Gelati Ilmu: The Educational Game in Banten-Dialect Javanese Language for Learning Media of Fourth Grade Students

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A B S T R A K

Bahasa Jawa Banten merupakan salah satu mata pelajaran yang sulit menurut siswa kelas IV SD. Situasi ini disebabkan oleh beberapa faktor, yaitu motivasi, lingkungan, bahasa ibu, budaya sekitar, serta media pembelajaran yang membosankan dan kurang inovatif. Penelitian ini bertujuan untuk mengembangkan game edukasi yang berkualitas sebagai media pembelajaran alternatif pada mata pelajaran Bahasa Jawa Banten. Jenis penelitian ini yaitu pengembangan. Penelitian ini menggunakan model ADDIE sebagai metode pengembangan. Game edukasi ini telah melalui validasi oleh 1 ahli materi dan 1 ahli media. Subyek uji coba yaitu siswa kelas IV yang berjumlah 30 siswa. Metode pengumpulan data melalui observasi, wawancara dan kuesioner. Teknik menganalisis data yaitu analisis deskriptif kualitatif dan kuantitatif. Hasil uji validitas oleh ahli materi yaitu 94,44% (sangat baik) dan oleh ahli media yaitu 83,92% (sangat baik) sehingga dikatakan valid. Respon siswa pada uji coba memperoleh persentase 77,25% (setuju) sehingga dikatakan praktis. Hasil penelitian ini menunjukkan bahwa game edukasi Gelati Ilmu telah layak digunakan sebagai media pembelajaran alternatif untuk mata pelajaran Bahasa Jawa Banten.

A B S T R A C T

Banten-Dialect Javanese Language is one of the most difficult subjects, according to the 4th grade elementary school students. This situation is caused by several factors, namely motivation, environment, mother tongue, surrounding culture, as well as the boring and less innovative instructional media. The study aims to develop a quality educational game as an alternative learning media for the Banten-Dialect Javanese Language subject. This type of research is development. The study used the ADDIE model as a development method. This educational game had been validated by 1 material experts and 1 media expert. The experiment subjects were 4th grade students collected 30 students. Data collected methods are observation, interviews, and questionnaires. The technique of analysing the data is descriptive qualitative and quantitative analysis. The results of validity test by material experts were 94.44% (very good) and by media experts, namely 83.92% (very good), so it is said to be valid. Student responses in the small group test obtained a proportion of 77,25% (agree) so it is said to be practical. The results of this study indicated that the educational game, Gelati Ilmu, is feasible to be used as an alternative learning media for the Banten-Dialect Javanese Language subject.

1.   INTRODUCTION

Elementary school is the beginning of the first level that must be completed in formal education. Elementary school is one of the fundamental educational institutions that provide formal education intending to develop students' potential so that they are able to face the future (Desstya et al., 2019; Marini et al., 2021; Seage & Türegün, 2020). However, in practice, there are still problems where students find it difficult to learn the lessons taught by the teacher. In various studies, it is stated that there are still many students who find it difficult to learn languages (Anzar & Mardhatillah., 2017; Mahardika et al., 2020; Nani & Hendriana, 2019; Prasetya & Putra, 2021). Many students still have difficulty learning the Banten-Dialect Javanese Language, including mastering vocabulary and conversation. This situation is caused by several factors, namely motivation, environment, mother tongue, and surrounding culture (Berlian et al., 2021; Hulukati et al., 2017; Juniardi et al., 2018). In addition, also explained that the students' obstacles to understanding the language subject matter were that the teacher's learning looked boring; students feel that learning a language is a difficult subject; and the teachers are less innovative in learning (Dewi et al., 2020; Khoiruman, 2021; Susmiati, 2020). Teachers still use the conventional learning method, so it feels difficult. Learning can be effective if it uses learning methods and media that match the student's learning styles (Amil et al., 2021; Anggrellanggi et al., 2020).

