

Research Article

The Effectiveness of Using E-MaFaS in Student Teaching and Learning (PDPC)

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Abstract: The e-MaFaS innovation is the combination of more than 10 applications into one digital gaming platform. The e-MaFaS innovation which is based on digital games is created to provide interesting learning aids, especially for Alpha generation children who are growing up with the speed of technology. This innovation also applies the Theory of Multiple Intelligences in addition to the entertainment and HOTS elements which include STEM elements in the activities carried out. This innovation also provides a link to digital books and notes to make it easier for them to make references. The e-MaFaS innovation is very suitable for application in various elementary school subjects. The use of game characters and a variety of interesting digital elements consisting of colorful and interactive objects can attract students' interest. E-MaFaS innovation also implements STEM elements through the use of IT and information that has been linked through YouTube links, QR Code, Gather Towns, Padlet, eBooks, Educandy, Quiz Whizzer, Wordwall, Genially, Kahoot, Canva, Gamilab, Book Creator, Quizziz, Socrative and others. This innovation is also equipped with enrichment materials and practice questions through the links that have been provided as well as making the e-MaFaS Innovation concept & quote "Killing two birds with one stone". This innovation is complete with materials such as notes, practice questions, mind tests and interesting information as a reference which is very suitable for application in all elementary schools.

Keywords: Digital Games; KBAT Elements; Alpha Generation; STEM Element.



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1. INTRODUCTION

e-MaFaS is to enhance students' ability to comprehend teaching topics more effectively while fostering their creativity in solving various forms of reinforcement exercises provided in the digital game. Innovation e-MaFaS also aims to pique students' interest in exploring diverse digital gaming materials. This innovation can assist teachers in utilizing suitable teaching aids that are interactive and cater to students' levels, thereby facilitating the teaching process by providing additional information,

practice questions, and a variety of enrichment activities in one platform. Another objective of developing Innovation e-MaFaS is to provide various forms of relevant and high-quality reinforcement exercises in line with 21st-century learning. The development of Innovation e-MaFaS can also enhance teachers' and students' ICT skills and diversify teachers' teaching aids in easily manageable and accessible digital formats.

2. IMPORTANCE OF THE PROJECT

A survey was conducted on students from several primary schools, including Sekolah Kebangsaan Charok Kudong in Kedah, SK Lubok Kawah in Besut, Terengganu, and SJKC Yuk Tze in Tumpat, Kelantan. The survey found that Level One students face difficulties in effectively understanding teaching topics in the Malay language subject. These students fall under the average and weak proficiency levels. Even after providing reinforcement exercises following the lessons, the students were unable to answer all the questions correctly. They also repeated the same mistakes when attempting reinforcement exercises, despite being given low-level questions.

These difficulties became more challenging for teachers when the country was hit by the Covid-19 pandemic in early 2019. Teachers faced problems in providing more effective materials to students during online Teaching and Learning Activities (PdPr). Parents were also affected as they were unable to access suitable reinforcement exercises for their children's proficiency levels due to the Movement Control Order (MCO), which aimed to encourage and motivate their children to continue learning enthusiastically and joyfully at home. Most of the digital materials available online were also challenging for both teachers and students to handle if they did not have adequate technological knowledge. Therefore, e-MaFaS was created to assist teachers in providing effective teaching aids and to stimulate students' interest during teaching and learning sessions, whether in school or at home.

3. UNIQUENESS OF THE PROJECT

One of the innovations in e-MaFaS is the use of a digital game approach that includes digital reinforcement exercises and digital reading materials to address students' learning difficulties during PdPr. Furthermore, a notable improvement in this innovation is that e-MaFaS can be used during and after classroom learning. For example, teachers can distribute game links to parents via applications like WhatsApp and Telegram as additional exercises for students. Additionally, by utilizing colorful graphics and characters, e-MaFaS undoubtedly stimulates the memory and interest of students in learning. Moreover, e-MaFaS is very user-friendly. It can be accessed anywhere, whether on laptops, smartphones, computers, tablets, and so on.



