

PROJECT-BASED LEARNING (PJBL) IN IMPLEMENTING ENTREPRENEURIAL CHARACTER AND HIGH LEVEL THINKING SKILLS FOR STUDENTS

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Abstract

This article aims to analyze Project Based Learning (Pjbl) in Instilling Entrepreneurial Character and Higher Level Thinking Skills for Students. The method in this research is Systematic Literature Review (SLR). Based on the results of the analysis, it was found that Project Based Learning (JBL) can have a positive influence on instilling entrepreneurial character, although it requires time. The research results also show that the Project Based Learning Method (PJBL) can have a big influence on high-level thinking skills for students, high-level thinking (High Order Thinking Skills) is often experienced by students when it is a transfer of knowledge from the lecturer.

Keywords: Project-Based Learning (PJBL), Entrepreneurial Character, High-Level Thinking Skills

INTRODUCTION

The 21st century is the century of a knowledge-based economy (KBE), whose success must be supported by a culture that can encourage creativity and entrepreneurship, as well as a strong desire to change and take risks. (Wikanta and Gayatri, 2017). One of the factors that causes a country to become developed is when the number of entrepreneurs in that country amounts to at least 2% of its population. Meanwhile, Indonesia only has 400 thousand entrepreneurs or less than 1% of Indonesia's population of around 200 million people. (Rizky Dwi Putri, 2018)

In the 21st century, education must be oriented towards preparing human resources who are able to compete and survive. Go deep (Wikanta and Gayatri, 2017) stated that it is not enough for university graduates in Indonesia to only have high cognitive knowledge, but also need to be equipped with innovative attitudes and behavior. Trilling and Fadel in (Maisaroh, 2019) put forward three categories of 21st Century skills, namely (1) Learning and innovation skills: Critical thinking and problem solving Communications and collaboration, Creativity and innovation; (2) Digital literacy skills: Information literacy Media literacy Information and communication technologies (ICT) literacy; and (3) Career and life skills: Flexibility and adaptability Initiative and self-direction Social and cross-cultural interaction Productivity and accountability Leadership and responsibility.

Preparation of human resources with the competencies required above must be supported by a change in the paradigm of the learning process. Meanwhile, the world of education's support for improving the quality of graduates is still

hampered by the ineffectiveness and efficiency of the learning process. In the 2000-2025 Strategic Plan in (Gregori, Holzmann and Wdowiak, 2021) The Minister of National Education assesses that the learning process so far is still too oriented towards mastering theory and memorization in all fields of study, which causes students' learning abilities to be hampered. Learning methods that are too focused on the teacher (teacher oriented) tend to ignore the rights and needs, as well as the growth and development of children so that the fun, exciting and intelligent learning process becomes less than optimal.

Learning outcomes using the conventional learning model above do not yet touch the development of all aspects of student competence, namely cognitive, psychomotor and affective. Tan (2003) in (Made et al., 2020) stated that the "Traditional" Learning Model must have undergone a change to a "Problem Based" Learning Model. "The current age of knowledge requires a learning paradigm that is oriented towards projects, problems, inquiry, discovery and creation." (Tamaki et al., 2019). Choosing a learning model with an orientation towards learning outcomes in accordance with the demands of 21st Century HR competency is important, and one of the innovative learning models that can be chosen is the project-based learning model (Wikanta and Gayatri, 2017).

Although in Indonesia, the use of the PjBL model in learning has begun to be widely implemented, both in elementary, middle and tertiary schools (Tammu and Sudarya, 2008; Rais, 2010; Tammu, 2018). However, the results achieved were not satisfactory. Problems that appear from previous research include (1) there are still misconceptions about PjBL, (2) the main variables being measured are unclear, and (3) the irrelevance of the learning tools used. Therefore, the application of the PjBL Model still needs to be studied further starting from preparation of tools, implementation, assessment to evaluation, especially in Entrepreneurship courses

The project-based learning model or project-based learning (PJBL) is one of the innovative learning models whose characteristics can embed and train a number of students' or students' characters and skills (Wikanta, 2020). Projects are complex assignments, based on challenging questions or problems, that involve students in design, problem solving, decision making, or investigative activities; gives students the opportunity to work relatively independently for long periods of time and leads to a realistic product or presentation (Kuppuswamy and Mhakure, 2020).

