



## The analysis of project-based learning models implementation on student motivation and learning achievement

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### ABSTRACT

Learning activities are now centered not only on teachers but also on students who actively participate in the process. Learning motivation needs to be developed in students to achieve high learning outcomes. There are several learning models that teachers can use in the teaching process, one of which is project-based learning. This learning model is a model that guides students to engage in a project collaboratively and provides them with opportunities to develop themselves based on their real experiences. This study aims to analyze the implementation of the project-based learning model on student motivation and learning achievement in the environment of one of the Vocational High Schools in the Lembang area. The research method used in this study is a qualitative approach using the interview method. The results of the study show that this learning model increases student participation in learning so that students are encouraged to have motivation and achieve in getting good project results.

### ARTICLE INFO

#### Article History:

Received: 25 Aug 2024

Revised: 15 Nov 2024

Accepted: 17 Nov 2024

Available online: 23 Dec 2024

Publish: 27 Dec 2024

#### Keywords:

learning achievement;  
motivation; project based  
learning

#### Open access

Curricula: Journal of Curriculum Development is a peer-reviewed open-access journal.

### ABSTRAK

Kegiatan pembelajaran kini tidak hanya terpusat kepada guru, namun peserta didik turut serta aktif dalam prosesnya. Motivasi belajar perlu untuk dikembangkan dalam diri peserta didik agar bisa mendapatkan hasil belajar yang prestatif. Terdapat beberapa model pembelajaran yang dapat digunakan oleh guru dalam proses mengajar, salah satunya adalah pembelajaran berbasis proyek atau Project-Based Learning. Model pembelajaran ini merupakan model yang membimbing peserta didik untuk terlibat dalam sebuah proyek secara kolaboratif dan memberikan kesempatan bagi mereka untuk mengembangkan diri berdasarkan pengalaman yang dimilikinya secara nyata. Penelitian ini bertujuan untuk menganalisis implementasi model pembelajaran berbasis proyek pada motivasi dan prestasi belajar peserta didik yang ada di lingkungan salah satu Sekolah Menengah Kejuruan (SMK) di daerah Lembang. Metode penelitian yang digunakan pada penelitian ini adalah pendekatan kualitatif dengan menggunakan metode wawancara. Hasil penelitian menunjukkan bahwa model pembelajaran ini meningkatkan partisipasi peserta didik yang tinggi dalam pembelajaran sehingga peserta didik terdorong untuk memiliki motivasi dan berprestasi dalam mendapatkan hasil proyek yang baik.

**Kata Kunci:** motivasi; pembelajaran berbasis proyek; prestasi belajar

### How to cite (APA 7)

Athaya, A. M., Kusmiati, M., & Faturachman, M. A. (2024). The analysis of project-based learning models implementation on student motivation and learning achievement. *Curricula: Journal of Curriculum Development*, 3(2), 347-362.

### Peer review

This article has been peer-reviewed through the journal's standard double-blind peer review, where both the reviewers and authors are anonymised during review.

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## **INTRODUCTION**

Education is a fundamental and indispensable aspect of human life. It is widely regarded as a deliberate and systematic process aimed at shaping the characteristics, values, and competencies of an individual so as to produce a person of high quality. In this regard, education serves the ultimate purpose of cultivating individuals who possess not only a high level of knowledge, but also noble moral character and well-developed practical skills. These three dimensions such as intellectual capacity, moral integrity, and technical competence, are attained through a structured process of learning. Learning, in this context, refers to an intentionally designed process that seeks to foster active engagement in acquiring knowledge, attitudes, and abilities within the learner. It is inherently a two-way interaction that involves both the educator and the learner. The educator assumes the role of the primary source and facilitator of information, while the learner takes on the role of the recipient and processor of that information, actively constructing understanding through the learning activities provided.

Within the learning process, the success of education is determined not only by the roles of teachers and students, but also by the effectiveness of delivering instructional content. The method of delivery—often referred to as the teaching strategy or instructional approach—plays a vital role in shaping how well learners receive, process, and apply the knowledge shared by educators. An effective delivery method enhances comprehension while maintaining students' attention and motivation throughout the learning process. As the central framework of educational practice, the curriculum integrates these aspects into its structure and application. The curriculum, as the overarching framework for the implementation of learning, seeks to put this into practice by accommodating ongoing changes and developments. At the same time, it aims to encourage students to consistently cultivate creative and critical thinking skills (Hadiapurwa *et al.*, 2021).