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However, there is still a lack of studies that develop learning media for the Banten-Dialect Javanese Language in elementary schools. One of the developments in learning media for the Banten-Dialect Javanese Language is the Billlingual Pop-Up Book media on the story material of Ayam Jago Baru (Darmawati et al., 2021). This study shows the Billlingual Pop-Up Book Media is very appropriate and can be used well in the learning process in elementary schools. The results of the student response questionnaire in the field trial showed the criteria for strongly agreeing with a score of 82%. Students are happy to acquire different learning from what has been obtained by teachers using conventional teaching methods. Based on research, the Banten-Dialect Javanese Language is one of the subjects that is considered the most difficult at SDN 1 Cipocok Jaya Serang in the 4th Grade so that an alternative learning method is needed that can help students deal with these lessons (Hilmi et al., 2022). The results of the study stated that 94.4% of students at SDN 1 Cipocok Jaya Serang expressed their interest in playing games that contained elements of learning material, which was a positive thing that became the basis for creating the educational game as an alternative learning media for them (Hilmi et al., 2022). This condition is necessary to build a learning application by utilizing technology (Bond & Bedenlier, 2019; Dewi et al., 2020; Gusmida & Islami, 2017; Helsa & Kenedi, 2019). Thus, alternative learning media is developed, namely an educational game.

Game is an entertainment media to relieve boredom or just fill free time for its users. Usually, these users are children, teenagers, or even adults (Hendrawan & Marlina, 2022; Żammit, 2022). Playing games can give many positive effects can enhance cognitive functions that include: problem solving, spatial kills, and creativity (Ariyanto et al., 2020; Kusumawati et al., 2017; Tinedi et al., 2018). The educational game is one of the learning media that will attract students' interest and keep them engaged in their studies. Games in learning are an alternative for teachers to increase students' learning motivation (Chen, 2017; Jääskä et al., 2022; Samir Abou et al., 2014; Winatha & Setiawan, 2020; Yakin et al., 2018). Several issues related to the use of educational games in learning have been discussed in various studies also how concerns about increasing interest in learning by using game-based learning applications (Liu et al., 2020; Ninaus et al., 2017; Velaora et al., 2022; Wigati, 2019). In English language teaching, games-based learning is an effective strategy because can transform any contents that are boring or difficult like aspects of grammar or vocabulary to be interesting and easier to understand (Ahmed et al., 2022; Iaremenko, 2017; Idris et al., 2020; Wichadee & Pattanapichet, 2018; Yaccob & Yunus, 2019). The use of educational games is recommended to build opportunities for students to improve their abilities. Nevertheless, there are no educational games can be used to learn Banten-Dialect Javanese Language subject. This causes researchers to be interested in developing learning media for Banten-Dialect Javanese Language with media that are more materials for the educational game "Gelati Ilmu" on the Banten-Dialect Javanese Language. This study aims to develop quality educational games as alternative learning media in Banten Javanese language subjects.

2. METHOD

The subjects of this study consisted of students of SDN 1 Cipocok Jaya Serang in the 4th Grade. The research method used is a needs analysis to be able to produce products. This method is the most relevant method to be used in the research of the educational game "Gelati Ilmu" for the Banten-Dialect Javanese Language subject. Meanwhile, to get the right product in software development, a development model is also needed, and the development of educational games in Banten-Dialect Javanese Language subject uses the ADDIE Model. At *analysis* stage, researchers collect data about instructional media that are made to be analyzed to make instructional media that suit the needs of students. This stage is carried out by methods of observation, interviews, and literature study. The researcher made observations in the classroom to find out the situation in the classroom during the learning process. Researchers conducted interviews with teachers at SDN 1 Cipocok Jaya Serang to find out the Banten-Dialect Javanese Language material being studied by 4th grade elementary school students. The teacher also informs the drawbacks of instructional media that have been used and hopes the educational games made can fill it. In addition, interviews were also conducted with students to find out what kind of learning is needeed. From this interview, researchers got information about what kinds of games the students liked so that can develop educational games that increase students' interest in learning. Completing the required information, information related to the Banten-Dialect Javanese Language educational game looked for from journals and previous research.

