The purpose of this study is to investigate the potential impact of flash multimedia audiovisual learning materials on students' motivation to learn. Quantitative and semi-experimental methodologies are used in this kind of research. An experimental design with just a post-test control group is used in this study. The population is represented by all study participants. The technique for gathering samples is called purposeful sampling. For the purposes of this sampling procedure, we selected two classes: class A served as the experimental group and class B as the control group. There were about a hundred pupils in the sample. Questionnaires were employed in order to gather data. The data analysis for this study included descriptive analysis. Students in the experimental class scored higher on the average for learning motivation than those in the control class, according to the findings of the descriptive statistical analysis. The significance level of 0.05 is not as great as the significance coefficient value of 0.000, according to the results of the test hypothesis test. The findings of the t-test indicated that the experimental class was more driven to read documents regarding enthalpy changes than the control class. The impact of macromedia flash-based audio-visual learning materials on students' motivation to learn is probably the cause of this discrepancy.

Keywords: Multimedia, Learning Motivation, Audio Visual Media, Student, Macromedia Flash.

Abstract

The purpose of this study is to investigate the potential impact of flash multimedia audiovisual learning materials on students' motivation to learn. Quantitative and semi-experimental methodologies are used in this kind of research. An experimental design with just a post-test control group is used in this study. The population is represented by all study participants. The technique for gathering samples is called purposeful sampling. For the purposes of this sampling procedure, we selected two classes: class A served as the experimental group and class B as the control group. There were about a hundred pupils in the sample. Questionnaires were employed in order to gather data. The data analysis for this study included descriptive analysis. Students in the experimental class scored higher on the average for learning motivation than those in the control class, according to the findings of the descriptive statistical analysis. The significance level of 0.05 is not as great as the significance coefficient value of 0.000, according to the results of the t test hypothesis test. The findings of the t-test indicated that the experimental class was more driven to read documents regarding enthalpy changes than the control class. The impact of macromedia flash-based audio-visual learning materials on students' motivation to learn is probably the cause of this discrepancy.

Kata Kunci: Multimedia, Motivasi Belajar, Media Audio Visual, Siswa, Macromedia Flash

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INTRODUCTION

Education and learning are processes that are aware of goals. The aim here is to make an effort
to gain knowledge, master a certain competency, and shape the student's character. Student learning results themselves, as well as behavioral and character changes, are indicators of a successful learning process. High learning outcomes are a sign of well-informed students (Budiariawan, 2019). By improving students' knowledge, abilities, and behavior, education can help create quality human resources (HR). These advancements and modifications can be turned into assets to boost one's capacity to deal with the constantly changing globalization era (Wibowo et al., 2023; Rony et al., 2019). The higher capability of human resources is necessary in the contemporary globalization period (Dukalang & Lestari, 2018). One effort to improve human resource competencies and skills is to improve the quality of learning through good design so that students' cognitive, affective, and psychomotor abilities can increase (Lubis, 2019).

The teacher should design the learning process as a facilitator to actively involve students in developing learning directions and objectives (Lubis et al., 2020). Especially in the chemistry learning process in Senior High School, which aims to ensure that students have the ability to understand chemical concepts, principles, laws, and theories, as well as their interrelationships and applications to solve various problems (Aryanto et al., 2020). The learning process should be able to link concepts, principles, theories, and applications in the context of everyday life (Gustina et al., 2016; Qurtubi, 2018; Qurtubi, 2022). The concepts covered in the learning materials for thermochemistry are fairly challenging for students to grasp because they entail calculations and chemical processes, as well as abstract ideas that are hard for students to grasp from book reading alone (Sarumaha, 2016).

Initial observation results also show that teachers have managed the learning process by relying only on textbooks (Lubis et al., 2023). As a result, students' participation in the learning process decreases, evident from their lack of understanding, silence due to boredom, and reluctance to ask questions (Junaidi et al., 2023). In turn, students gain less meaningful learning experiences, so it is not surprising that students' level of learning motivation is relatively low (Aulia et al., 2021). Students with low drive to learn are those that pay little attention in class, complete assignments seldom, and lack the guts to try asking questions or taking risks (Aulia, 2020). A person's ability to learn is influenced by both their surroundings and themselves. The intense desire that comes from inside is known as motivation (Sarumaha et al., 2023). According to its definition, motivation is the overarching force that propels students to engage in learning activities, maintain the flow of the learning process, and offer advice along the way to help them reach their learning objectives (Sarumaha et al., 2018). One of the elements that determines whether learning objectives are met is learning motivation. Students that are motivated to learn will be encouraged to engage in the continuous learning process (Sarumaha, 2018).

