



Technology Acceptance Model (TAM) of Magic Book Augmented Reality by Hippo as a Reading Medium for Junior High School Students in Padang: A Study of Students' Perception

Wiji Kholifah¹, Nora Fudhla²

English Language and Literature Departement, Faculty of Language and Arts, Universitas Negeri Padang

Correspondence Email: wijkholifah12@gmail.com

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Abstract

The language learning process in today's modern era certainly requires technology-based learning media that supports learning. Magic Book Augmented Reality by Hippo is a technology that can be used to support the English learning process. The purpose of this study was to learn about students' perceptions of the use of Magic Book Augmented Reality by Hippo based on the Technology Acceptance Model (TAM), using two indicators; Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). The population of this study was students in the ninth grade at SMP Negeri 20 Padang during the academic year 2023/2024. This study used convenience sampling with a total sample of 30 students. This study was conducted as a descriptive study, and the data were analyzed using a quantitative methodology. Based on the data collected using the questionnaire as an instrument, it is possible to conclude that using Magic Book Augmented Reality by Hippo as a reading medium for learning English based on the Technology Acceptance Model (TAM) resulted in very positive perceptions by the students. Students also had very positive perceptions of the ease of use and usefulness of Magic Book Augmented Reality by Hippo in the context of learning English narrative text.

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INTRODUCTION

Technology is a tool that supports the development of education in Indonesia. Technology has a significant role in education because it is a supporting facility in the educational process. In addition, using technology in the educational process will create a more effective and enjoyable learning atmosphere. The teaching and learning process has been made more enjoyable when using technology (Raja & Nagasubramani, 2018). Prayudi et al. (2021) stated that by teaching with technology,

the teacher has many ways to make classes more fun and effective learning because the learning medium is interesting.

One of the technologies used in education as a medium for learning is AR (Augmented Reality). AR is the ability to integrate computer graphics in the real world (Billinghurst, 2002). Madden defined that AR was a technology that showed graphics through a computer, allowing for real-time interaction with objects and the replacement of objects, providing image or object recognition (Madden, 2011). Augmented Reality learning media is used as a medium that is able to give a more realistic impression of learning because it displays 3D animation.

Students at SMP N 20 Padang have used Augmented Reality as an English learning medium. The Augmented Reality medium used in this school is Magic Book Augmented Reality by Hippo. Magic Book is a 3D Virtual interface that transported users between reality and virtually using a real book (Billinghurst & Poupyrev, 2001). In this case, the magic book that is used in this school is a fairy tale book that has a marker/Hippo code that can be scanned using the Hippo Magic application installed on the smartphone. This media is used by ninth-grade students because narrative text material is learned at this level.

The use of Magic Book Augmented Reality at SMP N 20 Padang has just been implemented recently. Because it is still classified as a new technology that is used in this school, so an analysis of student acceptance of this Magic Book Augmented Reality by Hippo is needed. An analysis is required to ascertain whether the technology is accepted or rejected by students. User acceptance is an important factor in shaping the course of a technology's development (Taherdoost, 2018). Acceptance of technology will have a positive impact on predicting the use of new information resources (Olumide, 2016). Acceptance analysis is also carried out to find out whether a technology provides convenience and benefits in learning activities. Therefore, the success and sustainability of educational technology in the future depend on the analysis of technology acceptance.

In accepting a new technology applied, not everyone is able to easily accept and understand that technology. As with the use of the Magic Book Augmented Reality by Hippo at SMP N 20 Padang, it is not yet known whether all students accept and understand the use of this medium. Even though learning to use Magic Book AR looks easy and fun, assessment of students' level of comprehension and acceptance still remains necessary. To measure technology acceptance and comprehension, the TAM (Technology Acceptance Model) theory is a suitable model to utilize.

Technology Acceptance Model) TAM theory is one of the theoretical models that can be used to explain users' acceptance behaviour. TAM proposed by Davis & Warshaw (1989), has been extensively utilized and subjected to rigorous empirical testing. TAM is considered to be more parsimonious, accurate, and reliable in comparison to other theories (Venkatesh & Davis, 2000). The aim of using this model is to investigate the factors that affect the implementation of technology. TAM has the main purpose to establish a foundation for determining how external factors influence internal convictions. TAM elucidates users' drive through two aspects of belief, their perceived ease of use (PEOU) and perceived-usefulness (PU). These aspects are influence the acceptance behaviour of computers (Davis et al., 1989).

Therefore, when measuring technology acceptance, these two aspects are employed to assess the degree of user acceptance and comprehension.

Based on the Technology Acceptance Model (TAM), this study investigated how ninth-grade students at SMP Negeri 20 Padang perceive the use of Magic Book Augmented Reality as a reading tool for learning English. The focus was on two key aspects: Perceived Ease of Use (PEOU) and Perceived Usefulness (PU), which are used to assess positive and negative perceptions.

