learning media used should be close and directly related to the learners so that they can see tangible results from their work later on.

A similar situation happens not only to *Senjang* but also to other cultures. Modernization and technology have made the younger generation unfamiliar with their ancestral heritage, threatening the sustainability of its culture. Some efforts have been employed to preserve the traditions and cultures. For example, Yektingtyas and Modouw (2017) attempt to preserve Papuan cultural heritage, especially in Sentani, by using the culture infusion method in their English classroom. Papuan folktales are used as learning materials for elementary school students, bark painting for Junior High School students, and the procedure to make *kayi/ifa* (Sentani traditional boat) for Senior High School students. Their research suggests that using the cultural infusion in their teaching method has made their students more motivated to learn Sentani culture and, at the same time, contributed to cultural preservation. Furthermore, Kim et al. (2018) also focus on cultural preservation by employing Korean animated folktales taken from online storybook-reading software programs or YouTube clips to teach Korean-American kindergarteners. This research suggests the possibilities of incorporating animated folktales as culturally responsive pedagogies to create more technology-enhanced literacy environments in early bilingual classrooms.

TikTok as Teaching Media: Interactive and Effective Learning Method

The TikTok application emerges as evidence of the digital era's progress. Initially, its presence in Indonesia was criticized, as it was seen merely as an app containing short videos of teenagers performing certain dance moves.

However, over time, TikTok began to be accepted, and various types of short videos emerged on the platform. Educational content also started to become more prevalent on this app. Currently, TikTok users in Indonesia, especially teenagers, have reached massive numbers. There are approximately 10 million active users of TikTok in Indonesia, primarily millennials, students, and Generation Z (Bohang, 2018). Through TikTok, information can spread rapidly, and users can access content tailored to their interests. Therefore, if used and adopted appropriately as a learning tool in the classroom, TikTok can easily capture students' attention. Moreover, TikTok can become an enjoyable learning media that is closely intertwined with teenage life.

The use of the TikTok application is expected to facilitate engaging student collaboration. Similar approaches that employ TikTok in teaching have been conducted by Aji and Setyadi (2018); Herlisya and Wiratno (2022); and Zulkifli et al. (2022). Aji and Setyadi (2018) suggested that the TikTok application can be an interactive learning medium for teaching and learning the Indonesian language and literature. Furthermore, they also suggested that teachers can utilize TikTok as an interactive media to help students understand information and lessons more easily (Aji & Setyadi, 2020). Learning is expected to be more effective and efficient as the application can be used anytime and anywhere. Meanwhile, Herlisya and Wiratno (2022) concluded that classroom action research using Tik Tok App improved students' learning activities and speaking skills. In addition, Zulkifli et al.'s study (2022) also found that various courses through TikTok have proven effective in enhancing students' ability to learn and received positive feedback on their use of TikTok in education.

Referring to those previous studies, it is interesting to note that while TikTok has been applied in teaching many subjects at school, few studies have focused on how TikTok can also be applied in preserving the language and cultural heritage, especially oral traditions. By leveraging digital era technology, this research aims to explore the effectiveness of TikTok in teaching *Senjang* within a school environment. In both applications, users will collaborate with others using the Stitch tool. One person creates a video, and others respond, and so forth. This research is conducted by providing a specific treatment to achieve certain goals, namely by assigning tasks using digital applications to improve students' oral literary skills. The research results indicate that direct practice positively affects students and boosts their confidence. Additionally, social media serves as a promotional tool to enhance literacy, particularly in *Senjang*. Overall, this research is significant because it addresses the critical need for preserving linguistic and cultural heritage in an increasingly digital era while exploring innovative educational practices that can benefit students and educators. Additionally, it can increase cultural awareness and sensitivity among students, fostering a more inclusive and diverse educational environment.

RESEARCH METHOD

The oral tradition of *Senjang* in the Musi Banyuasin community in South Sumatra is the subject of research examined in this paper. This object will be associated with another variable, namely the use of social media to introduce *Senjang* to teenagers in secondary schools. The method used in this research is qualitative, through observation of how social media is used for teaching the oral tradition of *Senjang*. Qualitative research discusses the object in a general, dynamic, and evolving manner throughout the research process (Sugiyono, 2015). The qualitative method was chosen for this research because it provides the depth, flexibility, and contextual sensitivity needed to understand the intricate ways in which TikTok is used to teach the oral tradition of *Senjang* in high school settings. The method allows researchers to capture the richness of the educational experiences and cultural exchanges on this social media platform. In conducting the research, the author assigns tasks to students to create *Senjang* videos, and then other students respond to the Stitch tool on TikTok. Afterwards, the author conducts interviews involving cultural practitioners, *Senjang* oral tradition performers, and teachers to determine whether the *Senjang* videos shared on social media adhere to the linguistic rules and patterns of *Senjang* in Musi Banyuasin and to assess whether the use of social media helps in preserving the oral tradition. Interviews with students are also conducted to see if using TikTok social media engages and motivates them in learning.

In conducting the research, the researchers start by defining clear objectives and conducting a literature review on using social media, particularly TikTok, in educational contexts and for cultural preservation.

They then identify the videos made by the students. Afterwards, the author conducts interviews involving cultural practitioners, *Senjang* oral tradition performers, and teachers to determine whether the *Senjang* videos shared on social media adhere to the linguistic rules and patterns of *Senjang* in Musi Banyuasin and to assess whether the use of social media helps in preserving the oral tradition. Interviews with students are also conducted to see if using TikTok social media engages and motivates them in learning. The data is then coded and thematically analyzed to uncover how TikTok facilitates the teaching of *Senjang*, focusing on engagement, pedagogical approaches, and community building.

RESULT AND DISCUSSION

Senjang as a Tradition of Oral Literature in Musi Banyuasin

Sibarani (2012,123) states that oral tradition is an activity that is a cultural heritage whose transmission is done orally from one generation to the next in a particular society. Furthermore, Pudentia (2007, 27) states that oral tradition takes the form of lyrics or poetry that is orally transmitted and is hereditary, including oral and written activities.

Senjang art is one of the distinctive arts that takes the form of literature/oral tradition. Originally from Musi Banyuasin, this art was born and developed in only one district, Sungai Keruh District. *Senjang* is estimated to have originated during the reign of the Palembang Sultanate in the 17th century. According to an interview with Dadang Irawan, *Senjang* expanded to several districts and villages. Dadang stated that in Babat Toman District itself, this oral tradition flourished in Mangun Jaya Village. Meanwhile, in districts outside Babat Toman, this art began to spread to the Sanga District and Sekayu District (Sukma & Suparno, 2018).

During the Pedatuan era, around the 1930s, before Independence Day, *Senjang* was performed without musical accompaniment, only in the form of alternating pantun. During that era, *Senjang* had a simple form. Nevertheless, *Senjang* was rich in meaning and full of messages then. *Senjang*, in its time, was only used as entertainment, a form of self-expression. The cultural life of everyday society in Musi Banyuasin was the source of inspiration for all the lyrics of *Senjang* that were sung/spoken. The language used was the Musi language with the dialect of Musi Banyuasin Regency, sometimes referred to as the Musi language (Sukma & Suparno, 2018).

Senjang resembles pantun or poetry with lyrics written in the Musi language when viewed in terms of its form. There are at least four or more than four lines (five or six) of lyrics in *Senjang*. What distinguishes *Senjang* from pantun or similar forms is its presentation. Pantun is usually presented spontaneously and can be done anytime, while *Senjang* is presented more complexly. The lyrics of *Senjang* will be sung with a certain rhythm. In addition, *Senjang* is sung with musical accompaniment. However, the process of singing *Senjang* lyrics and the musical accompaniment do not occur simultaneously. When the music plays, the *Senjang* performers will not 'sing'; instead, they will perform simple Malay dance movements. When the musical accompaniment stops, the *Senjang* performers sing their *Senjang* lyrics. This pattern continues. *Senjang* can be performed solo/individually, but it can also be performed in pairs or even in groups. Although the musical accompaniment of *Senjang* may seem monotonous, the humorous lyrics of *Senjang* and the stage actions of the *Senjang* performers often entertain the audience.

This art form is called *Senjang* because there is a gap or distance between the song/poem/lyrics (Sukma, 2015). The song and music are performed simultaneously and do not meet. If the performer sings the *Senjang* lyrics, the music will stop playing, and when the music resumes, the *Senjang* performers will stop singing the *Senjang* lyrics and dance with specific movements. Therefore, the lyrics/poetry and music never meet; hence, this art form is called *Senjang*.

Over time, the performance of *Senjang* has also evolved. In the past, *Senjang* was accompanied by *tanjidor* music (Afriansyah, 2023, p. 81). However, *tanjidor* is difficult to find nowadays, so *Senjang* is now accompanied by piano keyboards (locally known as 'organ tunggal'). In its early days, *Senjang* performers created and performed *Senjang* spontaneously. People often performed *Senjang* between their daily activities, such as tapping/rubber tapping and sand mining. *Senjang* did not use musical accompaniment or dance, but the rhythm of singing the *Senjang* lyrics still followed local norms or culture. Nowadays, *Senjang* performances are prepared with more planning. The *Senjang* performers will prepare the text beforehand before they perform.



Nowadays, *Senjang* performers often read the prepared text. In addition, music and choreography are required for *Senjang* performances today.

Before the independence era, there were no musical instruments. At that time, *Senjang* took the form of alternating pantun with a specific rhythm of recitation. During the colonial period, musical instruments were scarce and rarely used. Therefore, accompanying music for *Senjang* could not be created then (Sukma & Suparno, 2018).

Here is an example of *Senjang* lyrics from the colonial era or pre-independence period:

*Endok Kopek Gunung Klarang
Kitek Gendang Pangkut-pangkut
Kitek Gendang Ngangkut padi
Terulam Pang Ladi
Wewe Bawa Monel, Ingge Metu Same-same*

*Endok Adek Gunung Klarang
Kitek Senjang Pantun-pantun
Ntuk Nngeman Siang Ari
Weng Tue Suka Ngane
Kitek Batemu Jarang Kale*

*Endok Adek Gunung Klarang
Juba-juba Ngarang Rempa
Kalu Boleh Silat Tari
Ngambek Salak Bawa Surak
Adat Prane Ubi kayu*

Translation:

"Oh, younger sibling of Mount Klarang,
Let's play the drum while beating,
While beating, we carry the rice,
Until the rice is neatly arranged,
While bringing earrings, until we come out together.

Oh, younger sibling of Mount Klarang,
Let's *Senjang* with alternating pantun,
While waiting for the daytime,
The elders are working,
We rarely meet.

Oh, younger sibling of Mount Klarang,
Let's try to bring the rempa (a traditional musical instrument),
If possible, while dancing,
Taking Salak fruit while cheering,
Customs and traditions nowadays are like cassava.

The example pantun above demonstrates that a pantun consists of five lines. The first two lines serve as the *sampiran* (pretext), while the third, fourth, and fifth lines convey the content/message of the *Senjang*. The language and wordplay used in *Senjang* tend to be simple, but from this structure, the meaning/message of the *Senjang* can be perceived.

Each line has a different recitation pattern. The first and third lines are sung with a rising vocal tone, while the second, fourth, and fifth lines are sung with a descending vocal tone. Four words are in each *Senjang* line, but the fifth line of the *Senjang* lyrics can increase to ten words, depending on the creativity of the *Senjang* performers.

In the post-independence era, the form and presentation of *Senjang* transformed, bringing a somewhat new sensation to performances. *Senjang* was performed without musical accompaniment in the period before independence, but then it was accompanied by musical instruments after Indonesia achieved independence. With the emergence of the new *Senjang*, it was performed with the accompaniment of a set of *jidor* instruments (Sukma & Suparno, 2018).

The new *Senjang* has a specific pattern consisting of three main parts. The first part is called the opening section, while the second part is known as the content of *Senjang*. It is in this content/body section that the message or meaning is conveyed. The last or third part is the conclusion. The conclusion/closing of *Senjang* contains farewell greetings and apologies if there were any mistakes during the performance.

