Application of Learning Video Based on Visual, Auditory, and Kinesthetic Learning Styles to Increase Thermodynamics Learning Motivation at Grade XI in High School

by Anizar Rahayu

Application of Learning Video Based on Visual, Auditory, and Kinesthetic Learning Styles to Increase Thermodynamics Learning Motivation at Grade XI in High School

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ABSTRACT

The Covid-19 pandemic has evolved into a multidimensional global issue; the impact is also felt in the school sector, which causes a decrease in student learning quality, particularly in terms of motivation. During a pandemic, learning takes on a new meaning. For some subject matter that should be tailored to learning styles, such as thermodynamics material, this becomes progressively problematic. This is owing to pupils' low learning motivation, as seen by the national exam scores, which place them second to last. In order to address the issue of student learning motivation, this study used learning films based on visual, auditory, and kinesthetic learning styles that may be completed remotely or online on subjects with the lowest average score, such as thermodynamics. Students at grade XI IPA in High School, Bekasi City made up the study's population. The study is quantitative and employs a two-group pre-test post-test design, i.e., an experimental design in which one experimental group and one control group are measured before and after the subject receives treatment. According to the findings of this study, there is no significant difference in learning motivation between before and after seeing a learning film based on visual, auditory, and kinesthetic learning methods. Although some students saw an increase in learning desire from 66 % to 87,5 % (In the area of medium learning motivation) this can be observed in the output value of Sig (2-tailed) of 0.382 (> 0.05).

Keywords: Learning videos, visual, auditory, and kinesthetic learning styles, learning motivation

1. INTRODUCTION

The Covid-19 pandemic is currently a multidimentional problem facing the world; the impact is also felt in the school sector, which causes a decrease in student learning quality, particularly in terms of motivation [1]. The current implementation of a health emergency necessitates the replacement of face-to-face learning in schools with online learning in order for the learning process to continue [2]. In this pandemic condition, online learning activities are an educational innovation to address the issues of the availability of different and adaptive learning resources. The success of a learning model is determined by the characteristics of the students who state that based on a large body of literature, not all students are successful in online learning, due to differences in learning environment factors and student characteristics [3]. One of these has to do with the motivation of the students [4].

Online learning is necessary to encourage students because their learning environment is highly reliant on the situation and characteristics of students, and they are challenged to keep curiosity and self-regulation in order to remain engaged in the learning process [5]. As a result, it is critical for educators to present learning strategies that make it simpler for students to assimilate online learning resources, particularly during the Pandemic, which has no end date.

Educators face a difficult task in providing engaging and effective learning activities that could be absorbed by students with a variety of learning styles. Learning style is a habit that reflects how one handles situations and knowledge [6]. Visual, auditory, and kinesthetic learning styles are all important. Most students can learn a lot just by watching others do it, and these students are dominant with visual elements. Auditory students rely more on listening skills, while kinesthetic students prefer to learn by doing [7]. One of the teacher's responsibilities is to produce learning that motivates students, which can be done, for example, by delivering material through visual, aural, and kinesthetic-based films. This will have a beneficial impact on student learning motivation, because these learning methods can be applied to video media, students will be able to learn topics that are still abstract and simply construct them in their brains [8].

For the 2020-2021 academic year, the school where the research was conducted is a high school in Bekasi City, and the average score of students on the 2019 national exam shows that physics subjects are in second place after mathematics, with a score of 48.21, while mathematics is slightly lower at 47.91.

Researchers are interested in using a visual, aural, and kinesthetic-based video learning model that is carried out remotely or online in topics with the lowest average score, such as Thermodynamics, based on the findings of the aforementioned study. The researcher chose a group students from SMA X Bekasi's at grade XI IPA and divided them into two groups: experimental and control.

2. LEARNING STYLE AND MOTIVATION TO LEARN

Learning motivation is the tendency of students to engage in learning activities motivated by a desire to obtain the best possible achievement or learning outcomes [9].

Learning motivation is a shift in energy within a person (personal) marked by the emergence of sentiments and reactions in the pursuit of a goal [10].

Wloodkowski [11] describes things that are similar to the elements that promote learning motivation in addition to the factors listed above: a. Culture, specifically a cultural background that emphasizes the value of academic performance, will be a driving force in children's educational success. b. The family, as a child's first education and the most important figure in his or her life, should play the most crucial role in helping youngsters develop their desire to learn. c. Schools and teachers, have an impact on pupils' enthusiasm to learn, however their impact is often less than that of parents. d. Students' motivation comes from within since they discover that the learning process brings them enjoyment, resulting in a sense of duty, discipline, and effort.