METHOD

This study employed descriptive quantitative method because this research needs to collect data from students' perception. This study's population is students in the ninth grade at SMP Negeri 20 Padang in the academic year 2022/2023, which consists of six classes ranging from IX-1 to IX-7. There are 201 students in total.

This research used convenience sampling. Convenience sampling, which is also called Haphazard Sampling or Accidental Sampling, is a method of selecting participants for a study based on their easy accessibility, availability, or willingness to participate, rather than on random selection or probability (Dörnyei, 2007). In this research the researcher chose class IX-1 as a sample in this study with total 30 students.

The researcher used questionnaire as the instrumentation of the research. The close-ended questionnaires in this research modified from (Rahayu et al., 2017). The study used the closed-ended questionnaire consisting of twenty statements. Ten statements regarding students' perceptions on the ease of use in using Magic Book Augmented Reality and ten students' perceptions on the usefulness of using Magic Book Augmented Reality.

This researcher used Likert Scale to obtain questionnaire data from students. To make it simpler for the participants to understand and respond to the questions and to reduce biased opinion, the questions are written Indonesian language. The Likert Scale represents responses to a series of statements based on a four-point agreement scale; 4 (Strongly Agree), 3 (Agree), 2 (Disagree), 1 (Strongly Disagree).

This research instrument used a content validity approach. The questionnaires of this research validated by Ririn Ovilia, M.Pd. as a lecturer in English Department, Language and Art Faculty, Universitas Negeri Padang. In this research, the researcher used SPSS to evaluate the reliability of data using Cronbach's alpha (α) statistical test. In this research, Cronbach's alpha value of the questionnaires is 0.743. It means that the instrument of this research is reliable. So, this instrument is reliable for data collection in this study.

The researcher created a questionnaire in hard copy format and gave it to 30 students in class IX-1. The students spent around 15-20 minutes filling out the questionnaire. Once they completed it, the researcher gathered and studied the responses. The researcher used descriptive analysis techniques to determine the frequencies, percentages, and mean scores of the questionnaire when analyzing the data.

RESULT AND DISCUSSION

Research Finding

This research's findings were presented in tabular format, displaying frequencies and percentages.

Students' Perceptions of the Ease of Use in Using Magic Book Augmented Reality by Hippo

The first indicator, Perceived Ease of Use (PEOU), consists of 10 statements that are further categorized into three sub-indicators. The following table illustrates the ten statements or items within the Perceived Ease of Use (PEOU) indicator, which were used to investigate the degree to which students perceived Magic Book Augmented Reality by Hippo as an easy-to-use reading medium for learning English:

Table 1 - Questionnaire Result of Students' Perception on the Ease of Use in Using Magic Book Augmented Reality by Hippo as a Reading Medium for Learning English Narrative Text

No.	Statements	N (%)				Mean (%)	Category
		SA (4)	A (3)	D (2)	SD (1)		
1.	In my opinion, it's easy to use Magic Book Augmented Reality by Hippo.	11 36.6 %	17 56 %	2 6.6%	0 0.0%	3.30 82.5%	Very Positive
2.	In my opinion, using Magic Book AR by Hippo makes the learning process more flexible in deducing information from narrative texts.	16 53.3 %	12 40%	2 6.6%	0 0.0%	3.47 86.7%	Very Positive
3.	Overall, using Magic Book AR by Hippo has made it very easy for me to read English narrative texts using 3D animation.	12 40%	14 46%	4 13%	0 0.0%	3.27 81.7%	Very Positive
4.	Magic Book AR by Hippo allows me to actively participate in learning to read English narrative texts.	10 33.3 %	19 63.3 %	1 3.3%	0 0.0%	3.30 82.5%	Very Positive
5.	In my opinion, it's easy to understand the instructions for using the Hippo Magic application and the Magic Book Augmented Reality by Hippo.	13 43.3 %	16 53.3 %	1 3.3%	0 0.0%	3.40 85%	Very Positive

6.	In my opinion, it is easier to learn and understand the contents of English narrative texts through Magic Book AR by Hippo.	13 43.3 %	14 46%	3 10%	0 0.0%	3.33 83.3%	Very Positive
7.	In my opinion, the steps for operating the Magic Book AR by Hippo are easy to understand.	13 43.3 %	15 50%	2 6.6%	0 0.0%	3.37 84.2%	Very Positive
8.	The features available on the Magic Book AR by Hippo are well structured, so it is easier for me to operate it.	20 66.6 %	10 33.3 %	0 0.0%	0 0.0%	3.67 91.7%	Very Positive
9.	In my opinion, the process of scanning the Hippo code on the Magic Book to bring up 3D animation is easy to do.	16 53.3 %	12 40%	2 6.6%	0 0.0%	3.47 86.7%	Very Positive
10.	Overall, using Hippo's Magic Book AR in learning to read English narrative texts is very easy for me.	12 40%	12 40%	5 13%	1 3.3%	3.17 79.2%	Positive
Average 1		13.6 45.3 %	14.1 46.8 %	2.2 6.9%	0.1 0.3%	3.37 84.3%	Very Positive

