THE EFFECT OF COMPUTER-BASED INSTRUCTION SIMULATION MODEL BASED ON INTERACTIVE MULTIMEDIA ON STUDENTS' INTRAPERSONAL INTELLIGENCE

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Abstract- This study aims to determine whether computer-based instruction interactive multimedia-based simulation model affects students' intrapersonal intelligence. This study uses quantitative methods type pre-experimental design, where for data collection instruments using a questionnaire totaling 36 items that have been tested for validity and reliability. Subjects totaled 25 students and hypothesis testing using the man-whitney test where previously the normality test prerequisite test was carried out. The results found the P value in the Man-whitney test of 0.02 which is smaller than 0.05 so it can be concluded that computer-based instruction simulation model based on interactive multimedia has an effect on students' intrapersonal intelligence.

Index Terms- Multiple Intelligences, Intrapersonal, Elementary school student, computer based instruction interactive multimedia based simulation model

I. INTRODUCTION

Intrapersonal ability is actually a more familiar term used in the field of psychology. However, one theory that is often used as a reference in the field of education is Howard Gardner's *Multiple Intelligences*. In his book entitled *Frame of Mind*, he explained that there are 7 types of intelligence and then followed by 2 more (Gardner, 2011; Nulhakim et al., 2019), where one type of intelligence is Intrapersonal. Intrapersonal intelligence is closely related to self-understanding. Gardner explains that intrapersonal intelligence is a natural process, where a person has a tendency to manage feelings or perceive others (Gardner, 2011). This is in line with Shearer & Karanian's statement that Intrapersonal intelligence is the ability of a person to understand themselves (*self-awareness*), *self-regulation* and self- management in reacting to actions from other people or situations properly (Shearer & Karanian, 2017). Based on this, it can be simply concluded that Intrapersonal intelligence is the ability to manage oneself well. As for someone who has good Intrapersonal intelligence, it shows certain distinctive characteristics.

Like other types of intelligence, Intrapersonal intelligence also has its peculiarities. Armstrong explains that a person who has good Intrapersonal intelligence has a tendency to think about things that are important to himself, is interested in the process of self-development, has clear ideals, is independent and prefers to do his own things (Armstrong, 2009). he also added that there are 2 things that can be done to develop Intrapersonal intelligence, namely maximizing systems and facilities that are in accordance with his learning style (Armstrong, 2009).

Based on the description above, we can conclude that Intrapersonal intelligence is a very important ability for every student to have. To enlarge the potential development of students' Intrapersonal intelligence, a learning process is needed that is able to provide the learning experiences needed.

Maximizing the implementation of learning in the globalization era like today, ideally using a touch of technology, especially the use of computers. Its utilization can be intended for the effectiveness of improving the quality of learning, one of which is a computer utilized in the form of *computer-based instruction,* where this is alluded to by Mayer & Moreno who say Computer-based Instruction is learning that uses images such as animation and words that have great potential to increase student understanding (Mayer & Moreno, 2002). Darmawan explained that *computer-based instruction* is a program in the form of a device that is used to process data, even to create interaction between the program and students (Darmawan et al., 2019). This shows that there are many benefits that can be taken by involving computer devices in learning. Kulik & Kulik stated that the use of *computer-based instruction* not only has an impact on reducing costs, but also has an impact on the effectiveness of direct delivery of subject matter (Kulik & Kulik, 1991), and is reinforced by Davis who explained that *computer-based instruction* provides teachers with an easier means to teach students.

meet the needs of diverse students (Hertberg-Davis, 2009). This can happen because in *computer-based instruction*, the teacher acts as a progamer and designer, so that students can interact with computer-based media. (Sudarti et al., 2022).

