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DEVELOPMENT OF MUARA TAKUS TEMPLE AUGMENTED REALITY AS A HISTORY LEARNING MEDIA TO IMPROVE READING SKILLS IN HISTORICAL SOURCES

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Abstract. This research aims to develop learning media based on Augmented Reality (AR) which helps students improve their reading skills in historical sources. This research uses the 4D research and development (R&D) method which consists of four stages, namely define, design, develop and disseminate. The sample of research subjects consisted of 3 material, media and language validator experts, 2 teachers, 60 and 120 class X students who assessed the practicality and effectiveness of the product being developed. Data was collected through expert validation, interviews with teachers, teacher and student response tests, and tests on students. while the N-Gain test is to evaluate media effectiveness. Expert validation results show that the criteria are very valid with an average score of 3.78. The teacher and student response test showed an average score of 3.90, which shows that AR media is practically used for learning history. The N-Gain Test score of 75% shows that students' ability to read historical sources is increasing. Therefore, using AR to develop historical source reading skills is feasible, practical, and useful

Keywords**:** History Learning; Augmented Reality; Skills In Reading Historical Sources

I. INTRODUCTION

The skill of understanding and interpreting historical sources is a core element in historical thinking that cannot be ignored. This ability is focused on a person's ability to understand, analyze and construct meaning from the information contained in historical documents (Abbas et al., 2022; Scheufele & Krause, 2019). Previous studies have confirmed that the ability to read historical sources has an important role in shaping a person's understanding of history (Bagnall, 2020; Dobson & Ziemann, 2020; Wiley et al., 2020). This is due to the fact that past events can only be revealed and understood through evidence that has been handed down by history (Byrskog, 2022; Isnaniah et al., 2023; Tuminah et al., 2022). In other words, history cannot only be understood through narrative or rhetoric alone. A deep understanding of history requires the ability to explore and interpret various types of existing historical evidence, including written documents, images, oral recordings, and physical items such as artifacts (Nokes, 2022; Reichard, 2012). Downey & Long (2016) highlight the importance of having a strong, conceptual and meaningful understanding of the past. This allows individuals to critically assess and relate existing evidence so as to construct a richer and more in-depth historical narrative. In practice, developing historical source reading skills requires hard work and constant exploration (Brevik, 2019; Elleman & Oslund, 2019). This involves utilizing diverse types of sources, such as historical texts, visual documents, oral records, and physical artifacts to enrich understanding of a particular historical period (Nokes, 2022; State Government of Victoria, 2019; Wijaya et al., 2023). Thus, understanding historical sources is an important foundation in building a more complete and insightful historical understanding.

The activity of reading historical sources offers a very diverse range of exploration methods, including the use of modern technology which continues to develop rapidly (Levstik & Barton, 2022). In this digital era, it is easy to access various types of historical sources, such as videos, animations, images, photos, audio and relevant historical materials. Technology has enabled historians and historical researchers to immerse themselves in history in a more interactive and immersive way (Garcia, 2020; Kansteiner, 2022; Romano & Hedley, 2021). Not only that, teachers and students also benefit greatly from easy access to historical

sources as reading material. This activity allows teachers and students to directly interact with the historical sources found, providing a very positive impact on their historical understanding, especially in source reading skills. Through diverse historical sources, learning becomes more dynamic and engaging (Bartelds et al., 2020; Kautsar et al., 2023; Vetter et al., 2019). The diversity of historical sources found also plays a role in enriching students' reading materials, which helps them understand, analyze and assemble historical narratives more deeply and accurately. In this way, the activity of reading historical sources becomes a window that opens a broader and deeper view of past events, helping to better reflect on and understand historical legacies (Hussain & Riede, 2020; Soden et al., 2021; Tennent et al., 2020).

Reading historical sources is a crucial skill in history education that enables students to access, interpret, and evaluate information from the past. According to Dobson and Ziemann (2020), the ability to critically read and understand historical sources is foundational for effective historical thinking. However, students often encounter challenges when engaging with these complex sources, which may include difficulties in interpreting archaic language and identifying biases or perspectives within the documents. This highlights the need for innovative and interactive learning approaches to enhance historical source reading skills among learners.

