

Development of BRUSLE hologram augmented reality based on Android apps by Engklek ethno-games learning

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Citation: Falah, M. F. N., Rifqy, M. I., Primrose, A. T. P., & Mukti, T. S. (2025). Development of BRUSLE Hologram Augmented Reality based on Android Apps by Engklek Etno-Games Learning. *JRAMathEdu (Journal of Research and Advances in Mathematics Education)*, 10(1), 55–67. <https://doi.org/10.23917/jramathedu.v10i1.4298>

ARTICLE HISTORY:

Received 9 February 2024

Revised 3 October 2024

Accepted 16 December 2024

Published 30 January 2025

KEYWORDS:

Media

Mathematics

Engklek, Android Apps

Hologram Augmented Reality

ABSTRACT

Curved Side Spaces (BRSL) in learning need to be presented with learning media to make it easier for students to understand the concept. This research aims to produce learning media based on technology and cultural values. The media in question is (BRUSLE) an Android application that can be accessed via mobile with augmented reality hologram content and integrated traditional Engklek game in the learning process. Development research was conducted using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The development was carried out based on a needs analysis at grade 7 in 2023 Mathematics Subjects on BRSL material. The developed product was carried out content validity by 3 experts (media, mathematics learning, and practitioners/teachers) to continue the feasibility test. The class used in this study is class 7D based on the teacher's recommendation. The trial was carried out data collection techniques were carried out with a pretest-posttest to measure students' understanding of the material. The use of questionnaires and documentation in research to find out the response of students to the use of BRUSLE and record all learning activities. Statistical data testing was carried out using the Paired Sample T Test to prove that the use of BRUSLE proved to have a significant difference. The results showed that there was a significant difference of $0.001 < 0.05$ which indicated that BRUSLE by Engklek Etno-Games media was effective in improving understanding of mathematical concepts.

INTRODUCTION

BRSL (Curved Side Spaces) is often considered abstract and difficult for students to understand. This is a challenge for students in understanding the basic concepts of BRSL and its application in everyday life. The main solution to solve this challenge is to present learning with the right learning model and media. The study of problem and needs analysis shows that text book learning conducted by teachers is not effective enough in understanding complex BRSL concepts. (Kustiyati, 2016). Similar opinions were also found in the research (Khoirunnisa et al., 2018) (Supadmi, 2018) (Annisah, 2018) (Ranjazmay Azari et al., 2023).

Generally, in many cases students do not get maximum learning needs services in understanding abstract BRSL concepts (Djumat, 2016). This problem is due to the lack of learning media that supports the learning process. (Sulasmianti, 2018). This will have an impact on teachers, teachers always have difficulty in explaining this concept without the

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help of proper visualization. The existing condition of mathematics learning in general shows the existence and availability of learning media that is still limited (W I Yuda Sukmana et al., 2013). Not all schools have laboratories that can store or provide complete learning media to support the mathematics learning process. (Rahmawati et al., 2021). The existence of a laboratory allows the learning process to illustrate abstract mathematical concepts. The results of the analysis also show that at MTS N 2 Malang there is no learning media available to help understand BRSI concepts easily.

Students' mastery of the BRSI concept conveyed by the results of research by (Supeno, 2020) showed relatively low results. However, learning that takes place with BRSI illustration media shows a better change. The media used to support the learning process is very diverse (Sakiah & Effendi, 2021) namely, using manipulative media (Susilowati, 2014) and ICT (Afandi, 2017; Torres Diaz et al., 2015). In accordance with the times, it is necessary to develop learning media innovations that can accommodate student intelligence with a multidimensional perspective. This multidimensionality is not only cognitive abilities, but also other soft skills that are in accordance with the needs of students at this time including technology, culture, and social attitudes.

