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THE NEED FOR ELECTRONIC GAMES TO SUPPORT STUDENT INVOLVEMENT AND CONCENTRATION IN LEARNING

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Abstract: The urgency of the potential use of electronic games in learning is in line with the increasingly advanced technology and as an effort to increase student engagement and concentration. Student involvement and concentration is the key so students can have a learning experience. One alternative solution is the development of electronic games to support learning. The electronic game developed in this study uses Unity software. This type of research is descriptive and qualitative and aims to describe the need for electronic games to support student involvement and concentration in learning. Data collection techniques using questionnaires. The questionnaire was made using G-Form containing 7 question items in the form of checklists or descriptions in each item answer column according to the respondent's opinion. The questionnaire was distributed online to respondents who were teachers and lecturers from various educational units in the city of Padang. Based on the study's results, electronic games are needed to increase student involvement and attention in learning activities. Games make learning fun and varied to stimulate students' interest in learning. Students with a high interest in learning will show engagement and involvement to do something diligently for a long time, be easier to concentrate, remember, and not quickly bored with what is being learned.

Keywords: *Electronic Game, Educational Game, Involvement, Concentration*

INTRODUCTION

Learning is an activity to initiate, facilitate, and improve the intensity and quality of learning in Shiva. Learning refers to all activities that directly affect students' learning process [1]. Learning activities involve mutual interaction between students, teachers, learning resources, and the learning environment [2]. Student interaction is a form of student involvement in learning. Student engagement is wider than just the physical presence of the teacher. Students can learn using various media and other learning resources [3]. Thus student engagement in learning is vital to keeping students connected to learning resources [4].

Student engagement embodies how students use their time, energy, thinking, effort, and to some extent, their feelings in learning [5]. Student engagement is a meta-construct that includes behavioral, emotional, and cognitive engagement. Student engagement can also be viewed as one of the keys to overcoming issues such as low achievement, boredom and alienation, and high dropout rates [6]. Student involvement is also assessed as things that show students' willingness to follow learning by participating in a series of activities in the learning process [7]. Student involvement shows active student participation, such as effort, earnestness, concentration, and attention in learning activities accompanied by positive emotions [8].

In comparison, student involvement is identified from low student effort in following learning, such as low effort to complete tasks, low quality of assignments, lack of student participation, and student absenteeism [9]. The seriousness of students in learning can be measured through the magnitude of student involvement in learning. The greater the participation of students in learning, the greater the chances of learning success [10]. Through student involvement, students show they are willing to try and give their time, thoughts, and energy to the learning process.

Student involvement in the learning process, including: a) Physical, mental, and intellectual activities to achieve academic, social, and vocational competencies or better known as cognitive, affective, and psychomotor domains. b) Experimental activities involving students either through observation activities conducted directly in the laboratory or in the field to make reports to be presented. c) The desire of students to create a conducive learning climate. d) Student involvement to find and utilize existing learning resources. Learning resources today are unlimited, especially with computers, the internet, and print media, so teachers must be able to take advantage of this good opportunity. e) The existence of multidirectional interaction, namely student interaction with students and teacher interaction. [11]. Student engagement is divided into four dimensions, namely 1) Agent Engagement: contribution to the command or task given in learning. 2) Behavioral Involvement: students' efforts to participate in learning activities and be serious in doing assignments, obeying school norms and regulations. 3) Emotional Involvement: having positive emotions, students are enthusiastic, no, bored, upset, or bored. 4) Cognitive engagement: use good study techniques to follow in-depth learning activities. Student engagement behavior

can support the learning process well [12]. Student involvement is the key so that students can have experience in learning so that there is a change/addition to their knowledge [13].