Teaching and learning activities are now expected to move beyond a teacher-centered approach, encouraging students to actively participate and thus fostering two-way communication. To create an active and effective learning environment, both the learners' intrinsic motivation and the teacher's ability to manage classroom activities are essential. Learning motivation, in particular, is a key factor in the teaching and learning process, serving as a driving force that compels students to take purposeful action toward specific goals. Such motivation enables them to achieve optimal results and continually improve their performance in the future (Vonkova *et al.*, 2021).

In addition, the success of students' learning can be seen based on their learning achievements. These learning achievements include the ability of students to master learning materials, their accuracy in completing tasks and the activeness of students in responding to teacher questions (Karakoç *et al.*, 2022). In this case, learning motivation has a relationship with learning achievement. Based on several studies that have been conducted, learning motivation has a positive influence and significant relationship to learning achievement (Mulya & Lengkana, 2020; Vu *et al.*, 2022; Zheng *et al.*, 2020). When students have high learning motivation, students can have the opportunity to achieve better learning achievements.

One effective way to enhance students' motivation and academic achievement is through the innovative role of teachers in creating a conducive and enjoyable learning environment. This can be achieved by providing rewards to students, employing diverse teaching methods and instructional media, and fostering a comfortable and supportive classroom atmosphere (Indriasari *et al.*, 2020; Lesnowati & Hafifi, 2021). In this regard, the competence of teachers in designing and facilitating an effective learning process is of paramount importance in today's educational context. Teachers are therefore required to make intentional and well-planned efforts to improve student learning outcomes. This involves carefully designing and organizing the sequence of classroom activities, selecting appropriate teaching methods, and ensuring the alignment of these activities with the intended learning objectives. Through such thoughtful preparation, the learning process can more effectively stimulate students' intellectual growth, foster their skills, and support their overall academic development.

One of the other success factors of the learning process is the learning model used. A learning model is a conceptual framework that describes systematic procedures in organizing learning systems to achieve specific learning objectives and serves as a guide for teachers in designing learning for students (Magdalena *et al.*, 2021). There are various types of learning models that can be applied by teachers in the classroom according to the needs of students. One of the learning models that is considered capable of improving students' learning outcomes is project-based learning.

Project-based learning is an instructional model that guides students through a collaborative project, integrating various subjects within the curriculum and providing opportunities for them to explore the material in greater depth in order to produce a meaningful and valuable product. This approach places emphasis on a relatively time-bound process that is problem-focused and organized into meaningful learning units, integrating concepts from multiple domains of knowledge, disciplines, or fields of study (Siswandi *et al.*, 2024). Project-based learning emphasizes contextual learning through complex activities.

This project-based learning model also emphasizes students' active engagement in gathering information and applying it in ways that can be beneficial to themselves or to others. At the same time, it remains aligned with the core competencies outlined in the curriculum, namely attitudes, skills, and knowledge. One example of an activity within this model is assigning students to work in groups. Such an arrangement aims to foster a collaborative working atmosphere among learners while providing them with opportunities to plan self-directed learning activities and produce tangible outputs. These outputs can then be presented to others, allowing students to share their work, receive feedback, and further refine their understanding (Hadian *et al.*, 2022).

On the other hand, Project-based Learning model is a learning model that comes from constructivism theory. The theory suggests that basically learners actively build their learning experience independently and initiative with the teacher's role as a facilitator so that this model tends to lead to a student centered approach or learner-centered learning.

The concept of learning within constructivist theory is grounded in the understanding that the learning process undertaken by students is essentially a process of constructing knowledge, comprehension, and experience. This approach views learners as active agents who build their own understanding through interaction with their environment and prior knowledge. Within this process, teachers are expected to serve as effective facilitators who

can guide, support, and create opportunities for students to explore and develop their potential to the fullest. In addition, in the learning process, this learning theory requires active participation from students (Oktaya & Panggabean, 2022).