Figure 1. MaFaS interface 1



Figure 2. MaFaS interface 2



Figure 3. MaFaS interface 3

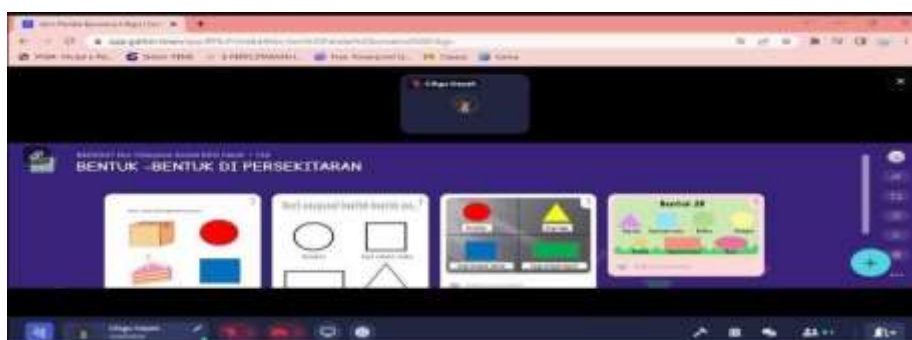


Figure 4. MaFaS interface 4



Figure 5. MaFaS interface 5

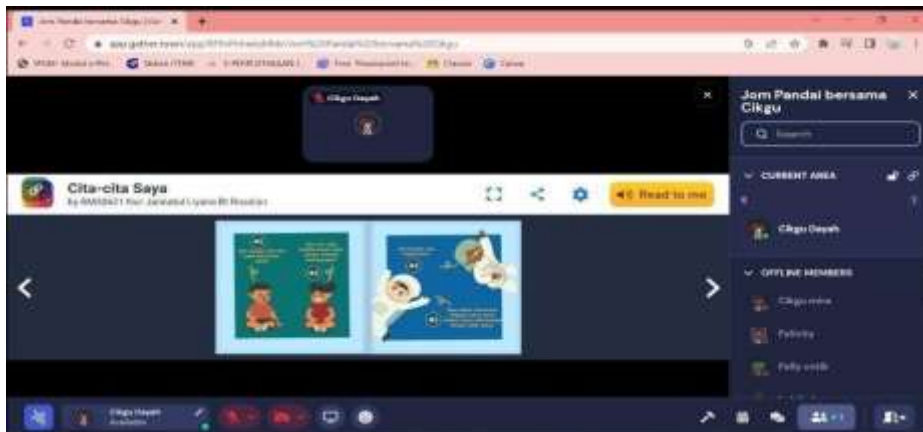


Figure 6. MaFaS interface 6

4. IMPACT OF THE PROJECT

The e-MaFaS Digital Game Innovation is capable of making a significant impact in the field of education in the present time. Digital learning materials are not unfamiliar and have long been introduced in the field of education in Malaysia. Therefore, the development of this e-MaFaS innovation is highly suitable for use in the Alpha generation era as it can capture students' interest in learning. One of the impacts of this innovative product is its ability to provide more flexible time management. This innovation does not require much time for development because all the software is readily available on computers and only requires some preparations such as questions, game selection, reading materials, and so on. Once the preparation process is complete, virtual sharing can be done through social media platforms like WhatsApp, Instagram, and Telegram. The impact on users is the ease of accessing and obtaining information, as well as engaging in various activities such as reading, playing games, storytelling, and more, all within one application. Therefore, users can enrich their leisure time by gaining knowledge through the use of this e-MaFaS innovation. Another impact is cost savings. This is because the development of the e-MaFaS innovation does not require any printing costs. Instead, it can be uploaded to the e-Game Gather Town application and shared with students and teachers using the provided links. Additionally, the Google Form platform is used to distribute worksheets to students during the teaching and learning process (PdPr).

At the same time, the e-MaFaS innovation has a significant impact because it is user-friendly. This is due to the widespread use of smartphones and portable computers, which make the Gather Town application easily accessible at one's fingertips, regardless of location. Furthermore, this innovation is considered user-friendly as it is suitable for and can cross curricula. Subjects such as Science are suitable for using this digital game application as it contains STEM elements. As a result, each representation of the subject becomes clearer and more realistic. Lastly, the impact of the e-MaFaS innovation on improving learning productivity lies in its creative approach to diversify the learning process, thus avoiding boredom. In terms of the impact of the e-MaFaS innovation's development, it provides an engaging exploration of language skills through various activities such as games, reading, drills, and more. As for the impact on users, they can interact with peers and engage in various activities with flexible time usage. This is possible as users can access the e-MaFaS innovation through computers, smartphones, and other devices. Users can communicate and participate in provided activities with their peers, and there are quizzes available to assess students' mastery. Therefore, the e-MaFaS innovation can help enhance learning productivity by providing interesting materials and activities with easily understandable information for users.



Figure 7. User: Nur Jannatul Husna Bt Roslan (Sekolah Kebangsaan Charok Kudong, Pendang, Kedah)



Figure 8. User: Priskila Juhanis ((SK St Saint Francis Xavier, Keningau, Sabah)



Figure 9. User: Pupils of SK Bukit Puteri, Jerteh, Terengganu.

5.0 COMMERCIALIZATION POTENTIAL & CONCLUSION



This e-mafas digital game innovation product has been produced online to make this game easier to spread and easier for anyone who wants to use it along with technological developments. The purpose of this commercial innovation is to disseminate and share knowledge with all teachers throughout Malaysia to help attract the interest of their students who experience problems in learning. Therefore, the expansion of this product has been carried out by disseminating it through alumni from IPG Sultan Mizan Campus students themselves to their students in their respective schools. These teachers have used and tested the effectiveness of this innovation in their teaching and learning (PdPr) processes in schools. As a result, they gave a very positive response because the students were very interested and excited about this new and more fun learning method.

Furthermore, this e-mafas innovation is very easy to commercialize via social media platforms considering it is a digital game online. Among the platforms that have been used to spread this innovation are WhatsApp, Facebook, Telegram, YouTube, Instagram via links or the distribution of the QR code that has been provided on the innovation poster. The use of this QR code has made it easier for anyone to access this game more quickly and easily without the need to type one web page at a time to use it. Not only that, the Google Sites platform has also been used for the purpose of commercializing the use of this innovation by explaining the benefits and effectiveness of learning the results of using this e-mafas innovation. Therefore, users will be more confident and interested in applying it to their students at school. Therefore, it is clear that this e-mafas innovation is very easy to expand and commercialize to all segments of society.

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