Instructors can motivate students to learn more by employing a variety of strategies. Teachers can help students become more motivated in addition to providing them with engaging learning tools (Haniko et al., 2023). Because they spend so much time in the classroom with students, teachers play a critical part in the process of building student motivation to learn (Ariano et al., 2019). By creating
learning tactics that serve as an outside source of encouragement for pupils to learn, teachers can raise their students' enthusiasm to learn. This learning strategy basically entails selecting the teaching strategies and learning materials (Supinganto et al., 2021). The kind of learning media that is employed will depend on the specific learning method that is selected. All types of communication tools can be utilized as instructional materials to provide students with intended knowledge from sources, fostering a supportive learning environment in which they can complete the learning process quickly and successfully (Ernawati et al., 2022). The presence of media has quite an important meaning in relation to the learning process. Through learning media, teachers can present abstract learning materials as concrete ones so that students can understand them more easily (Susanna et al., 2019).

Students must master various types of learning media, including audio-visual media. Because it combines aspects of both auditory and visual media, this form of media is more engaging and has greater potential (Supardi et al., 2023). The use of audio-visual materials can turn abstract education into a tangible encounter that piques students’ interest. Put differently, learners will exhibit increased activity and enthusiasm, leading to a more successful learning experience (Kamaruddin et al., 2023). Students’ attention will be drawn to the learning process by this excitement, which will raise their motivation to learn and improve their academic performance (Qurtubi, 2021). Using Macromedia Flash software, researchers will use the aforementioned problems to create an interactive audio-visual medium that can boost student enthusiasm for learning (Mashudi et al., 2021; Novriana et al., 2022). The capabilities possessed by Macromedia Flash can be developed in the world of education, namely in creating visualizations, simulations, and animations, so that they are very helpful in solving problems in the learning process. Apart from that, the presence of audio in this medium can increase students' concentration so that it is easier to understand.

METHOD

This kind of research uses a quasi-experimental methodology and is quantitative. The main distinction between the pure experimental approach and the quasi-experimental research method is the control of variables. Everything needed to develop and execute an experiment is called research design. The posttest-only control group experimental design is the type of research design that was employed in this study. There are two groups in this design, and each was chosen at random. One group received specific treatment whereas the other did not. Two classes were used in this study; one served as the experimental class and the other as the control class. The population in the research technique includes all of the research objects, which might include people, animals, plants, air, symptoms, values, attitudes toward life, and other occurrences, in order for these items to provide research data. All of the participants in this study made up the population. Purposive sampling is the method used for sample gathering. We chose two classes as samples for this sampling technique: class B served as the control group and class A as the experimental group. There were one hundred students.
in the sample. In this study, a questionnaire was used as a non-test instrument for data collection, which was done in accordance with the type of data required. Validity and reliability tests comprise the instrument analysis in this study. In this study, descriptive analysis is used for data analysis.

RESULT AND DISCUSSION

In this study, students from classes A and B took part; class A was the experimental group and class B was the control group. The experimental class received learning about enthalpy changes using audio-visual media based on Macromedia Flash, while the control class received the same learning using conventional methods, namely by means of lectures and questions and answers. Each class receives learning with the same number of meetings and with the same amount of time per meeting. The learning process begins with the teacher's presentation of the material. The teacher used a projector and loudspeakers to present the material in the experimental class, utilizing macromedia flash learning media. Since the Macromedia Flash display started, the students' enthusiasm was quite large, so they paid attention to the content of the Macromedia Flash. Macromedia Flash displays several menus, and students can select each menu they want. The material menu consists of four substances, where for each substance there is an additional explanation and questions and answers conducted by the teacher for the students. The treatment in this experimental class succeeded in attracting students' attention, so that students were more active and willing to ask questions.

The teacher in the control class explained the material directly using a whiteboard and markers during a lecture. When the teacher was explaining the content, most of the students in the control group turned their attention to her. Additionally, a sizable portion of the student body ignores the teacher's comments. The majority of students choose to stay silent, were ashamed to respond to the researcher's questions throughout the class, and did not want to admit they did not know the answer during the Q&A period. Up until the fourth meeting, both the control and experimental classes continued to learn. Previously, the experimental class and the control class were given the identical practice questions by the researchers during the learning process. When practice questions were offered, neither the experimental class nor the control class seemed to experience any notable difficulties. Subsequently, during the fourth and final meeting, every student in the experimental and control groups received a posttest in the form of a motivation questionnaire that included the same sentence.