In addition to technology, students' needs for multidimensional intelligence include cultural, social and spiritual aspects. Technological, social and cultural aspects become innovations in carrying out an interesting and fun learning process. This sense of fun will have an impact in reducing students' difficulties in understanding mathematical concepts. Of course, students will get used to solving problems in everyday life (Sari, 2021). The need for interesting learning that can motivate students by connecting math with their daily activities (Radiusman, 2020) (Pesare et al., 2016a). One approach that can be used is to integrate mathematics in traditional games to preserve culture such as the game engklek (ethno-games) (Mulyasari et al., 2021).

The use of technology in education has been a significant contribution to date. In addition to providing convenience, technology is also considered as a tool that accelerates the implementation of learning activities (Mokalu et al., 2022). Supporting media in the form of BRSI visualization as a solution to help students understand this material (Lukman et al., 2015) (Çelik & Yangın Ersanlı, 2022) (Pesare et al., 2016b). The use of tangible visualizations in BRSI learning can support students in analyzing and solving problems that have a real context (Dutta et al., 2022). Previous research shows that this strategy has not been widely applied due to the limited availability of media or teaching aids in BRSI learning. (Marasabessy et al., 2021).

Problems and needs analysis based on what is done can be solved with a solution to present BRSI learning media based on Android APPS which has augmented reality hologram content (Pratt et al., 2018). This hologram can be used to provide an interactive learning experience, such as visualizing 3D objects on BRSI material (Dixon et al., 2013) (Tsukada et al., 2022). By placing the BRSI hologram in a real-world context, students can see how the object will interact with the surrounding environment (Xiong & Wu, 2021) (Albano et al., 2023) (Tuli et al., 2022). This helps in understanding the size, proportion and relationship of the object to the surrounding space.

Ethno-game-based learning is closely related to the skill aspects of students, namely affective abilities. Ethno-games include everything related to attitudes, character, behavior, interests, emotions, and values that students have to be internalized during the learning process. In the game of engklek, there are also affective aspects such as discipline, cooperation, social, and agility (Nugrahastuti et al., n.d.). In the engklek game, there is an element of integration of multidimensional abilities that allows students to more easily understand mathematical concepts, especially those related to mathematics (Mulyasari et

al., 2021). Ethno-games on spiritual content in learning is also contained in the word of God in surah Al-Baqoroh (2) verse 148:

وَلِكُلِّ وِجْهَةٌ هُوَ مُوَلِّيهَا ۖ فَاسْتَبِقُوا الْخَيْرَاتِ ۚ أَيْنَ مَا تَكُونُوا يَأْتِ بِكُمُ اللَّهُ جَمِيعًا ۚ إِنَّ اللَّهَ عَلَىٰ كُلِّ شَيْءٍ قَدِيرٌ

Meaning: *And for each nation there is its (own) qibla to which it faces. So compete (in making) good. Wherever you are, Allah will gather you all together (on the Day of Resurrection). Verily, Allah is mighty over all things.*

The verse can be interpreted that in any learning, you should always compete in goodness. In the Engklek game in question, students can compete in completing the quiz which amounts to 8 questions in the Engklek game. Students can discuss in groups and solve each question until all questions are answered, so that the group that completes the fastest will be the champion. From this description, the researcher aims to develop learning media on ethno-games-based (Engklek) BRSL material in the form of BRUSLE based on Android APPS which contains Hologram Augmented Reality that is feasible and functions properly to improve students' understanding of concepts in BRSL material and improve students' social skills.

