The Potential of Electronic-Games In Harmonizing Differentiated Learning for Alpha Generation

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A B S T R A C T

The challenge of using rapid technology occurs in alpha generation learning activities, giving rise to differentiated learning. The variety of student learning styles is one of the benchmarks in differentiated learning so that supporting learning media in the form of electronic-games is needed. This study aims to describe the potential of electronic-games in harmonizing differentiated learning for generation alpha. This type of research is descriptive qualitative. Data collection techniques using questionnaires. The questionnaire was distributed online to respondents who were students of SMP Subulussalam Kota Padang Pariaman. The use of electronic-games in learning activities is one manifestation of differentiated learning. Differentiated learning views students differently and dynamically, where teachers see learning with various points of view. Novelty: Important contributions from the results of this research claim that the use of electronic games can support differentiated learning for the alpha generation.

1. Introduction

Learning is a lifelong process. Through learning activities there is a change in personality that expresses itself as a new pattern rather than a reaction in the form of skills, attitudes, habits, intelligence, or understanding (Makki & Aflahah, 2019). Learning can also be interpreted as all psychic activities carried out by each individual so that their behavior is different between before and after learning. Changes in behavior or responses, due to new experiences, having intelligence or knowledge after learning, and practicing activities (Wardana & Djamaluddin, 2021; Z. Zakirman et al., 2022).

Student learning styles are influenced by various factors including internal and external factors. Internal factors are factors contained in the individual himself. This internal factor is related to the physiological and psychological elements of

the student. The physiological elements of students are in the form of general physiological conditions and sensory conditions. While elements of psychology in the form of interest, intelligence, talent, motivation, and cognitive abilities. External factors are factors that come from outside students, external factors are grouped into three, namely family factors, school factors and community factors (Faizah, 2020). In general, unique and diverse student learning styles are also influenced by differences in the learning speed of each student and differences in student interests and talents.

In conventional learning activities, teachers tend to equate the treatment of student learning styles so that they are not sensitive to differences in individual learning styles. This encourages the emergence of differentiated learning in the independent learning curriculum. Freedom of learning means freeing students from various things that confine their creativity and imagination. However, staying within the regulatory corridor is not directionless. Learning freedom focuses on appreciation of the uniqueness and distinctiveness of each individual (Budiningsih, 2010).

Differentiated learning is a learning activity that creates diversity in the classroom based on students' interests and talents and varied learning styles. Differentiated learning facilitates all the differences that students have openly with the needs that will be achieved by students. Differentiation learning provides guidance that is in harmony with the nature of human development that instills the concept of example in the various characteristics of these students (Purwowidodo & Zaini, 2023). Differentiated learning is a teaching and learning process where students can learn subject matter according to their abilities, what they like, and their respective needs so that they are not frustrated and feel failed in their learning experience (Marzoan, 2023).

Various factors cause the unmet learning needs of diverse students, namely learning resources that have not been supported and teacher human resources that are not yet qualified. For example, when students access subject matter with their learning styles both audio, visual and kinesthetic as well as their learning preferences both individually and in groups, teachers need to facilitate so that students can learn optimally (Basra, 2023). Students with visual learning styles will be better at learning in the form of pictures while students with audio learning will prefer to learn with material in the form of audio. With regard to the learning style of each student is different, then as a teacher should know the learning style of his students, so that they can choose and use learning methods that are suitable and liked by their students (Rodkroh et al., 2013; Sundayana, 2018).

Previous research conducted by Rijal, et al (2015) showed that there is a positive relationship between learning styles, independence and student learning outcomes (Rijal & Bachtiar, 2015). Research conducted by Widayanti (2013) states that the identification of student learning styles shows a significant influence on learning outcomes (Widayanti, 2013). In addition, research conducted by Cholifah (2018) shows that knowing learning styles is very useful for teachers for the learning

process in the classroom, namely to recognize the character of student learning styles and can be used as the right media selection for students (Cholifah, 2018).