Project-based learning (PBL) focuses on relatively integrated teaching units in which students focus on complex projects consisting of many cases. This involves debating ideas, planning and carrying out experiments, and communicating their findings. Project-based learning integrates coursework at the curricular level, requiring students to direct their own learning while completing multiple cases across the curriculum. Cases, projects, and problem-based learning

represent a continuum of approximate complexity, however, all share the same assumptions about active, constructive, and authentic learning.(Tamaki et al., 2019).

The entrepreneurial mindset has been recognized in providing success and failure among entrepreneurs, the mindset will definitely go together with a characteristic, the characteristic itself is a person's nature that is not the same as other individuals (Wardana et al., 2020). Characteristics of entrepreneurship can be defined as things related to a person's characteristics, behavior, character, habits, attitudes and actions towards realizing innovative ideas in the business world.(Hejazinia, 2015) in his research entitled *The Impact of Entrepreneurship Education on Entrepreneurial Intention*, stated that entrepreneurship education has a positive effect on the formation of entrepreneurial character as well as entrepreneurial intentions.(Wikanta, 2020)in his research entitled *The Effectiveness of Project-Based Learning in Instilling University Students' Entrepreneurial Character and Training Science Process Skill*, stated that the project-based learning model is very effective in instilling entrepreneurial character.

At the higher education level, students are required to do more than just... able to understand and apply a concept, but also able to analyze, evaluate and create something related to the concepts that have been studied(Norfolk, Sibbitt and Jenkins, 2019).If referring to Bloom's Revised Taxonomy (Krathwohl, 2002), aspects of knowledge, understanding and application require low to medium level thinking skills, while aspects of analysis, evaluation and creation require high level thinking skills. What differentiates high-level thinking skills from low-level thinking skills is the cognitive process that occurs when the learning process takes place. The deeper and more complex the cognitive processesIf this happens, the higher the understanding and retention level that will result.

Based on this, project-based learning (PJBL) is a learning method that is often used by lecturers in teaching inside and outside the classroom in entrepreneurship courses. However, not many educators or lecturers know whether project-based learning (PJBL) can instill entrepreneurial character and high-thinking skills or is only a learning method used as a medium to convey material to students.

Although studies discussing Project Based Learning (PJBL) have been increasing rapidly recently. However, there has been no research that comprehensively discusses whether Project Based Learning (PJBL) can provide entrepreneurial character and high-level thinking skills. Therefore, researchers here will discuss this in detail.

METHOD

The method in this research is a systematic literature review (SLR). We use the SLR guidelines that have been developed by Kitchenham and Charters. According to the guidelines, the SLR process includes several activities, which can be grouped into three main stages: SLR planning, SLR implementation and SLR reporting (Klumpner, Wijekoon and Wheeler, 2006).

Table 1: SLR protocol developed by Kitchenham and Charters

Planning Stage	Step 1: identification of the need for a systematic review
	Step 2: formulation of focused questions
	Step 3: thorough search for related articles
Implementation Stage	Step 4: assessment of the selected articles
	Step 5: identify the data needed to answer the research questions
	Step 6: data extraction
	Step 7: synthesis of the article results
Reporting Stage	Step 8: interpret the results to determine their application
	Step 9: reporting

Source: Processed data, 2024

Conduct Research Questions

For Step 1, the researcher has stated it in the introduction. The next step is to formulate questions. This research question was designed with the help of Population, Intervention, Comparison, Outcomes, and Context (PICOC)(Klumpner, Wijekoon and Wheeler, 2006).

Table 2: Formulation of PICOC

Population	Online learning, online learning, e-learning
Intervention	Factors leading to parental involvement
Comparison	-
Outcomes	How prepared are parents for online learning?
Contex	Educational institutions, data based on education level

Source: Processed data, 2024

Research questions and motivation in the literature review can be seen in the following table:

Table 3: Research Questions for literature review

Research question	Motivation
RQ1: Which journal discusses Project Based Learning (Pjbl) in Instilling Entrepreneurial Character and Higher Level Thinking Skills for Students?	In this case, the researcher wants to identify journals that frequently discuss this topic.
RQ2: What topics do researchers often choose in relation to Project Based Learning (Pjbl) in Instilling	Researchers want to see whether the Project Based Learning (Pjbl) method can have an influence in cultivating

Entrepreneurial Character and Higher Order Thinking Skills?	Entrepreneurial Character and Higher Level Thinking Skills.
RQ3: In the context of educational level, who will be targeted in Project Based Learning (Pjbl) in Instilling Entrepreneurial Character and Higher Level Thinking Skills?	The educational context that will be examined in this research is students.
RQ4: To what extent can the Project Based Learning (Pjbl) method have an influence in cultivating Entrepreneurial Character and Higher Order Thinking Skills?	Researchers want to see in detail whether the Project Based Learning (Pjbl) method can have an influence on cultivating Entrepreneurial Character and Higher Level Thinking Skills.