In the world, there have been many implementations of *computer-based instruction* in various human activities, but in education, Rusman explained that there are 4 computer-based learning models that can be done, namely *drill & practice, tutorials, simulation,* and *instructional games* (Rusman & Pd, 2012). In the *simulation* model, Alessi & Trollip describe 4 kinds of simulations, namely physical, procedural, situational, and process simulations. Thus it can be seen that the presence of *computer-based instruction simulation* models can provide benefits (Trollip & Alessi, 1988), while Smaldino, Russel, Molenda & Heinich describe the benefits, among others, students are more controlled, can accommodate a variety of special needs of each student, student progress can be monitored, can manage all types of information, provide a variety of experiences for students, convey language specifically and logically (Smaldino et al., 2008).
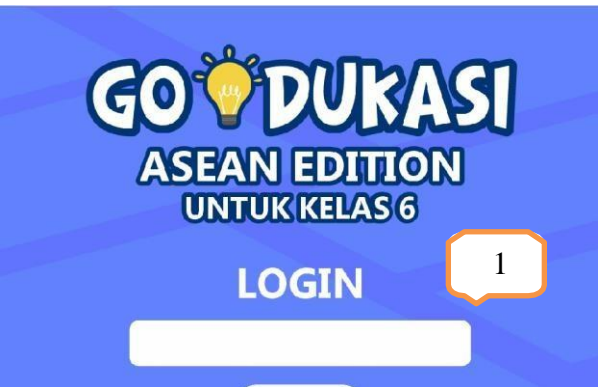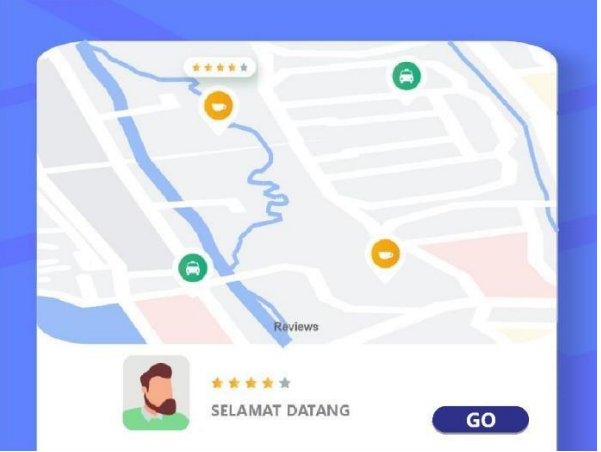
When we have found the right plan by including *computer-based instruction* simulation model in the learning process, of course we have only discussed the container. It takes content that can be the main stimulus for the learning process itself. One of the contents that is considered appropriate to use is interactive multimedia. Drabenstood explains that interactive multimedia is the use of media elements in the form of words in the form of text and sound recordings, sound effects, music, live action, still, and animated images, and an interface (Drabenstott, 2003). With the involvement of many new things in learning, the potential for attractiveness will be even greater. Mukminan explains that learning using interactive multimedia is very beneficial for students in encouraging curiosity, trying new things and practicing problem-solving skills (Mukminan, 2011). This is reinforced by Surjono who said that interactive multimedia can be used as a trigger to increase student curiosity sensorially by providing sound effects and attractive image displays, and cognitively by providing information that is incomplete or contains contradictions (Surahman & Surjono, 2017).
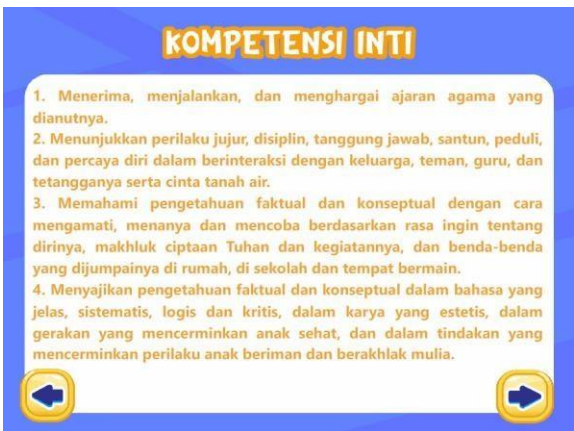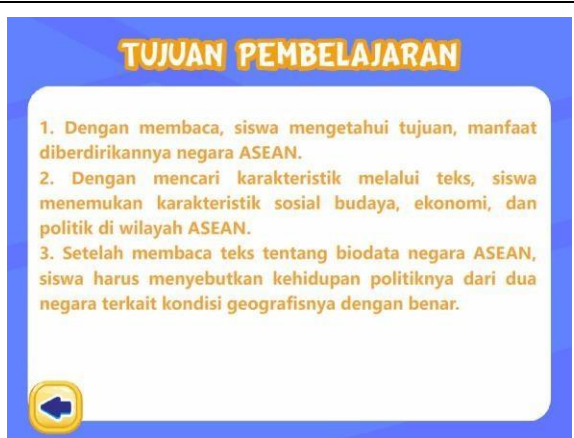
The use of *computer-based instruction* simulation models *based on* interactive multimedia will be effective and efficient if applied in high grades, one of which is in grade VI. Piaget states that students at elementary school age are in the concrete operational stage, where at this stage, children are already thinking using the formulation of their experiences, and not dominated by perceptions (Schunk, 1995)**.** Thus, it is necessary to further investigate whether computer-based instruction simulation model based on interactive multimedia has an effect on students' intrapersonal intelligence.