The design stage is carried out to describe and specify the product to be made so facilitate the developer in making the product. The design is made using UML diagrams. The *development* stage where the design that has been made is realized in real form. The products made are arranged according to the designs that have been made in the previous stages. This means that this stage is a crucial one in the manufacture of products. At this stage, the researcher chose the educational game genre for the Banten-Dialect Javanese Language game. This stage is testing the product that has been made in terms of

appearance or product functionality. It will be tested by media and material experts. Two media experts and two material experts will observe and play this educational game and determine the feasibility of this product before being tested on students during learning. If media and material experts state that it is feasible, it will be tested on students. Implementation stage is to be tested on students by playing games during the learning process. Then, students are given a questionnaire to provide an assessment of the games that have been played. The final stage in the ADDIE is the evaluation. It is the process to find whether the product developed is successful, in accordance with initial expectations or not. Observing the concept of the ADDIE development, it can be said that the evaluation stage can be carried out at each the stage of instructional media development with the purpose of revising. Evaluation can be conducted using questionnaire or interviews. Evaluation includes students' perception or responses to instructional media and evaluation of resulting instructional media. Discovering the shortcomings and potentials of the instuctional media applied, suggestions and recommendations are selected for their relevance, then used as a foundation of revising or improving the final product.

The are two types of data obtained, namely qualitative data and quantitative data. Qualitative data comes from observation, interviews, literature studies, and questionnaires. These are presented in the form of descriptions using words that are easy to understand. Questionnaire data obtained through comments, suggestions, and recommendations provided by experts are also shown in the same way. Quantitative data were obtained from assessment sheets or scores given by experts in the questionnaire. The instrument used is a Likert Scale. The questionnaire is used to assess the validity of the instructional media developed. In this study, the validity of the instrument can be ascertained by making an instrument grid. The instrument grid refers to development consisting of learning aspects, design aspects, media aspects, and content aspects. Based on the several aspects mentioned above, a grid of instructional media validation sheets can be made which is presented in the table 1, table 2, and table 3.

Table 1. Educational Game "Gelati Ilmu" Instruments Grid of Material Experts

No	Aspect	Indicator	Number of Item	Total
1	Learning	Competency compatibility	1	1
		Learning process	2,3	2
		Giving motivation	4,5	2
2	Content	Material quality	6	1
		Material selection	7,8	2
		Material relevance	9	1

(Modified from Suwiantini et al., 2021)

Table 2. Educational Game "Gelati Ilmu" Instruments Grid of Media Experts

No	Aspect	Indicator	Number of Item	Total
1	Media Quality	Ease of use	1	1
		Language usage	2,3	2
		Selection of music/sound	4	1
2	Media Visualization	Image quality	5	1
		Layout	6	1
		Illustration suitability	7	1

(Modified from Suwiantini et al., 2021)

Table 3. Educational Game "Gelati Ilmu" Instruments Grid of Students' Responses

No	Aspect	Indicator	Number of Item	Total
1	Media Presentation	Ease of use	1,2	2
		Theory/Material	3,4	2
		Display	5,6	2
		Giving Motivation	7,8,9	3
		Language usage	1,10	2

(Modified from Suwiantini et al., 2021)

Before being tested in the study, the instrument must be valid. Judges test the instrument made to determine the content validity and reliability of the instrument. The content validity test used the Gregory formula and the reliability test used the percentage of agreements formula. The results of the content validity test of the assessment instruments of material experts, media experts, and students' responses are

1.00, 1.00, and 0.9 with very good content validity categories. The reliability test results of the assessment instuments of material experts, media experts, and students' responses are 100%, 100%, and 90% with very good reliability categories. Based on the content validity and instrument realibility test, the instrument is feasible to use measure the validity and practicality of Educational Game "Gelati Ilmu". As previously explained, the technical analysis of quantitative data from the questionnaire used the Likert scale. The results of the data obtained are then adjusted to the formula to calculate the feasibility presentation and adjusted to the score interpretation in Table 4.

Table 4. Likert-type Scale Conversion

Opinion	Scale	Range Value	Interpretation
Excellent	4	76% – 100%	Very Feasible
Good	3	51% – 75%	Feasible
Fair	2	26% – 50%	Less Feasible
Poor	1	1% – 25%	Inappropriate

(Firmandasari et al., 2020).