In this context, Augmented Reality (AR) technology has shown significant potential in enhancing learning experiences, particularly in history education. Research by Garcia (2020) demonstrates that AR can enrich history learning by providing interactive simulations of historical events or artifacts, allowing students to explore historical content in a more immersive and engaging manner. Additionally, a study by Lee and Hsu (2021) found that the use of AR in education can increase student motivation and engagement, as well as reduce cognitive load, enabling them to focus more fully on developing their conceptual understanding. Thus, integrating AR into the learning of historical sources offers a novel way to facilitate more effective and enjoyable history reading skills for students.

In reality, the sources contained on the internet are still limited, where not all aspects of history are documented or can be accessed completely. Some historical events, especially local history, are not recorded or even have no trace in cyberspace. The information provided in digital focuses on events that are popular or widely known. In addition, digital historical sources are often controlled by certain parties. This results in bias in the selection, interpretation, or presentation of certain historical information, so that the historical narrative becomes more distorted or limited. In addition, a lack of understanding by teachers and students about how to sort out correct and valid historical information can result in the dissemination of inaccurate and invalid information. Students have difficulty practicing their skills in reading historical sources because sources relevant to certain historical events are not available on the internet. They may face obstacles in practicing their skills in reading historical evidence. Based on the results of interviews, teachers have not made optimal use of historical sources other than textbooks available at school for student reading material.

Based on the problems above, researchers are trying to provide innovative solutions to teachers and students by developing local history learning media based on Augmented Reality (AR). Augmented Reality (AR) is a technology that combines the real world with virtual world elements through special applications, so that two-dimensional or three-dimensional objects can be projected into the real environment simultaneously (P. P. Putra & Fitrisia, 2023; Sulistianingsih, 2022; Uliontang et al., 2020). This approach aims to overcome the challenges faced in teaching history, especially in the context of local historical sources which may be less available on the internet. AR has great potential to strengthen students' understanding in the history learning process. This technology is able to provide an interesting entertainment element for students, which can increase their interest in understanding and studying history (Fikri & Hastuti, 2022). By utilizing AR, learning media can create a more interactive experience and present historical information in a more interesting and memorable way. Apart from that, AR-based learning media has also been proven to increase learning effectiveness. This results in an increase in students' self-efficacy, namely their confidence in their ability to understand and master historical material. AR technology is also able to reduce students' cognitive load, allowing them to focus on understanding historical concepts rather than simply remembering data or facts (Lee & Hsu, 2021). Implementing learning using AR-based media helps students reconstruct skills and knowledge and connect them to a more concrete historical context. With AR, students can “see” historical events, access historical sources, and explore historical content in a more vivid format. AR also allows the display of various types of media, such as videos, images, photos and text, which can be accessed via various devices such as laptops, computers and smartphones.

Several studies related to the use of Augmented Reality (AR) as a history learning media have focused on developing students' historical skills, such as research conducted by Iqliya & Kustijono (2019) which explored the effectiveness of Augmented Reality Media in training students' critical thinking skills. Augmented reality media is effective in improving students' critical thinking skills. Likewise, research by Rahmawati et al. (2023) concerning the Development of Android Augmented Reality Smart Card (Aa) Media to Improve Creative Thinking Skills and Social Studies Learning Outcomes of Students in Elementary Schools shows that AR media can be considered feasible and useful for improving creative thinking skills and student learning outcomes. Apart from that, research by Rahmayani & Hastuti (2023) which explored the use of Augmented Reality as a history learning medium at UNP Laboratory Development High School showed results that AR media helped students meet their learning needs, aroused interest in learning, and helped develop students' chronological abilities. However, the research that has been conducted has not specifically explored improving historical source reading skills using AR. Therefore, research into the development of Augmented Reality (AR)-based learning media to improve skills in reading historical

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sources is an important step that needs to be taken to complement previous research and answer existing needs in the context of history learning.