METHODS

The research was conducted with Research and Development (RnD) to produce BRUSLE learning media based on android apss Hologram Augmented Reality which contains local wisdom in the form of Engklek game. The stage in developing learning media is used with the ADDIE design (Analyze, Design, Development, Implementation, and Evaluation). This model was chosen because the stages are structured and each stage will be evaluated, making it easier and helping researchers to produce BRUSLE media in an instructional manner. The development research was conducted on the learning needs of MTs N 2 Malang grade 7 students in 2023 Mathematics Subjects on Curved Side Space. The product to be designed uses power point software and ISpring 9. Then the product to be developed is validated by 3 expert validators, namely media experts, learning experts and partitions. The validation carried out is content validation consisting of aspects of the suitability of the theory and the truth of the learning material content, aspects of the use of good and clear language, the functionality of the media developed, including the appearance of the media, and the function of the menu buttons on the application. After being declared feasible and meeting the criteria of the expert, the next step is to conduct testing or direct use in learning. BRUSLE testing was carried out in one class by teacher recommendation. Class D is the class chosen in this study with a sample size of 30 students. The research stage was carried out by giving a pretest of 4 questions then continued by using BRUSLE media in TGT learning and then given a posttest with the same number of questions and difficulties to students to measure students' understanding of curved side space building material. In addition to test instruments, researchers also used questionnaires and documentation to find out student responses to the use of BRUSLE and record all learning activities. Statistical data testing was carried out using the Paired Sample T Test to prove that the use of BRUSLE proved to have a significant difference. Data analysis used descriptive test to determine the effectiveness of BRUSLE media based on android APPS.

FINDINGS

BRUSLE media is a digital media that aims to assist students in understanding BRS� concepts, especially cones. BRUSLE serves as a means to facilitate students' understanding of concepts in BRS� material. This research uses the ADDIE approach and produces Hologram Augmented Reality-based BRUSLE media that can be applied to Android devices and integrated with the use of engklek as a learning strategy in the form of games.

In developing BRUSLE media, there are stages of ADDIE design including: First, Analyze. Needs analysis was carried out by observation at MTs N 2 Malang. The results of this needs analysis obtained are that students have difficulty in visualizing BRS�, especially cone shapes, especially in class VII. This difficulty arises because they consider BRS� as something abstract and difficult to understand. This difficulty is because there is no adequate BRS� media, based on problems and needs related to student attitudes, it is found that students are currently less familiar with Indonesian culture, one of which is Engklek. Almost 70% were found in one class that students did not know Engklek and how to play. From the condition of students, it is necessary to introduce culture to students, one of which uses BRUSLE Hologram Augmented Reality based on cricket ethno-games. The research aims to present multidimensional learning media innovations, namely BRUSLE Hologram Augmented Reality media based on cricket ethno games. Analysis was also carried out on the content of the Learning Outcomes of the independent curriculum for MTS grade VII mathematics subjects. This learning outcome focuses on understanding BRS� material, especially cones. The media developed is a digital-based game using Hologram Augmented Reality technology.

The advantages of using Augmented Reality Holograms are (1) Augmented Reality provides interactive and more in-depth learning. Students can visualize abstract materials represented in three-dimensional form. (2) Augmented Reality is easy to use in learning, students only provide smartphones to be able to access Augmented Reality. Compared to Virtual Reality, the use of AR is easier and more affordable. (3) Augmented Reality is able to provide realistic simulations to students. In addition, this media will also integrate elements of local wisdom in the engklek game. This approach aims to encourage students to be more involved in learning and motivate them to develop an understanding of technology that can support the learning process. The development of technology, one of which is in the world of education, has an influence on the existence of Indonesian culture. It was found that students' social attitudes especially towards culture decreased. Students do not know enough about Indonesian culture, one of which is cricket. Therefore, BRUSLE Augmented Reality based on Engklek Etno-Game can help students to visualize BRS� material and introduce Indonesian culture, namely Engklek.

The media design developed includes product specifications, namely appearance, menu, and interface functionality. In the initial media display in the form of a start button, users can press the button to start the application. The second display contains the application menu, namely learning outcomes, learning objectives, material and quiz. The learning outcomes contain a description of the learning outcomes that will be achieved in learning. The learning objectives display contains a description of the learning objectives that will be achieved in one meeting. On the material display contains the content of BRS� material and augmented reality hologram display that can be accessed through the application. In the final display, namely quiz, this display consists of 8 questions and four answer options for each question. This learning media design plan will later implement learning with the TGT (Team Game Tournament) model. This model is expected to

accommodate the hopscotch game and also the curved side space building material, combining difficult material that is packaged with fun learning with an ethno game feel.