3. RESULT AND DISCUSSION

Result

Based on the research and development design that has been put forward, the development of the educational game, Gelati Ilmu, is carried out in five stages of the ADDIE Model, which is implemented as follows. First, analysis. Observations and interviews are conducted to 4th grade students and teachers at SDN 1 Cipocok Jaya Serang. Analyzing the results is undertaken to identify learning process conditions. It is found that the level of difficulty of students in understanding lessons with conventional teaching media is quite high. Then, the lesson that is considered difficult to understand is the Banten-Dialect Javanese Language. The students' reason is the deficiency of attractive learning media, whereas this lesson is not interesting. Besides that, almost all students like playing games and using mobile platforms. This led creation of learning media such as educational games to enhance the motivation's students and improve understanding comprehension. Moreover, the type of game favored by students is Roblox and offline Games because only have a small internet quota. Then, the educational game is developed based on these considerations.

Related to the observation and interviews conducted, learning media was developed, namely Gelati Ilmu. This is an attractive learning media consisting of three missions can improve student interest in Banten-Dialect Javanese Language Subject. These are (1) Selecting and recognizing several words in Banten-Dialect Javanese Language which are wrapped in the mission of defeating monsters; (2) Knowing and choosing several colors in Banten-Dialect Javanese Language wrapped by taking the chosen color box quickly before the alloted time runs out; and (3) Choosing and arranging words in Banten-Dialect Javanese Language wrapped by collecting scattered letters to form words quickly before the allotted time runs out. Second, design. In designing the educational game, Gelati Ilmu, several stages were carried out, namely: 1) mapping learning material; 2) planning menu and interfaces; 3) developing educational game plot; and 4) developing assessment instruments. The description of the game design can be seen in Figure 1.

Third, *development*. The making of this game educational game uses two devices, namely a PC (Personal Computer) and an Android mobile device. In addition, using a tool in the form of a Pen Tablet to create this video game UI/UX design. The software used is Corel Draw to create UI/UX designs for games, Visual Studio as an IDE to write C# Programming code for game objects, and 3D Unity to create and process the environment in this game. Meanwhile, some of the displays on educational games. The following is the display of the main menu in the game "Gelati Ilmu". This screen displays the start menu to enter the game. In addition, there are two other buttons, namely the function notification button on the right and the button containing the game objectives on the left. Display of the City Lobby Menu. In this section, players can carry out several activities, including controlling other players, interacting with NPCs, and being able to update players' homes by carrying out missions given by NPCs. In this lobby menu, if the player does not have to save data or has not completed one of the missions or all of them, then in this lobby menu the player only has a piece of the house. Display of the Information Menu. This game contains three different missions and is adapted to the learning material presented by the teacher. Therefore, this information menu explains the details of the missions in this game.

Display of the Game with three missions. This game has three missions which of these missions represent the core materials learned by students in learning Banten-Dialect Javanese Language, including conversation, objects, and writing. Mission 1 teaches players to choose and recognize some words in Banten-Dialect Javanese Language which is wrapped in a mission to defeat monsters. Mission 2 teaches