Statements on the learning motivation questionnaire were answered differently in the experimental class compared to the control group. A small percentage of students in the experimental class chose to disagree and strongly disagree, while the majority of students answered on a scale of agree to strongly agree. While the majority of students in the control group answered mostly on the agree and strongly agree scale, a sizable portion also answered on the disagree and strongly disagree scale. Researchers have tried to provide motivation to students using Macromedia Flash media in the hope that a sense of need and desire to carry out a learning activity will emerge. Providing motivation
to a student means moving the student to do something or want to do something. The emergence of this desire originates from within the student himself, but it does not rule out the possibility that there are external factors that influence this desire. Therefore, student motivation can be attributed to two factors: intrinsic and extrinsic motivation.

Aspects of learning motivation can also be used to compare the questionnaire findings between the experimental and control groups. Regarding the intrinsic motivation component, the majority of responses in the experimental class fell between 45% and 53% on a scale of 4 to 3. A further little percentage, 2.5%, provided an answer on scale 2. In contrast, scale 3 received the highest proportion in the control class 60% followed by scale 4 with 25% and scale 2 with 15% of the total. Given that the majority of the students in the experimental and control groups scored between 4 and 3, this suggests that intrinsic motivation is very high in both groups. With a percentage of 45% and 25%, respectively, the experimental class outperformed the control class on a scale of 4. This contrasts with scale 3, where the experimental class's percentage is 53% and the control class's proportion is 60%.

The treatment differences that were observed—the experimental class using Macromedia Flash media outperforming the control class using the lecture method—had an impact on this. Because of Macromedia Flash's distinctive look, eye-catching graphics, and engaging animations, learning can take place in a less stressful and more engaging environment when this type of media is used.

On scale 2, where the experimental class's percentage is 2.7% and the control class's is 15.2%, a significant difference may be observed. 15.2% of students in the control group which learned through lectures answered in the disagree category. Thus, there are still pupils who are too indolent to engage in learning activities during teaching and learning sessions. Other pupils are engaged in active learning activities in the meantime. Students must have a strong sense of passion and motivation for learning in order to overcome the different obstacles and problems they will meet during the learning process and ultimately accomplish their desired learning outcomes. In order for the students to engage fully in each session, the teacher must pay attention to the level of student learning motivation.

Statement number 3 in the learning motivation questionnaire that academics have created is one of the statement items pertaining to intrinsic motivation: "I am enthusiastic and serious about studying the material." This statement scored 112 overall in the experimental class (out of a possible 132), compared to 94 in the control class. In the experimental class, most of the students gave answers ranging from agree to highly agree. This is different from the control class, where it was found that there were students who answered on a disagreeable scale.

Another intrinsic motivation statement item can be seen in statement number 7: "I am motivated to achieve my goals when using learning media so that I will study more diligently." This statement obtained a total score of 120 in the experimental class and 104 in the control class. The use of learning media has a real influence in terms of encouraging students' desires to achieve what they want after understanding the learning material in the presence of media in the learning process. This
positive influence is because learning using Macromedia Flash attracts more students' attention because learning media has many advantages, namely being able to present material with pictures, animations, and videos, which makes students more motivated to learn. The use of Macromedia Flash media allows students to interact with images, sounds, and even other animations, so that students become more enthusiastic when learning. The use of macromedia and flash media can trigger more challenging learning and stimulate students to find out more deeply, so that students tend to be active and focused when carrying out the learning process.

Apart from the intrinsic motivation that arises in students, there is also extrinsic motivation that can influence the learning process. The majority of students in the experimental class gave answers on a scale of 4 or 3, with percentages of 40.65% and 51%, respectively, according to the research data analysis results. Eight percent of the sample provided an answer on a scale of 2. In contrast, scale 3 received the highest percentage in the control class 59% followed by scale 4 with 21% and scale 2 with 20% of the total. This suggests that extrinsic motivation is high in both the control and experimental classes, with the majority of the participants falling on a scale of 3. With a percentage of 41%, the experimental class scored 4 points higher on the scale than the control class. This contrasts with scale 3, where the control class's percentage 57 percent is higher than that of the experimental class. On scale 2, where the experimental class's percentage is 7% and the control class's is 18%, a notable difference is evident. It was discovered that 18% of students in the control group, who learned through lectures, selected the disagree option. In fact, a small number of others answered scale 1 with a percentage of 1.5%. Thus, the data shows that there are still some students who disagree or strongly disagree with the extrinsic motivation statement. Providing extrinsic motivation to students is an important thing for teachers to do.