The media developed is an android mobile application based on hologram augmented reality. The application will consist of several meticulous planning criteria about the appearance, functionality, and operation of the product. Researchers develop media using Power Point software and Assemblr EDU software to design augmented reality holograms. In addition, Website 2 Apk Builder is used to convert BRUSLE media into a format that can be run on Android devices.

Third, Development is a key step in producing BRUSLE media that will be used in learning. At this stage, researchers focus on preparing materials about BRSLE, especially cone sub-matter. In this stage, several things were done by researchers, namely the preparation of materials and the development of BRUSLE media. In the preparation of materials, researchers compile learning materials that include learning objectives and indicators of learning achievement that are suitable for one learning meeting. This BRSLE (cone) material will be the basis for the development of BRUSLE media. In the development of BRUSLE media, it is developed based on the design that has been made at the design stage.

This media design uses interactive Power Point so that the media is easy to design easily. By using Power Point, there are many themes and templates that are easy to use. In addition, Power Point is also easy to review and update the media. In the development of the design in Power Point consists of an initial appearance, menu, learning achievements, learning objectives, material, and quiz. In the initial appearance there is a start button that serves to start the media. In the menu view contains learning outcomes, learning objectives, material, quiz buttons that users can operate according to their needs. The learning outcomes button contains a description of the learning outcomes to be achieved in BRSLE material, which can be operated by the user. The learning objectives button contains a description of the learning objectives to be achieved in one learning meeting in BRSLE material. In the material tmbol section contains a description of BRSLE (cone) material such as the properties of cones, the formula for the surface area of the cone and its image, the formula for the volume of the cone and its image, in this section also contains the Augmented Reality cone button that can be operated by the user and can see the cone building from 360 degrees. At the end of this media contains a quiz consisting of 8 questions with HOTS levels that have received validity tests from material experts.

The application that has been developed can be accessed and used through mobile phone devices, making it easier to use both inside and outside the classroom. Meanwhile, the BRUSLE Manual media, which was created using Canva, was designed in such a way that it is easy to carry anywhere and made by adopting the engklek game model. The practice questions were designed in a digital quiz format consisting of 8 multiple-choice questions. These questions were developed by considering the Higher Order Thinking Skills (HOTS) level in Bloom's taxonomy level 3, 4, and 5. The digital-based BRUSLE media can be used on Android devices.

At this stage of development, researchers validate media experts, material experts, and practitioners with a minimum of 10 years of teaching experience to state that the application that has been made is in accordance with the goals and objectives set. This validation process includes an assessment of the suitability of the material that has been compiled in the application with the subject matter of MTs class VII regarding BRSLE. The validation carried out is content validation consisting of aspects of the suitability of the theory and the truth of the content of the learning material, aspects of the use of good and clear language, the functionality of the media developed including the media display, and the function of the menu buttons on the application. In addition, validation also includes an assessment of the



Figure 1. BRUSLE Media Development

application interface, which must be user-friendly and easy to use by users. Thus, this validation has two main aspects, namely material validation and validation of application interface features to ensure that this application can be used properly.

Figure 1 shows the results of BRUSLE media development (1a) In the initial display. The initial display contains the name of the learning media CURVENT SIDE SPACE BUILDING (BRUSLE) and the start button. To be able to operate students can press the start button. (1b) Home display. The home menu has options consisting of learning outcomes, learning objectives, materials, and quizzes. (1c) Learning Outcomes Menu. The learning outcomes menu focuses on the contents of the learning outcomes that students will achieve during the learning process regarding BRSL (cone). (1d) Learning Objectives Menu. The learning objectives menu contains the objectives that are the main focus during the learning process about BRSL (cone). (1e) Display Menu of Curved Side Spaces Material. In this display menu