players to choose and find some colors in Banten-Dialect Javanese Language wrapped by picking up the selected color box quickly before the allotted time runs out. Mission 3 teaches players to choose and assemble words in Banten-Dialect Javanese Language wrapped y collecting scattered letters to form words quickly before the allotted time runs out. Meanwhile, the three missions menu in the game in the Figure 2.
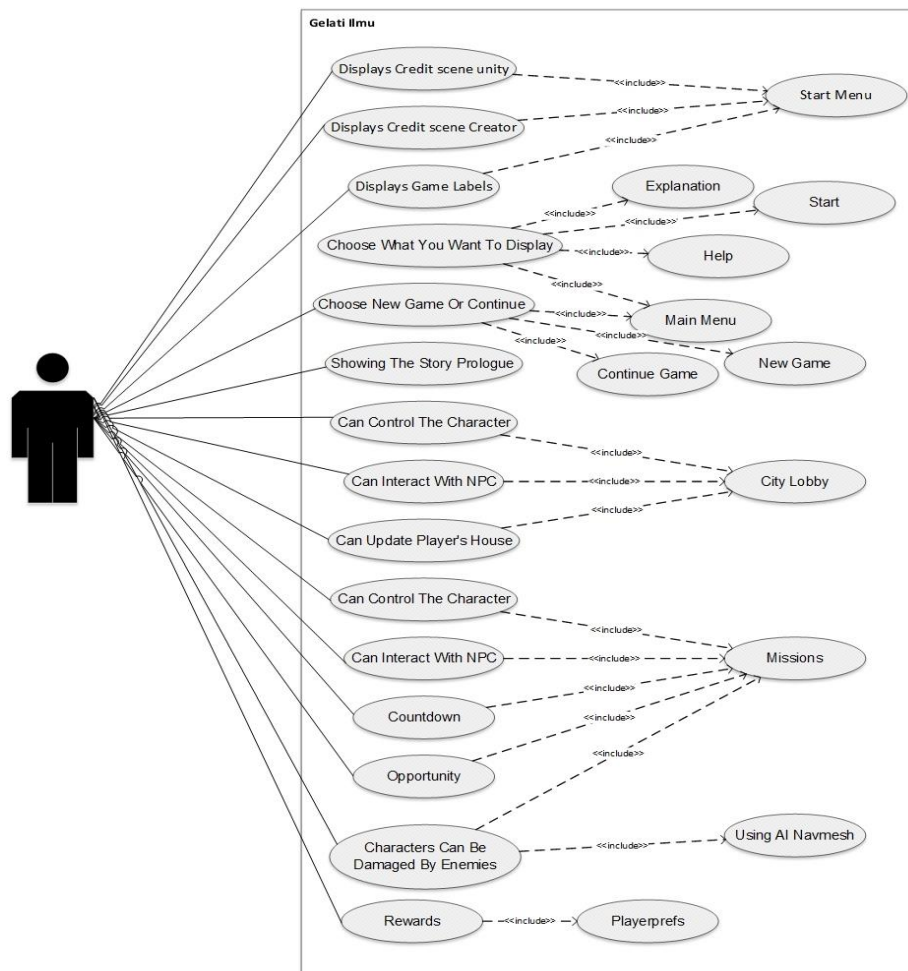

Figure 1. UML Use Case Gelati Ilmu

Display of the Mission Failure Menu. If the player cannot complete this game, the following menu will appear. If the player's blood level is zero, this section displays the start button instead of being used to repeat the mission. Display of the Gift Menu. If the player can complete the mission, then the player gets a prize. The reward varies depending on the mission completed. This section will appear if the player completes the mission and can wait for it to load into the lobby menu.
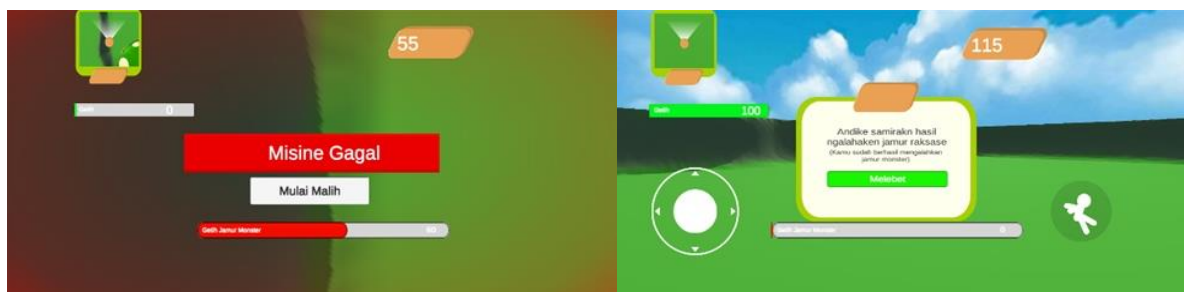

Figure 2. Mission 1

After the product design has been successfully designed based on what was planned, the next step is to provide the game application to the user. The researcher enlisted the help of Banten-Dialect Javanese Language material experts and media experts to determine whether the product could be used by the target

audience. The material expert in this study was the teacher of the Banten-Dialect Javanese Language subject at the SDN 1 Cipocok Jaya Serang. Furthermore, media experts in this study are lecturers in the fields of Computer Science and Information Technology. Media experts provide a lot of input regarding display design, layout, images, and so on. The assessments given by the experts showed in Table 5.