Attention can be interpreted as increased mental activity towards certain stimuli [14]. Attention is the formulation of psychic energy focused on one object, which shows a lack of awareness accompanying an action [15]. Attention is a concentration or conditioning of oneself for the concentration of individual activity aimed at a particular object or set of things [16]. Attention is closely related to the awareness of the soul towards an object that is reacted at a time [17]. With the attention that students have, it will help the student learning process. Attention is directly related to the cognitive aspects of students, so students will quickly think and easily accept lessons from the teacher. So that the function of attention in the learning process is very important to improve student learning activities; students with great attention in the learning process will likely carry out learning activities with full awareness and seriousness to achieve high learning achievement. Attention shapes students' behavior patterns and behaviors to stay focused. Attention is an attitude or behavior carried out consciously and deliberately to obtain complete and maximum information [1].

Previous research has shown that student involvement and attention affect student competence at every level of education. Therefore, teachers play a role in guiding students through balanced interaction management by involving students and guiding the process of achieving meaningful learning outcomes together so that they can achieve learning goals [18]. For example, learning at the elementary / MI level in MI Yanida, Tangerang Regency, has obstacles and obstacles that affect student achievement. Factors causing learning difficulties include physical state, emotional state, and attention [19]. Learning at the junior high school level at SMP N 2 Jatilawang shows that most students (69.4%) seem less interested, less active, and tend not to be creative. It is shown by a less enthusiastic attitude during the lesson, low positive response and feedback from students to the teacher's questions and explanations, and less concentration [20]. Likewise, SMPN 22 Semarang found that some students were less involved in learning. The results of the scale analysis showed that 50% of students were late when submitting assignments, 65% chose silence when not understanding the material, 70% were bored and not excited during the learning process, and 60% had made noise during the learning process [21]. Individual internal factors such as emotions, motivation, and student involvement are still learning issues for high school students. Students at the high school level are in transition, so the condition of students is not stable and vulnerable to stress. It can cause problems characterized by decreased student involvement in learning [22]. At the level of higher education, students must be able to be actively involved in lectures and activities outside the classroom. Therefore, learning media is very important in classes [23].

Student attention and engagement have a relationship with student learning interests. Students with a high interest in learning will show awareness and involvement to do something diligently for a long time, be easier to concentrate, remember, and not quickly bored with what is being learned [24]. An indicator of student engagement is student interest. Students are interested in something that makes them happy or willing to do or learn something. The indicator of student attention is the presence of concentration and mental activity on understanding and observation, such as interest in a particular object, automatically drawing attention to that object [8]. To increase student involvement and awareness and reduce student boredom during teaching and learning activities, teachers should use learning resources that students like, namely those that contain play elements and can increase student competitiveness so that students are always encouraged to learn. If the teacher still uses the old method, students will get bored with receiving lessons which ultimately makes students' grades incomplete [20]. The use of media that follows the learning objectives and the material taught, as well as a language style that is not monotonous, is something that teachers can do to increase engagement and attract student attention [25].

The integration of games and learning can be one of the opportunities to solve such problems. Based on data obtained by Kompas, 14% of teenagers who are middle and high school students in the capital alone experience addiction to playing games. In line with data obtained from previous studies, it shows that in Indonesia, 10.5% of adolescents in four cities in Indonesia (Manado, Medan, Pontianak, and Yogyakarta) are declared to experience online game addiction [26]. Games are activities that take place within a certain time and space, in the order of play, according to freely applicable rules, and outside the scope of material needs or needs. The game is exciting and enthusiastic and is sacred or festive according to the occasion [27]. The application of game integration and learning can be used at all levels of education or in subjects considered difficult by students because they tend to be disliked, so they could be more enthusiastic about following learning [28].

The use of games in education has experienced significant development in its development. The benefits of games as a medium for playing and learning in Indonesia are still rare because games are considered to be only a medium of entertainment rather than a medium of learning. The importance of technology-based learning

media, where technology is very advanced and growing, makes it easier to teach and learn activities so that learning is no longer a boring scourge; utilizing technology-based learning media, learning can be done anywhere, and learning becomes more fun. In addition, considering that technology is one side that is quite close to the development of students today, it should be able to be utilized optimally for positive development [29].