II. METHODS

This research uses the 4D development (R&D) method. This research stage consists of four stages, namely define, design, develop, and disseminate.

At the define stage, identification and analysis of the local history learning process in schools, learning media used by teachers in the learning process, and analysis of the curriculum applicable in schools are carried out. Data collection techniques at this initial stage were carried out through interviews and observations. The results at this stage become the basis for creating media designs. The second stage of design, namely creating a media design which includes determining the media content that will be developed in accordance with the objectives and basic competencies to be achieved. Apart from that, also pay attention to available local historical sources. The third stage, namely develop by conducting media trials. Media trials include expert assessments and product trials on small groups. The expert assessment consists of material experts, media experts and language experts. Three experts were involved in each field to find out whether the media being developed was valid or not. Assessors and input from experts are considerations for researchers in improving the media to make it more perfect. Furthermore, product trials in small groups were carried out on 2 high school history teachers in Pekanbaru City, and 60 students to assess the practicality of the media being developed. Assuming that if the resulting media is practical and useful, the product can be disseminated to a wider group. However, if the media developed is not practical and useful, the revision process is carried out based on input from teachers and students. Media validity criteria follow the following table.

TABLE 1
Validity Criteria for Media Development

No	Intervals	Categories
1.	> 3.25 to 4.0	Very valid
2.	> 2.25 to 3.25	Valid
3.	> 1.75s/d2.25	Less valid
4.	1.0 to 1.75	Not valid

At the disseminate stage, the product is implemented because it is approved by many respondents. The aim is to assess how effective the media is in developing historical source reading skills.

We selected tenth-grade students as research subjects based on curriculum relevance and their skill level. The selection was made using random sampling techniques to avoid bias, with 60 students for the initial trials and 120 for broader evaluations. This explanation provides a clear depiction of an accurate representation of the target population and the validity of the research.

Data collection was conducted using various validation instruments, including specially designed questionnaires and checklists. These instruments were pre-validated to ensure their reliability. The teacher and student response tests were designed to assess how the AR media was evaluated in the context of actual learning practices, focusing on effectiveness and user reception.

The media influence test was carried out through a t test with an independent sample t-test and to find out how much the media contributed to skills in reading historical sources using the N-Gain test. The test assumption is that if the N-Gain score is at medium or high criteria, then the media developed is considered effective in improving skills in reading historical sources. conversely, if the score is at low criteria, it can be concluded that the media developed is not effective in improving these skills. The N-Gain criteria used to determine the impact of AR learning media on historical source reading skills can be seen in the following table.

Table 2
N-Gain Score Criteria

Intervals	Criteria
$g \geq 0.7$	High
$0.3 \leq g \geq 0.7$	Middle
$g < 0.3$	Low

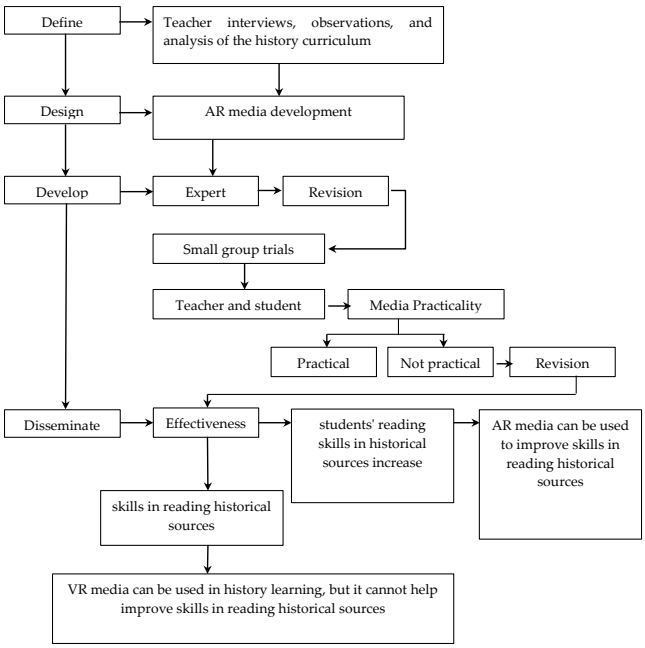

Fig 1. AR Media Development Stages

Proportional sampling technique was used in this research and the sample size was adjusted to the research objectives. To show the impact of the research effectively, a sufficient sample is needed, a sample that is too small may not reveal the impact of the research, while a sample that is too large may increase the expenditure and time required to carry out the research (Barker et al., 2016). The sample for this research was class X high school students from favorite and non-favorite schools in Pekanbaru City, Riau Province.