Table 5. The Results of Material Expert and Media Expert Assesments

No	Respondent	Value (%)	Qualification
1	Material Expert	94,44	Very Feasible
2	Media Expert	83.92	Very Feasible
	Overall Percentage	**89,18**	**Very Feasible**

Here are suggestions and recommendations from material and media experts. First, Increase the game's vocabulary of Banten-Dialect Javanese Language and provide quizzes to sharpen the user's skills. Second, The overall appearance is good. A little suggestion for the color and suitability of the writing color with the background: it is hoped that it will be brighter or the color contrast will be more attractive in the overall appearance of the game.

Fourth, *Implementation.* After being assessed by experts, the product is improved according to the suggestions and comments of the experts. The final result of the next revision was tested on a Small Group, consisting of 30 students in 4th grade at SDN 1 Cipocok Jaya Serang. Students' responses to the Gelati Ilmu include several aspects, namely ease of operation, interest in the use, presentation of material, student motivation, concept understanding, and satisfaction. The results of trials by 30 students on Gelati Ilmu obtained 77,25% of the results and were included in the "Very Feasible" category. Many students expressed satisfaction with the games given. However, some students also gave feedback as 1) There are no friends (single player). 2) The street in the game is difficult. 3) It is difficult to see all of the (in-game) scenes. Fifth, *Evaluation.* At this evaluation stage, the researcher made a final revision of the results of the product developed based on feedback from students in the response questionnaire.

Discussion

In this study, the majority of students had a favorable view of the use of the educational game, Gelati Ilmu, when used in Banten-Dialect Javanese Language subjects. The results of the student response assessment in a small group test of 30 students at SDN 1 Cipocok Jaya Serang obtained 77,25%, material experts obtained 94,44%, and media experts obtained 83.92% stated that the "Gelati Ilmu" was Very Feasible and deserved to be one of the alternatives learning media in Banten-Dialect Javanese Language subjects. In a small group test, students were very enthusiastic about playing educational games and enjoyed doing the task question, compared to doing in the lesson books during the conventional learning process. Without realizing it, students experience a variety of emotions during the learning process that affect their learning participation and subsequent academic performance. Negative emotions such as sadness, anxiety, frustation, and boredom will reduce their involvement in learning activities. However, positive emotions can increase effort and persistence. Enjoyment is at the core of game characteristics and is an important positive emotion in educational games to increase learning achievement and decrease anxiety and boredom significantly (Al-Shara, 2015; S. Chen et al., 2020). This is in line with research states that the use of educational game can increase students' interest in learning languages because it is fun, enjoyable, and easy to use (Aulia & Noor Hasan, 2022; Rokhman & Ahmadi, 2020).

This educational game has three missions representing the core materials learned by 4th grade elementary school students in Banten-Dialect Javanese Language subjects, including conversation, writing, and objects. Children learning languages need to use a variety of strategies to develop children's language, children will get a meaningful experience in improving their ability to read and write where fun learning will be part of the child's life (Ernawati & Joko Raharjo, 2021; Hulukati et al., 2017). All of these missions are strategies used to improve student learning interest in understanding Banten-Dialect Javanese Language. The three missions contain rules that must be carried out by students in completing the game. Rules have to be well-designed in educational games. When rules and instructions are not clear, not only unfair situations might occur but also the game could become boring rather than being enjoyable (Eltem & Berber, 2021; Rohayati, 2018). These rules are explained in each mission, such as getting prizes when winning, losing lives when times runs out, and so on.