Below is an example of the new *Senjang* format consisting of the opening, content, and closing sections:

Pembuka:

*Cobo-cobo maen gelumbang
Entahke padi entah dedak
Bemban burung pulo lalang
Untuk bahan muat keranjang
Cobo-cobo kami nak baSenjang
Entahke pacak entah dak
Kepalang kami telanjur Senjang
Kalu salah tolong maaf ke*

Opening (translation):

Trying our luck in the waters
Confused between rice or bran
Bird's nest or straw
To be used later in making baskets
We attempt to align
Whether we can or not
But it's already done
If mistaken, please forgive

Isi:

*Kalu adek ke Palembang
Jangan lali ngunde tajur
Tajur pasang di Sekanak
Bawa batang buah Banono
Kala adek bajo linjang
Jangan sampai talanjur
Kalu rusak lagi budak
Alamat idop dak samparno*

Body/Content (translation):

If you go to Palembang, little sibling
Don't forget to bring fishing gear
The fishing rod is set up at Sekanak (river name)
Bring along a Banono fruit tree
If you're learning about courtship, little sibling
Don't let it go too far
If tainted while young
Your life won't be perfect

Penutup:

*Kalu nak pegi ke Karang Waru
Singgah tegal di Jerambah Pogok
Tengah jalan ke Rantau Kasih
Nak pegi ke dusun ulak
Kami Senjang barenti dulu
Adat karena abis pokok
Kami ucapke terime kaseh
Maap ke bae kate yang salah.*

Closing/Conclusion (translation):

If you intend to go to Karang Waru
Stop briefly at Jerambah Pogok
Midway to Rantau Kasih
Heading towards the ulak hamlet
We align until here
Because the materials are exhausted
We express our gratitude
Forgive any incorrect words.

The Functions of *Senjang*

In general, *Senjang* serves several functions. "*Senjang*" can be used as entertainment, a tool for giving advice, and a means of social control within the community.

First, *Senjang* functions to entertain. It is common for many spectators to laugh when watching this performance. The *Senjang* performance, accompanied by lively and cheerful musical instruments, also entertains the audience and sometimes even gets them dancing. Although the rhythm of *Senjang* music tends to be similar or monotonous, the audience still finds it entertaining.

The next function of *Senjang* is to convey didactic advice to children and young people, especially parents. Therefore, *Senjang* is often performed at family events where all generations of various ages gather. Such events include weddings, circumcision celebrations, baby birth celebrations, and others. Because it is presented uniquely through singing and dancing, the advice conveyed in *Senjang* appears non-coercive, non-preachy, and easy to understand.

Senjang can also serve as a tool for social control and political criticism against the government. In addition to being performed at family events, *Senjangs* can be staged at community gatherings and even governmental events. Political criticism and social advice, which begin with requests for permission to start and end with apologies and farewells and are performed with singing and dancing, make political criticism more comfortably received. Moreover, it does not provoke anger from the criticized parties. *Senjang* provides criticism in a non-offensive manner, controlling but not judgmental.

TikTok Application as a Learning Medium

Primarily, education is expected to transform learners' attitudes into better individuals, specifically in their personal development, encompassing cognitive, affective, and motor aspects. Education is also anticipated to develop learners and individuals with social abilities. In this context, learners are expected to apply the 5M principles: observing, questioning, trying, reasoning, and communicating based on what learners are studying (Donatirin et al., 2017; Hosnan, 2014). This is not separate from the supervision and monitoring of teachers as educators.

In order to achieve the 5M principles, teachers are required to facilitate learners and provide learning media suitable for the learner's characteristics and current developments. Contemporary learning media that connect with learners can be a reference when teachers choose appropriate media for teaching and learning activities. Therefore, the selected learning media should consider several aspects, including its ability to enhance learners' spirit and motivation to gain new experiences that complement and build upon their previous

experiences. Additionally, using learning media in the classroom should facilitate the acquisition of new knowledge, new skills, and tangible experiences. Consequently, learning media can encourage learners to acquire knowledge, meet their learning needs, and develop the necessary skills. Thus, learning media is a crucial element in the learning process. A learning activity without suitable learning media will be less effective. Also, a tool or medium is needed to convey learning materials (Isroqm, 2013).

Several factors must be considered when choosing the suitable learning media for learners and aligning it with the learning material. Yusufhadi Miarso, as cited in Mahnun (2012), suggests that the initial step in selecting and using the appropriate learning media is to search, find, and choose media that suits the learners' learning needs. Furthermore, learning media should capture the attention and interest of learners. It should also be in accordance with the age development of learners, considering both maturity and experience. Additionally, learning media should align with the specific characteristics of the majority of class/group members, for example, selecting media such as songs for a group of learners who predominantly have an auditory learning style. These specific characteristics also include the emotional maturity level of learners and their background of previous learning experiences. These specific characteristics are also related to mental conditions associated with the developmental age of the learners themselves.

Another factor to consider when choosing and determining media is the message conveyed through the learning media. In this case, the media facilitates the delivery of the message. In teaching and learning activities, learning media has several functions: stimulating the interest and motivation of learners, facilitating smooth communication between teachers and learners, and serving as a conveyor of information. Learning media makes the learning material easier to convey to learners.

In the current digital era, teachers should choose media that aligns with the progress of the times and has relevance to its use in learners' daily lives. Currently, learners have a close connection to the internet, including social media. Information flows rapidly on social media. Social media, like a knife, can be useful or dangerous depending on how the user utilizes it. Considering this phenomenon, teachers can leverage the presence of social media as a teaching tool.

At SMA Negeri 3 Sungai Lili Palembang, where this research and observation are conducted, social media is used as a learning medium, specifically in teaching oral literature from Musi Banyuasin, namely *Senjang*. This writing can be considered an idea or concept of how social media is utilized as a learning medium in education.

One of the social media platforms closely associated with the teenagers is TikTok. This application is a short video platform that makes it easy for users to watch, edit, and upload videos. Various types of videos can be enjoyed on the platform, including tutorials, games, music, and quotes. Teenagers can enjoy various video content and easily access and gather information through this platform.

Based on that, the TikTok application can help share information if utilized properly. TikTok is considered capable of meeting the learning needs of learners, specifically in terms of facilitating information acquisition. The application is believed to capture learners' interest as nearly all enjoy it. Moreover, it is contemporary and factual. The features of this application are relatively easy to understand, making it applicable to learning activities. TikTok is also seen as suitable and relevant to the development of learners, their maturity level, experiences, and the characteristics of learners in their adolescence.

In this research, TikTok is utilized in Arts and Culture due to collaboration with the Indonesian Language subject where literary/oral tradition is taught. In the lesson on oral literature, *Senjang*, as the oral tradition of Musi Banyuasin, becomes the subject. Furthermore, TikTok is employed as the learning medium. TikTok is chosen due to its proximity to the learners and the ease of using its features.

Table 1. Features in the TikTok Application

Features	Function
Video Recording	Recording video
Audio Recording	Recording voice/ sound
Backsound	Adding backsound
Edit	Fixing and editing created videos
Share	Sharing uploaded videos
Duet/Stitch	Duetting and stitching to other videos

Source: adapted from Taubah (2020), Aji & Setiyadi (2020)



Utilization of TikTok Application as a Learning Medium for Oral Tradition *Senjang*

According to Aji and Budiyo (2018), the success of implementing the 2013 Curriculum is evaluated through observations on various aspects, including lesson plan development, the learning process based on the created plan, competency achievement, and the development of learners' character. Learning activities broadly include introductory, core, and closing activities. Therefore, Lesson Implementation Plans (RPP) must be effectively structured and carefully considered. One manifestation of thorough and effective planning is selecting and using appropriate learning media.

Learning media using the TikTok application is the subject of study in this article. This application is an effective learning medium because it can be operated anytime and anywhere. Therefore, TikTok can be categorized as a mobile learning-based medium. Additionally, this application is known for its addictive quality and high level of engagement. Content creators can add effects such as filters, background music, and stickers to their videos. Users can collaborate on content and create duet videos with separate screens, even in different locations (Hidayatullah, 2023, p. 157). According to O'Malley (cited in Purbasari, 2013), mobile learning is an activity where learners are not confined to one location. Such learning activities occur when learners are mobile and utilize mobile applications from mobile devices or portable technological tools.

In *Senjang* learning, the TikTok application enhances learners' oral tradition skills and abilities. Using TikTok as a learning medium for *Senjang*, learners are divided into several groups. Within each group, there is a distribution of roles/tasks. In each group, some learners act as the *Senjang* performers, video recorders, video editors, and *Senjang* scriptwriters. The following are the steps that learners need to take in the learning activity:

1. The teacher and the learners will acquaint themselves with the oral tradition of Musi Banyuasin, namely *Senjang*.
2. The teacher and the learners practice *Senjang* in the classroom.
3. The teacher and the learners engage in a discussion to assess the extent of the learners' understanding of *Senjang*.
4. Learners are divided into several groups.
5. Learners with number 1 drawn are assigned to create a *Senjang* video, which will then be uploaded on the TikTok application.
6. After group 1 uploads their video, other groups are asked to respond to that video by stitching it. The Stitch tool in TikTok allows learners to combine several videos from other TikTok creators to create a new and original video. Learners can use someone else's video for up to five seconds at the beginning of their video. The Stitch tool is a fun way to collaborate with other content creators and create highly creative content.
7. The group stitched the video, which can still create a response video so all groups will respond with *Senjang*. Two weeks are given for collaboration.
8. Learners are also asked to share videos, give likes, and provide comments to enhance a collaborative learning atmosphere.
9. The *Senjang* response activity will stop when the teacher gives instructions.
10. To assess the effectiveness of using *Senjang* and evaluate the accuracy of tones and lyrics in *Senjang*, the teacher/researcher interviews cultural practitioners and *Senjang* performers.
11. After the *Senjang* response activity is completed on TikTok, the teacher and the learners conduct a joint evaluation.

Several results and findings can be drawn from the *Senjang* learning activity using the TikTok application. These results and findings were obtained through direct observations, questionnaires given to learners, interviews with cultural practitioners, *Senjang* performers, and other teachers, as well as question and answer/discussion sessions with learners. Some of these results include:

1. Learners appeared enthusiastic when working on the project. This indicates that the TikTok application seems effective as in boosting learners' enthusiasm and motivation to learn.
2. Learners also seemed more enthusiastic when their videos received high views and likes. To achieve high views and likes, they utilized the sharing feature. The more views and likes they have, the more the *Senjang* videos they create to spread. Through widespread sharing, the oral tradition of *Senjang* is expected to become more recognized.

3. Based on interviews with cultural practitioners and *Senjang* performers, they observed the videos uploaded by learners and provided positive feedback, appreciating the efforts to preserve the oral tradition through the TikTok social media platform.
4. Cultural practitioners and *Senjang* performers interviewed in Sungai Lilin, Musi Banyuasin, expressed that the *Senjang* performed by learners adhered to the rules. Although the musical accompaniment did not come from traditional live instruments, they still appreciated it, considering that contemporary *Senjang* also utilizes keyboards.
5. TikTok can enhance student collaboration as a collaborative learning medium in the classroom. They communicate and collaborate to complete the project.
6. As a mobile learning medium, TikTok is deemed very effective, given that this application can be accessed anywhere and anytime, making the project execution more effective and efficient in terms of time and place.

CONCLUSION AND SUGGESTION

Based on the findings and discussion, it can be concluded that if the TikTok application is used as a learning media with appropriate methods and techniques, it shows positive results. TikTok can serve as an interactive and collaborative learning platform, particularly in language and literature learning. Additionally, this application can contribute to the preservation of language and literature in Indonesia, particularly in teaching oral literature *in Senjang* for secondary school students. The diverse features and user-friendly interface make this application applicable in *Senjang* oral literature learning and teaching activities.

However, this research also identifies several limitations for both the students and teachers. For students, access to technology may not be equal, creating a digital divide, and there might be potential distractions, such as watching trending videos and seeking approval, due to TikTok's nature as a social media platform. Moreover, from teachers' perspective, assessing learning outcomes from TikTok-based activities might be difficult with traditional methods, and ensuring the quality and appropriateness of educational content on TikTok can be challenging. Therefore, teachers may require additional training to use the platform effectively.

Furthermore, the utilization of the TikTok application is also expected to be used as a learning media and preservation of other oral traditions in Indonesia, such as *pantun* (*rhyming quatrains*) and *gurindam* (*verses of moral instruction*). Moreover, it is anticipated that further research will not only focus on language preservation but also cultural preservation by employing and exploring the use of social media other than TikTok.