Learning media, such as PowerPoint, is used in control classes. Meanwhile, in the experimental class, students will be taught using Augmented Reality (AR) media. The historical source reading skill test was carried out twice as a pretest and

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posttest. The pretest aims to determine students' initial abilities before receiving treatment. The posttest was carried out after the experimental class was handled using AR media. The pretest and posttest test plans can be seen in the following table.

TABLE 3
Pre-Test and Post-Test Design

Group	Pretest	Process	Posttest
Controls	**Skills in reading historical sources**	The teacher uses Powerpoint in the learning process.	**Skills in reading historical sources**
Experiment	**Skills in reading historical sources**	The teacher uses AR media.	**Skills in reading historical sources**

The historical source reading ability test consists of 3 essay questions which cover various indicators of historical source reading skills, namely 1) the ability to identify historical sources; 2) ability to understand historical context; and 3) the ability to interpret data from historical sources.

To determine whether the items used to assess students' historical source reading skills are valid and reliable, a validity and reliability test of the instrument was carried out as shown in the following table.

TABLE 4.
Validity Results of Question Items

No	Items of historical practical skills	Sig value. (2-tailed)
1.	ability to identify historical sources	0.700
2.	ability to understand historical context	0.680
3.	ability to compare and relate various historical sources	0.701

Based on table 4, it can be seen that the three questions have a significance value greater than 0.05, which shows that these three questions can be used as instruments to assess the ability to read historical sources.

TABLE 5
Reliability Test Results of Question Items

Cronbach's Alpha	N of Items
0.795	60

Based on table 5, it shows that the results of the reliability test on the questions show a Cronbach Alpha value of 0.795 > 0.05. The results of this research can be concluded that these questions can be used to assess students' historical source reading skills.

This research uses qualitative and quantitative data analysis methods. Qualitative analysis is used to evaluate learning media in depth by paying attention to certain aspects. This research examines media design, content, results from open questionnaires given to experts, as well as results from media effectiveness tests. Qualitative analysis provides deeper insight into how the media was received and responded to by the experts and students involved in this research. Meanwhile, quantitative analysis used the Independent Sample T-Test using SPSS version 25.0 software. This approach aims to statistically evaluate the influence of using AR media on the development of historical source reading skills. In other words, this research tries to objectively measure whether the use of VR media has a significant impact on improving students' practical history skills. This combined approach between qualitative and quantitative analysis provides a comprehensive framework for describing the influence of AR media in the context of history learning.

III. RESULT

A. Define Stage

1) *Interview with teacher*

History teachers were interviewed about the media used in history teaching. The following are the results of the history teacher's statement regarding the media he usually uses.

> *"I often use various types of media in my teaching, such as PowerPoint, videos and images. I often use PowerPoint slides to convey important concepts and illustrate material with pictures, graphs, and diagrams. Sometimes, I use videos that are relevant to the topic being taught."*

Based on the results of the interviews that have been conducted, it can be concluded that the teacher has used learning media in accordance with the topic being taught. The learning media that teachers often use are PowerPoint, pictures and videos.

Furthermore, the researcher then asked whether learning media motivated students to engage in active learning. The teacher answered as follows.

> *"I have tried various types of media in my teaching, such as PowerPoint, videos and images. However, I feel that students' reactions to these media are not as optimal as I expected. Students sometimes seem less interested and tend to be passive. Sometimes, when I ask students questions or ask them to participate in discussions, the response is less active. They may prefer to sit quietly and just observe what is on the screen or the PowerPoint slides."*

Based on the results of these interviews, it can be concluded that the media used in teaching have not been fully successful in increasing students' interest and activating them to participate, including asking and answering questions. The lack of student involvement in the learning process is due to teachers not trying to use other or varied media.

