



Ludo Word Game Assisted Visualization Auditory Kinesthetic (VAK) Learning Model on Student Science Learning Outcomes in Elementary Schools

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ABSTRAK

Keberhasilan guru dalam proses pembelajaran dapat dilihat dari hasil belajar siswa. Pembelajaran dikatakan berhasil juga dilihat dari bagaimana guru mengemas pembelajaran. Namun saat ini guru masih kesulitan dalam menggunakan model pembelajaran yang tepat dalam pembelajaran. Tujuan penelitian ini untuk menganalisis pengaruh model pembelajaran Visualization Auditory Kinesthetic (VAK) berbantuan Ludo Word Game. Jenis penelitian ini adalah eksperimen semu dengan rancangan penelitian Non-Equivalent pretest - posttest Control Group Design. Populasi penelitian berjumlah 45 siswa, dengan penentuan sampel menggunakan tehnik random sampling. Sampel penelitian ini yaitu kelas eksperimen 23 orang siswa dan kelas control 22 orang siswa. Metode yang digunakan dalam mengumpulkan data yaitu tes. Instrument pengumpulan data menggunakan soal tes. Teknik analisis data menggunakan analisis statistik inferensial. Hasil penelitian dengan menggunakan uji-t diperoleh data yaitu thitung sebesar 19,893 sedangkan untuk ttabel sebesar 2,016, jika dilihat dari hal tersebut maka dapat dikatakan thitung lebih besar jika dibandingkan dengan ttabel, maka terdapat terdapat pengaruh yang signifikan penggunaan model pembelajaran Visualization Auditory kinesthetic (VAK) berbantuan Ludo Word Game terhadap hasil belajar IPA kelas V SD. Disimpulkan bahwa model pembelajaran Visualization Auditory kinesthetic (VAK) berbantuan Ludo Word Game meningkatkan hasil belajar siswa. Implikasi penelitian ini adalah penggunaan model pembelajaran Visualization Auditory kinesthetic (VAK) berbantuan Ludo Word Game meningkatkan semangat belajar siswa.

ABSTRACT

The teacher's success in the learning process can be seen from the student learning results. Learning is said to be successful, also seen from how the teacher packages learning. However, teachers are still having difficulties using appropriate learning models in learning. This study aimed to analyze the effect of the Visualization Auditory Kinesthetic (VAK) learning model assisted by the Ludo Word Game. This type of research is a quasi-experimental study with a non-equivalent pretest-posttest control group design. The study population consisted of 45 students, with a random sampling technique to determine the sample. The sample of this research is the experimental class of 23 students and the control class of 22 students. The method used in collecting data is a test. The data collection instrument uses test questions. Data analysis techniques using inferential statistical analysis. The results of the study using the t-test obtained data, namely tcount of 19.893 while for ttable of 2.016, if seen from this, it can be said that tcount is greater than ttable, so there is a significant influence using the Visualization Auditory Kinesthetic (VAK) learning model assisted by Ludo Word Game on science learning outcomes for class V SD. It was concluded that the Ludo Word Game assisted Visualization Auditory Kinesthetic (VAK) learning model improved student learning outcomes. The implication of this research is using the Ludo Word Game-assisted Visualization Auditory Kinesthetic (VAK) learning model to increase students' enthusiasm for learning.

1. INTRODUCTION

Education can be considered quality if the entire education system is adequate and of good quality regarding input and output (Majir, 2020; Yasin, 2022; Zahroh, 2015). Education can be a good access or way to develop the potential that exists within humans. Education can also be used as a means to open the human mindset that the knowledge learned has meaning and benefits in life so that knowledge can change attitudes, knowledge, and skills for the better (Ingkavara et al., 2022; Oye et al., 2012; Şener et al., 2015). Basically, in the learning process in formal education, schools must be able to facilitate or provide the best service to students so that the learning process runs optimally. Apart from that, several principles must be taken into account in the learning process, namely, being student/student-centered, creating interesting and enjoyable learning, developing students' potential, developing students' creativity, and developing scientific thinking abilities (Anas & PdI, 2014; Herlina et al., 2022; Lestari, 2020). The success or failure of education depends on what is given and taught by the teacher in learning. Learning is an effort to help students grow and develop. With this development, it is hoped that the learning process can run better and can help improve the existing learning process, especially in elementary school learning (Aini et al., 2018; Mustamiroh & Ramadhayanti, 2021; Wulandari et al., 2020).