Differentiated learning can be integrated with several other learning methods that are tailored to student learning styles (Gusteti & Neviyarni, 2022) One of them uses educational games in the form of electronic-game media. Electronic games are educational games in the form of game applications / games that have been specifically designed to help in the learning process (Dorneles et al., 2015; Yu et al., 2020). By using e-games we can provide stimulus to three important parts of learning: emotional, intellectual and psychomotor (Meimaharani & Listyorini, 2015). Through electronic game making the material displayed more interesting 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 (Pratama et al., 2019).

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 have experienced online game addiction(Habsy, 2017). 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 one of excitement and enthusiasm, and sacred or festive according to the occasion (Noemí & Máximo, 2014). The application of game integration and learning can be used at all levels of education or in subjects that are considered difficult by students because they tend to be disliked so they are not enthusiastic about following learning (Mukarromah & Agustina, 2021; Tayibnapis, 2021).

Generation alpha is the generation of the 21st century or children born in the millennial generation, this generation grows and interacts with various technologies (Manuel & Sutanto, 2021; Purnama, 2018). The alpha generation began to be born in 2010, the same year the first iPad was released, and Instagram was launched. With a typical generation length spanning 15 years, the last of the alpha generation will be completed in 2024 (Assingkily et al., 2019; Simin, 2021). Generation alpha is a generation that is familiar with digital technology, generation alpha rarely releases gadgets, lacks creativity, is more individualistic, and less social. Generation alpha wants instant things so they lack respect for process (Swandhina & Maulana, 2022). Therefore, education that can facilitate this alpha generation is education that is also familiar with digital technology, where teachers are no longer the only source of learning. Teachers are expected to be facilitators who are able to facilitate children's learning in order to experience maximum development (Fadlurrohim et al., 2020; Meliala, 2023).

Alpha generation students are used to high-order thinking. They are expected to be accustomed to answering questions why, how, and can create. The learning model is also chosen that can accustom children to activities, namely

experiencing, interacting, communicating and collaborating (Gusteti & Neviyarni, 2022). The use of electronic-games is one solution to this challenge. The use of electronic-game media in the teaching and learning process can generate stimuli for learning so that student involvement, attention and thinking ability towards learning become better (Harmonis et al., 2022). By seeing the urgency of the need for electronic-games in learning for generation Alpha, the author is interested in conducting research with the aim of describing the potential of electronic-games in harmonizing differentiated learning for generation alpha.

2.　　Methodology

This type of research is descriptive qualitative and aims to describe the potential of *electronic-games* in harmonizing differentiated learning for generation alpha. 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) drawing conclusions. Data collection techniques using questionnaires. The questionnaire is made using G-Form containing five question items, each of which requires a response in the form of a checklist or description in each item answer column according to the respondent's opinion. A summary of the question points on the questionnaire used in this study is presented in Table 1 below:

Table 1. Instrument Question Item

Item Number	Question Focus
1	Student responses to the ease of understanding the subject matter using *electronic-games*
2	Student responses to the practicality of using *electronic-games*
3	Student responses to the ease of access to *electronic-games*
4	Student responses to the suitability of interest in the use of *electronic-games*
5	Student responses to *electronic-games* in learning activities

The questionnaire was distributed online to respondents who were students of SMP Subulussalam Kota Padang Pariaman, with three categories, namely smart students, namely students ranked 1 to 5, medium ranked students, namely students ranked 6 to 15, and low ranking students, namely students ranked > 15. The sample was selected as many as 9 students consisting of 3 students in each category. Research conclusions can be drawn after analysis of questionnaires filled out by respondents.