Teachers were asked about students' historical source reading skills. The following is the teacher's answer.

> *"In my teaching experience, I have seen that the reading skills of students in my class are still less than what I expected. I often see that most students read at a very slow speed. For example, when they are asked to read a text that should be completed in time In certain cases, they often take longer to*

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complete them. Students also face difficulties in understanding the texts they read. They often have difficulty in assembling the information found in the text so that they can understand the overall context. In addition, students also have difficulties in identifying information. important things in the text. They tend to get lost in small details and cannot get the gist of what they read."

Students' inability to read historical sources is caused by several factors, including a lack of reading material or material that is appropriate and interesting for students. Sometimes, the historical material presented may be too complicated or not suit students' interests, making them lose motivation to read it. Apart from that, another factor that plays a role in student incompetence is the media presented by the teacher. The media used in teaching history is often not intended to help students develop skills in reading historical sources. For example, if a teacher only relies on PowerPoint slides containing long text without specific guidance or strategies for reading and understanding historical sources, students may find it difficult to interpret the existing information. The lack of an approach that supports critical reading and understanding of historical sources can make students feel confused and less motivated to learn more deeply. Therefore, learning media is needed that triggers skills in reading historical sources.

2) *Curriculum Analysis*

In developing Augmented Reality-based history learning media to improve skills in reading historical sources, researchers need to conduct an analysis of the high school history curriculum in education in Indonesia.

Learning Outcomes (CP)	Subject matter	Learning objectives
Students are able to use primary or secondary sources to conduct local historical research that has a common thread with Indonesianness either directly or indirectly, diachronically and/or synchronously and then communicate it in oral, written and/or other media. Apart from that, they are also able to use various historical skills to explain historical events and interpret the values contained therein.	Hindu Buddhist Period: Muara Takus Temple, Heritage of the Sriwijaya Kingdom	Students learn by using AR to develop skills: • identify the types of historical sources used in the learning context, such as inscriptions, artifacts, maps, or images related to Muara Takus Temple. • carry out visual analysis of historical sources, such as identifying elements in images or artifacts, observing important details, and describing the physical characteristics of Muara Takus Temple. • connecting the information they obtained from various historical sources, such as inscriptions, research reports, and archaeological data, to gain a more complete understanding of Muara Takus Temple and its history.

Fig 2. Curriculum Analysis

Based on the learning outcomes above, the local history material used in this research is about the heritage of the Sriwijaya Kingdom, namely the Muara Takus Temple which is located in Riau Province. This material was chosen because it is relevant to learning outcomes that emphasize local history. Apart from that, the use of Muara Takus Temple as local history material also gives students the opportunity to absorb the historical and cultural values contained therein. They can understand the importance of preserving cultural heritage and the importance of preserving historical sites. This material was chosen because it is very suitable for developing skills in reading historical sources. Muara Takus Temple is a valuable primary source in understanding local and national history, so students can practice reading, analyzing and interpreting authentic historical sources.

B. Design Stage

To produce Augmented Reality (AR)-based learning media that is valid, reliable and practical, it is necessary to prepare a media design consisting of selecting the material to be developed, and compiling a media list. The material developed is related to local history of Riau. The selection of materials is based on three principles for developing teaching materials, namely relevance, consistency and adequacy. The material developed should be relevant to the competencies to be developed. Several competency indicators to be developed must be reflected in the learning material, and the material developed is sufficient to increase student potential in accordance with the goals to be achieved.

Based on the criteria above, the local history media framework based on Augmented Reality (AR_) to improve skills in reading historical sources is presented in the following table.

TABLE 6
AR Media Framework

History learning objectives	Competencies to be developed	Indicator	Material
Develop historical thinking skills	Skills in reading historical sources	identify historical sources understand the historical context compare and relate various historical sources	Muara Takus Temple

Based on table 6 above, Muara Takus Temple was chosen as the material that will be developed in Augmented Reality learning media. The determination of material is based on the completeness of the sources available at the Muara Takus Temple complex, both written sources and object sources so that it is very relevant and consistent with the competencies being developed.