Source: Processed data, 2024

Article Search

We looked for articles in online provider journals, namely sciencedirect, Google Scholar, and SINTA Indonesia (especially from SINTA, we focused on articles with a minimum reputation of SINTA 3). Article searches are focused according to the criteria that have been determined as follows: identification of searches according to PICOC, identification of searches according to research questions, identification of synonyms for words in the search. Based on these criteria, the keywords we used in the search included: Project Based Learning (PJBL), entrepreneurial character, and high-level thinking skills. Next, the articles were organized and selected from 2006 to 2020.

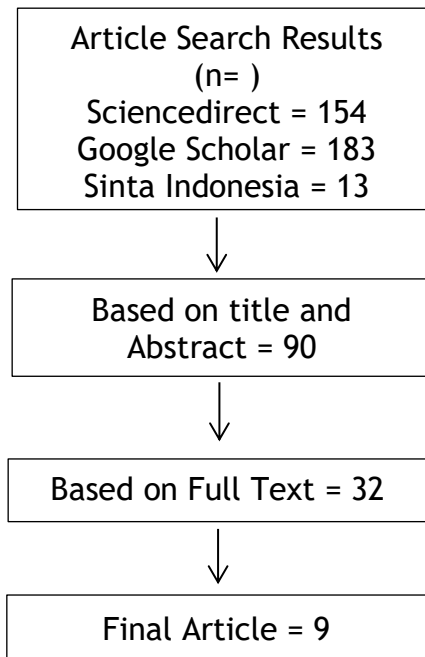


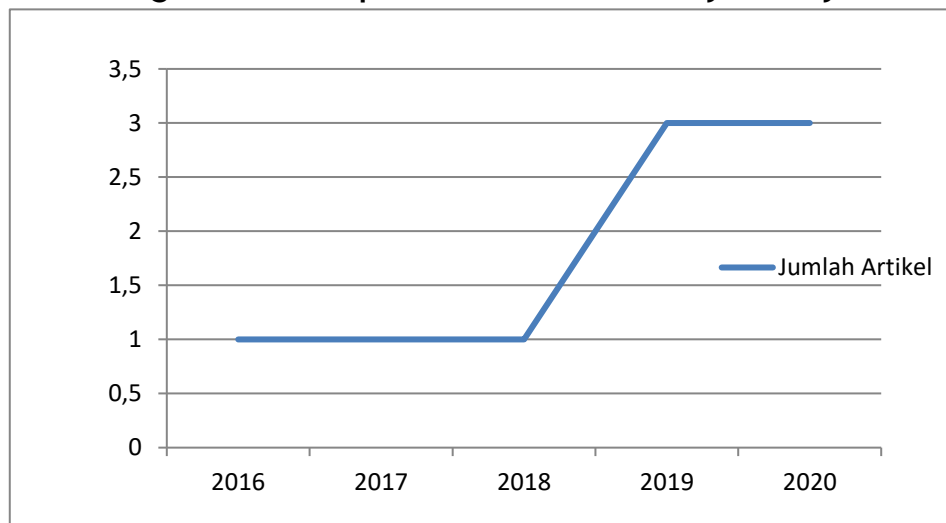
Figure 1 Article Search Process

DISCUSSION RESULT

Journal that often discusses the topic of Project Based Learning (Pjbl) in Instilling Entrepreneurial Character and Higher Level Thinking Skills for Students

Of the 9 journals that we have selected that discuss their relationship to Project Based Learning (Pjbl) in Instilling Entrepreneurial Character and Higher Level Thinking Skills for Students. It is important for researchers to know the development of this topic being researched from year to year so that we know whether this topic is still relevant to discuss.