In relation to this, it can be understood that the presence of project-based learning—which provides students with opportunities to engage in self-directed learning activities and take an active role in the process—is supported by constructivist theory, which places the learner at the center of the educational experience. Furthermore, the learning process in Senior High Schools and Vocational Schools is now increasingly directed toward the use of project-based learning, in line with the principles of the Merdeka Belajar curriculum. The development of this approach is expected to be guided in a holistic, competency-based, contextual, and personalized manner, thereby ensuring that students' learning experiences are both meaningful and relevant to their individual needs and real-world contexts (Cantika *et al.*, 2022; Susilana *et al.*, 2023). In this learning process, the teacher serves as a provider of learning facilities and resources with the aim of fostering and further developing students' potential. One Vocational High School (*Sekolah Menengah Kejuruan* or SMK) in Lembang has implemented Project-Based Learning. In practice, teachers have stated that the focus of learning has shifted toward the students. However, from a conceptual standpoint, the implementation requires further analysis to assess the extent to which it aligns with the intended principles and objectives of the model.

The Project-based Learning model, which emphasizes collaborative learning activities in a project, can increase learning motivation in the classroom (Ainiyah *et al.*, 2023). In addition, the project-based learning model can improve hardskill and softskill abilities and significantly increase students' learning motivation (Mahendra *et al.*, 2023; Yanti & Novaliyosi, 2023). Based on the above explanation, the author intends to conduct a study on the implementation of the Project-Based Learning model in one of the Vocational High Schools (*Sekolah Menengah Kejuruan* or SMK) located in Lembang. The purpose of this research is to analyze how Project-Based Learning is carried out by teachers in the school and to examine its impact on students' learning motivation and academic achievement.

## **LITERATURE REVIEW**

### ***Project-based Learning***

Project-Based Learning is an instructional model that actively engages students in the learning process through real-world projects that are relevant to their experiences. This approach positions students as active participants who begin by identifying real-life problems, exploring possible solutions, and applying their skills to develop concrete outcomes. In doing so, students not only enhance their knowledge and abilities but also gain practical experience that can be applied beyond the classroom (Retno, 2022). In this case, teachers still have their own role in the learning process. Teachers act as agents of change who provide direction to students and design and organize learning in accordance with the curriculum (Hayatinnufus, 2023). Therefore, in implementing this learning model, creativity becomes an essential aspect for both teachers and students. It enables teachers to design engaging and effective learning activities, while also encouraging students to develop innovative ideas and solutions throughout the learning process.

The implementation of the Project-Based Learning model in classroom activities provides students with opportunities to explore their potential and engage in meaningful learning experiences. This model serves as a strategic approach to enhancing students' competencies, enabling them to achieve academic excellence, develop critical thinking skills, foster independence, improve problem-solving and presentation abilities, and cultivate the capacity to view issues from multiple perspectives (Azzahra *et al.*, 2023). Through this learning model, the motivation of students in learning activities is expected to increase along with the development of their skills.

Project-based learning model is also considered as a learning process that involves students to produce a project directly by developing problem-solving skills (Hairunisa *et al.*, 2019). In addition, Project-based Learning is also a model that involves learners in gathering information and integrating the problems faced with new knowledge obtained based on real experience (Prajoko *et al.*, 2023). So this learning model provides opportunities for learners to make their own decisions and ways of completing a project by referring to their experiences.

One of the defining characteristics of this learning model is its implementation of group-based learning activities centered on project development. In this regard, Project-Based Learning aims to cultivate students' proactive attitudes in addressing and resolving problems, enhance their communication and collaboration skills, and produce tangible outcomes as the culmination of the learning process (Hotimah, 2020; Mayasari *et al.*, 2022).

## **Constructivism Theory**

Constructivism theory is one of the learning theories applied in education. A theory, in essence, represents human thought that is logical, systematic, and worthy of being used as a guiding framework in carrying out an activity. Theories serve several functions. First, they help organize findings in a more systematic manner, thereby clarifying or reinforcing the results of previously published research. Second, they serve as the basis for formulating hypotheses—provisional assumptions or predictions that require further verification and are derived from the theoretical foundations underlying the research.

Constructivism theory is constructive. This is in line with the context of constructivism in the philosophy of education, which means an effort to build or build (Mulyadi, 2022). On this basis, constructivism can be understood as a constructive theory, particularly one that focuses on building capacity and deepening understanding within the learning process. Due to its constructive nature, it is expected to promote greater student engagement throughout the learning process, which in turn can lead to improved learning outcomes.