Natural Sciences is a group of sciences that has special characteristics or characteristics, namely studying factual natural phenomena, either in the form of facts or events and their cause-and-effect relationships (Harefa & Sarumaha, 2020; Suparman et al., 2020; Wisudawati & Sulistyowati, 2022). Science learning in elementary school is one of the most important and useful learning for students because science learning in elementary school is useful for studying oneself (physical science) and the natural surroundings (life science) (N. Kusumawati, 2022; Musyadad et al., 2019; Sari et al., 2013). Learning is carried out with students' active role in obtaining new information or knowledge. The science learning process emphasizes providing direct experience through using and developing process skills and scientific attitudes (Dewi et al., 2017; Puti & Jumadi, 2015; Utariadi et al., 2021). In learning science, three dimensions must exist: science as a product, process, and attitude. Science learning teaches mastery of facts, concepts and principles about nature and problem-solving methods, trains critical thinking, is objective, draws conclusions, and can cooperate with others (Azizah et al., 2021; Saleh, 2013; Tanjung, 2016). Therefore, it can be said that learning science is not mere rote material but learning that requires students to be active so that students get a deep and memorable learning experience so that the knowledge gained is remembered longer.

Learning using the Kinesthetic Auditory Visualization model is an effective learning model that can direct students to develop their learning styles, and teachers help students to develop their learning styles by providing effective learning media that can help students (Indrawan, 2018; Ulyani et al., 2021; Wahyuni & Konadi, 2015; Widiartha, 2018). One media that can be used is the Ludo Word Game. Ludo Word Game is one of the strategy board games modified in such a way that the ludo game is usually played by two to four players (Anggraeni, 2019; Jihan et al., 2019). This game is hoped to improve a more enjoyable learning atmosphere so that later, students can improve their learning outcomes. Apart from that, the use of this media will also be able to serve and train students' three learning modalities because the Ludo Word Game media will contain a variety of questions so that students will not only answer the questions presented with verbal answers but later there will also be questions that require students to do so. Something like arranging pictures, matching or doing practical work so that, in other words, it will involve body movements and the student's sense of sight.

The selection of learning models and media is a very important thing to do to improve student learning outcomes. Using the Visualization Auditory Kinesthetic learning model is appropriate for improving students' science learning outcomes and learning media in the Ludo Word Game, which can hone students' abilities and creativity. Previous research findings also reveal that it can make learning easier for students (Jannah et al., 2019; E. Kusumawati, 2019). Other findings also reveal that games can increase students' enthusiasm for learning (Herawati et al., 2021; Wulandari et al., 2017). Thus, further study the influence of the Visualization Auditory Kinesthetic learning model in the learning process. This research aims to analyze the influence of the visualization auditory kinesthetic (VAK) learning model assisted by the ludo word game on the science learning outcomes of fifth-grade elementary school students in Gugus IX, Buleleng District.

2. METHOD

This research is included in the experimental research. Experimental research is quantitative research used to determine the effect of independent variables (treatment) on dependent variables (results) under controlled conditions (Alamsyah et al., 2022; Armin, R., & Purwati, 2021; Ruslam et al., 2023). The design in this study is a quasi-experimental involving two class groups, the control class and the experimental class. The control class is a class that is not given special treatment. Meanwhile, the

experimental class is a class that is treated using the Visualization Auditory Kinesthetic (VAK) model assisted by the Ludo Word Game. This study aimed to find differences in learning outcomes between the experimental and the control groups. This research design is a non-equivalent pretest-posttest control group design, which procedurally follows a pattern. Three stages will be taken during carrying out research: preparation of the experiment, implementation of the experiment, and the final stage.

The data in this research is in the form of learning outcomes. To obtain data on student learning outcomes using the test method. The test method is a way of obtaining data in the form of assignments carried out by students who are tested, and the test produces data in the form of a score (Andriyani & Kusmariyatni, 2019; Arianti et al., 2019). The definition of a test itself is a planned and systematic tool or procedure for measuring a certain behavior and describing it with the help of certain numbers or categories (Koyan, 2011: 15). The tests that will be given to measure science learning outcomes in the cognitive domain are in objective form with levels ranging from C1 to C6, namely C1 (Remembering), C2 (Understanding), C3 (Application), C4 (Analyzing), C5 (Evaluating), C6 (Create). The test method used is the pretest and posttest method in the form of multiple choice questions. The question sheet grid is presented in Table 1.