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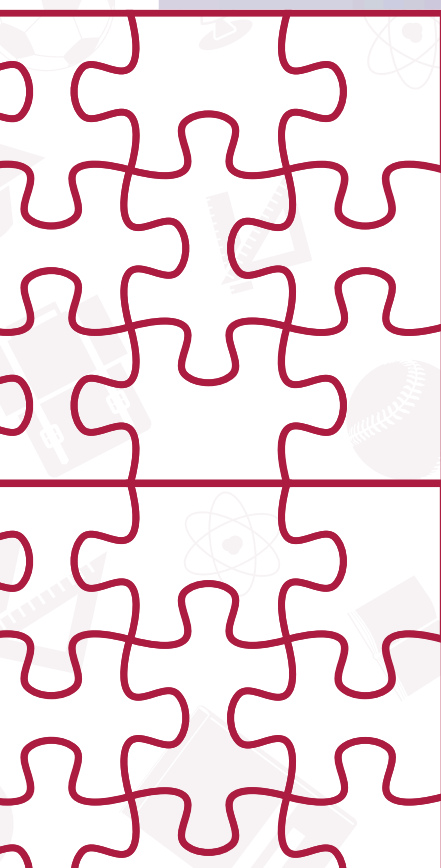
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Article 6

STUDENTS' PERCEPTIONS ABOUT THE USE OF INTERACTIVE VIDEO

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Students' Perceptions about the Use of Interactive Video

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Abstract

Interactive video using H5P is a feature that can be freely used by Moodle users; however, as a phenomenon in the field, only a small number use it. Based on monitoring through the system at one university, only 0.085% of 10,593 students used H5P in course sessions. In this case, it means that the implementation of the H5P-based interactive video was not carried out well; on the other hand, evaluation is needed. This research involves the perspective of students who have used H5P. This research activity uses a quantitative approach carried out at Padang State University. The research sample involves students taking computer-based learning courses. Students were given a questionnaire to see their perspective on using H5P as interactive content in the learning process. This data was analysed using data analysis techniques. From the results obtained, according to students' views, H5P as an interactive learning media to support the Padang State University LMS system has a positive impact. By looking at the capabilities and efficiency of the existing H5P, of course, this is applied objectively. Hence, to maximise the use of H5P content, students, lecturers, and universities must consider the problems faced, such as networks, devices, technical use of H5P, work orders, navigation, and time, as concluded in this research.

Keywords: interactive content, computer based instruction, H5P, Moodle

Background

The use of H5P (HTML5 Package) as an interactive learning media in online education environments has become a topic of interest, especially when involving learning management systems (LMS) at universities. H5P is a platform that allows developers to work together to create interactive content that can be loaded into videos, allowing students to interact with learning materials personally. However, the implementation of H5P at Padang State University faces several problems, especially in terms of use and integration into study programmes. The initial container is used as an open-source framework where all learning developers can create and share interactive content online. H5P emerged as part of the resulting response to the new evolution of digital education, which is increasingly complex and diverse and also requires more flexible and adaptive tools to be able to support a learning process that will be student-centred. H5P was created as a form of responsiveness to the intersection between developments in web technology, the need for greater interactivity in learning content, and the resulting efforts to create an open learning platform that is universally accessible.

H5P is not only limited to technical aspects; this tool also emerged as a response to the paradigm shift in education, where learning is no longer seen as a passive process centred on the teacher but as an interactive, collaborative experience that allows learners to take on different roles and be more active in the formation of their knowledge. Apart from that, the presence of H5P is also in line with the increasing demand for more creative and diverse learning content. By providing various types of interactive activities such as quizzes, simulations, presentations, and more, H5P provides educators and instructional designers with the tools necessary to meet diverse learning needs.

Overall, H5P reflects a profound shift in learning and technology paradigms. Innovation in digital education is increasingly important in preparing future generations to face complex and diverse global challenges. The use of H5P in a lecture context not only increases student engagement but also enables more open, dynamic, and accessible learning, in line with growing digital education trends. With its flexibility, H5P can be adapted to various learning materials, creating a responsive and engaging learning environment for students in today's digital era. This study aimed to assess the use of H5P in higher education institutions from a perspective. Using H5P as a learning mode in lectures provides various significant benefits. H5P can enrich their learning experience by presenting interesting and challenging interactive content. Activities such as interactive quizzes, simulations, and multimedia presentations not only make learning more engaging but also facilitate deeper understanding through hands-on experience.

Moreover, the use of H5P allows students to study independently and in flexible time. They can access H5P content from anywhere and at any time through the online learning platform, allowing them to learn according to their rhythm and preferences. This is especially useful for students who have busy schedules or different learning preferences. With interactive features such as multiple-choice questions, drag-and-drop activities, and interactive simulations, students are invited to be directly involved in the learning process, which can increase retention and understanding of the material. Not only that, the use of H5P also allows students to receive instant feedback about their performance in learning activities. This helps them to improve their understanding immediately and identify areas where they need additional help. Updates and ways to create learning styles and tools that become active forms of interaction are of course carefully considered by existing capacities; in their form, this becomes a unique part of its own that opens up new projections for institutions to be more open to progress and development. the wheel of education wrapped in technology.

The Objectives and Purposes of Research

This research aims to evaluate and understand the use of H5P as an interactive learning media at Padang State University, with a focus on students' perceptions. The purpose of this research for lecturers is to help lecturers improve the quality of education by providing insight into how H5P can be used effectively in the curriculum. In addition, this research can also help lecturers improve their ability to incorporate interactive learning technology into their learning approaches. Apart from that, it is hoped that students can increase their involvement in the learning process by offering more interactive and interesting content. By providing powerful tools for educators to create learning content that is innovative and responsive to student needs, H5P helps support technology-based learning approaches that promote student engagement and better learning outcomes. In addition, H5P also helps increase educational accessibility by providing learning content that can be accessed online and is compatible with various devices, enabling students from diverse backgrounds to obtain a quality education. In addition, it is hoped that this research will provide a better understanding of how H5P can help them understand the subject matter better. Thus, learning outcomes and student satisfaction are expected to be the results of this research.

Research Method

The type of research used is research using a quantitative cross-sectional approach, which uses a concentration of experimental design through computer-based learning. This research was conducted at Padang State University based on the odd semester of the 2023–2024 academic year. The subjects in this research study are UNP students. Quantitative research methods are ways to conduct research using basic data collection in the form of questionnaires. According to Sugiyono (2018, p. 14), the quantitative approach is research that is based on the philosophy of positivism to research certain populations or samples, random sampling by collecting data using instruments, and statistical data analysis.

In this study, data collection was obtained by distributing questionnaires to 98 respondents. This technique of distributing questionnaires to students is carried out to find out students' perceptions that the implementation and use of H5P have reached the extent to which they have touched academics and students.

Result and Discussion

The development of technology and information in the world of education is not only used as a learning resource but also to carry out LMS-based learning process activities, one of which is the creation of H5P-based interactive learning videos in the form of content presented on the e-learning platform that has been created when the teaching and learning activity process is carried out. This H5P-based learning media contains many interactive features for each lesson presented packaged in an attractive form. The following is data from the results of a questionnaire given to Padang State University students:



Figure 1. (Data of students who understand the material through H5P)

In Figure 1, there is a student questionnaire on whether H5P can help them understand the learning material. There were around 98 students who responded to this activity, where around 29.6% (29 people) responded with a rating of 5, 34.7% (34 people) responded with the number 4, 34.7% (34 people) responded with the number 3, and around 1.1% (1 person) responded with the number 2. It can be concluded that the use of H5P in this interactive video is mostly very helpful for students in understanding the lesson.

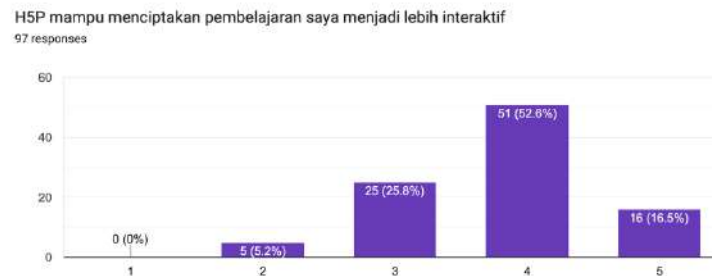


Figure 2. (H5P data is able to create more interactive learning for students)

Based on assessments from 97 students, the use of H5P in interactive videos presented in LMS-based learning shows its effectiveness in increasing learning interactivity. In the total assessments, 16.5% of students gave a rating of 5, which shows a very high level of satisfaction with the use of H5P. In addition, 52.6% of students gave a rating of 4, indicating a fairly high level of satisfaction. A rating of 3 was also given by 25.8% of students, indicating that the majority of students felt they understood the material by using H5P in learning. However, only 5.2% of students gave a rating of 2, which indicates some dissatisfaction with the use of H5P because it does not help understand learning. These results indicate that the use of H5P in interactive videos in LMS-based learning has the potential to help students better understand the material presented.

H5P memberikan ruang untuk latihan dan penilaian diri
98 responses

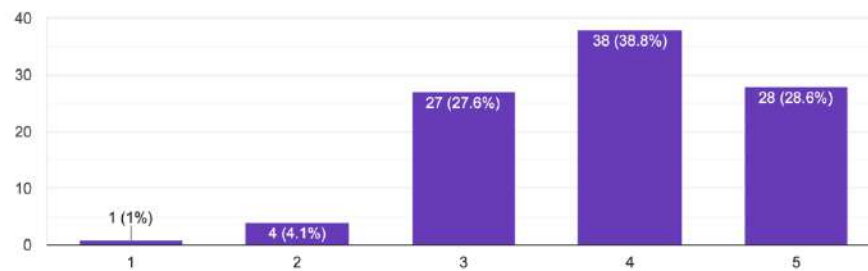


figure 3 . (H5P data provides space for practice and self-assessment for students)

The use of the H5P feature allows students to perform exercises and assess themselves, with a high level of satisfaction. Of the 98 respondents, 28 people (28.6%) gave a rating of 5, which indicates a very high level of satisfaction; 38 people (38.8%) gave a rating of 4, which shows a fairly high level of satisfaction; and 27 people (27.6%) gave a rating of 3. H while 4 people (4.1%) gave a rating of 2, which shows a low level of satisfaction. Only 1 person (1%) gave a rating of 1, indicating a very low level of satisfaction. These results show that H5P has a positive impact in improving the quality of learning and student learning experiences, by providing ample space for practice and self-assessment.

Materi yang disajikan melalui H5P dapat diakses kapan saja melalui E-Learning (LMS)
98 responses

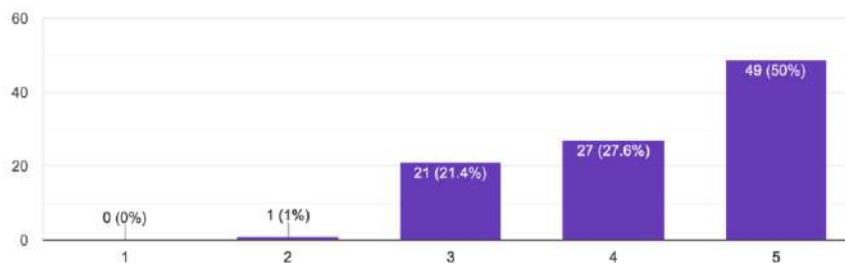


Figure 4. (H5P Material Data can be accessed at any time in e-learning for students)

In this case, a rating of 5 indicates very high satisfaction with the material presented through H5P, while a rating of 2 indicates very low satisfaction. This shows that the e-learning material presented through H5P overall received a positive assessment from the majority of respondents, with only a few low ratings. This is a benchmark showing that the existence of H5P can make it easier for students to participate in learning and can support success in LMS-based learning activities. With this, the H5P feature also makes students' learning experience in the learning process where they can enjoy anywhere, anytime, the material that will be discussed on the e-learning platform so that there is no assumption that they are not carrying out learning activities that must be fulfilled by the students themselves.

Saya akan merekomendasikan sesi mata kuliah ini kepada mahasiswa lain karena menggunakan materi pembelajaran berbasis H5P
98 responses

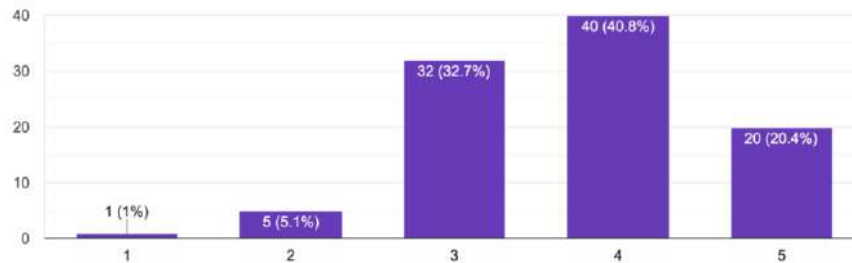


Figure 5. (Data from students who recommend using H5P-based learning materials)

Based on evaluations carried out on students, it turns out that the majority of students feel that it is important for this H5P-based learning to be followed by other students or in other courses. Students recommend this course to other students. The use of H5P learning materials is the main reason to support learning using this interactive video. H5P is a creative and interactive tool that has been proven effective in improving the quality of learning and student engagement. By using H5P, this course offers a more interesting learning approach and allows students to understand the material better.