The first mission teaches players to choose and recognize several words in Banten-Dialect Javanese Language wrapped in the mission of defeating monsters. Defeating monsters in this game is an additional challenge for students to build learning more enjoyable. One of the factors that lead to boredom in the classroom was determined as the widespread use of conventional instruction techniques so that students are insufficiently challenged. (Dumančić, 2018; Kruk & Zawodniak, 2020; Turan-Özpolat, 2020). A player

faces increasing challenges and can increase skills quickly enough to overcome the challenges, but not so quickly as to get bored by the challenges, appears to provide an important game design structure for enhancing the fun or enjoyment (Mellecker et al., 2013; Quick et al., 2012; Tisza & Markopoulos, 2021). By using this challenge, students do not feel that they are given conventional learning material as usual which can make them bored. While students get additional vocabulary in Banten-Dialect Javanese Language in the game of defeating the monster, they do not feel any pressure to learn the information. On the other hand, they are exposed to information every second and are open to new learning opportunities (Kavak, 2022).

The second mission, players are taught to know and choose several colors in Banten-Dialect Javanese Language wrapped by taking the selected color box quickly before the alloted time runs out. An educational game of color recognition can help teachers or parents to further increase students' interest in learning color recognition (F. A. Pratama et al., 2020; Rozi & Khomsatun, 2019; Wang et al., 2017). This mission can establish the students more easily recognize colors in Banten-Dialect Javanese Language when playing the educational game "Gelati Ilmu". The addition of challenges to complete the mission in accordance with the specified time. This does not only improve their knowledge of the subject, but it also increase several skills such as visual literacy skills, reading comprehension skills, and others (Rochimah & Muslim, 2021; Zirawaga et al., 2017). The third mission teaches players to choose and arrange words in Banten-Dialect Javanese Language wrapped by collecting scattered letters to form words quickly before the alloted time runs out. This mission exists because can improve students' creative thinking skills (Novita sari, 2018; Sukerti & Pudjawan, 2020; Zainudin, 2018).

More than 50% of students gave maximum scores on each question asked. This is because the use of educational games for learning creates students' comfortable (Arisandy et al., 2021; Oktariyanti et al., 2021; Pratama et al., 2019). Meanwhile, students who do not give maximum scores even tend to have a bad opinion due to educational games that are still not to their wishes, including no friends to compete with and the atmosphere in the game is less support for them to explore further. Competition in learning is not always a bad thing. It can even be something positive if applied to something positive. Students who experience a sense of competence are more likely to persist in the face of competition, and have better academic results than those who are incompetent (Cheung & Ng, 2021; Harjanta & Herlambang, 2018; Hidayat et al., 2020). Furthermore, learning through competition can increase student motivation to study more and harder (Arianti, 2019; Suci, 2019; Yusuf, 2020). Creating a classroom atmosphere to foster positive competition, perhaps through group educational games related to the material or an opportunity to showcase knowledge and skills in collaboration. Therefore, students enjoy using educational games that allow them to compete with other students.

Beside on the previous findings, the use of educational game will increase motivation's student. Gelati Ilmu, with three mission containing, not only improve their motivation, but also visual literacy skills, reading comprehension skills, creative thinking skills, and others. The implication of this research is that learning media to learn Banten-Dialect Javanese Subject is developed. The contribution of this research is that Gelati Ilmu can make students enjoy to learn the Subject without make boredom or stressfull to mastering many vocabularies and object in Banten-Dialect Javanese such as learning the subject with conventional learning method. The study have many research limitations, namely the student are still not mature enough to be given many opinions about games are useful; the teacher is not a game player so are not be able to provide more opinions regarding advantageous game; there are lack of the research disscussing learning media to learn Banten-Dialect Javanese Subject, so it is difficult to compare with previous educational games. The recommendations for future projects is should develop game-based learning in other device, such as smartphones. Moreover, it should be integrated within the traditional classroom setting to help teacher who not a game player.

4. CONCLUSION

The results of the data analysis found that the educational game has been developed, Gelati Ilmu, is very feasible as an alternative learning media for Banten-Dialect Javanese Language subjects based on the assessment of material experts, media experts, and student response assessment. It was conclude that Gelati Ilmu is practical to use because it can increase students' interest in learning the Banten-Dialect Javanese Language.

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