3.　　Results and Discussion

Results

A game is not only a game but also an intermediary of different knowledge to connect facts and ideas through a flow that is made organized and structured so that an atmosphere can be enjoyed for the users who play it (Ahdan et al., 2019;

Ramli et al., 2022). In addition, games can be a learning medium not only for one learning style, but a combination of all three learning styles (Bire et al., 2014). In this study, electronic-games were used as a medium to harmonize differentiated learning. After students used electronic-games in learning activities for 4 face-to-face meetings, then students were asked to fill out questionnaires. Student responses are presented in the form of diagrams as below.
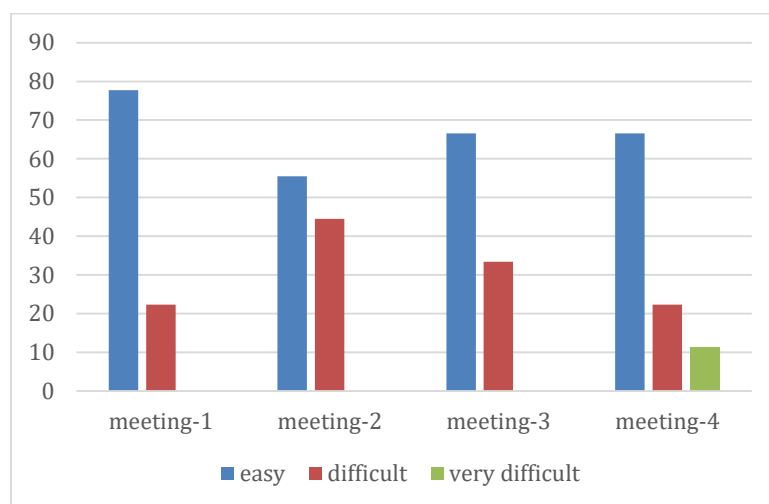

Figure 1. Percentage Students' Perception of Ease of Understanding Subject Matter Using Electronic-Games

Based on figure 1, it can be understood that a higher percentage of students who stated that the use of *electronic-games* made it easier for them to understand the subject matter at each face-to-face meeting with an average percentage of 66.6. Furthermore, students' responses to the practicality of using *electronic-games* are presented in figure 2 below.
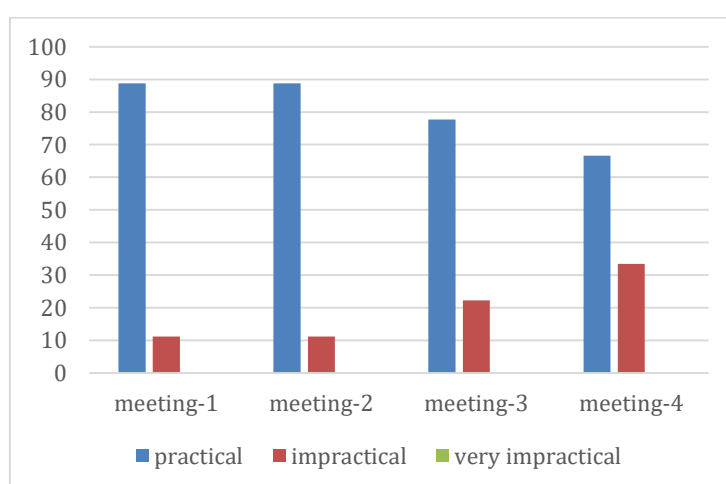

Figure 2. Percentage Students' Perception of The Practicality of Using Electronic-Games

Based on figure 2, it can be understood that a higher percentage of students stated the use of practical electronic-games at each face-to-face meeting with an average percentage of 80.47. Furthermore, students' assumptions about the ease of access to use electronic-games are presented in figure 3 below.
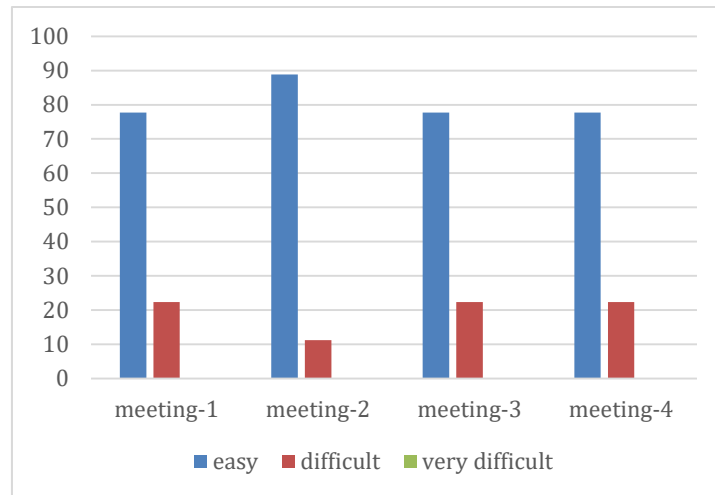