Constructivism is a learning theory that focuses on understanding how to transform acquired knowledge into the creation of something meaningful. In other words, it emphasizes the integration of learning with real-life actions or practices in ways that are both useful and beneficial. This perspective views knowledge not merely as information to be memorized, but as a resource to be applied, adapted, and expanded upon through experience (Kurniawan *et al.*, 2024). In addition, constructivism is also defined as an active process in which learners construct their own knowledge, derive meaning from what they have learned, and integrate new concepts and ideas with the cognitive frameworks they already possess. This approach

views learning as a dynamic interaction between prior knowledge and new experiences, enabling students to deepen their understanding by continuously refining and reorganizing their mental structures (Rannikmae *et al.*, 2020). From the above perspective, it can be understood that constructivism is about stimulating learners by providing them with the widest possible space to comprehend what they have learned, apply the concepts they already know, transform these into new concepts, and implement them in real-life, everyday situations. This approach not only encourages deeper understanding but also bridges the gap between theoretical knowledge and practical application, allowing students to see the relevance of their learning in various real-world contexts.

Constructivist theory can be viewed from two perspectives: that of the learner and that of the teacher. From the learner's perspective, they have the freedom to develop the knowledge they have acquired through various activities such as practice, experimentation, or discussions with peers. Through these processes, the learner's understanding will grow and evolve. From the teacher's perspective, it is essential to create learning situations that enable students to actively participate through material processing and social interaction. Educators should present explanations in an engaging and dynamic manner while making effective use of relevant learning media. This implies moving away from traditional methods such as lengthy lectures and rote note-taking, and instead adopting strategies that encourage students to be proactive and fully integrated into the learning process.

In addition, there are other reasons why the constructivist theory is important to implement in the learning process, including:

1. The teacher is not the only source of learning. During the learning process, the teacher serves primarily as a provider of knowledge, also known as a learning guide or facilitator, while students are expected to be more proactive in engaging with the process through exercises, problem-solving, practice activities, and other tasks. The teacher acts as a guide in learning, providing all the necessary support for students. In constructivism, knowledge is not solely acquired during classroom instruction but can also be obtained through discussions, experiences, and interactions with the surrounding environment.
2. Students are more proactive and creative in the learning process. They must be able to comprehend lessons learned both in school and from outside experiences, enabling them to connect the knowledge they acquire accurately and in depth. Furthermore, students should be capable of understanding new knowledge while also making meaningful connections to prior knowledge.
3. Learning becomes more meaningful. Meaningful learning refers to the transfer of information into other knowledge structures. This means that learning is not merely about listening to the teacher, but also about the student's ability to connect their personal experiences with the information they receive from peers, newspapers, television, and other sources.
4. Learning upholds the right to academic freedom. This means that students are free to connect the knowledge they acquire from their environment with the knowledge gained in school, in order to create the concepts they aspire to and to develop the ability to make informed decisions.

## **Learning Motivation**

Motivation comes from the root word motive which refers to the internal force within the individual, which moves the individual to act or do something (Akmalia, 2022). Motivation is characterized by the emergence of feelings and emotions within a person, indicating that it is closely related to psychological, affective, and emotional aspects that influence human behavior. In the context of education, learning motivation plays a crucial role in fostering a strong desire within students to actively participate, think creatively, work effectively, and engage innovatively in the learning process. Such motivation not only makes learning more enjoyable but also aims to bring about positive changes in cognitive, affective, and psychomotor domains, thereby enhancing both the quality and outcomes of the learning experience.

Motivation has an important role in the lives of learners which affects the effectiveness of learning in the classroom. Motivation is closely related to learning ability (Damayanti & Rufiana, 2020). Motivation creates a reciprocal relationship between the learning process and learning ability. In other words, motivation affects how learners learn and also affects their level of motivation.

The success of the learning process largely depends on the teacher's ability to provide motivation to students. Motivation drives change within learners, offers clear direction, and keeps them committed. Therefore, motivation can be defined as a factor that raises one's awareness and influences their behavior, encouraging them to take action or engage in learning with the aim of achieving specific outcomes.

Motivation within an individual can be classified into two types: intrinsic motivation and extrinsic motivation. Intrinsic motivation refers to the drive that comes from within a person, such as the desire to develop specific skills, gain deeper understanding, cultivate a positive attitude toward achievement, pursue personal happiness, or seek recognition from others, without being influenced by external factors. On the other hand, extrinsic motivation arises from external influences, such as grades, awards, certificates, performance levels, prizes, competition, or punishment.

