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Using Project-Based Learning Model with Mind Mapping Method to Increase Students' Learning Motivation

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Abstract: Students' motivation in learning are still low in the subjects of Craft and Entrepreneurship. Therefore, a project-based learning model is needed that is able to increase students' motivation in learning. This study aims to determine the effect of the project-based learning model with mind mapping method in increasing learning motivation of students in the subjects of Craft and Entrepreneurship. The research design used was a one group pretest-posttest design. The population in this study were all students of class X SMA Negeri 1 Meulaboh as many as 254 students. The number of samples amounted to 48 students. Learning motivation data were analyzed by comparing the scores of learning motivation before and after the implementation of project-based learning in the experimental class which was tested for significance through the Wilcoxon average difference test. The results showed that the learning motivation of students before and after the application of the learning model had a significant difference (p value = 0.00; $p < 0.05$). The conclusion of this study is that there are differences in students' learning motivation before and after the application of the project-based learning model.

Keywords: Project-based learning; Mind mapping; Learning motivation

Introduction

One of the subject at the senior high school is the subject of crafts and entrepreneurship, which is identical to learning life skills or learning life. Craft and entrepreneurship subjects provide skills to students as well as entrepreneurship. In this subject competency competition, students use certain techniques, have creativity and skills, and many other things so that they can produce certain products and are able to take advantage of local wisdom and the potential of the local area (Kemendikbud, 2017). Therefore, the subjects of crafts and entrepreneurship require the right learning model so that students can still learn it well and learning objectives can be achieved.

One of the competencies of students that is expected to increase in studying the subjects of crafts and entrepreneurship is learning motivation (Ernita, 2022; Lubis et al., 2018). Among the things that shape the motivation of students is the learning presented by the teacher (Jamil, 2019). This is conveyed by Belagra et al. (2018), Syarif (2013), and Rahmawati (2016) that the impact of teaching practice on student motivation is significant. Several researchers have proven that teachers can motivate or demotivate students. Vallerand et al. (1990) emphasize that the motivation of students is a priority and is influenced by the teacher because they manage the class and choose the pedagogical activities to be carried out. Relevant research was also conducted by Korpershoek et al. (2015) who found that students who had an above average level of motivation also had a high commitment to learning and were more confident. Students also become more motivated to succeed in school.

In learner-centered learning, motivation is a very important thing. When viewed from the theory of expectations, motivation is a combination of the needs and goals of learners (Eccles et al., 2016). The learning process can be said to be carried out well if it is able to motivate students to participate actively in learning

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(Lestari et al., 2018). With the motivation to learn, students will be more interested in being involved in the learning process (Vero et al., 2017). So it can be concluded that, without learning motivation, learning becomes less meaningful so that it is difficult to develop students' creative thinking in the future (Furmanti et al., 2019). However, students' learning motivation tends to be low. Rahman (2004) stated that most of the students did not have good learning motivation. This can be seen from the low seriousness in learning and negligence in carrying out the tasks given by the teacher. The same thing was also conveyed by Sari et al. (2018) which states that the seriousness of students in the learning process is still relatively low, still plays an active role in the classroom, and learning outcomes are also low.

The results of observations at SMA Negeri 1 Meulaboh show that teachers who are in charge of craft and entrepreneurship subjects have implemented a learning system that produces products, but the learning model used has not been directed. It is necessary to apply a model that directs students in designing, working on, and producing the results of this craft and entrepreneurship learning. The appropriate learning model in this case is a project-based learning model, which is a learning model with a project work system that can produce an output in the form of a product. With this model, it is expected that students' learning motivation can increase.

The project-based learning model is one of the learner-centered learning models believed to be flexibly applied. Ergül et al. (2014) stated that project-based learning is one model that provides opportunities for students to take part in the learning environment, making them responsible for their own learning, developing thinking, and making them understand and organize information. Students are also expected to be able to build and direct their own learning, develop creativity, and prefer to solve problems they face in collaboration and bring life to the classroom. This is also in line with what was conveyed by Belagra et al. (2018) that project-based learning is mainly oriented to the acquisition of concrete skills so that project-based learning is seen as a profitable learning process and can help students to achieve learning competencies.

