Study on Application of Entrepreneurship Mindset and Character Building in Project-Based Learning

Retni S. Budiarti, Asni Johari[✉], Muhammad Rusdi, and Evita Anggereini

Faculty of Teacher Training and Education, Universitas Jambi, Jambi, Indonesia
retni.sulistiyoning@unja.ac.id, johari_asni@yahoo.com

Abstract. Education is now undergoing reforms that lead to the demands of 21st century capabilities. Various innovative learnings are continuously explored and tested in order to arrive at the expected goals. One of them is Project-based learning which is currently booming and has begun to be applied in all education units in Indonesia. Previous research that can be seen from the vosviewer regarding the relationship between PjBL learning research and the Entrepreneurship Mindset is still very small, as is the relationship between PjBL learning research and Character Building. So the authors are interested in studying the Application of Entrepreneurship Mindset and Character Building in Project-Based Learning. So far, research on project-based learning has not done much more in-depth analysis to be used as a starting point as an appropriate model in growing the Entrepreneurship Mindset and Character Building, because the research variables are still separate and not integrated. This literature study was conducted to obtain direction from the results of PjBL research in order to find a starting point to realize the follow-up to educational research that creates an Entrepreneurship Mindset and Character Building. This research with a qualitative approach begins by summarizing the results of the PjBL learning model research related to the mindset entrepreneurship and character building in Indonesia. This research study shows that there is a need for a project learning design that includes a mindset entrepreneurship and character building in the learning step. Mindset Entrepreneurship can be started by doing branistroming in the early stages of student learning to grow ideas and opportunities that are explored from the contextual environment of students and character building can also be inserted during product manufacturing activities when applying PjBL-based learning syntax. The PjBL model is very appropriate to use for learning that directs students to have an Entrepreneurship Mindset and character building such as increasing interest in learning, interest in entrepreneurship, entrepreneurial traits, understanding and learning outcomes, understanding entrepreneurship, leadership abilities, courage to take risks, problem solving abilities, critical thinking, creative, communication, increase activity, self-confidence, curiosity, independence and increase enthusiasm.

Keywords: Project-Based Learning Model · Entrepreneurship · Character Building

1 Introduction

The development and advancement of technology in modern life has led humans to a new situation, namely the era of the industrial revolution 4.0 [1] [2] [3]. Along with that, there are demands. In the 21st century, the skills that must be possessed by students are the 7Cs which include critical thinking and problem solving, creativity and innovation, collaboration teamwork and leadership, cross-cultural understanding, communications information,and media literacy, computingand ICT literacy, career and learning self-reliance. One of the skills that gets a lot of attention is problem solving skills [4] [5], which every modern human must have [6] [7]. Currently, the demands for 21st century skills are used as the minimum standard of education, such as the application of forms of learning that require project-based or problem-based learning in order to create abilities in students, especially in Indonesia.

Efforts to achieve the demands of 21st century capabilities are not difficult but also not easy. In fact, many educational studies have directed their variables to the formation of an Entrepreneurial Mindset and Character Building, but there has been no research that has analyzed or summarized them as a starting point for further research on the results of these studies. Therefore, a study must be prepared on the research that has been done on the project-based learning model and its relationship to the Entrepreneurship Mindset and Character Building. The study, of course, must be related to the Entrepreneurship Mindset and character building in general.

Mindset is a mindset in the form of a collection of knowledge that has been embedded in the human mind when the human active thinking process has been formed [8]. The educational mindset must be changed from theory or exploration and the creation of ideas into action. While [8] defines mindset as the tendency to find, evaluate and take advantage of opportunities that exist when humans maintain life. The author [9] explains that entrepreneurship is a field of science that can penetrate all levels of education due to ambiguity of skills in only one discipline. Job uncertainty and ambiguity of skills in a science are factors that spark the idea of changing perspectives, that entrepreneurship is a field of science that can penetrate all strata of education.