In the context of learning in schools, extrinsic motivation still plays an important role, as not all learning materials may naturally capture students' interest or align with their needs. Nevertheless, it is desirable for intrinsic motivation to develop, as this type of motivation is considered more genuine, sustainable, and rooted within the learner. However, it is important to note that the emergence of intrinsic motivation is not an easy process and does not always occur automatically, as it often requires consistent encouragement, supportive learning environments, and opportunities for students to connect the learning material with their personal interests and goals (Kotera *et al.*, 2023).

Learning motivation has a role and function as a driver of effort in determining the direction of the goals to be achieved, including achieving learning goals and learning achievements based on the targets set by each student (Chatarina *et al.*, 2020; Harahap *et al.*, 2021). Therefore, students' learning motivation is crucial, as it contributes to a positive response toward the learning process, ultimately aiming to achieve the desired learning outcomes. Moreover, strong motivation helps maintain students' persistence in facing challenges,

encourages active participation, and fosters a sense of responsibility for their own learning progress (Nugroho, 2019).

## **Learning Achievement**

Learning achievement is the measurable ability in the form of knowledge, attitudes, and skills resulting from the active interaction between the learner and the learning material during the educational process. Its purpose is to attain the expected learning outcomes. Learning achievement serves as evidence of one's success in the learning process or a student's ability to carry out learning activities in accordance with the predetermined level of attainment. Furthermore, it reflects the extent to which educational objectives have been met and can serve as a benchmark for evaluating both the effectiveness of teaching methods and the learner's progress (Putri *et al.*, 2023).

Learning achievement is also influenced by various factors, both internal and external. Internal factors include motivation, interest, talent, health, and cognitive abilities, while external factors encompass the family environment, school, community, and the availability of learning resources and facilities. Academic achievement serves as a measurable index reflecting the development of students' cognitive, affective, and psychomotor aspects within the educational environment. Thus, learning achievement not only represents the final outcome but also reflects the overall process of students' skill and knowledge development (Hudaya *et al.*, 2024). Measuring academic achievement is usually done through examinations or continuous assessment, although there is no general consensus on the best method or the most important aspects to measure. Teachers usually use either their own tests or standardized tests to measure learners' academic performance (Aslan, 2021).

It is important to evaluate aspects that can support the improvement of learning achievement and the quality of education in Indonesia, because learning achievement is a measure of the success of students in the learning process. Thus, it can be concluded that learning achievement reflects the results of the teacher's assessment of students after they have followed various training and teaching programs that have been arranged within a certain period of time. This assessment is generally expressed in the form of grades.

## **METHODS**

The method used in this research is a qualitative method that is presented descriptively in the form of words. This method is used to examine phenomena related to the implementation of project-based learning models from the research subject's point of view so as to answer questions how, where, what, when and why a problem can occur. More specifically, this qualitative research approach is of the phenomenological type, namely by collecting data using observation of research subjects to explain and find out related essential phenomena for researchers.

The research was conducted at one of the vocational schools in the Lembang area. The object studied here is the Project-based Learning model with the research subjects being teachers and students who have implemented learning activities with the Project-based Learning model. Data was collected using the interview method together with the research sources.

The interview guide used in this study was made based on the results of the researcher's initial study related to the implementation of project-based learning models that have been carried out by teachers. The next step is data processing. This activity is carried out by reducing data, namely selecting, simplifying, abstracting, and transforming the selection, simplification, abstraction and transformation of data obtained from the previous stages to be used further.

Furthermore, the data is presented and verified based on its accuracy and then analyzed. The data analysis technique chosen to support this research process is narrative analysis. This technique was chosen based on the results of the data received in the form of stories and observations.

## **RESULTS AND DISCUSSION**

Based on interviews with informants, the following research results were obtained:

From the teacher's perspective, it is evident that the learning process consistently employs the Project-Based Learning model, which aligns with the guidelines of the Merdeka Belajar curriculum. In this process, teachers act as facilitators, providing the necessary resources and support to help students develop their potential more fully. Classroom projects include activities such as field interviews, creating portfolios that foster creativity, critical thinking, and group-based exercises aimed at promoting independence while reducing individualism. One example is a business project carried out in the school, starting in the 10th grade, in which students work in groups with an initial capital of 50,000 IDR to develop a business over the course of one month. The activities include preparing a business proposal, conducting sales, and maintaining financial records. The primary goal of this initiative is to cultivate an entrepreneurial spirit in students from an early stage.