The challenges of changing times lead students to respond well to problems and be able to create relevant and systematic solutions. Cakici (2013) stated that project-based learning can help students find solutions to real-world problems by asking open-ended questions, designing and conducting investigations, researching problems, gathering information, drawing conclusions based on findings, and reporting results. The existence of a project that is actually being worked on is able to represent the emerging understanding of students and allows them to be involved in the investigation. Belagra et al. (2018) added, in principle, project-based learning is able to motivate students. With a number of expert opinions and considerations regarding project-based learning, it is necessary to conduct research to apply project-based learning models in craft and entrepreneurship subjects to increase students' learning motivation.

Method

The research design used was a one group pretest-posttest design. The population in this study were all students of class X SMA Negeri 1 Meulaboh as many as 254 students. The number of samples amounted to 48 students. Learning motivation data were analyzed by comparing the scores of learning motivation before and after the implementation of project-based learning in the experimental class which was tested for significance through the Wilcoxon average difference test.

Data analysis of students' learning motivation was obtained from an assessment using an assessment questionnaire of students' learning motivation. The data obtained from the questionnaire in the form of ordinal data was converted into interval data using the interval successive method (known with MSI).

The statistical test used was the Wilcoxon test with a significant level of = 0.05. The test criteria are initial hypothesis is accepted if the p-value <0.05, meaning that there are differences in learning motivation before and after applying the project-based learning model with the mind mapping method. On the other hand, initial hypothesis is rejected if the p-value is < 0.05, meaning that there is no difference in learning motivation before and after applying the project-based learning model with the mind mapping method.

Result and Discussion

The data on students' learning motivation scores in this study were seen from the average score of learning motivation before and after learning was carried out using a project-based learning model. The description of the difference in scores can be seen in Figure 1.

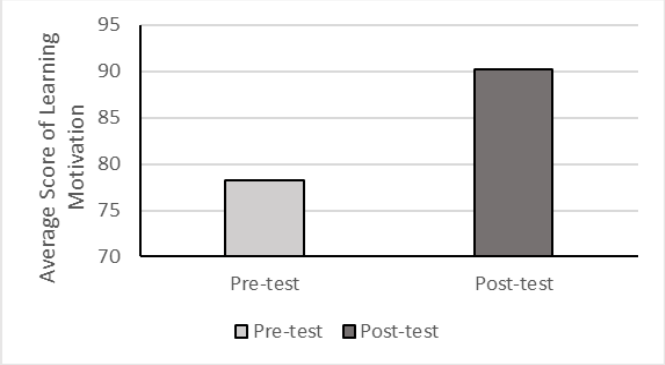

Figure 1. Average score of learning motivation before and after implementing the project-based learning model

Based on Figure 1, in general there is a difference in the average score of learning motivation before learning using the project-based learning model with the mind mapping method and after. Before learning, the average score of students' learning motivation was 78.24. After learning, the average score of students' learning motivation is 90.28.

Students' learning motivation scores were obtained from an assessment using a student learning motivation assessment questionnaire. The data obtained from the questionnaire in the form of ordinal data was converted into interval data using the MSI.

The difference in the average score of students' learning motivation before and after learning was tested using the Wilcoxon test. The test results can be seen in Table 1.

Table 1. The Difference in the Average Score of Students' Learning Motivation Before and After Learning Using the Project-Based Learning Model

Data Group	Mean	SD	Normality Test	Homogeneity Test	Z	Sig
Pre-test	78.54	8.84	0.200* (Normal)	0,000* (Not Homogenous)	-5.344	0,000* (Significant)
Post-test	90.28	16.68	0.200* (Normal)			

Note: *significant level 0.05

Learning motivation was compared between before and after treatment. On average, the group after treatment had a higher level of learning motivation (M=115.9, SD=16.68, Mdn=114.07) than the group before treatment (M=103.2, SD=8.84, Mdn=102.25). The results of the Wilcoxon test indicated that there was a significant difference in the skill level between the groups before and after treatment (Z=-5.344, p=0.000).

From the test results, it can be seen that the project-based learning model can increase students' learning motivation. This is supported by the research of Hapsari et al. (2020) which shows the results of an increase in students' learning motivation in implementing the project-based learning model with a percentage increase of 8% which is indicated by the percentage in cycle 1 getting 77% in the good category then increasing in cycle 2 to 85% in the good category.

A similar study was conducted by Elisabet et al. (2019) which states that students' learning motivation in learning using the project-based learning model is very high, students listen to material explanations, are confident in asking questions, and answering questions. In product assignments, students are very enthusiastic, conduct discussions with group partners, develop project designs, share tasks, and present work results.

