DUMASS: AR-based Learning Media Innovation in Recognizing German Culture, History and Geographical Conditions

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Abstract
The use of technology has been very attached to humans, both from young people, and even the elderly. With the development of existing technology, Augmented Reality (AR) is one of the technologies that are trending and widely used. Augmented Reality itself has many benefits that can be applied to various fields. In the field of education, AR can be applied to be a fun learning media because it attracts attention from the visualization that is generated. In addition, AR is also a solution for users who find it difficult to learn about German statehood and culture. Dumass (Deutsch Macht Spass) is a learning media product combining books and Augmented Reality (AR) technology which contains material about Kulturkunde (culture) and Landeskunde (geographical layout), also in the A1 language level (Niveau A1) which can be used by ordinary learners to get to know German. With the use of AR technology assisted by the QR Code feature, it is hoped that it can provide an overview to readers about the German state in real life. This AR is supported by a QR Code that will realize images or explanations so that they look more real.

Keywords: *Augmented Reality (AR), QR Code, learning media, educational technology*

Introduction

Technology is a collection of tools, rules and procedures that are the application of scientific knowledge to a particular job in a condition that allows for repetition (Castells, 2004). Nowadays, technology is always related to human life. As is currently rife is Augmented Reality (AR) technology. Augmented Reality is a technology that combines 2D or 3D virtual objects into a 3D real environment and then projects these virtual objects in real time (Wolfgang Hohl, 2009). This augmented reality will be an interesting learning media and can increase the passion of the learner if applied to the world of education because they will have a fun and memorable learning experience.

Literacy is the most urgent problem currently offered by the world, especially Indonesian society. Reading is the most basic activity to know the ins and outs of the world. According to an assessment based on the Index of Community Literacy Development (IPLM)

regarding the level of community literacy culture, Indonesia's score in 2022 was 64.48 on a scale of 1-100. This figure is considered still not encouraging and continues to be a very concerning national problem. A solution that can alleviate the problem is to package books to be contemporary and unique. Books based on the latest technology will be the right

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solution to attract people's interest in reading. Therefore, this product will be in the form of a book based on Affixed Reality to be a bombastic renewal to be applied to learning in Indonesia.

The tendency to develop e-learning as one of the learning alternatives in various education and training institutions is increasing. Learning in various education and training institutions is increasing in line with the development of communication and information technology Silahuddin, S. (2015). So this is a great opportunity to create innovative learning media such as collaboration between AR technology and the book itself. In Indonesia, foreign languages are a mandatory field of education. According to Khosiyono (2018) in his article, this aims to develop communication skills both verbally and in writing in all aspects, such as listening, speaking, reading and writing. Apart from that, it is also important to raise awareness about the nature and importance of foreign languages and what is no less important is to develop an understanding of the interrelationship between language and culture and broaden cultural horizons. One of the foreign languages taught in Indonesian educational institutions is German.

At the initial stage of learning German, it is necessary to pronounce words correctly because at that stage there are still some errors in pronunciation. This is supported by the results of research by Arumwangi (2017) in his journal, that one of the factors causing pronunciation errors in German is that it is influenced by the mother tongue or another language that experiences interference. One example of a word that still experiences pronunciation errors is Deutsch. For beginners, usually the word Deutsch, especially "eu", will be pronounced according to the writing which should be pronounced in Indonesian as "oi". So learning pronunciation in German is still very necessary.

When learning foreign languages, especially German, various learning media are needed to support the learning process. Learning media is a tool for conveying messages or information regarding learning objectives (Hasan et al, 2021). The use of varied learning media can help teachers in delivering material. Apart from making it easier to deliver material, media can also be used to attract students' interest in learning and create enjoyable learning conditions.

Media development to support German language skills is being carried out by researchers from various universities in Indonesia. In this case, the author expresses the opinion that Tongue twister or Zungenbrecher can be an effective tool for training fluency and speed in language. Meanwhile, creative and interactive learning approaches need to continue to be developed. Therefore, it is hoped that the creation of learning media using Zungenbrecher cards can provide a more interesting and effective learning experience.

Method

In producing Dumass, the conceptualization is based on the making of teaching materials in the form of German books which are equipped with translations in Indonesian. The goal is that in addition to knowing the geographical location and culture of Germany, students can also add vocabulary that can be memorized. QR codes become an allowance in this textbook so that QR codes are placed in parts that need a more real picture. There are 2 parts of material in the book, in the Landeskunde section the material to be studied is the education system in German states and countries then in Kulturkunde material will be presented the theme Familie und Wohnung. All material will be sourced from trusted literature or legitimate teaching materials to reference book content, the example of the

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source is: "Fakta tentang Jerman" - Frankfurter Societats-Medien GmbH., 2015, "Landeskunde Aktiv" - Muenchen. Bayerlein, Oliver., 2018, "Deutsche Welle".

In making the design, the first step is to create a design with the elements in Canva, then if an image is formed, create a blank page for 1 element in the image, each element contained in the page is downloaded one by one (by removing the background color). Then enter the AR creation stage itself using the Assemblr website/application. Then enter the AR creation stage itself using the Assemblr website or application. With this application, we can directly create the desired design using the elements that have been downloaded earlier, so that it looks embossed, the elements can be stacked with the same elements (can be adjusted up-down, left-right, large-small distance). If so, just download the QR code that has been automatically generated by Assemblr to scan the AR design that was made earlier. And the QR code can be placed in the Dumass book that we have formed. In the final stage, trials and trials were carried out in a class of first or second semester students who were studying Landeskunde/Kultunde related material to find out whether the teaching materials were effective when used in teaching. Canva is really helpful for us to create an AR, while we are not really goood at designing because in Canva App there are a lot of references and inspirations to create a design. That's why we take the benefits from those applications to help us create something for Dumass.

Results

The purpose of this research is that AR is the right tool for learning culture. AR helps in the field of culture greatly helps a person to realize the conditions and layout of the past of a place (Aditama, P. 2023). So that the use of AR can help realize the condition of an area in real terms for teaching materials in learning.

Discussion

As explained in the previous section, this Dumass book has the advantage of embossed images (AR) if scanned using a cellphone. The output form of the product we designed is a book with many pictures and scans at several points. Gen z prefers visual content over written content (Millward Brown, 2017). Visual content is more easily accepted by gen z because it makes them not need to focus on one activity. That is why we prioritize visuals over writing. There is a barcode that people can scan without any application, so this AR has a great flexibility to use. We have already created two ARs that help the people understand what we mean. And also, this book is related for the people who learn German. They can use this book easily, even though they just started to learn German. In that book they also have the vocabulary to add their knowledge of German language. Not only about the language, but also the culture, the wealthy, the unique facts, etc. Here is an overview of this Dumass product.

10.1 overview of the book content

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1.2 scan barcode

1.3 scan barcode

Conclusion

Dumass represents a significant advancement in educational technology, offering an innovative approach to learning about German geography and culture. By seamlessly integrating barcode technology and augmented reality, Dumass provides users with an immersive and interactive learning experience that stimulates curiosity, fosters deeper understanding, and cultivates a lifelong appreciation for the rich heritage of Germany. Through its dynamic features and functionalities, Dumass has the potential to enhance learning outcomes, promote cultural awareness, and increase students' interest in reading and learning. As education continues to evolve, Dumass stands as a testament to the

transformative power of technology in enriching educational practices and inspiring learners.

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