3. Method

in this study the subjects amounted to 25 6th grade students of SDN PASANGSARI, where the research method used Pre- experimental design. The indicators of Intrapersonal students are self-understanding, self-regulation, managing reactions to others. To measure these indicators will be used a questionnaire totaling 36 items that have passed the validity and reliability tests. Hypothesis testing will be carried out after the prerequisite test, namely the normality test, and then using man-whitney because the number of subjects is only 25. The following is a display of the interactive multimedia used.

NO	DESCRIPTION	SHOW
1	**Bumper In:** wait	

2	**Opening**: write username in box 1	
3	**Welcoming**: click GO	
4	**Home**: there is a KI/KD menu, Objectives, MATERIAL, QUiz.	

5	**KI/KD**: When you click the KI/KD menu on home you are in KI. the left arrow button will point to HOME, the right arrow will point to KD.	

6	**KD**: contains Basic Competencies. click the left arrow button to return to the previous menu.	
7	**LEARNING OBJECTIVES**: on This menu contains an explanation of the learning objectives.	

8	**MATERIALS**: Opening material has a choice of ASEAN and ASEAN MAP	
9	**ASEAN**: the first page consists of explanation 1.	

10	**ASEAN**: page 2 contains explanation 2.	
11	**ASEAN**: Retrieved from 3 consists of explanation 3.	

12	**ASEAN MAP:** contains flags which, when clicked, will show an explanation.	
13	**ASEAN MAP**: view if one of the flags is clicked.	

14	**OPENING QUESTION:** start button to begin.	
15	**QUESTIONS**: contains 10 multiple choice questions.	

16	**ASSESSMENT**: the results of filling in the quiz answers will appear automatically. with a description.	

4. Result

Based on the results of comparing the students' Intrapersonal intelligence questionnaire before and after the application of *Computer Based Instruction.*
Interactive Multimedia-Based Simulation Model, it is clear that there is an influence of increasing

	Pre Average	Post Average
Total Items 36	47	78
Total students 25		
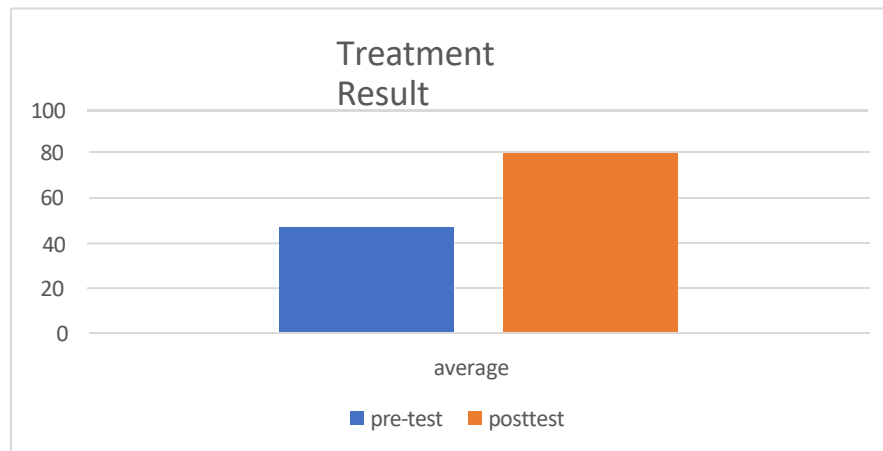
Because the total research subjects are below 100, the data is automatically declared abnormal. For hypothesis testing using the man-whitney test. The results of the man-whitney test are as follows.

	P Value	Standard
Total Items 36	0,02	0,05
Total students 25		

Based on this, it is found that the P-Value of the Man-whitney test results is smaller than 0.05, which means that there is a significant difference.

5. Discussion

Based on the test results, a significant effect was found on the application of *Computer* Based *Instruction* Interactive Multimedia Based Simulation Model on Students' Intrapersonal Intelligence. this can be seen in the results of each Intrapersonal indicator. The first indicator is self-understanding. In this indicator there is an increase because in the implementation of *Computer Based Instruction* Interactive Multimedia Based Simulation Model there is a process of responding, assessing the response and providing feedback on the response. this process provides space for students to do self-introspection of what has been done. the existence of this reciprocity is in accordance with the results of Erhamwilda's research which explains that when *peer talk* is done to provide mutual input it will effectively increase students' *self-esteem* (Erhamwilda, 2011).