H5P makes learning more interactive and engaging, which can increase student engagement and improve their understanding of the material. Apart from improving the quality of learning, this innovation makes learning more fun and challenging. Therefore, the researcher highly recommends this course to other students who want to learn in a more creative and efficient way.

Conclusion and Suggestion

Conclusion

In this research, the use of H5P as an interactive learning media at Padang State University is assessed from the student's perspective, as H5P can increase students' understanding of the material and their interest in learning, and students are very happy to use it in interactive videos. However, some students are dissatisfied with it, indicating that using H5P can be difficult, especially if students are unfamiliar with the technology or the user interface is not easy to understand.

In addition, this research shows that lecturers must help students use H5P effectively in learning. Therefore, to maximise the benefits of H5P, there need to be further efforts to build students' skills and to make institutions more systematic in using H5P. Overall, it increases knowledge about the possibilities and obstacles to the use of H5P in higher education institutions and emphasises how important it is to conduct evaluations that involve students' views on the implementation of H5P. It is hoped that the results of this research will provide a better understanding of how H5P can help students understand lesson material, and increase their engagement and learning outcomes.

Suggestion

Based on the results of this research, it is recommended to:

1. Increase training and support for lecturers and students in utilising H5P in learning. This includes training on how to integrate H5P content into the curriculum and how to address technical issues that may arise.
2. Develop more efficient methods to maximize the use of H5P to improve student learning. These strategies may include improving the quality of H5P content, adapting it to student needs and interests, and increasing student accessibility and engagement.
3. Evaluate the use of H5P at universities, including collecting feedback from students and teachers about how effective and impactful the use of H5P is in the learning process.
4. To use H5P more flexibly, think about how it can be used as a tool for independent, flexible learning that can be tailored to students' unique needs and preferences.
5. develop and implement solutions to technical and practical problems students encounter when using H5P, such as networks, devices, navigation, time, work orders, and technicalities of using H5P.
6. help lecturers, students and universities work together to maximize the benefits of H5P as an interactive learning media. This includes assessing and developing H5P content that is innovative and relevant to student learning needs.

By implementing these six suggestions, we can increase the impact of the implications of H5P on LMS-based learning using interactive video media that have been implemented previously and increase the potential of H5P as an innovative and efficient interactive learning tool.

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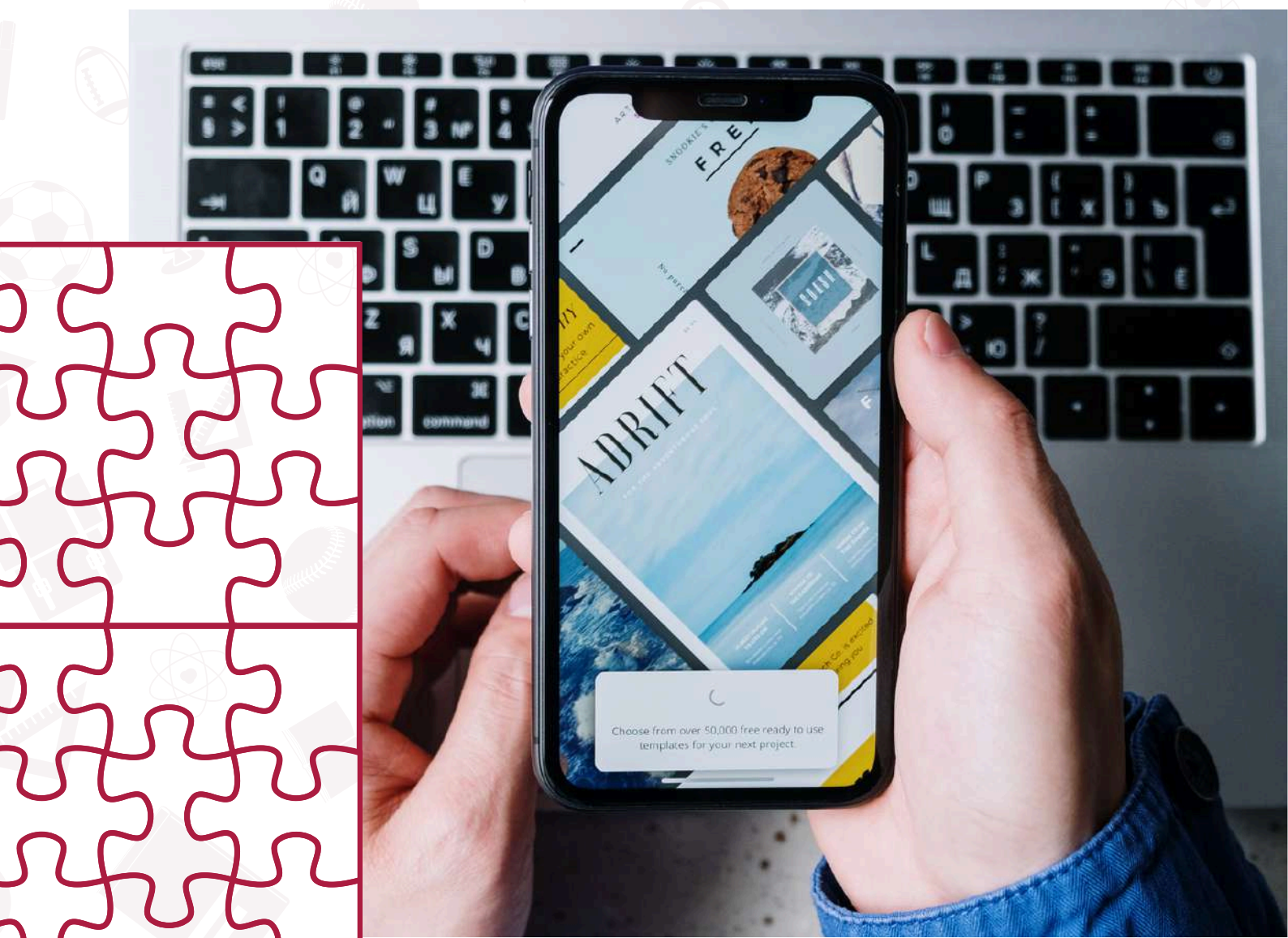
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Article 7

SISKOMED AS AN ANDROID BASED LEARNING MEDIA SOLUTION TO SUPPORT 21ST CENTURY LEARNING

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SiskomEd as an Android Based Learning Media Solution to Support 21st Century Learning

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Abstract

During teaching and learning activities, it was observed that students' learning outcomes often fell below the minimum standard grades. A preliminary observation revealed that the primary causes of low grades were students' low motivation and inadequate supportive learning facilities. The research continued through several steps, including a) identifying the problem, b) analyzing and formulating the problem, c) planning the Classroom Action Research (CAR), and d) implementing the CAR. The identified issues were then analyzed, and a plan was made to carry out the CAR. In the Classroom Action Research activities, students were treated by providing them with Android-based learning media in the Computer Systems subject, named SiskomEd. Infrastructure issues such as internet connectivity problems were overcome by using SiskomEd offline. Additionally, utilizing Android-based learning media is one way to support 21st-century learning by leveraging technology. The research results showed that students experienced an improvement in grades after using the SiskomEd learning media in teaching and learning activities. The increase in grades was driven by the enhanced interest in learning among students. Students did not feel pressured during the learning process because the media used was engaging, colorful, and visually appealing. 21st-century learning media made students feel like they were playing while learning, leading to their enthusiasm to study the materials within it.

Keywords: 21st-century learning, android-based learning media, SiskomEd, student interest in learning

Background

In educational activities, teachers play a crucial role as key facilitators of the learning process. However, many teachers rely solely on textual reading materials, which are insufficient for ensuring student comprehension. This often leads to student boredom, reluctance to complete assignments, and ultimately, low grades. Traditional assessment methods, including daily quizzes, semester exams, and final exams, typically involve paper-based tests and manual grading, which are time-consuming and inefficient. These processes can be streamlined to facilitate quicker and more efficient assessment.

In this digital era, the use of media is very necessary, especially in learning, because students can acquire knowledge quickly and simply without limitations of space and time. The learning process requires the creativity and innovation of teachers in managing learning media so that they can be used online and offline. According to (Audie, 2019), the use of learning media can increase students' motivation to learn. Media can stimulate students' brains to learn, and students tend not to get bored when using media in learning. Looking at a brief observation of students at school where 99% of them have Android-based smartphones, innovation can be made in using Android-based learning media. However, even though almost all students have smartphones, many of them do not have internet quota.

This limitation becomes one of the problems that must be solved by creating Android- based learning media that can be used offline or without continuous internet usage. In daily life practice, the author can witness many positive things as a result of using smartphones.

Education media plays a crucial role in learning. Innovation in media development is highly needed as learning media is closely related to evolving technology. Learning media must keep up with current technology, adopt it, and integrate it into learning activities. Currently, Android technology is very popular among the community, especially teenagers. Therefore, there is a need for the development of learning media that can be utilized with Android technology in schools.

Research conducted by (Wahid, 2018) found that educational and learning media can be beneficial as a tool for delivering standardized teaching materials, making the learning process clearer and more interesting, making the learning process more interactive, efficient in time and energy, improving the quality of student learning outcomes, enabling the learning process to be carried out anywhere and anytime, fostering a positive attitude of students towards the material and the learning process, and transforming the role of teachers towards a more positive and productive direction.

According to Arsyad (2007) on Yuliawati Yunus,dkk 2018, learning media is any teaching tool used to help deliver lesson material in the teaching and learning process, thus facilitating the achievement of formulated learning objectives. Good learning media is media that can compete with technological advancements. Therefore, there is a need for Computer-Based Android Learning Media Systems that are expected to assist the learning process. Within the Computer-Based Android Learning Media Systems, there are materials such as theory, images, and forms that can be displayed, computer system learning videos, and most importantly, competency tests in the form of exercises that allow students to see how far their abilities go. This can focus students' attention on learning and prevent boredom in the learning process, as it is considered more engaging and varied (Rahayu et al., 2022).

Learning in the context of 21st-century education, especially in the 2013 curriculum, involves students learning material through examples, applications, and real-world experiences both inside and outside the school. To meet these demands as part of the implementation of the 2013 curriculum, it is necessary to involve the appropriate, sustainable, and affordable use of ICT. The needs of the 21st century, such as now, require deep knowledge skills (cognitive) in the context of life regarding a problem, event, or incident. Computer-based learning media, as a tool both physical and non-physical, is used as a mediator between teachers and students to understand lesson material more effectively and efficiently (Yusuf, I & Subaer, 2013). The integration of ICT in learning is a component of 21st-century learning. Science and technology are constantly evolving rapidly over time. This technology combines the world without boundaries, even if geographically separated (Murniayudi et al., 2018). Similarly, in the field of education, the increasing era of globalization marked by rapid developments in various sciences and technologies, especially in information and communication technology, has transformed the world. The world today has become more transparent without knowing national boundaries. This condition impacts all aspects of societal, national, and state life. Furthermore, it can also influence the mindset, attitudes, and actions of society as a whole.

With the advancement of science and technology (IPTEK), changes in the curriculum, media, and learning facilities will also follow. In this digital era, learning media that can adapt to 21st-century education is needed. The innovation and creativity of learning media are among the current issues in education. Therefore, there is a need for improvement in the provision of educational services to prepare for 21st-century learning. The development of education in the era of globalization poses a challenge for Indonesia to enhance the quality of its resources. Thus, educators' contribution in providing educational services becomes one of the pioneers of the nation's progress in the present and future.

(Dewinta et al., 2022) In addition to causing students to become bored in the classroom, another challenge of offline learning is the limited technical facilities in schools. One weakness of this model is the minimal or even complete lack of technology usage. This makes students unprepared to face the digital world, potentially leading to falling behind in technological advancements.



Furthermore, the lack of references or very limited use of learning resources also poses a challenge in offline learning. Often in face-to-face learning, the references used are only books that support teaching and the teacher's knowledge. As a result, students' knowledge is limited, and the learning process becomes monotonous.

Research Method

This research uses the Class Action Research (PTK) method. Non-class research is research conducted in class or at school to solve learning problems that are being experienced by students with the aim of improving student understanding so that learning outcomes increase. According to Muchlisin Riadi (2019), Classroom Action Research (CAR) is a form of research that occurs in the classroom in the form of certain actions taken to improve the teaching and learning process in order to improve learning outcomes that are better than before. Class action research (PTK) is carried out in two cycles, and each cycle consists of four stages of activities: planning, action, observation, and reflection.