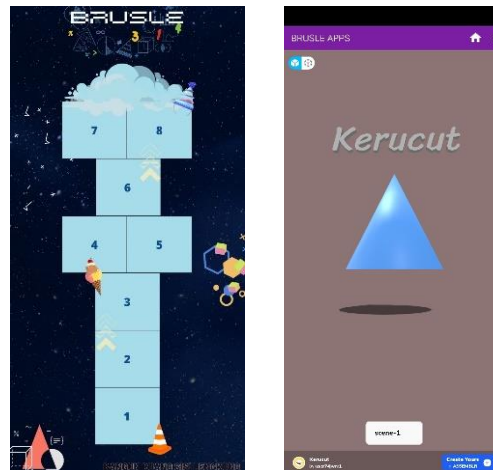


Figure 2. Engklek and Augmented Reality display

contains BRSL material which consists of understanding, characteristics, formulas for finding the surface area and volume of cones. (1f) Augmented Reality menu display. On this display contains Augmented Reality about cones. Students can choose the options that will be seen and played. (1g) Augmented Reality display. On this menu is presented BRSL (cone) in the form of Augmented Reality Holograms. On this menu is presented in a video that can help students visualize BRSL (cone). (1h) Quiz Display. In this menu, students are given the opportunity to undergo a quiz on BRSL (cone) material. Students also have access to check the correctness or incorrectness of the answers they choose. Problem-s

In addition to the Hologram Augmented Reality-based BRUSLE media display, the following hologram link can be accessed on the user's smart phone: <http://asblr.com/pkJRs>. The BRUSLE media display with the Engklek approach that has been successfully developed is presented in Figure 2.

Fourth, BRUSLE media implementation was implemented to students to help them visualize the concept of BRSL (cone), using Android devices. After that, students used BRUSLE media manually to hone their skills in understanding BRSL material.

The game started with all group members gathering to throw the gaco to the number one box. After the group representative player successfully throws the gaco into the first box, they return to their group to answer the quiz on BRUSLE APPS number one. The group that is the fastest and manages to answer the quiz correctly can send their group member representatives again to throw the gaco and continue the cricket game. The first group to reach box number eight will be the winner.

Fifth, Evaluation of BRUSLE media based on Hologram Augmented Reality ethno-game. Evaluation is carried out in each phase of development, as well as thoroughly at the end of the development process. At this stage, this media is evaluated by media experts, material experts, and practitioners to assess the feasibility of the results of this media development. Media evaluation also includes student responses to the media that has been created. From the user's response and the improvement of the expert's response, the results of this media are suitable for use in learning mathematics.

Analysis of Product Test Data conducted on user responses and the results of understanding concepts in learning are presented in Table 1 and Table 2. The data recapitulation in Table 1 shows that the use of BRUSLE media as a support for mathematics learning received a positive response of 80% and 20% negative response from students. The results of this positive response illustrate that BRUSLE is effective in supporting the understanding of material about BRSL as a mathematics learning media.

Table 1
Student response questionnaire

Task	Category	Percentage
1	Positif Response	80%
2	Negatif Response	20%

Table 2
The result

	Item Number	Response Percentage	Level Kognitif	T Paired Test
Pretest	1 (Multiple Choice)	86,2%	C4	0,001
	2 (Multiple Choice)	16,67%	C4	
		0	C4	
	1 (Esay)	0		
		13,79%		
		0	C4	
	2 (Esay)	0		
		0		
		0		
		0		
Posttest	1 (Multiple Choice)	89,65%	C4	
	2 (Multiple Choice)	89,65%	C4	
		6,89%	C4	
	1 (Esay)	31,03%		
		65,61%		
		0	C4	
	2 (Esay)	24,13%		
		41,37%		

The negative response is due to the limited ability of students to operate BRUSLE media. This limitation is due to students' lack of experience using android-based media in learning. In addition, some devices used by students are inadequate such as full smartphone storage.

Analysis of multiple choice questions has a score for each item of 50 and a highest score of 100. Category 1: students can answer the question until the stage is known. Category 2: students answer the question until it is finished, but the answer is wrong. Category 3: the student answers the question to completion and the answer is correct.