Figure 2 Development of articles from year to year

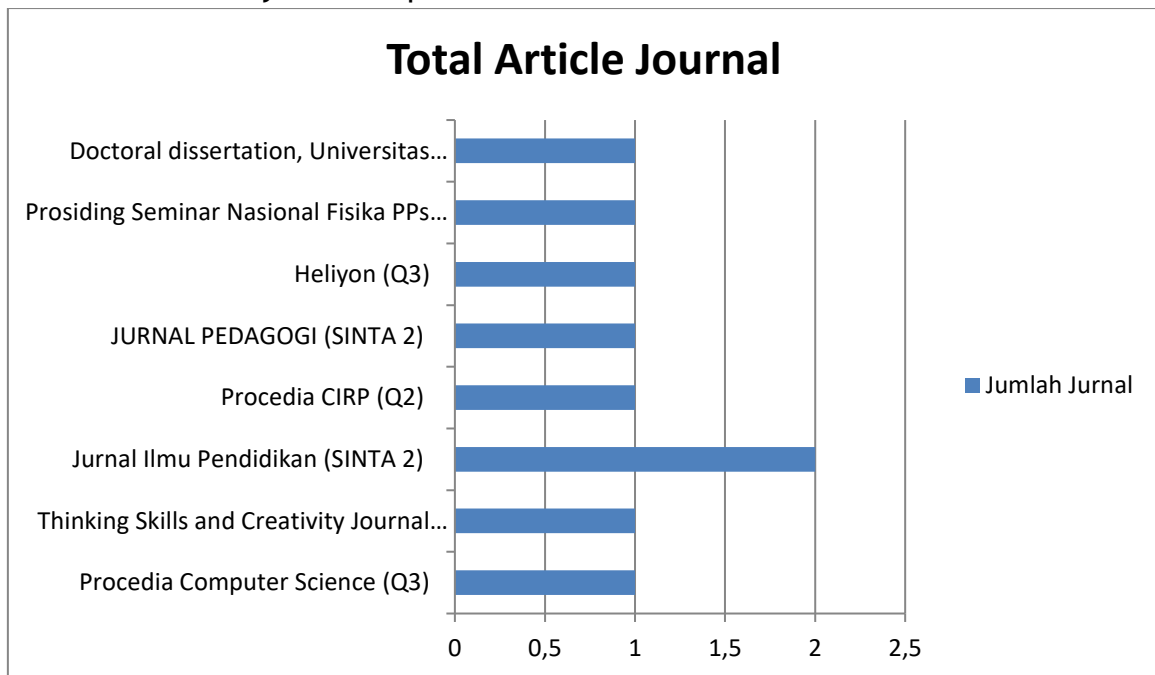


Source: Processed data, 2024

From the data shown in Figure 2, between 2016-2020 there are still very few articles discussing the topic of Project Based Learning (PJBL) in instilling entrepreneurial character and high-level thinking skills for students. This is because it is rare for an educational institution or university to conduct research that discusses whether the project-based learning method (PJBL) can instill entrepreneurial character and high-level thinking skills in students. As can be seen from Figure 2, throughout 2006-2020 research that discussed this topic was only in 2016, 2017, 2018, 2019, and 2020, each year having a different number of studies. However, in 2019 and 2020 research was conducted on the topic of whether project-based learning methods (PJBL) can instill entrepreneurial character and high-level thinking skills in students. This is because educators often use project-based learning (PJBL) methods in carrying out learning processes, so many researchers are interested in carrying out this case by combining entrepreneurial character and high-level thinking skills in entrepreneurship courses for students.

Meanwhile, the journal that discusses this topic based on Figure 3 which we have described below, turns out to be the journal *Obsession:Procedia Computer Science* (Q3) with 1 article, *Thinking Skills and Creativity Journal* (Q3) with 1

article, Journal of Educational Sciences (SINTA 2) with 2 articles, Procedia CIRP(Q2) as many as 1 article, PEDAGOGY JOURNAL (SINTA 2) with 1 article, Heliyon(Q3) as many as 1 article, Proceedings of the National Seminar on Physics PPs Makassar State University(SINTA 2) as many as 1 article, Doctoral dissertation, Semarang State University, 1 article. Knowing this is very important so that it can be used as a consideration for future researchers in publishing articles related to the topics we discuss. These journals can be chosen by researchers if they want to publish the results of their research.