According to IG AK, Wardani (2022), the characteristics of classroom action research (PTK) include:

- a. The existence of problems in PTK means that the exercises carried out by teachers in class are problems that must be resolved due to the awareness they bring.
- b. In PTK, teachers collect data from their own practice through self-reflection. This means that teachers try to remember what happened in the classroom and how these actions impacted students.
- c. Because PTK is carried out in a classroom context, the focus of the research is learning in the form of teacher and student behavior when interacting.
- d. PTK is designed to improve learning. Improvements will be carried out gradually and continuously while research activities are still being carried out. Therefore, it is known that in PTK there is an implementation cycle in the form of a pattern: planning-action-observation-reflection-revision (re-planning).

According to Kemmis and Taggart (1992) in Sukardiyono (2015), there are four activities, which will be explained as follows:

- a. Identifying problems: In this research, it was found that in teaching and learning activities using book learning media, there were several students who felt bored and less interested. This results in less-than-optimal learning outcomes.
- b. Analyzing and formulating problems: In the current digital era, it can influence students' daily habits and lifestyles, including teaching and learning activities. Students are more interested in using digital media than physical books.
- c. Planning PTK: In this case, the teacher plans to change student learning. If previously students studied using text books, then in this research, an experiment will be carried out using Android-based digital media.
- d. Carrying out PTK: At this stage, students are given treatment in the form of Android-based digital media. This was done to get comparison results between learning media using books and student learning outcomes using Android-based media.

Result and Discussion

This research is conducted in two cycles, and each cycle has stages as follows:

a. Cycle 1 Research:

1. Planning Stage

At this stage the teacher encourages students to learn and understand using books and learning media using text, then the teacher prepares measuring instruments to measure students' abilities via Google Form.

2. Planning and Implementation Stage of Activities

In cycle 1, 13 students were implemented. In this case, the researcher plays the role of teacher. The learning process refers to planning in the form of learning activity mechanisms. Then take action in the form of organizing learning. Implementation of learning activities is carried out using textbook learning media. During the teaching and learning process, research observations were also carried out. Before

carrying out the ability test, students are given directions to understand the lesson by reading books and online learning resources that use text. After students understand the material, they continue with the exam. The media used as a tool to measure student abilities is Google Forms. The questions provided are number system material, which consists of four sub-subjects, including decimal numbers, binary numbers, octal numbers, and hexadecimal numbers. The question models given are multiple-choice questions; fill in the questions, choose many, and match. Each type of question has a different score; the score is based on the level of difficulty given.

The results of the cycle 1 activities can be presented in the table below:

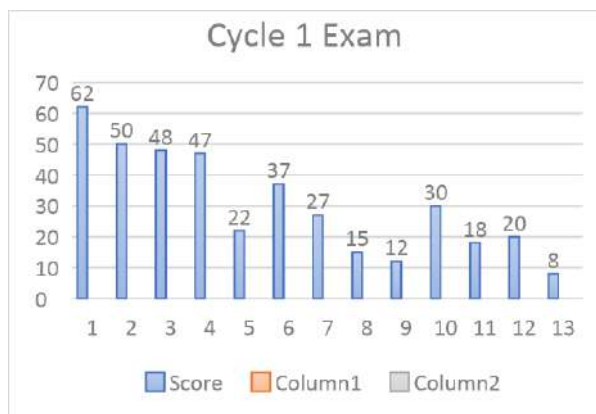


Image 1. Cycle 1 Exam Results

From the graph above, it can be seen that the exam results obtained by the students have the lowest score at 8, while the highest score is at 62. This indicates that the students' abilities are still below the Minimum Passing Grade (KKM) of 75.

b. Evaluation of Cycle 1

After conducting the research activities in Cycle 1, it was found that there were issues regarding students' understanding of a particular subject. When students understand the material using textbook media, they quickly become bored and this triggers laziness in learning. The media used is not engaging enough to capture students' interest in learning. Furthermore, during the exams, the media used is not efficient. Students face difficulties due to the lack of the required internet access. Online media, which was expected to help reduce the manual workload of teachers in grading exams, actually introduced new problems, such as some students facing internet connectivity issues. Inadequate internet access and weak signal strength were identified as problems encountered in Cycle 1 of the research. By identifying these issues, including: a) unengaging teaching methods and media, b) inadequate facilities and infrastructure, c) lack of support for teachers in performing their tasks. Based on these problems, one action will be taken as a solution in Cycle 2 of the research. The solution involves creating a learning media that can enhance students' interest in learning, facilitate their understanding of the material, assist students in terms of resources, and make it easier for teachers to grade exams. Adhering to the digital learning media Support 21st Century Learning, in Cycle 2 of the research, the media used will be android-based learning media that can be used by students without requiring internet access (offline).

c. Cycle 2 Research

Cycle 2 research is conducted after reflecting and evaluating the activities of Cycle 1 research. It involves treating students with a digital android-based learning media that can be used without internet connection (offline). The learning media is named SiskomEd. SiskomEd contains learning materials with defined learning objectives and competencies. The presented material is packaged in a way that captures students' interest in learning. The available material is designed with harmonious color combinations and font sizes.



Additionally, there are practice questions and exam questions provided in SiskomEd. The questions are divided into four models, similar to Cycle 1 treatment. However, the difference lies in the user-friendly presentation of the questions, making them more engaging to work on. The types of questions include multiple-choice, fill-in-the-blank, multiple select, and matching. Each of these question types carries different weightage based on the difficulty level. The total score given to students who answer all questions correctly is 100 points. Students who do not attempt or answer incorrectly will receive 0 points.

The exam results of the students can be presented in the table below:

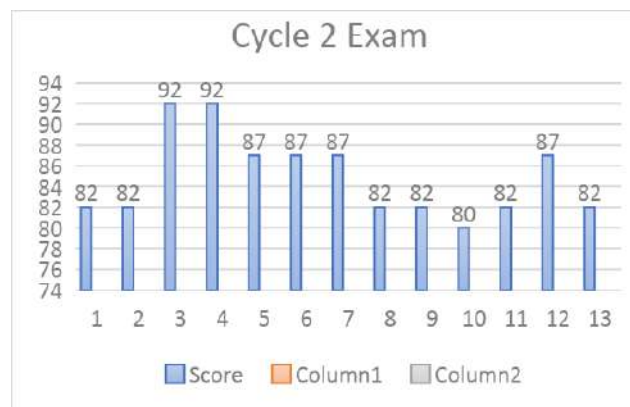


Image 2. Cycle 2 Exam Results

From the above graph, it can be observed that there is a significant improvement in students' grades after using the SiskomEd learning media. The lowest grade obtained by a student is 80, while the highest is 92. This indicates that the SiskomEd application provides an effective and efficient solution in the 21st-century learning process. Students find it easier to understand the material, resulting in higher grades above the Minimum Mastery Criteria (KKM).

d. Evaluation of Cycle 2

After conducting the second cycle of research activities, it was found that there was an improvement in students' learning outcomes. By using this media, it can reduce boredom and facilitate students in understanding the material. The media designed by the teacher is more efficient because it can be used with internet connection (online) and without internet connection (offline). This media can also lighten the teacher's burden in correcting students' exam results because the scores will automatically appear at the end after students complete their exams. This indicates that media created by teachers can support more efficient and effective learning in the 21st century learning process.

e. Comparison of Cycle 1 and Cycle 2 Research

In this research activity, data was collected to show the students' learning outcomes in Cycle 1 and Cycle 2. The Cycle 1 scores represent the grades obtained when students were taught using traditional methods such as textbooks and online reading materials. On the other hand, the Cycle 2 scores represent the grades obtained when students were treated using the android-based SiskomEd learning media.

The assessment data from both cycles can be seen in the graph below:

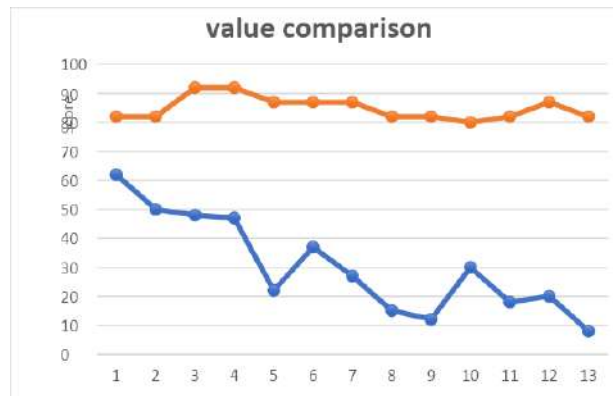


Image 3. Value Comparison

From the graph above, it can be observed that there is a significant difference between the scores of Cycle 1 and Cycle 2. In Cycle 1, students showed varied results, ranging from 8 to 62. Overall, the Cycle 1 results indicate that the students' abilities are below the minimum passing standard. The expected passing standard for the computer system subject is 75. Therefore, this issue needs to be addressed promptly to achieve optimal learning outcomes. On the other hand, the Cycle 2 results show that the students' abilities have reached the standard, with scores ranging from 80 to 92. Although no student has achieved the maximum score of 100 yet, the Cycle 2 results demonstrate an improvement in students' abilities to answer questions.

Conclusion and Suggestion

Conclusion

Based on the research conducted, it can be concluded that there are issues in the teaching and learning activities in the Computer System subject at Vocational School. The main problem identified is that students are not achieving the minimum required grades. This is primarily due to the mismatch in the learning media used in the teaching process, leading to a lack of motivation for students to learn. Additionally, the use of digital learning media that requires internet access poses a challenge due to unstable signals.

To address these issues, a solution in the form of 21st-century digital learning media was introduced. An android-based learning media named SiskomEd was developed to tackle the identified problems. This learning media presents study materials and exam questions in an engaging manner, attracting students' interest in learning. Furthermore, this media can be used offline, eliminating the need for internet access. The research has shown that students' learning outcomes improved significantly. The average score obtained by students in Cycle 1 was 30.46, while in Cycle 2 (using SiskomEd media), the average score increased to 84.92. The overall student scores meet the Minimum Mastery Criteria (KKM) of ≥ 75 . The average increase in students' scores from Cycle 1 to Cycle 2 is 54.86, indicating a 64.6% improvement in student grades.

Suggestion

The suggestion from this research is that teachers need to enhance innovation in providing learning media to increase students' interest in learning. Additionally, the learning media created should meet the needs of 21st-century learning to keep pace with the times. The SiskomEd application, developed to enhance motivation and interest in learning, has been proven to help students achieve improved academic performance. It is hoped that this application will continue to be utilized in teaching and learning activities at Vocational School as a form of the school's contribution to preparing the younger generation for digital advancement and the 4.0 industrial revolution. It is expected that the SiskomEd application can serve as an inspiration for teachers to enhance the quality of learning media to be more effective and efficient.

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Southeast Asia Journal on Open and Distance Learning

Article 8

PROJECT OPTIMIZE (OBSERVING PRACTICAL & TRANSFORMED INNOVATIVE MENTORSHIP TO IGNITE ZEAL EXCELLENCE): A GAUGE TO DETERMINE EXPECTED OUTCOMES AMONG SCIENCE TEACHERS IN LUIS AGUADO NATIONAL HIGH SCHOOL

Joan C. Tobilla



Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence): A Gauge to Determine Expected Outcomes Among Science Teachers in Luis Aguado National High School

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Abstract

The study is highly deemed to measure the effectiveness of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence) to achieve the expected outcomes among science teachers in Luis Aguado National High School. Specifically, it is desired to determine to what extent do science teachers progress toward excellence as they participate on the said project. It has been qualitative research. The study was conducted at Luis Aguado National High School in Trece Martires City, Cavite, Philippines. The study participants were 9 teachers in the Science Department. They were map out according to their profile, number of years in teaching, specialization, special skills and interests. Moreover, a standard tool to determine and monitor teacher's progress in terms of checking of daily lesson logs, class observations and submission of pertinent school reports. Being a qualitative study, provision of technical assistance is shown throughout the period. Coaching and mentoring is congruent on the priority needs of the teacher. The teacher's progress monitoring report is tremendously significant on the monitoring and checking of teacher's outputs. In addition, Learning Action Cells and Focus Group Discussion were conducted every quarter to develop the optimum potentials of science teachers. As part of the evaluation of the teacher, document analysis is done in every activity. The present study has significantly impacted the following (1) 9 out of 9 science teachers provide technical assistance to equipped their competencies and performance in teaching and learning delivery; (2) address the priority needs through conducting consultation via coaching and mentoring, focus group discussion, fostering collegial collaboration via benchmarking of best practices, document analysis and related goals and (3) recognize the achieved goals and targets as well as intensify their strength and potentials. Relatively, this project offered a systematic process to quality assure outputs, innovations via work smart and provide technical assistance on the identified needs, findings, and observations. Furthermore, giving optimize possibilities to excellence hence as learning opportunities among science teachers to be the best version of themselves leading into ways forward to transform highly competent and versatile teachers of the 21st century learners.