The second indicator is self-regulation. in this case students' self-regulation increased quite significantly. this happened because there was a teaching arrangement process. in this process students are given a situation where they can determine the process to be carried out themselves. this is in accordance with what Paris & Newman found that one of the things that makes students able to improve their *self-regulated* abilities is by providing alternative strategies and learning atmosphere that allows students to make decisions (Paris & Newman, 1990).

The third indicator is being able to manage oneself in reacting to others. In this indicator, the increase shown is not too large. This is probably because the space in the implementation of *Computer Based Instruction* Interactive Multimedia Based Simulation Model does not provide an appropriate ecosystem. as Wardani, Kadarohman, Buchari & Permanasari found that to improve students' intrapersonal needs an inquiry process followed by laboratory practice or field implementation (Wardani et al., 2013).

6. Conclusion

Thus it can be concluded that computer-based instruction simulation model based on interactive multimedia has a significant impact on students' intrapersonal intelligence.

References

Armstrong, T. (2009). *Multiple intelligences in the classroom*. Ascd.

Darmawan, L. A., Reffiane, F., & Baedowi, S. (2019). Development of box stacking puzzle media on the theme of ecosystems. *Journal of Educational Research and Development*, *3*(1), 14-17.

Drabenstott, K. M. (2003). Interactive multimedia for library-user education. *Portal: Libraries and the Academy*, *3*(4), 601-613.

Erhamwilda, E. (2011). Improving Intrapersonal Competence of Vocational School Students through Peer Counseling Model. *MIMBAR: Journal of Social and Development*, *27*(2), 173-182.

Gardner, H. E. (2011). *Frames of mind: The theory of multiple intelligences*. Basic books.

Hertberg-Davis, H. (2009). Myth 7: Differentiation in the regular classroom is equivalent to gifted programs and is sufficient: Classroom teachers have the time, the skills, and the will to differentiate adequately. *Gifted Child Quarterly*, *53*(4), 251-253.

Kulik, C.-L. C., & Kulik, J. A. (1991). Effectiveness of computer-based instruction: An updated analysis. *Computers in Human Behavior*, *7*(1-2), 75-94.

Mayer, R. E., & Moreno, R. (2002). Aids to computer-based multimedia learning. *Learning and Instruction*, *12*(1), 107-119.

Mukminan, M. (2011). Evaluation of Ktsp Implementation in High School Geography Learning in YOGYAKARTA City.

Cakrawala
     Education, *3*, 84486.

Nulhakim, L., Wibawa, B., & Erwin, T. N. (2019). Relationship between students' multiple intelligence-based instructional areas and assessment on academic achievements. *Journal of Physics: Conference Series*, *1188*(1), 12086.

Paris, S. G., & Newman, R. S. (1990). Development aspects of self-regulated learning. *Educational Psychologist*, *25*(1), 87-102.

Rusman, D., & Pd, M. (2012). Models of learning. *Raja Grafindo, Jakarta*.

Schunk, D. H. (1995). Self-efficacy and education and instruction. *Self-Efficacy, Adaptation, and Adjustment: Theory, Research, and Application,* 281-303.

Shearer, C. B., & Karanian, J. M. (2017). The neuroscience of intelligence: Empirical support for the theory of multiple intelligences? *Trends in Neuroscience and Education*, *6*, 211-223.

Smaldino, S. E., Lowther, D. L., Russell, J. D., & Mims, C. (2008). *Instructional technology and media for learning*.

Sudarti, S., Rusman, R., Sukirman, D., & Riyana, C. (2022). Effectiveness of Digital Literacy Training to Improve Early Childhood Education Teacher's Competence. *European Online Journal of Natural and Social Sciences*, *11*(3), pp-553.

Surahman, E., & Surjono, H. D. (2017). Development of adaptive mobile learning in high school biology subjects as an effort to support the blended learning process. *Journal of Educational Technology Innovation*, *4*(1), 26-37.

Trollip, S. R., & Alessi, S. M. (1988). Incorporating computers effectively into classrooms. *Journal of Research on Computing in Education*, *21*(1), 70-81.

Wardani, S., Kadarohman, A., & Permanasari, A. (2013). Java Culture Internalization in Electrometry Learning Based on Inquiry Laboratory Activities to Increase Inter-Intrapersonal Intelligence. *International Journal of Science and Research*, *2*(5), 417-421.