The advantages of implementing the Project-Based Learning model include the ability to better recognize and develop students' potential, encourage innovative ideas, create more relevant assignments, enhance curiosity, and provide meaningful learning experiences. However, challenges in the process often arise, such as financial constraints, lack of motivation, health issues, and other similar factors.

In terms of improving learning achievement, it is evident that a clear learning progression and structured approach make it easier for students to understand the material and derive meaningful insights from their learning experiences. The expected achievements also include the development of positive character and attitudes, which should be instilled in students as a foundation for practical work or project activities that represent the school positively. Furthermore, additional achievements are reflected when students are able to meet learning indicators expressed through operational verbs.

Project-Based Learning also enhances students' motivation because it actively engages them and increases their contribution throughout the learning process, thereby presenting challenges that encourage students to achieve success and personal satisfaction. When obstacles arise during its implementation, solutions include identifying the root causes of problems, fostering communication, providing guidance to students, understanding individual character traits, and recognizing the differences among learners.

Collaborative practices are consistently carried out by adjusting to the specific needs of each subject and the available facilities, with a strong emphasis on mastering both hard skills and soft skills, which are essential for the professional world. Therefore, in its implementation, it is crucial for teachers to take the initiative in designing subject content that maximally benefits students' skill development. This includes organizing activities such as career information job fairs, company visits, and collaborations with 26 different institutions. In addition, teachers conduct ongoing monitoring of internship programs (PKL) to closely engage with students' development and ensure that learning objectives are being met effectively.

In terms of evaluating learning outcomes in Project-Based Learning, assessment of students' skills is conducted on a scale of "competent" or "not yet competent." For those who are deemed "not yet competent," enrichment sessions are provided across three meetings to offer additional training. Achieving a high level of competence through this process can open future career opportunities for students, including the potential for international prospects.

Meanwhile, according to the students' statements, the project-based subjects in their classes include Business Economics and Archiving. In these subjects, students are required to produce papers and deliver presentations as part of the learning process.

Students prefer the project-based method over traditional lectures because it is considered more practical. This preference arises from the fact that project-based learning provides hands-on experience and opportunities to develop public speaking skills as well as refine presentation and organizational abilities.

In addition, the interview also revealed that there are two practice-based subjects in their classes. One of these is Archiving, which involves letter writing and correspondence, with a particular focus on typing skills assessments.

However, despite the advantages of the project-based method in providing hands-on experience, mastering the material, and developing skills, students also face certain challenges. One of these is finding resources on the internet, which can be difficult due to limited access to technology. Additionally, miscommunication among group members occasionally occurs, posing another challenge in the collaborative process.

These shortcomings can be addressed by ensuring that each individual is able to effectively communicate their ideas and be receptive to the opinions of others, thereby reducing the risk of miscommunication. Additionally, the school can provide better support and resources to facilitate each student's learning. Teachers should also enforce clear consequences for students who fail to complete their assignments. Furthermore, for learning materials that are difficult to access, recommended resources should be provided to guide students in obtaining the necessary information.

From the perspective of academic achievement, the informants stated that their grades improved more when using the Project-Based Learning model compared to other learning methods. The grades they received were more aligned with the actual performance they demonstrated, rather than being based solely on listening to the teacher's instruction. Furthermore, the projects allowed for individual abilities to be clearly observed, which helps reduce the influence of teacher bias in grading.

Students also reported feeling more motivated when using the Project-Based Learning model. This is because every task they complete must be presented in front of their classmates. From the process of completing the task to delivering the presentation, students are able to recognize both the strengths and weaknesses of their work, which helps them understand what aspects need further development. Through this process, they become motivated to improve their performance and continuously enhance the quality of their work.

Furthermore, appreciation is provided by teachers within the implemented Project-Based Learning model. Some teachers recognize students' efforts when they are able to answer questions or successfully complete their projects. This appreciation can take various forms, such as providing snacks, offering reduced workload for upcoming assignments, or awarding high grades.