According to the table 1 above, the first factor of the Technology Acceptance Model (TAM) known as Perceived Ease of Use (PEOU) got a very positive score of 3.37. The respondents' answers achieved a percentage of 84.3%, which falls under the very positive classification. This indicates that the students have a highly optimistic view or very positive perception of the ease of use of Magic Book Augmented Reality as a reading medium for learning English.

According to the table, the average score of the students who chose strongly agree on the ease of use of Magic Book Augmented Reality by Hippo as a reading medium for learning English is 13.6 (45.3%) out of a total of 30 students. The average score of students who agreed to use Magic Book Augmented Reality by Hippo as a reading medium for learning English is 14.1 (46.8%). The students who chose disagreed with the ease of use of Magic Book Augmented Reality by Hippo as a reading medium for learning English received an average score of 2.2 (6.9%). Meanwhile, the average score among students who strongly disagree with the ease of use of Magic Book Augmented Reality by Hippo as a reading medium for learning English is just 0.1 (0.3%).

In summary, based on the Technology Acceptance Model (TAM) and the Perceived Ease of Use (PEOU) indicator, it can be inferred that students have a very positive perception of Magic Book Augmented Reality by Hippo as a reading medium for learning English. This implies that students find the tool user-friendly and easy to use for their English learning purposes.

Students' Perceptions of the Usefulness in Using Magic Book Augmented Reality by Hippo

The second TAM indicator is Perceived Usefulness (PU), which measures how much a user perceives Magic Book Augmented Reality by Hippo. The ten statements or items in this indicator, as shown in the table below, answered research questions about students' perceptions of the usefulness of using Magic Book Augmented Reality as a reading medium for learning English.

Table 2 - Questionnaire Result of Students' Perception on the Usefulness in Using Magic Book Augmented Reality by Hippo as a Reading Medium for Learning English Narrative Text

No.	Statements	N (%)				Mean (%)	Category
		SA (4)	A (3)	D (2)	SD (1)		
11.	Using Magic Book AR by Hippo helps me understand English fairy tales more quickly.	15 50%	15 50%	0 0.0%	0 0.0%	3.50 87.5%	Very Positive
12.	Using Magic Book AR by Hippo increases the effectiveness of my studies.	13 43.3%	15 50%	2 6.6%	0 0.0%	3.37 84.2%	Very Positive
13.	Magic Book AR by Hippo provides lots of authentic fairy tales for learning English.	16 53.3%	14 46%	0 0.0%	0 0.0%	3.53 88.3%	Very Positive
14.	Using Magic Book AR by Hippo in learning to read English texts feels more efficient.	11 36.6%	14 46%	4 13.3%	1 3.3%	3.17 79.2%	Positive
15.	Using Magic Book AR by Hippo makes it easier for me to do assignments about English narrative texts.	14 46%	13 43.3%	3 10%	0 0.0%	3.37 84.2%	Very Positive
16.	Overall using Magic Book AR by Hippo is very beneficial for me.	12 40%	14 46%	3 10%	0 0.0%	3.23 80.8%	Very Positive
17.	Using Magic Book AR by Hippo helps me to improve my study performance.	12 40%	15 50%	3 10%	0 0.0%	3.3 80.5%	Very Positive
18.	Using Magic Book AR by Hippo increases my productivity in studying.	13 43.3%	14 46%	3 10%	0 0.0%	3.33 83.3%	Very Positive

19.	Magic Book AR by Hippo makes learning English relaxed and less stress	23 76.6 %	7 23.3 %	0 0.0%	0 0.0%	3.77 94.2%	Very Positive
20.	Magic Book AR by Hippo supports me in improving my English text-reading skills.	15 50%	12 40%	3 10%	0 0.0%	3.40 85%	Very Positive
Average 1		14.4 47.9 %	13.3 44.6 %	2.1 6.9%	0.2 0.7%	3.40 84.9%	Very Positive

Based on the information presented in table 7, the second measurement of the Technology Acceptance Model (TAM), which assesses how useful the Augmented Reality Magic Book by Hippo is or the perceived usefulness (PU) of the Augmented Reality Magic Book by Hippo as a reading medium for learning English, shows a score of 3, 40 (84.9%) which means that the acceptance of the participants was very positive. This value and percentage prove that the respondents, in this case, students of class IX.1, received the Magic Book Augmented Reality by Hippo very positively and they felt that this media was very useful in supporting their English learning process.