Figure 3. Percentage Students' Perception of Ease of Access
to Electronic-Game Use

Based on figure 3, it can be understood that the percentage of students who stated that they could easily access electronic-games at each face-to-face meeting with an average percentage of 80.47. Furthermore, students' responses to the suitability of interest in using electronic-games are presented in figure 4 below.
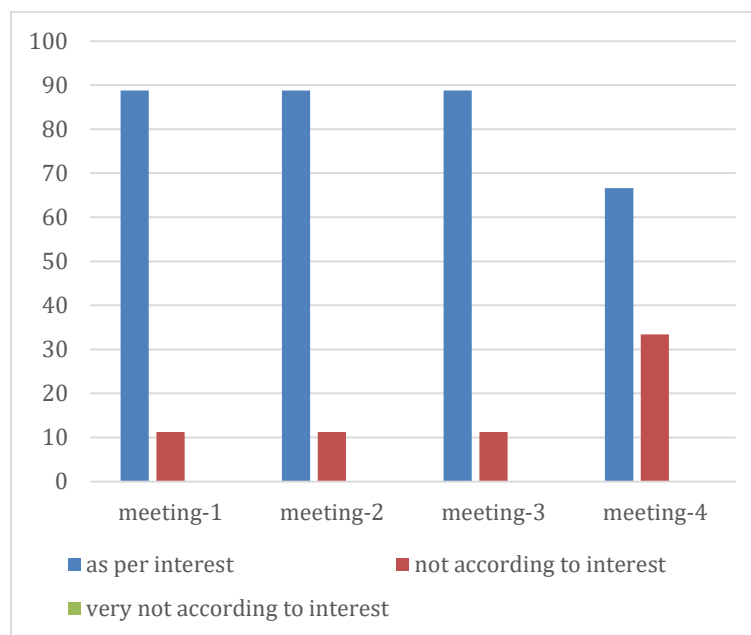

Figure 4. Percentage of Student Responses to The Suitability of Interest in Using
Electronic-Games

Based on figure 4, it can be understood that the percentage of students who expressed interest in electronic-games at each face-to-face meeting with an average percentage of 83.25. Furthermore, students' assumptions about electronic-games in learning activities are presented in figure 5 below.
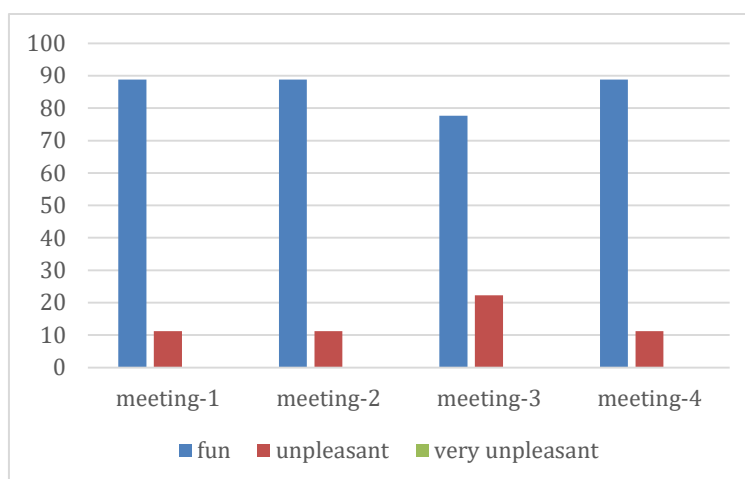

Figure 5. Percentage Students' Perception of Electronic-Games in Learning Activities

Based on figure 5, it can be understood that a higher percentage of students stated that learning activities were fun with the use of electronic-games at each face-to-face meeting with an average percentage of 86.02.