Electronic games are educational games in the form of game applications/games specifically designed to help the learning process. Using e-games, we can provide stimulus to three important parts of learning: emotional, intellectual, and psychomotor [30]. The application of games in learning aims to overcome learning problems by increasing interest in learning, helping the development of intelligence, and increasing student involvement and attention so that children's abilities in learning processes develop better [31]. A game is not only a game but also an intermediary of different knowledge to connect facts and ideas through a plot that is organized and structured so that the users can enjoy an atmosphere [32].

Learning using electronic games is an alternative that can increase student involvement in learning [33]. Electronic games make the material displayed more exciting and accompanied by clear illustrations so that it is easier to imagine and understand the material related to the integration of entertainment content in games can create a fun learning climate without compromising the material that students must learn [34]. Using electronic game media in the teaching and learning process can also arouse stimuli for learning so that student involvement and attention to learning becomes better [35]. By seeing the urgency of the need for electronic games in learning, the author is interested in researching the need for electronic games to support the involvement and concentration of student attention in learning.

RESEARCH METHODS

This type of research is descriptive and qualitative and aims to describe the need for electronic games to support student involvement and concentration in learning. The research procedures carried out are as follows: (1) preparation of questionnaires, (2) distribution of questionnaires to respondents, (3) analysis of answers given by respondents, (4) concluding. Data collection techniques using questionnaires. The questionnaire was made using G-Form containing 7 question items, each requiring a response in the form of a checklist or description in each item answer column according to the respondent's opinion. Data analysis techniques use percentages, namely responses to each question item answered, responses to which will be classified based on the percentage gain.

Before distributing the questionnaire, it is necessary to assess the questionnaire that will be used to validate it. In this activity, validators are asked to assess the questionnaire that has been made. Furthermore, the distribution of questionnaires was carried out. A summary of the question points on the questionnaire used in this study is presented in Table 1 below:

Table 1. Instrument Question Item

Questions numbers	Question Focus
1	Smartphone/android ownership
2	Media most often used in learning activities
3	The level of frequency and type of games that students often play / students
4	Integrating games into learning
5	Games that support learning as well as the positive benefits of games in learning
6	Games that students are interested in
7	Considerations as teachers/lecturers in developing electronic games to support learning

The questionnaire was distributed online to respondents who were teachers and lecturers from various educational units in the city of Padang. Research conclusions can be drawn after analysis of questionnaires filled out by 20 respondents.

RESULTS AND DISCUSSION

Electronic games are made using Unity software. Unity is an application used to develop multi-platform games that are designed to be easy to use. The course material is inputted into the electronic game so students can read it. Electronic games are set using real-world conditions and consist of several levels with different difficulty levels. The following is presented the display of electronic games developed in this study.

The front screen has a navigation menu, how-to videos, giveaways, and game developers. Next, students can select the play menu to start the game. The play menu has different levels with different materials, as seen in the figure 2 below.

In picture 2, there are four levels of play. Each level is also equipped with learning objectives, subject matter, and practice questions completed by game challenges, as shown in the figure 3 below.

Figure 1. The initial view of electronic games- adventure games

Figure 2. Electronic gameplay levels – adventure games

Figure 3. Display the contents of electronic games – adventure games

The difficulty of each level can trigger students to complete challenges so that there is enthusiasm and interest in learning to complete each level of the game and advance to the next level. Student attention and engagement have a relationship with student learning interests. Students with a high interest in learning will show awareness and involvement to do something diligently for a long time, be easier to concentrate, remember, and not quickly bored with what is being learned [8]. The urgency of the potential use of electronic games in learning is in line with the increasingly advanced technology. Therefore, to find out the need for electronic games, the author made a questionnaire and distributed it online to teachers and lecturers from various educational units in Padang. The

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answers given by respondents can be seen in the picture below.

1) In the class that you teach, what percentage of students have Android?