There are certain factors that affect students' learning motivation. As stated by Hamalik (2008) emphasizing that new learning styles can make students more interested in learning. When viewed from the source, motivation is divided into two types, namely intrinsic motivation and extrinsic motivation. Sardiman (2016) states that intrinsic motivation is motivation that comes from within students, in the form of an activity that is initiated and continued based on the appreciation of a need and encouragement related to learning activities. This drive often arises from an awareness of the importance of something. On the other hand, encouragement can also arise from the suitability of the talents possessed by students. Meanwhile, extrinsic motivation is an active motivation when there are external stimuli, such as encouragement from family, friends, education, and the environment.

The combination of the project-based learning model with the mind mapping method is expected to be an interesting innovation in the presentation of learning for students. Swadarma (2013) states, mind mapping is an effective, efficient, creative, interesting, easy, and efficient way of taking notes which is done by mapping the students' thoughts

The results of the assessment on the questionnaire showed that the learning motivation of students increased. Further increase in motivation from each ARCS indicator can be seen in Figure 2.

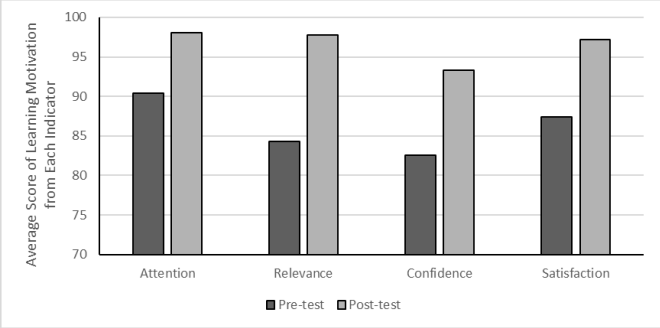

Figure 2. Average learning motivation score from each ARCS indicator before and after implementation of project-based learning model

Based on Figure 2, it can be seen that there are differences in students' learning motivation before and after the implementation of the project-based learning model for each indicator. The learning motivation of students in each indicator increases. The highest score after project-based learning is found in the attention indicator with a score of 98.10. Chotimah (2018) explains that attention can be seen from the following things such

as a good sense of pleasure towards lessons, having a high curiosity, attention to assignments, punctuality in completing assignments, and calmness while in class. When learning takes place, students look enthusiastic throughout the learning stages such as making mind maps, planning projects, and making products that are carried out together with group partners. Making mind maps builds their curiosity as seen from the structure of the concepts they present in each series of images on the mind map. Project work was also carried out well and resulted in a product as planned. This is in line with the principles conveyed by Sukarno et al. (2019) regarding appropriate strategies to keep the attention of students in the classroom, including using varied learning delivery methods, using appropriate media, relating to real events, and involving students to ask questions. From the ongoing learning process, it can be concluded that the overall attention of students has increased.

Another motivational indicator that also increases after learning the project-based learning model is the aspect of relevance. The score on the aspect of relevance after learning is 97.75. Relevance can be grown by generating the perceptual power of students, fostering a desire to research, and using varied learning elements. From learning, these strategies have been applied, namely by strengthening students' perceptions regarding the topic of animal-preserved food processing systems through mind maps, proving the success of the planned project through project work, and a number of media variations and student collaboration at each stage of the learning process.

The indicator of confidence or self-confidence also increases through learning using project-based learning with a score after learning of 93.35. Students are given more opportunities to be creative according to what they have planned and prove themselves the success of their plans through the implementation of the projects they have planned. Fatmala et al. (2018) describes the forms of confidence in a person or individual can be seen from the way the individual develops self-awareness, thinks positively, has independence, and has the ability to achieve something he wants. In learning, it is seen that students are able to develop their abilities in making product concepts and compiling projects. At the end of the lesson, students are also able to present the results of their work with confidence.

The last indicator is satisfaction, which also experienced an increase in score marked by a score after learning using the project-based learning model of 97.15. In the ongoing learning, a number of reinforcements were carried out by the teacher and student satisfaction was seen to increase which can be proven in the results of the scores that have been achieved on this satisfaction indicator. Wibowo (2020) describes that student satisfaction in learning can be achieved by raising the spirit of learning in themselves such as through positive reinforcement, appreciation, praise, and guiding students to answer correctly.

Conclusion

Based on the problem formulation, data analysis, research results and discussions that have been described, researchers can conclude that there are differences in students' learning motivation before and after applying the project-based learning model with the mind mapping method.

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