Below is a draft of local history learning media based on Augmented Reality (AR).

TABLE 7
Results of AR Media Development

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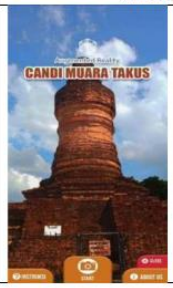
No.	AR section	Information
1.		AR initial view
2.		Instructions for using AR
		AR Description
		AR View
		Material

C. Develop Stage

1) Expert Validity Test

The validity test was carried out to find out whether the media developed improved skills in reading historical sources. This validity test involves material experts, media experts and language experts. A material expert has a background in historical education, a media expert has a background in learning media development, and a linguist is a lecturer with a background in language education or language literature. Expert participation is very valuable in providing assessments and input on the media that has been developed. The results of this validation will be an important basis for the revision process. The expert validation results are presented in the following table.

TABLE 8
Expert Validity Test Results

Aspect	Score	Information
Material	3.75	Very Valid
Media	3.80	Very Valid
Language	3.79	Very Valid
Average	3.78	Very Valid

Based on the table above, it is known that all aspects of media indicators have very high values in the valid category. The average score shows a very valid category with the number 3.77. So, based on the results above, it can be concluded that the Augmented Reality media developed is valid for use as a local history learning media in improving skills in reading historical sources.

2) Practicality Test

The practicality test was carried out to find out whether the media developed was practical to use in the history learning process. The practicality test involved 2 Pekanbaru City High School history teachers and 60 students. The teachers and students involved represented every high school in Pekanbaru City. The practicality test results are presented in the following table.

TABLE 9
Practicality Test Results

No	Aspect	Score	Interpretation
1	Content	3.80	very practical
2	Practicality	3.95	very practical
3	Language	3.88	very practical
4	Design	3.99	very practical
	Mean	3.90	very practical

Based on the table above, it is known that the average value of the practicality test is 3.90 in the very practical category. The four aspects, namely content, practicality, language and design, scored in the very practical category. This means that the Augmented Reality learning media developed is practically used in history learning to improve skills in reading historical sources.

D. Dissemination Stage

To find out whether the Augmented Reality (AR) learning media developed is effective in improving skills in reading historical sources, a media effectiveness test was carried out using the t test. t test data was obtained from media trials in a

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wide group involving 120 Pekanbaru City High School students. To test the effectiveness of the media, two tests were carried out consisting of a pretest and a posttest on the same respondents. The results of the influence test via the t test are presented in the following table.

TABLE 10
T-Test Results for Experimental Class and Control Class

t-Test Results	Significance
of the Independent Sample Test	0,000

Based on the results above, it is known that the significance value of the t test is 0.000 or less than 0.05, so it can be concluded that there is a significant influence of the use of Augmented Reality learning media on the reading skills of historical sources for Pekanbaru City High School students.

Next, to find out the percentage increase in students' historical source reading skills for each indicator, an N-Gain test was carried out which is presented in the following table:

TABLE 11
AR Media Effectiveness Test Results

No	Indicators	N-gain Score	Categories
1	ability to identify historical sources	0.78	High
2	ability to understand historical context	0.80	High
3	ability to compare and relate various historical sources	0.69	Middle
	Mean	0.75	High

Based on the table above, all Augmented Reality learning media used in history learning can improve historical source reading skills by 0.75 or 75% in the high category. The results above show that Augmented Reality-based local history learning media is effective in improving the reading skills of historical sources for Pekanbaru City High School students.

Based on research findings, it was concluded that the learning media developed was valid, reliable, practical and effective for use in history learning, especially local history learning to improve skills in reading historical sources.