A person's character still needs to be studied and researched further. According to [10] the importance of character building is also expected to have a positive impact in dealing with any situation that can cause stress. A person feels pressured by various conditions both in the family environment and in the social environment. Therefore, character education in the learning process is expected to have the effect of increasing, improving, changing the procedures, skills and attitudes and behavior of a person and forming a personality for oneself.

The Project Based Learning (PjBL) learning model is also often called project-based learning. PjBL learning is a model of an innovative learning approach that involves project work and requires students to design, solve problems, make decisions, carry out investigative activities, and provide opportunities for students to work independently [11]. Furthermore, according to [12] also revealed that project-based learning is a learning model that provides an opportunity for educators to manage learning in the classroom by involving project work.

Based on the description of the background above and previous research seen from the Vosviewer application, the relationship between PjBL learning research and the
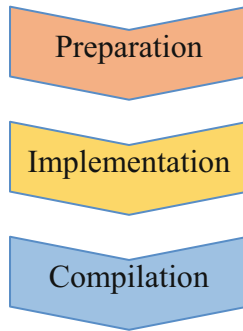
Fig. 1. Research Flow

Entrepreneurship Mindset is still very small and the link between PjBL learning research and character building is still very small. So the authors are interested in studying the Application of Entrepreneurship Mindset and Character Building in Project-Based Learning.

2 Method

Literature study research with a qualitative approach is carried out by combining and analyzing the results and discussion of research from the implementation of project-based learning models in learning related to the Entrepreneurship Mindset and Character Building. This analysis is carried out based on three stages, namely preparation, implementation, and preparation of materials (Fig. 1).

The preparation stage contains a list of needs identification that leads to the research topic directly or indirectly. Based on the nature of qualitative research, namely exploring something, the identification of needs is placed on the topic of project-based learning models related to the Entrepreneurship Mindset and Character Building. The implementation stage is the stage of meeting data needs that support the topic, namely by collecting data and obtaining supporting evidence. The preparation stage is the stage that contains the steps of tabulation, analysis, and drawing conclusions on the existing data. The data were obtained from research on project-based learning models related to.

3 Results and Discussion

Results

After collecting data through the results of research on project-based learning models related to the Entrepreneurship Mindset and Character Building, it was found that the application of project-based learning models was able to create.

1. Forming Entrepreneurship Mindset and Character Building, science process skills, and high-level thinking
2. Increase interest and achievement in entrepreneurship learning

3. Improve the understanding of entrepreneurship and the process of internalizing the characteristics of entrepreneurs
4. Improve creativity, skills, and learning outcomes
5. High entrepreneurial personality (soft skills) and business skills (hard skills)
6. Able to process regional potential into a craft product (creativity)
7. Improve leadership skills and confidence with the abilities possessed in developing their knowledge and skills
8. Growing the entrepreneurial spirit of students very well
9. Cultivate the spirit of character very well
10. Provide increased entrepreneurial intentions and creative thinking skills
11. Improving the entrepreneurial mindset, entrepreneurial skills and character building of students

These eleven points were obtained from the analysis of the results of research on the implementation of project-based learning models related to the Entrepreneurship Mindset and Character Building. In general, the project-based learning model has six stages as shown in Table 1.

The following is a collection of research that uses PjBL as a learning model and its relationship to the Entrepreneurship Mindset and Character Building.

1. Research conducted by Inayah Divineyyah, Sri Setyo and Iriani Harti in 2022 found that PJBL produces product development outputs from each team formed and in accordance with the Minimum Completeness Criteria (KKM). Therefore, PJBL plays an important role in increasing the entrepreneurial mindset and entrepreneurial skills of students in honing their knowledge and skills processes to become entrepreneurs [15].
2. Research conducted by Syaiful Haq in 2022 states that there have been many studies on PjBL implementation that have an impact on outcomes and improving the quality of learning and the formation of entrepreneurial characteristics[16].
3. Research conducted by Nurul Jannah and Khairuna found a significant effect of the entrepreneurship-based project based learning (PJBL) learning model on the learning outcomes of class X students on the Mushroom material. With the similarity of values obtained the control class is 45.15 and the experimental class is 62.52 with a maximum score of 60 for the control class and 83 for the experimental class [17].