Keywords: mentorship, excellence, teacher's progress

Background

On a case study written by Ortega (2022), she found that mentoring experience are learned through various identity practices. Specifically, it was concluded that stability of their mentor identities was influenced by the support of the organization and community in which they belonged. Correlative on the findings revealed that identity development and sustainability occurred through experiences of mentor re-learning pedagogy and curriculum. Another related study from Morris et. al (2018) whom they emphasized that teaching effectiveness is

a strong influence on teacher's practices, student learning outcomes and management of meaningful teaching learning activities.

In connection with this, the insights of the researchers from Luis Aguado National High School as the teachers impart and facilitate the teaching-learning process, they also prepare daily lesson logs, instructional materials as well as accomplish reports and outputs. In addition, perform related works respectively. On the other hand, the key result area of the school head and head teachers, specifically the function to provide relevant, timely and appropriate technical assistance to guide teachers in achieving goals and targets. That's why to gauge the expected outcome of the science teacher in Luis Aguado National High School, **Project OPTIMIZE** (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence) was implemented as a practical monitoring, innovative quality assurance cum works smart and provision of technical assistance toward transformational excellence among science teachers in Luis Aguado National High School for SY 2023.

As the new paradigm of technical assistance focusing on coaching, mentoring, and upskilling teachers as lifelong learners in terms of transformative and innovative trends in the teaching and learning delivery. It is the initiative of the school head of Luis Aguado National High School to craft a mechanism anchoring the provision of technical assistance as referred to in the Division of Cavite Technical Assistance Manual to assist, support and guide teachers on their needs, strengths, and weaknesses. Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence) aspires to provide technical assistance to strengthen performance outcomes and goals toward excellence. Moreover, an aid to priority needs for development by conducting consultation via coaching and mentoring, focus group discussion, fostering collegial collaboration via benchmarking of best practices, document analysis and related goals. This project offers a systematic process to quality assure outputs, innovations via work smart and provide technical assistance on the identified needs, findings, and observations. Furthermore, giving optimize possibilities to excellence hence as learning opportunities among science teachers to be the best version of themselves leading into ways forward to transform highly competent and versatile teachers of the 21st century learners.

Table 1. Workplan of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence): A Gauge to Determine Expected Outcomes Among Science Teachers in Luis Aguado National High School

Programs and Projects	Objectives	Strategies/ Activities	Time Frame	Venue	Target Beneficiaries	Resources			Expected Output
						Persons Involved	Materials	Finance	
HI-TEACH Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence)	Provide technical assistance to equipped science teachers' competencies and performance in teaching and learning delivery Address the priority needs through conducting	Profiling of Science teachers Map out the Individual Development Plan of science teachers in terms of strengths and priority needs. Conduct of Learning Action Cell/	Year Round	School	Science Teachers	School Head Head Teacher and Science Teachers	E-SAT, Individual Development Plan TA Manual, Project OPTIMIZE Mechanism Tools, ISP, ISR, Microsoft Teams Repository	MOOE	Updated science teachers' profile Appropriate technical assistance is provided cum work smart 9 out of 9 science teachers received necessary technical

	consultation via coaching and mentoring, LAC/focus group discussion, fostering collegial collaboration via benchmarking of best practices, document analysis and related goals. Recognize the achieved goals and targets as well as intensify their strengths and potentials	FGD & Benchmarking cum Innovation and Work Smart Checking of DLL, records, and outputs of science teachers via document analysis Walk through and Class Monitoring Class Observation based on ISP & ISR Conduct Appreciation Day among science teachers during the monitoring & evaluation as well presentation of accomplishment report every quarter							assistance. Conduct at least one LAC or FGD every month
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Table 1 depicted the workplan of the project highlighting the objectives, strategies, the targeted beneficiaries and most relevant the expected output or outcome of the project. Specifically, the following were projected after the implementation of the program (1) updated science teachers' profile, (2) appropriate technical assistance is provided cum work smart, 9 out of 9 science teachers received necessary technical assistance and (4) conducted at least one LAC or FGD every month.

Table 2. Profile of Science Teachers, Special Skills, and interests

Name	Age	Rank/Position	Grade Level & Discipline Handled	Length of Service	Area of Specialization	Special Skills	Interests
Linda M. Morse	44	T-III	Grade 7 Science	16	General science	ICT Literate	Demo Teaching
Rigel L. Catabona	38	T-I/ERF for TIII on process	Grade 7 Science	14	Biology	ICT Literate	Research
Danachelle G. Basco	24	T-I	Grade 8 Science	3	Biology	ICT Literate	Innovation
Allan A. Villa	44	T-II	Grade 8 Science	15	Biology	ICT Literate	Linkages
Christian D. Battad	27	T-I/ERF for TIII on process	Grade 9 Science	5	Biology	Video Editing	Demo Teacher
Gee-I S. Nalunat	37	T-I/ERF for TIII on process	Grade 9 Science	15	Chemistry	ICT Literate	Computations
Maricel R. Perio	33	T-I/ERF for TIII on process	Grade 10 Science	7	Physical Science	ICT Literate	Demo Teaching
Dianne Therese V. Perido	35	T-III	Grade 10 Science	14	Chemistry	Video Editing Graphic Designing	LR Evaluator, Writer Demo Teaching
Brian May M. Lopez	35	T-I	Grade 10 Science	2	General Science	ICT Literate	Computations

On Table 2, the profile of science teachers was indicated in terms of age, position, length of service and area of specialization. It was also highlighted the special skills and interests of science teachers.

Table 3. Learning Action Cell Plan of Science Teachers

ACTIVITIES	DATE AND TIME	LAC Leaders	LAC Facilitator	LAC Documenter	LAC Members	LAC Resource Person (External/ Internal)
Project YES to PPA's (Yield Exemplary Success towards PPA's) in Science	May 2023 1:00-2:00 pm	Soberano, Riza D., Ed D. Leoniza D. Varias, PhD	Joan C. Tobilla	Maricel R. Perio	Linda M. Morse, Rigel L. Catabona, Allan A. Villa, Gee-I S. Nalunat, Dianne Therese V. Perido Brian May Lopez	Christian D. Battad Danachelle G. Basco
Presentation of Project YES to PPA's (Yield Exemplary Success towards PPA's) Workplan in Science	2:00-3:00pm					

Table 3 represented the development needs of science teachers. Learning Action Cell is conducted to strengthen the goals and addressed the weakness of the target beneficiaries.

In lieu of the above details, the Department of Education (DepEd) issued DepEd Memorandum No. 008 s 2023 titled "Multi-Year Guidelines on the Results-Based Performance Management System-Philippine Professional Standards for Teachers. In terms of the class observations and non-observable classroom objectives shown on Table 4.

Table 4. Classroom Observable and Non-Observable Indicators

Name of Science Teacher	Applied knowledge of content within and across curriculum teaching areas		Used a range of teaching strategies that enhance learner achievement in literacy and numeracy skills		Applied a range of teaching strategies to develop critical and creative thinking as well as other higher-order thinking skills		Managed classroom structure to engage learners, individually or in groups, in meaningful exploration, discovery and hands-on activities within a range of physical learning environments.		Managed learner behavior constructively by applying positive and non-violent discipline to ensure learning focused environments		Used differentiated, developmentally appropriate learning experiences to address learners' gender, needs, strengths, interests and experiences		Planned, managed and implemented developmentally sequenced teaching and learning processes to meet curriculum requirements and varied teaching contexts.		Selected, developed, organized and used appropriate teaching and learning resources including ICT, to address learning goals.		Designed, selected, organized and used diagnostic, formative and summative assessment strategies consistent with curriculum requirements.	
Linda M. Morse	7	7	7	7	6	7	6		7		6			7		6		7
Rigel L. Catabon a	6	7	7	7	6	7	7		6		6			6		6		6
Danache Ile G. Basco	6	7	7	7	6	6	7		7		6			6		6		6
Allan A. Villa	5		7		6		6		7		6							

From table 4, the class observation of science teachers was divided into two phases. For the first phase, the classroom objectives observed were CO1, CO2, CO3, CO4, CO5 and CO6 while for the second phase, CO1, CO2, CO3, CO7, CO8, CO9. Most of the teachers obtained 6 and 7 points, it means they were proficient on their teaching-learning delivery.

Research Method

The study was conducted at Luis Aguado National High School in Trece Martires City, Cavite, Philippines the study is qualitative research. The utilization of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence) as a tool to determine the expected outcomes among Science Teachers in Luis Aguado National High School Being a qualitative study, mechanisms tools, teacher's monitoring progress report and document analysis were used to assess teacher's performance. As researchers, monitoring and evaluation was done during the activity, and this was recorded in the Teachers

Progress Monitoring Report. All information and outputs were documented and recorded. In addition, provision of technical assistance, coaching and mentoring were also recorded and accomplished via narrative report.

The study participants were 9 teachers in the Science Department. They were map out according to their profile, number of years in teaching, specialization, special skills and interests. Moreover, a standard tool to determine and monitor teacher's progress in terms of checking of daily lesson logs, class observations and submission of pertinent school reports.

The study was conducted and guided by this researcher-made Gantt Chart. The phases of the study are presented below:

Table 5. Gantt Chart of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence)

Activities	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	September 2022		December 2022		February 2023		June 2023	
A project proposal is submitted to Dr. Anna Marie S. Aranzano, Parent Supervisor-District of Trece Martires City and Dr. Riza D. Soberano, Education Program Specialist in Science for the approval of this undertaking								
A planning meeting initiated by the school head, Dr. Leoniza D. Varias assisted by Ms. Joan C. Tobilla, Head Teacher II of Science Department and creation of program/project management team. Second part is the launching of the program and orientation of science teachers as beneficiaries on the implementation of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence) hroughout the SY 2023.								
Dissemination of the rationale of the project during the orientation								

meeting among science teachers.								
Provision of mechanism tools of the School Monitoring and Evaluation Officer during practical monitoring, innovative quality assurance cum work smart on checking of records and outputs of teacher as well as provision of technical assistance.								
Implementation of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence) throughout the school year 2022-2023 by providing technical assistance and quality assurance of records/outputs via document analysis.								
Consultation, focus group discussion and conduct of an interview initiated by the school head, Dr. Leoniza D. Varias and Ms. Joan C. Tobilla, Head Teacher II of Science Department.								
Monitoring, giving feedback and document analysis facilitated by the School and Monitoring Officer								
Submission of Quarterly Accomplishment Report of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence)								

For the first stage, a project proposal is submitted to Dr. Anna Marie S. Aranzanzo, Parent Supervisor-District of Trece Martires City and Dr. Riza D. Soberano, Education Program Specialist in Science for the approval of this undertaking. Secondly, a planning meeting initiated by the school head, Dr. Leoniza D. Varias assisted by Ms. Joan C. Tobilla, Head Teacher II of Science Department and Ms. Joy C. Panganiban as well as creation of program/project management team. Related to this, is the launching of the program and orientation of science teachers as beneficiaries on the implementation of Project **OPTIMIZE** (Observing Practical &

Transformed Innovative Mentorship to Ignite Zeal Excellence) throughout the SY 2023. Dissemination of the rationale of the project during the orientation meeting among science teachers as well as provision of mechanism tools of the School Monitoring and Evaluation Officer during practical monitoring, innovative quality assurance cum work smart on checking of records and outputs of teacher cum provision of technical assistance. Moreover, the implementation of Project **OPTIMIZE** (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence) throughout the school year 2023 greatly attributed on the quality assurance of records/outputs via document analysis. Consultation, focus group discussion and conduct of an interview initiated by the school head, Dr. Leoniza D. Varias and Ms. Joan C. Tobilla, Head Teacher II of Science Department will be manifested. Monitoring, giving feedback and document analysis facilitated by the School and Monitoring Officer Finally, submission of Quarterly Accomplishment Report of Project **OPTIMIZE** (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence).

It is expected to assist Science teachers on their priority needs focusing on practical monitoring, innovative quality assurance cum work smart on checking of records and outputs of teacher and provision of comprehensive technical assistance on teaching.