One of the statements regarding extrinsic motivation is item number 14: "I become more enthusiastic about learning if the teacher gives prizes to students who get good grades." Extrinsic motivation does not mean that motivation is bad or not needed in learning. Students need extrinsic motivation to foster their desire to learn. Statement item number 14 received an answer percentage of 85% in the experimental class and 75% in the control class. It also appears that in the control class, the range of answers chosen was on a scale of agree to disagree. In the world of education, prizes can be used as a motivational tool, where their existence can increase students' enthusiasm for learning to compete in learning achievements. Giving gifts can be an alternative that can be given to students during their education with the aim of attracting enthusiasm for learning and the hope that students will become more active, diligent, enterprising, responsible, and improve their abilities in the academic field.

The study's research hypothesis states that since the experimental class's average level of student learning motivation was higher than that of the control group, the use of Macromedia Flash in the enthalpy change material may have had an impact on students' motivation to learn. The statistical hypothesis H1, which states that "The average level of student learning motivation in the experimental
class is higher than the control class," is where this hypothesis is expressed. Using the IBM SPSS software, the researcher conducted a hypothesis test with a t-test in order to support this theory. The t-test results indicate a significance value (Sig.2-tailed) of 0.000; to reach a significance value of 0.000 for a one-sided test, the significance value must be divided by two. A significance level of 5%, or 0.05, was employed in the study. The test findings serve as the foundation for inferences, with H0 being rejected and H1 being accepted if significance (p) < 0.05 and H0 being accepted and H1 being rejected if significance (p > 0.05). Given that the study's significance value is 0.000, it can be said that, thanks to macromedia flash-based learning materials, students in the experimental class are generally more motivated to learn about enthalpy changes than those in the control class.

The hypothesis test's findings suggest that educational media can greatly raise students' motivation to learn. Because macromedia flash-based learning materials are interactive, they can encourage students to participate actively in their education. Learning materials encourage the assimilation and processing of information to aid in memory retention. The information in the provided material is simple for students to access and comprehend. Additionally, Macromedia Flash's interactive features and diversity of experiences from all media kinds help prevent student boredom. In general, each student's motivation varies, as seen by the differences in the learning motivation questionnaire responses between the experimental class and the control group. The notable variations in the outcomes that have been seen can be explained by changes in treatment between the experimental class and the control class. An environment that was favorable for learning was created by the three experimental class students who showed greater interest in listening to the information on enthalpy changes that was presented in each piece of content on Macromedia Flash.

The research results obtained show that macromedia and flash-based audio-visual learning media play a role in increasing students' learning motivation. Furthermore, the use of Macromedia Flash has proven effective in increasing student learning motivation in various subjects. The role of teachers, who strive to create an enjoyable learning process, is also integral to achieving this result. As long as the instructor is actively involved in the learning process, audio-visual resources can yield numerous advantages. Instructors are aware that pupils will find it difficult to absorb and comprehend learning content without the aid of media, particularly complex or challenging topic concepts. Thus, media serves as a tool that facilitates the achievement of learning objectives. This implies that learning activities carried out by students with the aid of media will result in superior learning processes and outcomes than those carried out without such assistance.

CONCLUSION

According to the findings of the descriptive statistical analysis, students in the experimental class have an average learning motivation score that is higher than that of the students in the control class. The t-test findings of the hypothesis test show that the significance level of 0.05 is not as great as the obtained significance coefficient value of 0.000. The t-test results show that, in comparison to
the control class, the experimental class is more motivated to learn about enthalpy change material. This difference can be related to the impact of Macromedia flash-based audio-visual learning media on student motivation. Based on the research conducted, the researcher is aware of imperfections in this research, so the researcher hopes that future researchers can carry out more varied methods of learning using Macromedia Flash learning media. Future researchers should also focus on measuring student learning motivation, including both intrinsic and extrinsic motivation.

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