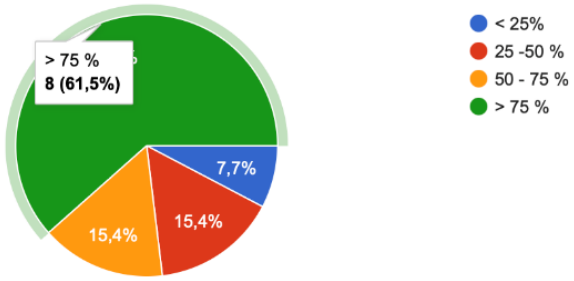

Figure 4. Results of the analysis of the first question item

Figure 4 shows that more than 75% of students already have Android smartphones; this shows the higher consumptive power among students toward Android, in line with the increasingly sophisticated features offered and the increasing number of conveniences provided by Android smartphones. Ten years ago, mobile phones were only used to send messages and share news via voice, and some brands and types have been equipped with simple internet features. Compared to today's version, mobile phones have developed into Android smartphones and have features so that users can communicate directly and face-to-face with interlocutors via video calls, ease of sharing files such as images, documents, videos, and others, and internet access widely and quickly. Various applications contained in Android smartphone features include games, cameras, recording, and social media. It shows the need for Android smartphones among students as mobile phones and learning media.

Using Android as a learning medium is very effective and efficient, where learning. Can be done while playing games that make children more interested in learning because Android can be used as a medium to play while learning[36]. Android is an operating system for Linux-based mobile devices, including the operating system, middleware, and applications." At this time, most smartphone vendors have produced smartphones[37]. Electronic games that have been developed can be installed on Android smartphones; then, students can play the game as a learning medium. Using electronic games as a learning medium through Android smartphones is expected to increase student involvement and concentration in learning activities. Furthermore, the answer to the second question item can be seen in Figure 5 below.

2) Do you often use media in learning activities? If so, what media do you often use in learning activities?

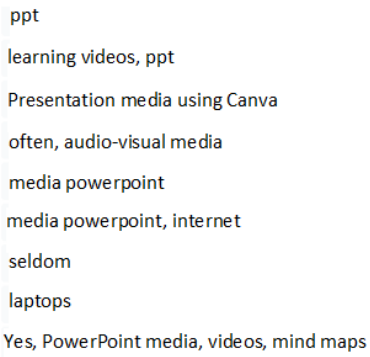

Figure 5. Answer to the second question item

Based on Figure 5, it can be seen that respondents use various media to support learning activities. Media is an inseparable part of learning activities. Learning media is everything used to channel messages through learning materials to stimulate students' attention, interest, and thinking to learn [38]. Media is used to channel messages and promote learning in students; Media can also be said to be teaching aids [39]. Games can be used as a learning medium. A game is not only a game but also an intermediary of different knowledge to connect facts and ideas through a plot that is organized and structured so that the users can enjoy an atmosphere [32]. Furthermore, the answer to the third question item can be seen in Figure 6 below.

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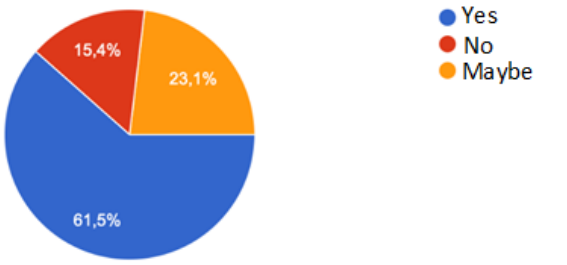
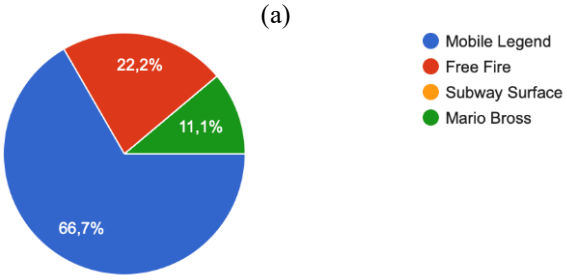
3) a) Do your students/students often play games in their daily activities using Android/smartphones?
b) If so, in the previous meeting, what games did your students often play?