Discussion

Learning independence is a new paradigm in the world of Indonesian education. Students are given the opportunity to learn without stress and pressure so that learning activities become fun. The learning services provided are tailored to the interests and abilities of students. In the end, students will have a portfolio that suits their passions (Hattarina et al., 2022). Basically, learning is a process of mental activity of a person in interacting with his environment so as to produce positive behavioral changes both changes in aspects of knowledge, attitudes, and psychomotor (Setiawan, 2017). Making electronic-games in this study using Unity software. Unity is an application used to develop multi-platform games that are designed to be easy to use. To access this electronic-game, students can easily download it through the play store then install it on their respective smartphones. Here is presented the display of electronic-games that are already available on the play store.

Figure 6. Electronic-Game Display Is Already Available On Play Store

The course material is inputted into the electronic game so that it can be read by students. The following is presented the display of electronic-games that have been developed.

Figure 7. Electronic-Game Display

Electronic games are set using real-world conditions and consist of several levels with different levels of difficulty. The difficulty of each of these levels 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 (Hainey & Connolly, 2010; Sawyer et al., 2018). The following is presented a picture when students use electronic-games in learning activities.

Figure 8. Students Using Electronic

Based on data analysis, it can be understood that the use of electronic-games received positive responses from students with an overall percentage of 66.6% stating easy to understand the subject matter, 80.47% practical use, 80.47% easy to access, 83.25% according to student interests, and 86.02% making learning activities fun.

Generation Alpha is a generation that is very dependent on the presence of technology, they have a different understanding of technology, namely to facilitate their daily activities, make it easier to find information about various learning materials that can be accessed anytime and anywhere, they are of the view that learning does not have to be in class or from books (Widodo & Rofiqoh, 2020). As Alpha generation teachers, we must provide approach techniques that are appropriate to today's times. Teachers are required to be able to follow technological developments so that the learning process in the classroom can be accepted and followed by students as well as being able to utilize the potential that students already have (Purnama, 2018; Simin, 2021). The use of electronic-games is in accordance with the interests and characteristics of Alpha generation students so that they are easier and without experiencing much difficulty when operating electronic-games.

The use of electronic-games in learning activities is one manifestation of differentiated learning. Differentiated learning views students differently and dynamically, where teachers see learning with various points of view. Differentiated learning does not mean individualized learning. However, it is more directed towards learning that accommodates student needs through independent learning and maximizes student learning opportunities (Gusteti & Neviyarni, 2022).

The application of games in learning aims to be able to overcome learning problems in increasing interest in learning, helping the development of intelligence increase student involvement and attention so that children's abilities in learning processes develop better (Ridwan Arif Rahman et al., 2016) (Jayanti et al., 2018; Ridwan Arif Rahman et al., 2016; Winaryati, 2018). In its development, the use of games in the field of education has experienced significant development. The benefits of games as a medium for playing and learning in Indonesia are still not a common thing because games are considered to be only a medium of entertainment rather than as a medium of learning. The importance of technology-based learning media where currently technology is very advanced and growing makes it easier in teaching and learning activities, so that learning is no longer a boring scourge, where by utilizing technology-based learning media, learning can be done anywhere and learning becomes more fun (Zakirman et al., 2023). 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 (Burn, 2016; Setiawati, 2019).

4. Conclusion

The use of electronic-games in learning activities is one manifestation of differentiated learning. Differentiated learning views students differently and dynamically, where teachers see learning with various points of view. Students can learn enthusiastically and learning becomes fun. Implication : The results of this study provide a picture of the massive use of technology for the alpha generation. By presenting electronic games in learning, it is hoped that it can support learning for the alpha generation. The limited number of educational games and the lack of human resources with the skills to design educational games are also challenges for the world of education. So that quality educational games can be made cannot be separated from the qualified skills of the developers who are educators and educational practitioners. It is hoped that in the future there will be more research and training related to educational games, especially electronic games.

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