The data presented in the table shows that out of the 30 students surveyed, 14.4 (47.9%) of them “strongly agreed” with the usefulness of using Magic Book Augmented Reality by Hippo. The average score for students who selected “agree” with regard to the usefulness of Magic Book Augmented Reality by Hippo is 13.3, representing 44.6% of the total respondents. Then, based on the table provided, students who “disagreed” with the idea of using Magic Book Augmented Reality by Hippo as a reading medium for learning English had an average score of 2.1, which represents only 6.9% of the total respondents. The table data indicates that only a very small percentage (0.7%) of the total respondents “strongly disagreed” with the usefulness of Magic Book Augmented Reality by Hippo for learning English, as evidenced by their low average score of 0.2.

Based on the data provided in the table, it can be inferred that the students surveyed have a very positive perception of using Hippo's Magic Book Augmented Reality as a reading medium for learning English, as indicated by the Perceive Usefulness (PU) measure of the Technology Acceptance Model (TAM). This suggests that the students find Magic Book Augmented Reality by Hippo to be useful for learning English.

Discussion

Based on the data presented in this study indicates that students have very positive perceptions regarding the ease of use using Magic Book Augmented Reality by Hippo for learning English, in line with the principles of the Technology Acceptance Model (TAM). Furthermore, the study also shows that students also have very positive perceptions regarding the usefulness of Magic Book Augmented

Reality by Hippo for learning English, in accordance with the Technology Acceptance Model (TAM).

The questionnaire results provide various reasons to support why students have very positive perceptions towards utilizing Magic Book Augmented Reality by Hippo for learning English. First, the students have positive perceptions of using Magic Book Augmented Reality by Hippo because they perceive the ease of use in accessing this medium for learning English. They easily use Magic Book Augmented Reality by Hippo for learning English because it is a medium that has flexibility in helping the students to learn English narrative text. This finding is also in line with the statement by Martínez et al. (2014), that the platform using Augmented Reality technology has already demonstrated its flexibility in the educational field. Magic Book Augmented Reality is also easy to learn and understand how to use it as a medium for reading narrative texts in English.

Another reason that supports students' very positive perceptions of utilizing Magic Book Augmented Reality by Hippo for learning English is their perception of its usefulness in the accessibility of this medium. Their very positive perception of Magic Book Augmented Reality by Hippo is based on its effectiveness and efficiency in helping students in learning English, particularly in reading narrative texts. Furthermore, Magic Book Augmented Reality helps the students enhance their performance in learning English. This finding is consistent with the statement made by Wedyan et al. (2022), that using Augmented Reality in learning language can improve students' reading comprehension and promote students' vocabulary items. The students' very positive perceptions of utilizing Magic Book Augmented Reality by Hippo for learning English can be attributed to their satisfaction with the medium, which is influenced by their knowledge and experience with it. This finding is in line with the statement Hariyati (2020), that the occurrence of positive perceptions is when an individual positively evaluates or interprets an object, in this case, Magic Book Augmented Reality by Hippo accordance with their expectations.

The results of this research are related to the study conducted by Sadikin & Martyani (2020), where it was found that students preferred utilizing Augmented Reality technology as it aided them in enhancing their creativity and exploration skills. Additionally, the study conducted by Su et al. (2022) demonstrated that AR-based English learning was perceived as highly advantageous by students, and the ease of operation of the system, as well as the motivation to compete with peers in class, served as a significant motivator to enhance their performance. It can be seen that using Augmented Reality in learning a language has a good impact. Based on the finding of this study, it is evident that utilizing Magic Book Augmented Reality by Hippo for English language learning is highly advantageous for students. As a result, students have very positive perceptions of this medium.

After knowing the perceptions of the students on the use of Magic Book Augmented Reality by Hippo for learning English based on the Technology Acceptance Model (TAM), it can be used as an evaluation or reference by the English teachers to improve their teaching performance. As stated in a study by Chartian & Efendi (2019), that students' perceptions of their teacher's teaching skills had a significant and positive impact on students level of interest in learning. Upon reviewing the outcomes of this study and comprehending the students' perspectives

on using Magic Book Augmented Reality by Hippo as a reading medium for English language learning, including their perceived ease of use and usefulness, teachers can reflect on what aspects of the learning process and material delivery require modification or enhancement.

CONCLUSION

Based on the result of this study, it can be inferred that Magic Book Augmented Reality by Hippo is a medium for learning English narrative text that is interesting and easily accepted by students. Students have very positive perception on the use of Magic Book Augmented Reality by Hippo as a reading medium for learning English. This is a medium that ease to use and useful for them when learning English. They can use it to help them more quickly understand a core story from a fairy tale. This media is also an alternative teaching medium that attracts students' interest in learning English narrative text.

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