Table 1. PjBL. Syntax

1	Fundamental Questions
2	Composing Project
3	Make schedule
4	Doing project
5	Monitoring (teacher)
6	Evaluation

Source PjBL Learning Syntax[13] [14]

4. Research conducted by Jamilah in 2015 found that project-based learning is the right learning model to integrate character building into the Pronunciation course. With project-based learning students can learn happily, able to apply pronunciation skills in real work, namely playing dramas. Students also understand others and are tolerant, work together in teams, are responsible, appreciate the work of others, develop self-confidence, be critical, and open to suggestions and opinions of others [18].

5. Research conducted by Miftha Indasari in 2017 One of the learning models that can stimulate the cultivation of character values in students is the Project-Based Learning model. Thus students will learn through the project and indirectly will also emerge an understanding of the character values that exist in the project activities [19].

6. Research conducted by Anita Yus, Gita Noveri Eza and Damaiwaty Ray in 2012 found that play-based and digital project learning models can develop the character of responsibility and cooperation [20].

7. Research conducted by Alessandra Colombelli, Shiva Loccisano, Andrea Panelli, Orazio Antonino Maria Pennisi and Francesco Serraino in 2022 found that there was a positive and significant effect of the Challenge-Based Learning program on the mindset and entrepreneurial skills of students, namely financial literacy, creativity, and planning [21].

8. Research conducted by Gülbin Kiyici, Sedef Canbazoğlu Bilici, Havva Yamak and Nusret Kavak in 2022 found that pre-service teachers mostly use curiosity, connection, and value creation during the water treatment plant design and wastewater assessment processes. Engineering is an important context for the development of an entrepreneurial mindset because it creates various contexts that contribute to the development of this mindset in pre-service science teacher education [22].

9. Research conducted by Ruhana Afifi and Lia Yulisma in 2020 found that the implementation of PjBL provided an increase in entrepreneurship intentions and students' creative thinking abilities [23]. Likewise, research conducted by Zuniarti in 2021 found that the application of PJBL can improve students' creativity and skills in learning creative and entrepreneurial products [24]. This result is also supported by research conducted by Ruhana Afifi and Lia Yulisma in 2020 which found that the implementation of PjBL provided a high increase in the entrepreneurial intention of experimental class students [25].

10. Research conducted by Inayah Divineyyah, Sri Setyo Iriani, and Harti in 2021 found that PJBL plays an important role in increasing the entrepreneurial mindset and entrepreneurial skills of students in honing their knowledge and skills process to become entrepreneurs [15].

11. Research conducted by Heri Retnawati, Ezi Apino and Rizqa D. Anazifa in 2019 found that character education had a positive impact on increasing student character values including religiosity, personality, social attitudes, and competitive attitudes. Exemplary by teachers and other school members as well as parents, character-oriented activities, and moral and material support from educational stakeholders are key factors in the implementation of character education. However, some improvements need to be made, such as increasing teacher training and workshops and providing financial support (funding) for the implementation of character education [26].

12. Research conducted by Didin Saripudin, Kokom Komalasari and Diana Noor Anggraini in 2021 found that the application of value-based digital storytelling media in social studies had a positive and significant impact on student character development. The dominant student characters developed through this learning media are religiosity, courtesy, caring, responsibility and self-confidence. The implication is that digital storytelling media can be used as an alternative learning media to develop the character of students in Indonesia and can be applied internationally because it is in line with 21st century learning [27].