Source: Processed data, 2024

THE INFLUENCE OF PROJECT-BASED LEARNING (PJBL) IN INSTALLING ENTREPRENEURIAL CHARACTER

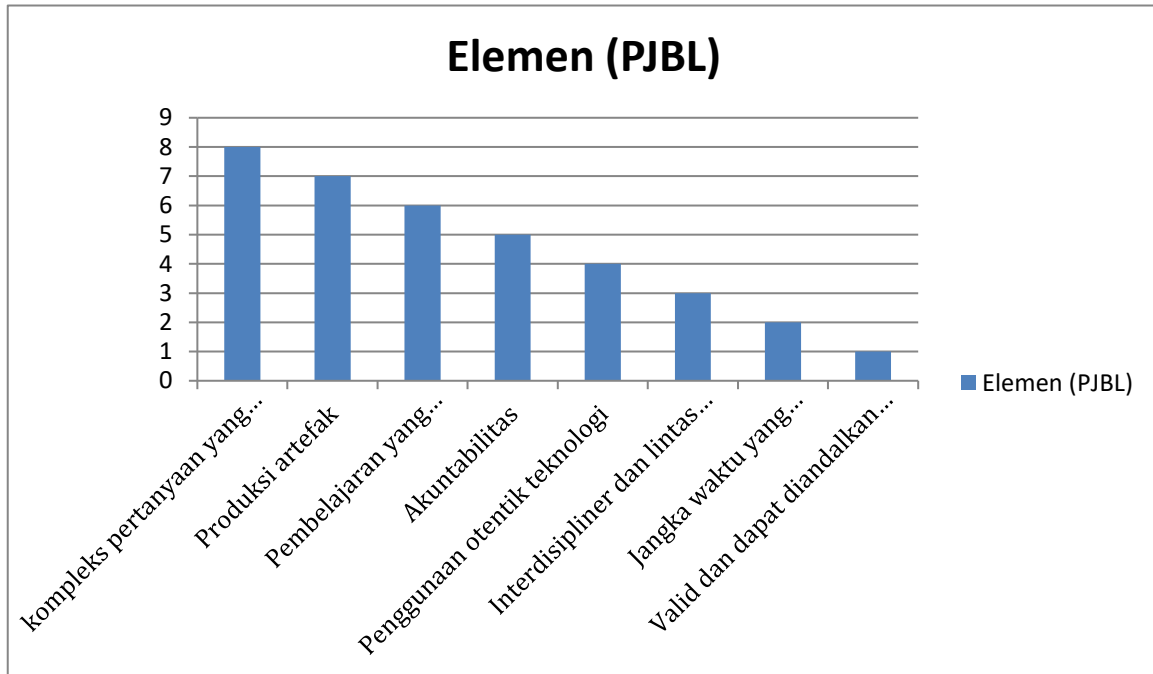
After we reviewed 8 articles, namely from (Wulandari, 2016; Wikanta and Gayatri, 2017; Syam and Efwinda, 2018; Mubarokah, 2019; Kuppuswamy and Mhakure, 2020; Made et al., 2020; Nair and Suryan, 2020; Wardana et al., 2020; Wikanta, 2020), information can be taken that the Project Based Learning Model (PJBL) has a positive impact in instilling entrepreneurial character. Even though it is not as big as other characters, the cultivation of entrepreneurship itself takes a long time and needs to be done continuously. Instilling entrepreneurial character is not an action that can be achieved in one week or one month, but instilling entrepreneurial character must be carried out at least 4 or 5 face to face meetings.

The Project Based Learning Model (PJBL) has great skills training potential, because in practice the (PJBL) model has 8 important elements, namely as follows [14]: (1) the complex of questions used is very relevant to students' lives, (2)

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Muhammad Vicky Zulfikar, 2024

Production of artifacts, (3) Student-centered learning, (3) Collaboration, (4) Accountability, (5) Authentic use of technology, (6) Interdisciplinary and cross-disciplinary inquiry, (7) Extended time horizons, and (8) Valid and reliable performance-based assessment.