Based on the classical analysis of item responses, Table 2 shows that the order of item difficulty from the highest is items 2 and 1 (multiple choice) and items 2 and 1 (fill-in). In other words, the item that has the highest level of difficulty is item number 2, both in multiple choice and fill-in format. The results of data recapitulation from the Table 2 show that item number 2 (fill-in) has the highest level of difficulty with 0% of students scoring 3, 2, or 1. While in other items, the highest percentage of responses occurred in the score 1 category. This indicates that students' ability to answer HOTS questions needs to be improved.

The effectiveness of BRUSLE media can be seen from the Paired Sample T statistical test, which shows a significant value of $0.001 < 0.05$. This means that BRUSLE media is effective in improving students' concept understanding in BRSL (cone) material. Therefore, teachers can use BRUSLE media as a learning support to make it easier for students to understand the material.

DISCUSSION

BRUSLE media is declared feasible and effective in making it easier for students to understand the concept of BRSL. This is evident from the validity process carried out to

BRUSLE media experts. The media feasibility test sheet received an assessment with a score of 5 as much as 60% and a score of 4 as much as 40%. The validator stated that BRUSLE media is feasible as a mathematics learning media in accordance with the suggestions given. The same thing is also supported based on the validity conducted by teachers or practitioners. In the media feasibility test sheet, it received an assessment with a score of 5 as much as 80% and a score of 4 as much as 20%. The validator stated that BRUSLE media is feasible as a mathematics learning media in accordance with the suggestions given.

The implementation of learning with BRUSLE Hologram Augmented Reality media that lasted for 3 JPs showed that students showed high interest and enthusiasm in participating in learning. According to (Herijanto, 2012) Interest and enthusiasm are the main provisions in the learning process. These two aspects will have a positive impact on student learning outcomes (Ulfaida & Pahlevi, 2021). Learning that can increase student interest and enthusiasm is important in improving student learning outcomes because students more easily remember and understand the material in learning (Pradana & Santosa, 2020).

In learning to use BRUSLE media, students work together with their groups to look more challenged to quickly understand BRSL material in order to become winners in the cricket game. In the cricket game, students are required to work well with their group in making strategies in the cricket game, for example when throwing the gaco on target. Students cannot work alone to win this game, students must divide the tasks in each group member, for example, there are those who become group leaders, play cricket, and work on questions in each box. In each division of this task cannot be completed individually but requires good collaboration between members in the group. The use of BRUSLE media encourages an attitude of cooperation, cohesiveness, and solidarity among students, so that there is minimal individualism behavior in the learning process.

Based on the ADDIE development design approach, the Hologram Augmented Reality-based BRUSLE media is designed as a solution to overcome difficulties in understanding the BRSL (cone) concept faced by students. In research conducted by (Marasabessy et al., 2021b, 2021a) It is mentioned that problems related to BRSL include difficulties in applying concepts, understanding problems, and solving story problems. In addition, BRSL is also considered an abstract concept by students (Khalisa et al., 2021).

Hologram Augmented Reality-based BRUSLE media is designed to assist students in visualizing BRSL, this is supported by research findings (FAHMI & Noviani, 2021) which indicates that Hologram Augmented Reality-based media is very useful for improving understanding of mathematical concepts and visual mathematical abilities. Thus, based on the ADDIE development design approach, it can be concluded that the Hologram Augmented Reality-based BRUSLE media is an appropriate solution to overcome the problems that arise in understanding BRSL (cones).

Based on the results of the analysis of the validity of BRUSLE media using student response questionnaires and student answer assessments, it can be concluded that BRUSLE media is a mathematics learning tool that should be used to assist students in understanding the concept of BRSL (cones). The results of this analysis are supported by the positive responses given by students to BRUSLE media. In addition, the results of the analysis of student answers on tests that focus on HOTS-based questions on BRSL (cone) material also show that students are able to understand the flow of problem solving from the beginning to achieve the correct results. This confirms that BRUSLE media can support effective learning in understanding complex concepts such as BRSL (cones).