Results And Discussion

Table 6. Results of the Coaching and Mentoring of Science Teachers

DATE	CRITICAL INCIDENCE DESCRIPTION	OUTPUT	IMPACT ON JOB/ACTION PLAN	SIGNATURE RATER/RATEE
January 12, 2023	Findings on their Daily Lesson Log Inadequacy to impart some integrations across teaching learning areas. Arts of questioning to stimulate student's critical thinking must be enhanced	Developmentally appropriate learning activities were not incorporated across teaching learning areas. HOT's questions were insufficient to sustain the idea of the lesson and to develop critical thinking skills	-Integration to apply and relate to other learning areas did not meet -Provide more examples/activity applying the lesson with other learning areas -Lack of interest and excitement to learned might arise -Ask/Give thought provoking questions to enhance the critical thinking and high order thinking skills of learners	Maricel R. Perio Ratee Allan A. Villa Ratee Brian May Lopez Joan C. Tobilla Joy C. Panganiban Raters
January 17, 2023	Findings on Science Intervention Program Suggestion to supply and provide more student-centered activities segmented as enrichment,	Insufficient to provide engaged discussion and activities into varied teaching materials such as both visual and manipulative, as well as strategies	-Effectiveness to impart learnings might lessen due to lack of interest of learners -Interactive plus localized-contextualized activities must be	Danachelle G. Basco Ratee Linda M. Morse

	reinforcement and for remediation	which enhanced the literacy, critical and creative skills of learners	considered to extremely matched into learner's interests and needs	Ratee Joan C. Tobilla Joy C. Panganiban Raters
January 20, 2023	Findings on Individual Learning Monitoring Plan and Learner's Progress Report Feedbacks, reflection, and remarks must be indicated on the Individual Monitoring Learning Plan and Learner's Progress Report	Make sure to write a brief feedbacks, reflection, and remarks on them	-No indicator to determine if there's a need to reteach the lesson or proceed to the next lesson -Serve as mechanism for feedbacking -Could easily address the learner's needs	Gee-I S. Nalunat Ratee Joan C. Tobilla Joy C. Panganiban Raters
February ,16, 2023	Design a program and activities for LAC session	Organize a meeting for planning the LAC session. Orient the LAC facilitator, documenter, internal resource speaker and members	Target objectives and activities were implemented and achieved throughout the LAC session	Dianne Therese V. Perido Ratee Christian D. Battad Ratee Joan C. Tobilla Joy C. Panganiban Raters

Table 6 obtained the primary goal of the study to assist Science teachers on their priority needs focusing on practical monitoring, innovative quality assurance cum work smart on checking of records and outputs of teacher. Moreover, comprehensive technical assistance among science teachers were immensely manifested.

Table 7. Analysis of the Monitoring and Evaluation of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence)

		AVERAGE RATING PER CRITERIA (Values from "1.0" – "4.0")						
	Program Management	Attainment of Objectives	Delivery of Content	Provision of Support Materials	Program Management Team	Training Venue	Meal	Accommodations
	4.00	4.00	4.00	N/A	4.00	4.00	4.00	4.00
SITE AVERAGE *.	4.00							

Adjectival Rating:

1 – 1.75 – needs improvement

1.76 – 2.5 – slightly satisfied

2.6 – 3.25 – moderately satisfied

3.26 – 4 – completely satisfied

*Average of ALL 7 criteria within a training site/venue

General, Science teachers were completely satisfied with the overall management of the program. High recommendations were given to the Program Management Team as well as to the said agenda of the program.

Conclusion

Based on the presentation of the accomplishment report of Project OPTIMIZE (Observing Practical & Transformed Innovative Mentorship to Ignite Zeal Excellence), it is completely satisfied and deemed achieved the goals of the said program. Significantly, the level of progression and development of science teachers is highly evident through giving immense and hands on technical assistance, coaching and mentoring. These endeavors and positive actions greatly contributed on the success of the program. Strengthened their weakness and encouraged them to be the best version of themselves as they serve as the role model of the young generations. On this initiative, the authors are willing to accept feedbacks, suggestions and recommendations for the betterment and feasibility of this program.

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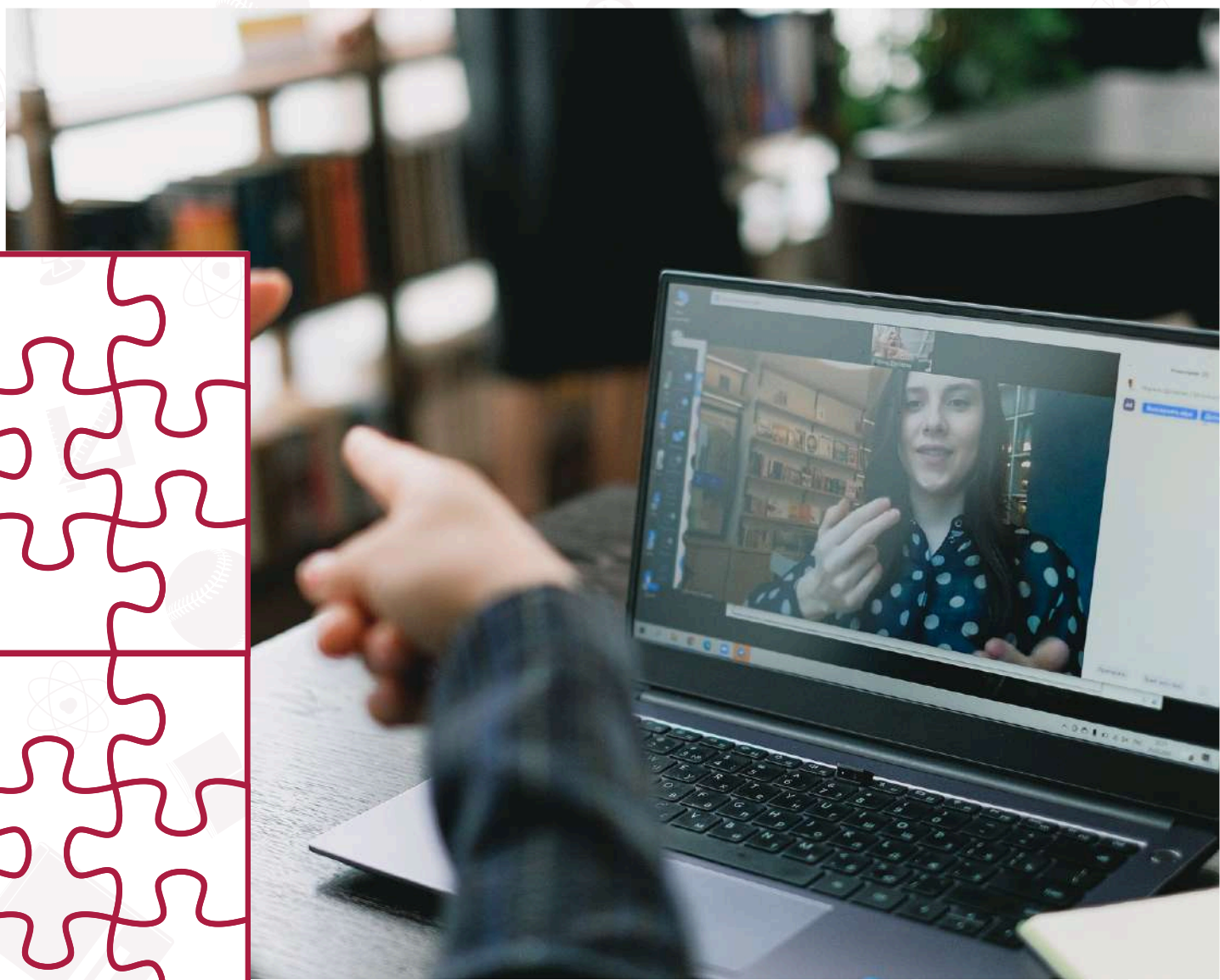
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Article 9

MYANMAR'S DIGITAL LEARNING JOURNEY THROUGH DISTANCE EDUCATION

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Myanmar's Digital Learning Journey Through Distance Education

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Abstract

Myanmar, a nation renowned for its cultural diversity and natural beauty, grapples with enduring educational challenges that arise due to limited accessibility to quality education, insufficient infrastructure and a shortage of well-qualified teachers with adequate training. However, the advent of digital technologies and the transformative potential of distance education offer a hopeful path. This pioneering initiative aims to enhance Myanmar's education system through digital distance learning. Its primary goal is to address long-standing educational disparities using technology for inclusive learning, including the development of digital infrastructure, and providing teacher training in digital pedagogy. Furthermore, partnerships with international organizations contribute expertise, resources, and innovation to distance education. Ultimately, Myanmar's digital learning journey visualizes an inclusive and equitable education system with the potential for a brighter future built on digital skills and knowledge in order to enhance learning opportunities as well as eliminate knowledge disparities throughout the country.

Keywords: Myanmar's Digital Learning, Distance Education, Future of Education in Myanmar.

Background

The digital learning journey of the Yangon University of Distance Education (YUDE) in Myanmar represents a proactive response to the country's educational challenges. Myanmar is doing its best to provide a quality education, although there are infrastructure deficits and a lack of well-trained teachers. To overcome these difficulties, YUDE, as a pioneer in distance education, has embraced digital transformation to address these issues. By leveraging digital technologies, YUDE aims to expand access to education, improve learning outcomes, facilitate lifelong learning, and enhance workforce skills. The objective of this initiative is to emphasize the potential of digital education in empowering Myanmar's education sector and contributing to its socio-economic development.

Introduction

This paper explores the transformative potential of digital technologies and distance education in Myanmar. The research begins with an extensive literature review to gather existing knowledge on digital education, distance learning, and educational initiatives in Myanmar. The literature review delves into key concepts, theories, and empirical studies related to digital education, distance learning, and Myanmar's unique context. From enhancing digital infrastructure to teacher training, this journey promises to create an inclusive, equitable, and forward-looking educational system for the people of Myanmar.

Research Questions

- How has the digital learning journey impacted educational access and quality in Myanmar?
- What are the challenges and opportunities associated with the integration of distance education and digital technologies in Myanmar?

Aim and Objective of the Research

This investigation aims to measure the initiative's impact on educational accessibility, quality, and inclusiveness. Furthermore, it seeks to delve into the dynamics surrounding the integration of distance education and digital technologies within Myanmar's educational landscape. The primary objective is to conduct an extensive examination of Myanmar's digital learning evolution through distance education modes. By utilizing a mixed- methods approach, including data analysis and expert insights, this study seeks to provide a comprehensive understanding of the digital transformation's implications for education in Myanmar.

Literature Review

The research begins with an extensive literature review to gather existing knowledge on digital education, distance learning, and educational initiatives in Myanmar.

The digital learning projects provide background for Myanmar's journey toward a digital transformation of its educational system. In the literature, it is emphasized how important technology is to reducing educational gaps and promoting inclusive learning settings. Notably, digital tools have made remote education more popular as a way to increase educational access.

Initiatives for digital learning have a favorable effect on educational access and standards. According to research, technology-enabled remote learning can bridge the urban-rural divide to reach all regions. These programs also make learning flexible by allowing for a range of requirements and schedules.

However, the success of digital education depends on several factors. Digital infrastructure development is crucial to ensure reliable connectivity. Furthermore, the effective integration of technology into pedagogical practice requires teacher training. The importance of ensuring content quality and aligning with national curricula cannot be overstated.

The significance of the digital learning journey in addressing education challenges is highlighted in Myanmar's literature. The initiative is aligned with the Universal Design for Learning (UDL) framework, which promotes inclusivity. The partnership with international organizations and tech companies is recognized as a strategic move to access expertise and resources..

Theoretical frameworks such as Connectivism (Siemens & Downes, 2005) emphasize the importance of networked learning in the digital age. This aligns with Myanmar's pursuit of a digital learning journey that promotes connectivity and knowledge sharing among students and educators.

Digital education offers a promising solution to these issues by facilitating remote learning, as seen in other countries with similar challenges. (Rumble, 2001).

Empowering education is a key goal of digital transformation in Myanmar. Digital platforms can provide these learners with flexible, self-paced learning opportunities tailored to their needs.

The Universal Design for Learning (UDL) framework (CAST, 2018) emphasizes inclusive and flexible education. In Myanmar, where diverse populations with varying needs must be served, UDL principles can guide the development of accessible and equitable digital learning resources.