(a)



(b)

Figure 6. Answer to the third question item

Based on Figure 6, it can be seen that students often play games using Android smartphones. A percentage of 61.6% shows this. Adolescence still

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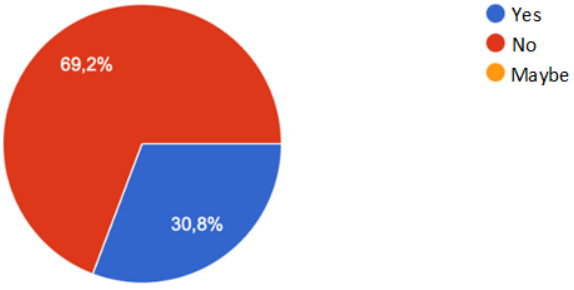
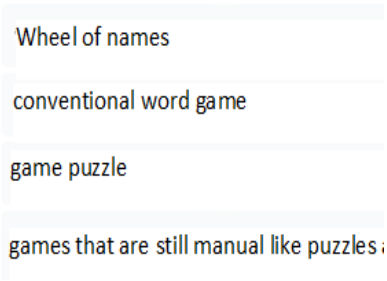
loves challenge-based activities and play. Play is vital for physical, emotional, mental, intellectual, creative, and social development [40]. In addition to academic activities, intellectual-social abilities can develop through games [41]. Games often played are the type of adventure echo (adventurer game), for example, the mobile legend with a percentage of 66.7%. Furthermore, the answer to the fourth question item can be seen in Figure 7 below.

4) a) Have you ever integrated games into learning? b) if so, what kind of games have you used?



(a)

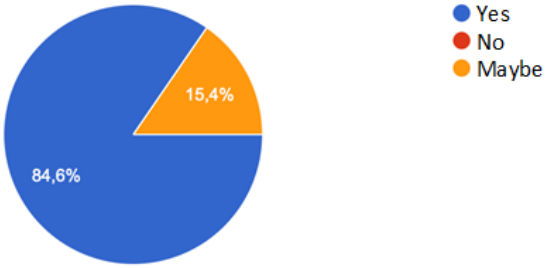


(b)

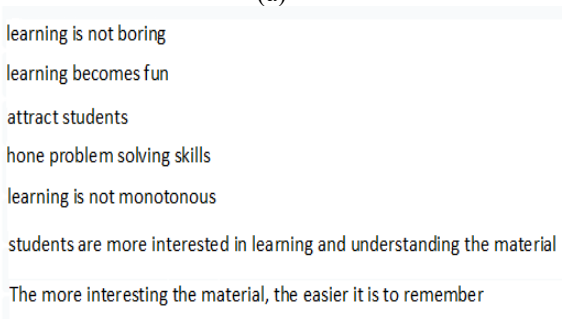
Figure 7. Answers to the fourth question item

Figure 7 shows that the percentage of respondents who have integrated games in learning is 30.8%, while 69.2% still find it challenging to incorporate games in learning. Using game media in the teaching and learning can generate new desires and interests and create motivation and stimulation to learn [35]. There is a relationship between student motivation and engagement [42]. The element of motivation is beneficial in the growth of the concentration process. Concentrating mental involvement in detail is necessary so that it is not "attention" simply. So it can be concluded that concentration is very influential on the learning process; concentration is essential for attention to what is explained during the learning process, so there is no grasp of what is explained [19]. Therefore, games are needed to help concentrate students' attention on learning activities. Furthermore, the answer to the fifth question item can be seen in Figure 8 below.

5) a) in your opinion, can the use of games in learning support the success of learning? b) what are the positive benefits of games in learning?



(a)



(b)

Figure 8. Answer to the fifth question item

Based on Figure 8, 84.6% of respondents agree that games can support learning. Respondents stated the positive benefits of using games in learning, including making learning less boring, learning more fun and not monotonous, can attract students, honing problem-solving skills, and the subject matter becoming more interesting and easy to remember. It aligns with the opinion that game is a learning medium that can increase understanding quickly because interesting games support it and students become active. The content in the game is a combination of several elements, such as graphics, animation, text, sound, and video, into stimuli to attract students' attention and interest in the lessons delivered. Students can see, hear, observe, and interact by navigating through the game program's buttons, tools, and other navigation. [43]. Furthermore, the answer to the sixth question item can be seen in Figure 9 below.