IV. Discussion

Research findings show that the Augmented Reality (AR)-based history learning media developed is valid, reliable and practical for use in online history learning, with an improvement rate reaching 75%. This indicates that the AR media developed is effective in improving high-level thinking skills, such as reading historical sources. The results of this research provide an alternative solution for high school history teachers in Pekanbaru City to use it in classroom learning. The findings of this research are supported by previous research conducted by Iqliya & Kustijono (2019), which shows that AR learning media can improve students' critical thinking skills. The research results of Rahmayani & Hastuti (2023) also show that AR learning media can help students meet learning needs, increase interest in learning, and develop students' chronological thinking abilities. The use of AR learning media has also been proven to improve creative thinking skills and student learning outcomes (Novia Rahmawati et al., 2023). Apart from that, Augmented Reality is relatively easy to develop, economical, and can be widely applied in various media (A. K. Putra et al., 2021; Riskiono et al., 2020). AR allows students to be more involved in learning because animated 3D objects provide a special attraction (Sungkono et al., 2022). AR also triggers student learning motivation by encouraging active action in the classroom, increasing student interaction with content, and creating a fun learning environment (Sáez et al., 2019; Tzima et al., 2019). AR also supports various types of learning, such as kinesthetic (tactile), collaborative, distance, learner-centered, and creative (Alzahrani, 2020). The use of AR also increases student engagement, motivation, attention, interactivity, verbal participation, concentration, knowledge retention, spatial abilities, and information accessibility. This also reduces students' cognitive load in learning (Habig, 2020). Students have the opportunity to interact with two- and three-dimensional objects virtually, providing a richer learning experience (Garzón et al., 2019; Majeed & Ali, 2020). Augmented Reality (AR) enables interactive experiences with the real world where real world objects are enriched with computer-generated information (Garzón, 2021). This technology facilitates access and enrichment of information about the surrounding environment via simple mobile devices (Gómez-García et al., 2018). Furthermore, AR encourages the realization of constructivism and discovery-based learning.

Compared to other learning media which often only display information in the form of text or static images, the use of Augmented Reality (AR) media brings a new dimension to learning. AR media provides direct experience to students by presenting virtual elements that interact with the real world. This makes students not just passive spectators, but main actors in the learning process. Students' active involvement in AR media allows them to explore, interact, and experiment with learning content. They can touch, manipulate, and feel information in ways that are not possible with traditional media. Thus, the knowledge gained by students through AR media tends to be stronger and stickier in their memory. In addition, deep and interactive learning experiences through AIR media can stimulate students' various senses, such as visual, auditory and kinesthetic, thereby enabling more holistic learning. This helps students to better understand, feel, and absorb the learning material, which will ultimately help them in long-term knowledge retention. Overall, AR media takes learning to the next level by providing rich, interactive and memorable hands-on experiences to students. This creates a learning environment that sparks curiosity, exploration and deeper understanding, and ensures the knowledge students gain will last longer in their memories. So, based on the discussion above, it can be concluded that Augmented Reality learning media can be an alternative solution in improving skills in reading historical sources.

V. Conclusion

Based on the research findings, it was concluded that the local history learning media based on Augmented Reality (AR) that was developed was valid, reliable, practical and effective for use in history learning to improve skills in reading

historical sources. The media's ability to display 2D and 3D objects is an advantage of the product being developed compared to other learning media which only display messages in the form of words or images. Through this display, students can be actively involved with the content and provide an enjoyable learning experience. The media developed is also a solution because it does not require a lot of costs, and supports various types of learning, such as kinesthetic (tactile), collaborative, distance, learner-centered, and creative. Thus, Augmented Reality learning media can be an alternative solution in learning history to improve skills in reading historical sources.

The use of Augmented Reality (AR) technology in education opens up significant new opportunities, not just in history learning but across various other fields of study. AR enables more interactive and immersive learning experiences, which can enhance student understanding and engagement. For example, in science lessons, AR can be used to display 3D models of atomic structures or simulations of biological processes, which are difficult to grasp through text or two-dimensional images alone.

Future research recommendations include developing AR media for different subjects such as mathematics, science, and languages. This research could involve different age groups to explore the impact of AR on various cognitive development stages. Additionally, it is important to assess how AR can support inclusive education, aiding students with special needs to become more engaged and successful in their learning.

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