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Technology-Based Learning Models and Project-Based Learning Models Work Together to Boost Student Motivation and Abilities

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ABSTRACT

The modern industrial era demands more practical and innovative skills from school graduates. As a result, there is a need for educational reform that emphasizes helping students acquire competencies relevant to the demands of the labor market. Technology-based learning (TBL) and project-based learning (PjBL) are two learning strategies that could increase student motivation and proficiency. PjBL offers a project-based learning environment where students can gain knowledge through hands-on experiences closely linked to the business world. TBL provides access to tools, resources, and digital platforms that can enrich learning, increase student engagement, and facilitate wider access to information. An observational method was combined with a qualitative approach in this study. The research sample involved were students at the Vocational High School (SMK) level. The research data were obtained through direct observation of the learning process and student activities. The data were analyzed qualitatively descriptively to explore how integrating PjBL and TBL models can improve student motivation and competence. The study's findings demonstrated that by providing students with more engaging, useful, and pertinent learning material, the integration of PjBL and TBL models can boost their motivation to learn. In addition, active involvement in projects and the use of technology increased students' critical thinking skills, creativity, and ability to adapt to a dynamic work environment. The results of this study suggest that combining TBL and PjBL models could be a useful strategy for encouraging students to learn and develop the skills required in today's industrialized society. Combining these two models into instructional strategies promotes deeper student engagement and equips students with skills that will meet industry demands in the future.

Keywords: Practical and innovative skills, Project-based learning (PjBL), Technology-based learning (TBL)

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INTRODUCTION

Learning motivation and student competence are two important things to consider in the learning process. Students with high learning motivation will be more diligent and

persistent in their studies, so they can improve their competence (Jayanti, 2019). Meanwhile, high student competence will enable students to complete learning tasks well and achieve learning objectives (Fitriana, 2020). Students with high competence will have the knowledge, skills, and attitudes necessary to complete the assigned learning tasks (Purwanto, 2021).

The learning model used can also influence student learning motivation and competence (Wulandari, 2022). Student-centered learning models can increase student learning motivation and encourage them to achieve the expected competence (Supriadi, 2021). The selection of learning models, such as problem-based learning, allows students to be actively involved in the learning process (Budiman, 2022).

Wulandari, (2023) states that project-based learning (PjBL) is a model that allows students to express their ideas to others, hear what others have to say, and reflect those ideas to them. Rosalina, (2021) claims that PjBL can raise students' motivation for learning by giving them the chance to identify and resolve problems on their own. However, technology-based learning (TBL) employs information and communication technology (ICT) to raise the standard of instruction (Warsono, 2021). Wulandari and Susanto (2022) claim that TBL can raise students' motivation for learning because it gives them a chance to explore and express who they are. In addition to technology-based learning models, project-based learning (PjBL) is a student-centered

learning approach that enables students to work individually and in groups to accomplish a project (Sadiman and Rahardjo, 2022). Differently, TBL is a learning model that facilitates learning via ICT (Sutopo, 2022).

RESEARCH METHOD

Participants in this study are students enrolled in Surakarta's vocational high school (SMK), and the research methodology used is a qualitative observational approach.

Qualitative research is based on the philosophy of interpretivism, aiming to deeply understand social phenomena by examining them naturally within their context (Supriyanto, 2023). The observational approach involves directly observing the social phenomena under study, both directly and indirectly.

The research instrument used is the researcher itself. The researcher will observe students directly during the learning process, using a prepared observation guide. The observation guide includes a list of aspects to be observed, such as:

- Motivation for learning among students
- Active engagement of students in learning
- Critical thinking skills of students
- Creativity of students
- Adaptability skills of students

Research data is collected through direct observation of students during the learning process, utilizing the prepared observation guide. The observations are recorded based on the specified aspects.

The collected research data is analyzed descriptively. Data obtained from observations are recorded and categorized according to the observed aspects. Subsequently, the data is analyzed to conclude the influence of collaborative learning models based on projects and technology-based learning models on student motivation and competence.

This research will be grounded in the results of the data analysis, encompassing the impact of collaborative learning models based on projects and technology-based learning models on student motivation and competence.

RESEARCH RESULTS AND DISCUSSION

Research Results

Based on research observations, technology-based learning models and project-based learning models can enhance students' motivation and competency. This is evident from several indicators:

- **Increased student participation in learning**

When learning conventionally, students typically pay attention to what their teachers are explaining. However, when participating in project-based learning, students are required to actively seek out information, assess data, and come up with solutions. This may improve pupils' engagement with the curriculum.

- **Pupils' interest and curiosity in the topic have grown.**

When using technology-based learning and project-based learning, students can find

their lessons more meaningful and engaging. This could pique students' interest and increase their curiosity about the subject.

- **Improved student learning outcomes**

Technology-based learning and project-based learning can enhance the cognitive, affective, and psychomotor aspects of student learning outcomes.

Discussion

The adoption of technology-based and project-based learning models has been found to result in an increase in student motivation and competence for several reasons. These include:

- **Project-based learning and technology-based learning can provide students with more meaningful educational experiences.**

In traditional education, teachers are the only ones who impart knowledge to their students. Conversely, in project-based and technology-based learning, students actively look for information, evaluate data, and work through problems. As a result, a higher priority is placed on students learning.

- **Technology-based learning and project-based learning help students become more critical thinkers and problem solvers.**

Students usually commit the material to memory when learning in a traditional classroom. To engage in technology-based and project-based learning, however, students need to be able to think critically and solve problems. This can enhance students' capacity for critical thought and problem-solving.

- **Project-based learning and technology-based learning help students become more collaborative and communicative.**

In conventional learning, students tend to work individually. However, in project-based and technology-based learning environments, students have to collaborate with their peers. This may improve students' abilities to collaborate and communicate.

Related Literature

- The study "Implementation of Project-Based Learning Model to Improve Critical Thinking Skills and Life Skills of SMK Students" by Sutrisno, (2022) shows that project-based learning models can improve student collaboration by increasing interaction and cooperation during project completion.
- The study "The Effect of Implementing Project Based Learning (PjBL) Learning Model on Student Learning Outcomes and Learning Motivation in Biology Subjects" research by Rahmawati, (2022) demonstrates that putting project-based learning models into practice can help students become more active and motivated to learn. Higher student engagement in the classroom, heightened interest and curiosity in the material, and enhanced learning outcomes are all indications of this.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on the results of the research and the discussion that follows, implementing

technology-based and project-based learning models can help increase student motivation and competence. As a result, instructors may choose to use either of these two learning models as an alternative to traditional teaching methods.

Recommendations

Based on the findings of this research, the following recommendations are suggested:

- Training on the application of technology-based and project-based learning models must be given to educators.
- To facilitate the adoption of technology- and project-based learning models, schools should have the necessary infrastructure and facilities.
- At higher educational levels, more research is required to evaluate the efficacy of implementing technology-based and project-based learning models.

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