Next to each other, learning motivation is influenced by two factors: learning that leads to change and the outcomes of learning [12]. The following indicators can be used to assess student learning motivation [13]: a. A will to succeed, b. Encouragement and the need to learn, c. Future hopes and aspirations, d. Learning appreciation, e. Interesting learning activities, f. A favorable learning atmosphere that allows a student to learn well. Pupils with strong learning motivation exhibit the following characteristics [14]: a. Pay attention to the teacher. b. Keep your interest or enthusiasm for learning alive. c. Offer to answer questions in class as a volunteer. d. Seek assistance and guidance if necessary. e. Make a sincere effort to solve the problem on your own. f. Finish tasks on time. g. Taking calculated risks in order to develop his knowledge and abilities.

Teachers can utilize the following tactics to encourage student learning motivation so that students think their talents can develop, value the learning process, and remain focused while studying: a. In addition to meeting students' basic requirements, such as providing a pleasant classroom environment, teachers should also assist students in their learning process and give resources as efficiently as feasible. b. Instill confidence and optimistic expectations by establishing specific learning goals that each student can reach and describing how studying can improve academic performance. c. Demonstrates the value of learning by connecting learning activities to students' needs and future advantages, as well as by designing activities that engage students, pique their attention, and foster a positive learning environment. d. Assisting students in focusing on the content by giving material in three different learning styles and being innovative in assignments, reducing workload without lowering the worth of tasks, and teaching excellent learning styles' strategy.

The current epidemic period necessitates the adaptation of learning methodologies to remote learning, which has its own set of obstacles for educators in terms of providing material that motivates students. In addition, to anticipate low learning motivation, the usage of communication technologies is becoming increasingly necessary during distance learning.

One of the variables contributing to low student motivation is a lack of teacher preparation, which includes understanding of the content and efficient communication techniques [13]. Teachers' efforts in developing learning media frequently overlook the use of media that can provide information visually (seen), auditory (heard), and kinesthetic (practiced) in order to raise student learning motivation and so improve the quality of student education [15].

A learning model that incorporates visual, auditory, and kinesthetic learning styles is one of the learning models that can increase students' motivation, interest, and competency.

During a pandemic, this information is presented in videos, which has the advantage of making learning more effective by combining the three learning modalities. Pupils' learning potential can be developed in this way, and students with low learning abilities will not be limited since they will be able to understand those who practice with a combination of the three learning styles [16].

Learning style [6] is a habit that reflects how one handles situations and knowledge. A person's learning style is a combination of how they absorb, organize, and process knowledge [7]. A person can benefit from a combination or combination of modalities that will become the identity of the student's innate strengths and flaws [17]. So, while every student possesses all three modalities (learning styles), only a few people are able to mix them in a learning process, while others choose to focus on one. As the following list of the several sorts of learning styles: a. A visual learning style (visual learning) is a learning style that receives information through the sense of sight or is related with vision. A person with a visual learning style will recall what he saw rather than what he just heard [17]. b. style auditory learning, this learning method is known as the listener learning style [18]. People with a listening learning style rely on hearing to aid their learning (ears). c. Defined kinesthetic learning as a method of learning that

involves motion, coordination, rhythm, bodily comfort, and emotional responses [17]. A person who is particularly kinesthetic learns by doing or is likely to interact with what is being learnt.

Teachers should be aware of the three learning styles: visual, auditory, and kinesthetic, because learning styles are expressions of each student's uniqueness that are relevant to education [19]. It is intended that teachers can use the creation of appropriate teaching models for all students in the classroom so that they can assist students gain motivation or motivation to learn, which is useful for achieving higher learning outcomes.

Furthermore, claims that video learning is required in order to promote motivation-boosting learning [20]. The following are the features of an effective learning video: a. Massage Clarity (clarity message): With video media, students can absorb learning messages more meaningfully, and knowledge can be received as a whole, allowing information to be stored in long-term memory and retained automatically. b. Developed stand-alone (stand-alone) videos are not dependent on other teaching materials and do not need to be utilized in conjunction with other teaching materials. c. User-Friendly (accommodating to the user's needs). d. Representation The content of the material, such as simulation or demonstration material, must be truly representative. Basically, video media can be used to create the topic matter. e. Learning Styles with multimedia, which may include text or animation (visual), sound or music (auditory), and demonstration or practice (kinesthetic) depending on the material's demands. It's also possible that the supply is appropriate, processed, tough to access and dangerous if used directly, and has a high level of precision. f. Using high-definition video media visuals created using digital engineering technology with high resolution but support for all electronic device specifications. g. Can be employed in a traditional or individual manner. Students can use learning films in a variety of situations, including school and at home. It can also be utilized in a traditional classroom setting with a maximum of 50 students, with a teacher guiding them or simply listening to the narrator's narrative description already included in the movie.

3. METHODS

This research used a quantitative method with a two-group pre-test post-test design, i.e., an experimental design with one experimental group and one control group that takes measurements before and after the subject receives treatment [21].