In a study by Zheng and Yang (2019), the authors found that access to digital education positively correlates with improved income and employment opportunities. This aligns with Myanmar's goals of using digital education to prepare its workforce for the demands of the 21st century and contribute to economic growth.

While the potential benefits of digital education in Myanmar are clear, there are challenges to address. These include issues related to digital infrastructure, internet connectivity in remote areas, and ensuring that teachers are adequately trained to leverage digital tools effectively (UNESCO, 2019).

Supporting Theories

The following are some key supporting theories to draw upon several relevant educational theories and frameworks to support its arguments and initiatives.

Connectivism, as proposed by George Siemens and Stephen Downes, emphasizes the role of digital networks and technology in learning. In the context of Myanmar's digital learning journey, this theory highlights the importance of fostering connections and networks among learners, teachers, and educational resources through online platforms. It suggests that learning is not confined to traditional classroom settings but can occur in distributed online environments.

The theory of constructivism, associated with educators like Jean Piaget and Lev Vygotsky, posits that learners actively construct their understanding of the world. In the digital learning context, this theory supports the

idea that learners in Myanmar can actively engage with online resources, collaborate with peers, and build their knowledge through hands-on, interactive learning experiences.

Technology Acceptance Model (TAM), developed by Fred Davis, focuses on the factors influencing the adoption of technology. In the context of Myanmar's digital learning journey, this model helps explain how teachers and learners might accept and use digital tools and platforms. Understanding these factors is critical for successful implementation.

Universal Design for Learning (UDL) is an educational framework that advocates for inclusive and flexible learning environments. In the context of Myanmar, UDL supports the development of digital resources that are accessible to learners with diverse needs and abilities, ensuring that education is truly empowering for all.

By integrating these theories and frameworks into the paper, we will provide a solid theoretical foundation for their argument that digital transformation and distance education can empower education in Myanmar. These theories inform the design, implementation, and evaluation of the digital learning journey, aligning it with established principles of effective teaching and learning in the digital age.

The Purpose of Writing

The primary purpose of writing the paper is to shed light on an innovative and transformative educational initiative in Myanmar.

To raise awareness about the critical issues facing Myanmar's education system. By highlighting these challenges, it seeks to draw attention to the urgent need for transformative solutions.

The paper provides a comprehensive description of the initiative. It outlines the key components of the program, including the development of digital infrastructure, internet connectivity expansion, and teacher training. By doing so, it offers insights into the practical aspects of implementing such a transformative educational project.

Another key purpose is to underscore the potential benefits of this digital learning journey. It emphasizes how the initiative can bridge the urban-rural education gap, enhance the quality of education, and promote lifelong learning opportunities for learners. It demonstrates how cooperation can bring expertise, resources, and innovative solutions to propel the initiative forward.

Lastly, the paper offers insights into the potential of digital transformation in education, with a focus on a specific context—Myanmar. It can serve as a valuable resource for researchers, and educators interested in similar initiatives worldwide.

Research Method

In order to comprehensively examine Myanmar's digital learning journey through distance education, this research uses a mixed-method approach.

Participants

This study focused on two main groups: teachers and experts in digital education. Teachers discussed their personal experiences, problems they face, and requirements for successfully utilizing digital tools in their teaching. The experts discussed the current state of technology and the rules in place. Their ideas made it more accessible to show a complete picture of digital learning in Myanmar.

Tools

This study used several kinds of tools to figure out the digital learning process in Myanmar. Firstly, surveys and educational data, including existing records from Myanmar's Ministry of Education, were used to identify the structure of the process. In order to comprehend the actual situation on the ground, focused group discussions with teachers and digital education experts were organized. Finally, in order to gather applicable insights and recommendations for Myanmar, case studies from other effective international digital education programs were formed. This varied strategy made it feasible to conduct an in-depth inquiry.

Data Collection and Data Analysis

The study is structured in two phases:

Quantitative Phase: This phase involves the collection and analysis of quantitative data related to the digital learning initiative's impact on educational access and quality. Surveys and educational data from Myanmar's Ministry of Education are utilized. Statistical analysis techniques, including regression analysis, are applied to identify correlations and trends.

Qualitative Phase: The qualitative phase involves focused groups with teachers and professionals in the field of digital education to collect the data. These are valuable insights into the challenges and opportunities associated with the digital learning journey. Thematic analysis is applied to extract key themes and patterns.

The research also incorporates a comparative analysis of Myanmar's digital learning journey with international best practices. It draws upon case studies of successful digital education initiatives in other countries to derive lessons and recommendations.

Result

The discussion itself is the result of the data that has been interpreted, reviewed, and associated with the theories and references as well. It is also a culmination of data interpretation, review, and alignment with theories and references. Research findings affirm the substantial progress made by Myanmar's digital learning journey in improving educational access and quality.

This initiative has effectively expanded access to education across regions, providing previously excluded students with access to diverse educational resources. Furthermore, the initiative has fostered a digitally literate workforce better equipped for the modern labor market. Efforts to align with the Universal Design for Learning framework have promoted inclusivity. While promising, ongoing challenges such as digital infrastructure and teacher training persist. Continued research and evaluation are essential to refine the initiative, tackle these challenges, and ensure equitable access to the benefits of digital transformation for all learners in Myanmar.

Table 1 Challenges

Source: Thi Thi Khine, Yangon University of Distance Education Research Journal 2021, Vol. 12, No. 1

(Pg 53-61)

Challenges	Most Difficult	More Difficult	Difficult	Total of (More Difficult) and (Difficult)	Easy	Very Easy
Transforming subject materials into e-learning experience	4	13	23	36	14	1
Engaging with less-motivated students	0	14	31	45	10	0
Staying up to date with modern technology	1	42	4	46	8	0
Designing e-learning materials for different learning activities	0	17	31	48	7	0
Total	5	86	89	175	39	1
Average	1.25	21.5 (38%)	22.25 (40%)	43.75 (78%)	9.75 (16%)	0.25
Challenge	Fully Sufficient	More than Enough	Enough		Not Enough	Nothing
Institutional provision	1	1	24		29	0

Table (1) provides the average difficulty rating for these challenges, indicating that respondents, on average, found these challenges moderately difficult. The data highlights the challenges faced in various aspects of e-learning and the perceived difficulty levels associated with each challenge, as reported by the respondents.

Table 2 Opportunities (Workplace Achievement)

Source: Thi Thi Khine, Yangon University of Distance Education Research Journal 2021, Vol. 12, No. 1

(Pg 53-61)

Opportunity 1.1 – 1.5 (Workplace Achievement)	100%	80%	60%	Total of (80%+60 %)	40%	20 – 0 %
Online learning system makes my performance improve.	6	14	30	44	3	2
Online learning system makes learning effective.	3	16	31	47	4	1
Online learning system makes teaching become easier.	2	13	31	44	6	3
Online learning system is useful for teaching.	4	25	22	47	3	1
The online learning system makes me convenient inteaching.	2	15	31	46	4	3
Total	17	83	145	228	20	10
Average	3.4	16.6	29	45.6(82 %)	4	2

Table (2) provides insights into respondents' perceptions of the online learning system's impact on performance, effectiveness, ease of teaching, and convenience.

The data indicates that a significant proportion of respondents (82%) believe that online learning has positively influenced workplace achievement, improving performance, enhancing effectiveness, easing teaching, and providing convenience. This highlights the perceived advantages and potential benefits of online learning for workplace success, suggesting that it plays a valuable role in enhancing professional growth and effectiveness.

Table 3 Opportunities (Capacity Building Online Learning)

Source: Thi Thi Khine, Yangon University of Distance Education Research Journal 2021, Vol. 12, No. 1 (Pg 53-61)

Opportunity 2.1 – 2.5 (Capacity BuildingOnline Learning)	100%	80%	60%	Total of (80%+60%)	40%	20 – 0 %
New application	2	15	30	45	5	3
Create online lesson	2	17	29	46	6	1
Make new video lectures	3	14	27	41	10	1
Share online resources	3	12	25	37	14	1
Track learning progress of my students	2	9	27	36	14	3
Total	12	67	138	205	49	9
Average	2.4	13.4	27.6	41(75%)	9.8	1.8

Table (3) reflects respondents' perceptions of the effectiveness of various online learning activities.

The data suggests that a significant proportion of respondents (75%) find online learning valuable for capacity building. Activities such as using new applications, creating online lessons, producing video lectures, sharing online resources, and tracking students' progress are seen as effective ways to enhance capacity. This highlights the potential of online learning as a tool for building skills and knowledge, underscoring its role in professional development and capacity building.

Discussion

The discussion section delves into the implications of the research findings. It highlights that while Myanmar's journey toward digital learning has showed potential, issues must be resolved to guarantee its long-term success.

The discussion emphasizes the positive impact of interactive digital resources and effective teaching on learning outcomes, potentially elevating educational standards. Ongoing teacher training is crucial for effective technology integration. Maintaining high-quality, curriculum-aligned digital content promotes inclusivity and relevance. The digital transformation not only benefits students but also fosters continuous skill development, aiding Myanmar's workforce and economy. Policymakers should consider these outcomes in shaping educational policies.

Robust data protection is vital for a secure online learning environment. These discussions reveal promising results from Myanmar's Digital Learning Experience while recognizing the importance of addressing challenges for its sustained success.

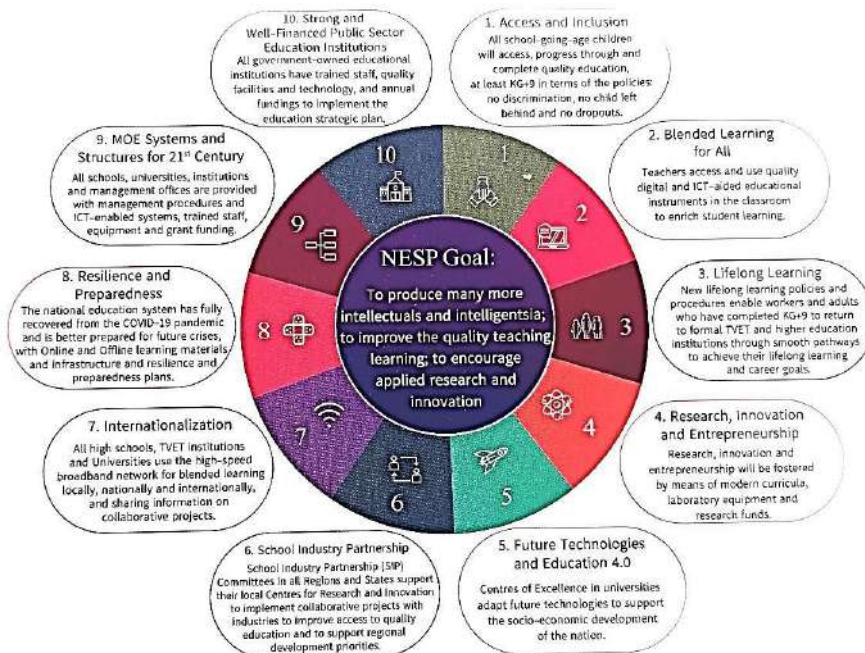
Conclusion

In conclusion, Myanmar's digital learning journey via distance education is a significant step toward addressing educational disparities. Research highlights its potential for improving access, quality, and inclusivity, but challenges in sustainability, access, teacher training, content quality, and cybersecurity persist. Aligned with global education trends, this journey offers promise. Collaboration among stakeholders, including the government, educators, and international partners, is vital to overcome challenges and maximize its impact. The digital learning journey holds the potential to expand educational opportunities, drive socio-economic development, and prepare citizens for a digitally connected future in Myanmar.

Suggestion

For Myanmar's digital learning journey to flourish, sustained investments in digital infrastructure, including expanded internet access and secure platforms, are crucial. Prioritizing comprehensive teacher training is essential to empower educators with digital skills, enabling effective technology integration in teaching. The continuous development of engaging, curriculum-aligned digital content, tailored to diverse learning styles, remains pivotal. Robust monitoring and evaluation ensure effective impact assessment, informing data-driven decisions. Encouraging research and innovation, and fostering collaborations with academic and tech institutions, further advances digital learning. International partnerships expedite transformation by facilitating knowledge and resource sharing.

By addressing these areas comprehensively, Myanmar can enhance the sustainability, effectiveness, and inclusivity of its digital learning journey, ultimately empowering education and contributing to national development in the digital era. These suggestions offer a roadmap for further research and policy development in the field of digital education in Myanmar. For those who would like to continue, it is hoped, this research investigation will be helpful to some extent.



Picture 1. Ten Transformational Shifts

Source: National Education Strategic Plan – NESP (2021-2030)

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