Table 1. Question Sheet

Core Competencies	Basic competencies	Question Indicator	Cognitive Domain
KI	3		
Understanding factual knowledge by observing, listening, seeing, reading and asking questions based on curiosity about God's creatures and their activities and objects that they find at home, at school and on the playground	3.8 Analyze the water cycle and its impact on events on Earth and the survival of living things	3.8.2 Sequence the process by which the water cycle occurs	
		3.8.3 Analyze the occurrence of the water cycle.	C3C4
		3.8.4 Predict the impact of the water cycle on human life.	C5
		3.8.5 Analyze the factors that influence the water cycle.	C3
		3.8.6 Summarize the factors that influence the water cycle.	C5
		3.8.7 Analyze how to maintain the availability of clean water.	C4
		3.8.8 Relate the impact of the water cycle on human life.	C4
		3.8.9 Select factors that influence water quality.	C3
		3.8.10 Determine factors that influence water quality.	C4
		3.8.11 Relate the influence of water quality on human life.	C3
		3.8.12 Implement water-saving methods.	C5
		3.8.13 Summarize how to save clean water.	

3. RESULT AND DISCUSSION

Result

The experimental group or class used in this research was SD Negeri 1 Alasangka, with 23 students. The experimental group was given a pretest, which was then continued by providing treatment with the Visualization Auditory Kinesthetic (VAK) learning model assisted by Ludo Word Game as many as 6 Sometimes, at the end of the research, students are then given a posttest to obtain data on science learning outcomes. The following is a recapitulation of data from the pretest and posttest results of the experimental group's science learning outcomes, which have been processed with the help of SPSS 20.0 for Windows. A hypothesis was tested to determine the effect of the Visualization Auditory Kinesthetic (VAK) learning model assisted by the Ludo Word Game on students' natural science learning outcomes. The hypothesis tested in this study, based on the results of the prerequisite tests, namely the normality test and homogeneity of variance, was found that the data from the experimental and control groups were normally distributed and had a homogeneous variance. Because the data obtained already fulfilled the prerequisites, it was continued with hypothesis testing using the t-test analysis using SPSS 20.0 for Windows. The t-test results are presented in Table 2.

Based on the Independent Samples Test output table in the Equal variances assumed section, it is known that the tcount is 19.893 while the ttable is 2.016. From this, it can be said that tcount is greater when compared to ttable (tcount > ttable). Apart from that, judging from the sig value. (2-tailed) is 0.000 < 0.05, so as the basis for decision-making in the independent sample t-test, it can be concluded that Ho is rejected and H1 is accepted, so there is a significant influence of the Visualization Auditory Kinesthetic

(VAK) learning model assisted by Ludo Word Game on the results studied science in fifth grade at SD Gugus IX, Buleleng sub-district.

Table 2. Independent Samples Test

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Science Learning Outcomes	Equal variances assumed	2.210	.114	19.893	43	.000	27.575	1.386	24.780	30.371
				19.738	37.450	.000	27.575	1.397	24.746	30.405

Discussion

The results of the science knowledge competency data analysis show that there is a significant difference between students who are taught using the Visualization Auditory kinesthetic (VAK) learning model assisted by Ludo Word Game and students who are not taught using the Visualization Auditory kinesthetic (VAK) learning model assisted by Ludo Word Game. These differences can indicate an influence of the Visualization Auditory Kinesthetic (VAK) learning model assisted by the Ludo Word Game to influence the results of fifth-grade science learning at SD Gugus IX, Buleleng District. The Visualization Auditory Kinesthetic (VAK) learning model assisted by the Ludo Word Game can serve three learning modalities possessed by students, namely learning by seeing (visual), learning by hearing (auditory) and learning by moving that involves body motor skills (kinesthetic) to create a classroom atmosphere. Become more alive because all students are involved in learning (Kusumawati, 2019; Nurmayani et al., 2017; Rukmana et al., 2018). This is evidenced by the increased participation of students in the learning process that has been implemented. It can also be seen that students' interest in learning is higher due to the application of the Visualization Auditory Kinesthetic (VAK) learning model assisted by the Ludo Word Game. This learning model has been implemented correctly, and the syntax prepared to make students more active and fully involved in the learning process (Jannah et al., 2019; Rahmadani et al., 2021). Learning is carried out with the help of the Ludo Word Game media so that students can more easily digest the learning material. Apart from that, using the Ludo Word Game media can also train students to remember the material that has been explained. Of course, this will increase memory and measure students' ability to understand the material studied. Using this media can also train students' cohesiveness, and their learning needs can be met because the different learning modalities that different students have require students to complement each other in the process.