Source: Processed data, 2024

The PjBL model is an effort to build an entrepreneurial culture on campus. PjBL model, as quoted from (Intel® Teach Program, 2012) is a learning model that involves students in investigating urgent problems that end in authentic products. This learning model will provide opportunities for students during lectures or the learning process to be actively involved in learning, not only individually but in groups in completing the tasks given. In this case, students learn through assigned projects, which according to (Pearlman and Thomas, 2000) as “projects are complex tasks, based on challenging questions or problems, that involve students in design, problem-solving, decision making, or investigative activities; give students the opportunity to work relatively autonomously over extended periods of time; and culminate in realistic products or presentations” So, a project is a complex assignment, based on a challenging question or problem, which further involves students in design, problem solving, decision making, or investigative activities; gives students the opportunity to work independently for a long time and culminate in a realistic product or presentation, which can be useful for the university and the students themselves in the future.

There are several weaknesses of the Project Based Learning Model (PJBL), including (1) It requires a lot of time to solve the problems given, (2) It requires quite a lot of preparation costs, (3) Many instructors feel comfortable with

traditional classes, even though the instructor holds main role in the class, (5) The amount of equipment that must be provided, (6) Students who have weaknesses in experimenting and gathering information will experience difficulties in completing projects, (7) it is possible that there are students who are less active in group work, but with With serious will and determination from lecturers and students, most of these obstacles can be overcome.

THE INFLUENCE OF PROJECT BASED LEARNING (PJBL) HIGH LEVEL THINKING SKILLS

After we reviewed 8 articles, namely(Wulandari, 2016; Wikanta and Gayatri, 2017; Syam and Efwinda, 2018; Mubarokah, 2019; Kuppuswamy and Mhakure, 2020; Made et al., 2020; Nair and Suryan, 2020; Wardana et al., 2020; Wikanta, 2020), High Order Thinking Skills (HOTS) is a level of thinking skills based on the complexity of the thinking process. Bloom's six cognitive domain categories of learning objectives, according to(Krathwohl, 2002)divided into two groups, namely (1) lower order thinking skills starting from the categories: remembering, understanding, applying; and (2) higher order thinking skills which include the categories: analyzing, evaluating, and creating.

Based on the observations of several previous researchers regarding the Project Based Learning Method (PJBL) in students' high-level thinking skills, it can be analyzed that there are several important things observed at each stage, namely: 1) High-level Thinking Skills. The lowest average pre-test score for students is in question number 10, namely in question C6, the concept of work and energy. In this problem, students are asked to design a block arrangement so that the system does not move. Meanwhile, the highest average pre-test score for students was in question number 9, namely in question C6, the concept of business relationships and frictional forces. 2) Aspects of cognitive knowledge, high-level thinking skills. Based on the things that have been explained, we can see that in general the percentage is highest in the category Students' high-level thinking skills are at level C5, namely in the form of evaluation questions, but there are no students who get an average C5 skill score of 100, while at level C4 there are students who get an average skill score of 100. The average skill score students' high-level thinking is at level C6, namely creative skills. There were several students who got a score of 50 and the highest with an average score of 93. 3) Improved students' high-level thinking skills. Increased students' skills in evaluating skills (C5) reached a score of 0.68 in the medium category. Evaluating skills involve the process of providing judgment using appropriate criteria or existing standards to ascertain the value of effectiveness or benefits, making hypotheses, criticizing and testing. The increase in students' skills in creating skills (C6) reached a value of 0.64 in the medium category. Creation skills involve the process of creating or designing solutions, ideas and methodologies by relating

them to the concepts of lessons learned. Problem-based learning environment, students act as professionals and are faced with problems that require clearly defined and well-structured problems, develop hypotheses, assess, analyze, utilize data from various sources, revise initial hypotheses as data is collected, develop and justify solutions based on evidence and reasoning.

These higher order thinking skills according to (Hanoum, 2014) can be activated when individuals are faced with unusual problems, uncertainties, questions or dilemmas. However, so far, students have been accustomed to the conventional learning process (verification), which is a transfer of knowledge from the lecturer, so that the application of the new PjBL Model has not been able to provide maximum results, so it only provides high-level thinking results. High Order Thinking Skills (HOTS) with more than sufficient criteria.

CONCLUSION

The results of this research indicate that the application of the project-based learning model in the Entrepreneurship course is quite effective in instilling entrepreneurial character and high-level thinking skills in students of the Office Administration Education study program, State University of Malang

The application of the Protection-Based Learning Model (PJBL) needs to continue to be carried out both in this course and in other courses, so that the cultivation of entrepreneurial character and high-level thinking skills in students will increase, so that they can contribute to realizing a knowledge-based Indonesian economy.

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