This study had 24 students in the same class who were divided into two groups based on their serial numbers: an experimental group for students with an even number and a control group for students with an odd number, both of whom were given a pre-test learning motivator on the same day. The treatment was then administered to 12 students in the experimental group on Wednesday, May 5, 2021.

There were similarities and differences between the experimental and control groups. The two groups had a pre-test and a post-test in common, but the experimental group employed learning videos based on visual, auditory, and kinesthetic learning styles, whereas the control group did not get any treatment (in this case still using the usual or conventional learning model). If the two groups used are as equal as feasible, this strategy can produce ideal results. You may see the video by going to https://drive.google.com/file/d/1LyVy3uoy5Sr1O23u6KQ OHUNtIXkOYMaf/view?usp=sharing.

Alternatively, you can scan the QR code below:

A learning motivation questionnaire with four possible answers utilizing a Likert scale paradigm was used in the first trial. Meanwhile,[13] lists the following factors that be used to assess student learning motivation: a. Want and desire to succeed. b. The desire to learn and the need to learn. c. Aspirations and hopes for the future. d. Learning appreciation e. Learning activities that are enjoyable. f. A favorable learning atmosphere in which a student can excelent.

The validity and reliability tests were calculated with the standard deviation and variance value in this study using the SPSS (Statistical Package for Social Science) version 22 application. Because a question can be classified as trustworthy if the alpha value is larger than 0.60, the reliability test uses the coefficient measuring method Cronbach's alphaalpha, whose value ranges from 0-1. [22]. Validity and reliability assessments based on visual, auditory, and kinesthetic learning styles were utilized to determine the validity and reliability of thermodynamic movies. The validity test was performed with the SPSS version 22 computer tool and the correlation formula bivariate person. The learning style video was deemed legitimate since the value of rarithmetic > rtable at a significance level of 5%, while the learning style video was reliable because the instrument had an alpha value greater than rtable (0.361).

4. DISCUSSION AND CONCLUSIONS

The control group received no treatment and went about their business as usual. The experimental group had four days to participate in thermodynamics learning video based on visual, auditory, and kinesthetic learning styles, with direct practice at their homes, whereas the control group just studied at home with the thermodynamics material provided by the prior teacher. After those four days, each group was given a post-test on learning motivation on Monday, May 10, 2021. This is the difference between the before and after treatment results.

Table 1 Test Results *Paired Sample T-test*

Category	Mean	Sig. (2-tailed)
Pre-test	68.5	0.382
Post-test	71.1	

Because the Sig (2-tailed) of 0.382 (> 0.05) was obtained from the test results, we may conclude that H0 is accepted and Ha is rejected, implying that there is no significant change in the students' motivation before and after video-based learning visual, auditory, and kinesthetic learning modalities. Although some students' enthusiasm to learn increased from 66% to 87.5 percent, others did not (medium learning motivation category).

5. FINAL THOUGHTS AND RECOMMENDATIONS

5.1. The Final Thoughts

The conclusion that can be made from the study and discussion is that achieving thermodynamics learning motivation with movies based on visual, auditory, and kinesthetic learning styles has no significant difference between before and after treatments can be observed from the sig (2-tailed) output value of 0.382 > 0.05, there is no statistically significant difference in students' learning motivation, despite the fact that certain students' motivation increased from 66 percent to 87.5 percent (medium learning motivation category).

The usage of learning videos, which are already based on visual, auditory, and kinesthetic learning methods, does not always result in a large rise in learning motivation. This is because remote learning or online learning has not been proven to be successful or efficient. such as providing equipment and student needs that differ across students in their various homes, an atmosphere that may not be as conducive as at school, a sense of oneness or direct relationship between educators and students that is not fully formed, Furthermore, the time available for teaching and learning activities is less than it was prior to the pandemic, and the use of internet limits is increasing.

5.2. Suggestions for Action

Future researchers should consider the following recommendations based on the research findings: 1. In line with the findings of [23], Study online the pandemic was COVID-19 not fully effective, especially in the psychological development of students, due to reduced direct social interaction between students and educators, resulting in students easily bored or demotivated in receiving learning. In relation to this, the researchers discovered the same thing, namely that there was no significant difference between before and after students in thermodynamics lessons were given videos based on visual auditory, kinesthetic learning styles, so the recommendations for future research, treatment with

videos based on visual learning styles, were made. Direct or face-to-face delivery of auditory and kinesthetic information. 2. Some students complain about sluggish internet speeds as a result of limited internet data packages set to expire. Students are provided learning movies based on visual, aural, and kinesthetic learning styles through storage media such as flash disks or face-to-face.

5.3. Suggestions for the Future Theoretical

The following suggestions are made for the next researcher: 1. To be able to perform more in-depth study on the role of learning films in visual, aural, and kinesthetic learning styles. 2. Researchers can examine at the equality of subject matter displayed with visual, aural, and kinesthetic learning modalities to do research. 3. The next researcher will be able to see a link between these learning styles and motivation to learn.

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