$$\begin{aligned}
 V &= \frac{1}{3} \pi r^2 t \\
 &= \frac{1}{3} \cdot 3,14 \cdot 36 \cdot 12 \\
 &= 3,14 \cdot 12 \cdot 12 \\
 &= 3,14 \cdot 144 \\
 &= 452,16 \text{ cm}^3
 \end{aligned}$$

$$\begin{aligned}
 V &= \frac{1}{3} \pi r^2 t \\
 &= \frac{1}{3} \pi \cdot 36 \cdot 12 \\
 &= \frac{1}{3} \pi \cdot 432 \\
 &= 144\pi
 \end{aligned}$$

Figure 3. Student answer

The difficulty in presenting HOTS-based questions in the application is that students need relatively longer time to complete the stages of working on the problem to get results and have difficulty getting the correct answer. Students' difficulties in solving HOTS-based BRSL problems are also explained in research (Marasabessy et al., 2021a) which explains that students lack accuracy in the process of solving problems, lack of initial mathematical abilities, and haste in solving problems, causing errors in concepts in solving BRSL HOTS problems. However, at the implementation stage in the classroom using BRUSLE media, students were able to solve the test questions given from the initial stage with the correct concept. It can be seen from the results of student work in Figure 3.

That shows Hologram Augmented Reality-based BRUSLE learning media has several striking advantages. First, this media development uses Power Point software, so it is very easy to implement in the learning process. In addition, access to this media is very easy through Smart Phone devices. This convenience can be seen in the advantages that are included in the BRUSLE media, namely it uses Power Point and Ispring 9 has been widely used by teachers in learning. BRUSLE media based on android APPS also does not require much cost to replicate. This media does not require internet access in its use so that teachers can easily use this media at any time. In addition, BRUSLE media also uses Hologram Augmented Reality as a tool to present the material, which helps students better visualize the shape of BRSL (cone).

In addition to the learning aspect, BRUSLE Engklek media also has the advantage of preserving local culture. The game not only helps students understand math concepts, but also maintains and promotes local culture. In addition, this game can keep students interested and not feel bored during the learning process.

Regarding improvements for the BRUSLE application, one suggestion is to add a feature that limits students in working on items. This aims to reduce the possibility of students dabbling in working on problems and encourage them to understand the concepts taught.

CONCLUSION

This research successfully developed Android-based BRUSLE learning media that integrates Augmented Reality Hologram technology with the traditional game Engklek to facilitate students' understanding of Curved Side Spaces (cones). The development process uses the ADDIE model which includes needs analysis, design, development, implementation, and evaluation. The results showed that BRUSLE significantly improved students' understanding of BRSL concepts, as evidenced by the 47% increase in learning outcomes based on pretest and posttest data. In addition, this media received 80% positive response from students, the statistical test also showed that the sig. $0.001 < 0.05$ which shows that this

media is effective in improving students' mathematical understanding, although there are still technical constraints such as the limitations of the devices used.

This research makes an important contribution to students and teachers. The presence of this innovative learning media not only helps students understand abstract mathematical concepts through 3D visualization, but also preserves local cultural values through the Engklek game. BRUSLE also strengthens students' social skills, such as cooperation and solidarity, thus creating effective and fun learning. This media is a practical and affordable solution for technology-based learning that can be accessed easily through Android devices without requiring an internet connection. As for teachers, this media can make it easier to deliver BRS (cone) material effectively. Thus, it is expected that BRUSLE can be an inspiration for the development of technology-based learning media that is innovative and relevant to the needs of education in the modern era.

ACKNOWLEDGMENT

The researcher would like to thank the educational institution that is the research site and the 2023 REKOGNISI Research Center FITK Maulana Malik Ibrahim State Islamic University Malang for their financial support.

AUTHOR'S DECLARATION

Authors' contributions	MFNF, ATP: main idea, conceptualization, and writing of the manuscript, TSM: data analysis, review and validation, MIR: collecting data and reporting.
Funding Statement	The research received a special grant from the funding agency REKOGNISI 2023 FITK Maulana Malik Ibrahim State Islamic University Malang during data collection.
Availability of data and materials	All data are available from the authors.
Competing interests	This work has not been published or submitted for publication elsewhere, and is entirely original work.

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