## **Discussion**

Based on the findings of the study, it can be concluded that in the implementation of this learning model, teachers are positioned primarily as facilitators. Additionally, their role includes guiding students to think critically and fostering independence through group activities, thereby enhancing collaboration and entrepreneurial skills. Although the Project-Based Learning model encourages students to actively participate and collaborate in projects, the role of the teacher as an educator remains essential. In this model, teachers act as facilitators who provide motivation, guidance, and direction to students throughout the learning process (Yuniarti, 2021).

The purpose of implementing the Project-Based Learning model in this vocational high school is to enhance students' collaborative abilities and provide them with opportunities to develop their potential through mastery of communication and public speaking skills. This objective aligns with one of the key characteristics of the Project-Based Learning model, which is typically conducted in groups. Such a group-based approach allows students to actively process and apply their knowledge during learning activities, thereby reinforcing the development of their character (Menggo *et al.*, 2023; Sirisrimangkorn, 2021). In addition, the project-based learning model has a positive impact on the development of learners, especially in managing projects (Syawalia *et al.*, 2024).

On the other hand, students perceive the Project-Based Learning model as a more practical method compared to traditional lectures. This perception arises because Project-Based Learning provides students with direct, hands-on experience, allowing them to develop communication skills, such as public speaking, particularly during group project presentations. These communication skills are essential for preparing students to build their future careers (Adys *et al.*, 2024). Thus, the Project-Based Learning model can help students develop effective social skills, strong communication abilities, and public speaking competencies, while also fostering confidence and teamwork. This process serves not only to enhance their current learning experiences but also to prepare them for a successful and well-rounded future (Seftika *et al.*, 2021; Triningsih, 2024).

Based on the statements given by the informants, the implementation of the Project-based Learning model which has clear and measurable learning indicators can encourage students to explore their potential. These potentials can be in the form of having innovative thinking

and a creative spirit, increasing curiosity and a more relevant task process and creating interesting experiences (Saputri *et al.*, 2024; Suranti *et al.*, 2023). Therefore, this Project-based Learning model can increase the creativity of students by having high creativity and innovation and freedom in thinking (Anwar, 2022; Fazarini *et al.*, 2024; Sastradiharja & Febriani, 2023).

However, despite its advantages, several challenges are encountered in the implementation of this learning model. Among these are economic constraints and health-related issues, which can affect students' engagement in completing project assignments. In this regard, the school is expected to support students by providing adequate resources and facilities for each individual. With sufficient support, it is anticipated that Project-Based Learning activities can be more effective, positively impacting both students' motivation and their learning outcomes (Amanda & Kumala, 2024).

In addition, another challenge is the occurrence of miscommunication among individuals, which presents a distinct difficulty in the implementation of the Project-Based Learning model. Miscommunication during project-based learning activities can arise from a lack of coordination either with the teacher or among peers (Suraji, 2022). To overcome this problem, both teachers and students are expected to be able to communicate their respective opinions clearly and of course be able to listen and accept other people's opinions.

From the perspective of motivation and learning achievement, the implementation of the Project-Based Learning model in this vocational high school has shown improvements in both areas. The increase in student engagement and learning outcomes is attributed to the fact that Project-Based Learning provides a more meaningful and detailed learning experience, coupled with opportunities for students to develop critical thinking skills throughout the process (Nurhayati *et al.*, 2023). This statement aligns with the findings of this study, which indicate that students' motivation increased as reflected in their greater engagement and contribution during the learning process. Meanwhile, learning achievement improved as students demonstrated the ability to understand, comprehend, and derive meaningful insights from their learning experiences.

## **CONCLUSION**

The implementation of the Project-Based Learning model in a vocational high school in the Lembang area has increased students' participation in learning activities, thereby fostering both motivation and achievement in completing their projects successfully. This learning motivation is reflected in the enhanced engagement of students during the learning process, indicating their willingness to actively participate. Furthermore, students' achievements are demonstrated by their ability to complete tasks effectively and to comprehend the meaningful insights derived from their project-based learning experiences.

The Project-Based Learning model engages students to actively participate and collaborate in group projects while still involving the teacher as a facilitator who guides and directs the learning process. This approach aims to enhance students' collaboration and communication skills. Therefore, to effectively increase students' motivation and learning achievement, Project-Based Learning should be implemented in accordance with clear and measurable learning indicators, ensuring that students' potential can be fully developed.

## **AUTHOR'S NOTE**

The authors declare that there are no related conflicts of interest and affirm that the data and content of this research article are free from plagiarism..

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