6) a) In your opinion, which games are more attractive to students, with or without technology? b) what kinds of electronic games are students interested in learning activities?

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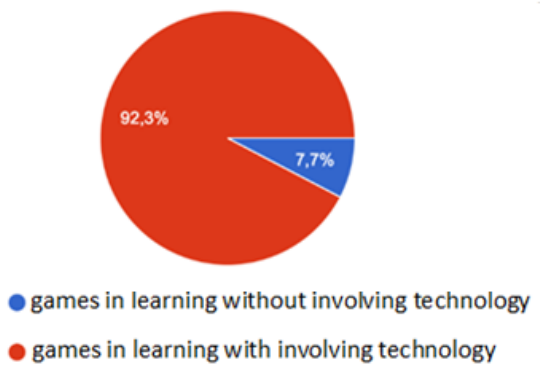

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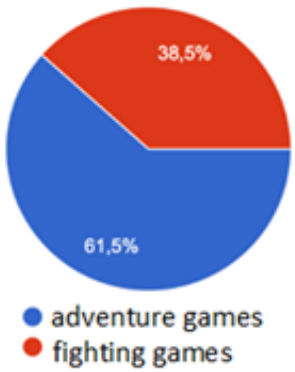

(b)

Figure 9. Answer to the sixth question item

Based on Figure 9, it can be seen that 92.3% of students are more interested in games in learning by involving technology. With today's technological advances, the types of games that have sprung up are increasingly varied. 61.5% of respondents stated that students are more interested in adventure games for learning activities. Adventure games are software programs that present a mock environment where players will interact to solve problems in the game [44]. Adventure games have different levels of difficulty in each level. It will bring enthusiasm and interest in learning to complete each game level and advance to the next level. Student attention and engagement have a relationship with student learning interests. Students with a high interest in learning will show attention and involvement to do something diligently for a long time, be easier to concentrate, remember, and not quickly bored with what is being learned [8]. Furthermore, the answer to the seventh question item can be seen in Figure 10 below.

7). what are our considerations as teachers in developing an electronic game in learning activities?

Based on the figure 10, percent of respondents stated the type of game is a consideration for developing electronic games in learning activities, as much as 53.6% of game display 38.5%, and 7.7%, music in games. An adventure game is a genre with a storyline where if the storyline is over, then the game is also over. Features of this genre include that the gameplay involves collecting items [45].

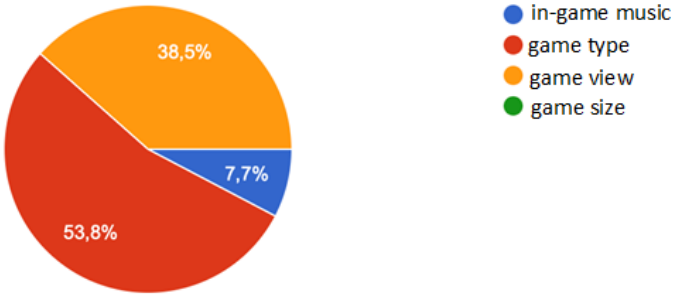

Figure 10. Answer to the seventh question item

The potential of games is to be explored in learning activities as a learning medium. Educational games that are facilitated through technology make the material displayed more exciting and accompanied by clear illustrations so that it is easier to imagine and understand the material, related to the integration of entertainment content in games can create a fun learning climate without compromising the material that students must learn [34]. The use of games in learning can increase student involvement and concentration. Students with a high interest in learning will show attention and involvement to do something diligently for a long time, be easier to concentrate, remember, and not quickly bored with what is being learned [8].

CONCLUSION

Based on the results and discussion, electronic games are needed to increase student involvement and attention in learning activities. Games make learning fun and varied to stimulate students' interest in learning. Students with a high interest in learning will show attention and involvement to do something diligently for a long time, be easier to concentrate, remember, and not quickly bored with what is being learned.

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