Learning so that learning objectives can be achieved optimally. The application of the Visualization Auditory Kinesthetic (VAK) learning model assisted by Ludo Word Game is carried out through several stages. The first stage is the preparatory or preliminary stage. The teacher gives motivation to students to be enthusiastic about participating in learning. In this preparatory stage, the teacher also conveys the learning objectives to be achieved, and the teacher provides apperception to provide stimulation to students so that they are more interested in participating in learning (Ulyani et al., 2021; Wahyuni & Konadi, 2015). The second stage is the delivery stage. At this stage, the teacher's role is to provide material to students. When delivering material, the teacher must be able to cover or reach the three modalities students have, namely learning visually, auditorily and kinesthetically (Kusumawati, 2019; Nurmayani et al., 2017). One way that can be done to reach the three learning modalities that students have is by conveying material creatively and not monotonously, such as displaying pictures and or doing practicum or doing an activity. Previous researchers mentioned that learning while playing will motivate students to try to achieve what is focused or learned (Anjarani et al., 2020; Fithri & Setiawan, 2017; Rozi & Khomsatun, 2019).

There are several stages of using the Ludo Word Game media. In the first step, the teacher divides students into 4 groups, then asks one student to represent each group, and then the students roll the dice alternately. The student who gets the highest score gets the opportunity for his group to start the game early (Hakim, 2005; Umam, 2019). The game rules are that students run the pawns provided for each group through a predetermined trajectory, where each trajectory has different colors, namely yellow, blue and purple. These colors determine the questions each student representative from each playing group gets. So the stages of the game are easy: one student moves forward and rolls the dice, the value contained in the dice determines the number of steps the student crosses the track, then 86 students run the pieces across the track according to the number on the dice, the final location of the pieces in the track that is passed determines the color of the questions obtained by students, then students take one question contained in the box according to the color of the question obtained, then students answer the question. In order to make the game more exciting and there is competition between groups, the processing of the points obtained by students before reaching the finish line is carried out. If students can answer questions without asking for

help from friends in the group, then the group gets 50 points, but if the student answering questions obtained by asking for help from group mates gets a score of 25. Of course, this will increase the spirit of competition between groups. These activities will create a fun learning environment to increase learning motivation and eliminate fear or tension in students' minds (Amkas et al., 2017; Simbolon & Satria, 2016).

The fourth stage is the stage of delivering results. In this stage, the students and their groups repeat the whole question and answers and make conclusions from the answers obtained. Next, the teacher reinforces each group's answers and provides learning conclusions. Researchers have previously stated the purpose and role of the teacher in providing conclusions at the end of learning, namely correcting erroneous concepts when the game is being carried out so that what they remember in long-term memory is the correct concept in achieving their goals in the future (Kusumawati, 2019; Nurmayani et al., 2017). Based on this description, the Ludo Word Game-assisted Visualization Auditory Kinesthetic (VAK) learning model influences science learning outcomes. The application of the Visualization Auditory Kinesthetic (VAK) learning model assisted by the Ludo Word Game can make students learn in a fun way, compared to conventional learning, where the learning process tends to make students quickly bored and passive because students are only listeners and recipients of the material provided by the teacher so that it will make students' interest and motivation in learning low which tends to have an impact on the students' natural science learning outcomes themselves which are also low. The advantage of this research is applying a media-assisted learning model that fits the characteristics of students. The existence of this research has a good impact on student learning outcomes. It can be seen from the analysis that has been carried out that each stage of the Ludo Word Game-assisted Visualization Auditory Kinesthetic (VAK) learning model can improve the learning atmosphere to be more fun and interesting to impact student learning outcomes. The implication of this research is to provide comfort and convenience for students in understanding science subject matter so that students' creativity is formed through a fun learning process. This research can also motivate teachers to utilize technology in exploring various learning models and applying them in the learning process to create fun learning for students.

4. CONCLUSION

The application of the Ludo Word Game-assisted Visualization Auditory Kinesthetic (VAK) model is suitable for use in fifth-grade science learning. Implementing the Visualization Auditory Kinesthetic (VAK) learning model can attract students' attention and enthusiasm to participate in the learning process. Apart from that, applying the Visualization Auditory Kinesthetic (VAK) learning model assisted by Ludo Word Game can positively impact teachers regarding technological developments, which can be utilized well to support the teaching and learning process inside and outside the classroom.

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