Discussion

The development and advancement of technology in modern life has led humans to a new situation, namely the era of the industrial revolution 4.0 [1]. Efforts to achieve the demands of 21st century capabilities are not difficult but also not easy. In fact, many educational studies have directed the variables to the formation of Entrepreneurship Mindset and character building, but there is no research that analyzes or summarizes them as a starting point for further research on the results of these studies. Furthermore, if previous research seen from the vosviewer application, the relationship between PjBL learning research and the Entrepreneurship Mindset is still very small as well as the link between PjBL learning research and Character Building, this can be seen from the following (Figs. 2, 3 and 4).

Based on literature studies regarding the renewal of research seen from the three pictures above regarding Character Building, Entrepreneurship Mindset and PjBL Learning, it is confirmed that research related to these three variables is still very lacking and if you also look at research related to PjBL learning with the Entrepreneurship Mindset or PjBL learning research with character building is still very lacking Actually, long ago the field of education has been oriented towards creating graduates to have these abilities, not even just the mindset of entrepreneurship and character building, the demands of 21st century abilities are more than that. In the field of education, there are also many studies related to learning models, especially the application of learning models that give birth to the mindset of entrepreneurship and character building. Some learning models that are often used are problem-based and project-based learning models. In these two models, other impacts are often found besides increasing student learning outcomes, or what is often referred to as indirect impact. Studies have stated that the

Fig. 2. Vosviewer Character Building

Fig. 3. Vosviewer Mindset Entrepreneurship

Fig. 4. PjBL Learning

project-based learning model is one of the models that has an impact on the forma-
tion of entrepreneurial mindset and character building but no claims have been found
about it because so far studies of research results oriented to the PjBL model claim for
entrepreneurial mindset and character building have not been found due to the many
characteristics of entrepreneurship and forms of character education. The qualitative
analysis in this literature study summarizes the results of educational research on the
implementation of project-based learning models related to entrepreneurial mindset and
character building where it is proven that the PjBL model is a learning model that is very
suitable to form entrepreneurial mindset and character building for students. Judging
from educational research that leads to the variables of Mindset Entrepreneurship and
Character Building, it is clear that the application of the PjBL model is able to make
students have the ability to communicate, think critically, collaboratively, and creative
so that it generates innovative ideas that can be used as a basis for making projects while
also shaping the character of students who are supported from several projects they are
working on based on the project learning syntax. In addition, project-based learning is the

right learning model to integrate character building into applied courses. With project-based learning students can learn happily, able to apply pronunciation skills in real work, namely playing dramas. Students also understand others and are tolerant, work together in teams, are responsible, appreciate the work of others, develop self-confidence, be critical, and open to suggestions and opinions of others [18]. PJBL plays an important role in increasing the entrepreneurial mindset and entrepreneurial skills of students in honing their knowledge and skills to become entrepreneurs [15] PJBL produces product development outputs from each team formed and in accordance with the Minimum Completeness Criteria (KKM). Therefore, PJBL plays an important role in increasing the entrepreneurial mindset and entrepreneurial skills of students in honing their knowledge and skills processes to become entrepreneurs [15]. The application of digital story telling media based on project learning has a positive and significant impact on the development of student character. The dominant student characters developed through this learning media are religiosity, courtesy, caring, responsibility and self-confidence. The implication,

4   Conclusion

The project-based learning model is able to create an Entrepreneurship Mindset and character building for students. This model is very appropriate for modern learning because it is able to make students have communication skills, think critically, creatively, and collaboratively. Besides that, it also presents abilities such as increasing interest in learning, interest in entrepreneurship, the nature of entrepreneurs, understanding and learning outcomes, understanding entrepreneurship, leadership abilities, courage to take risks, ability to solve problems, increase activity, self-confidence, and increase enthusiasm. In addition, project-based learning is able to shape the character of students through the products they make and based on the learning syntax they do there can be seen the characters they have.

Authors' Contributions.   All authors have contributed to the final manuscript. The contributions of each author are as follows, RETNI S BUDIARTI; contribute to coordinate, collected and develop a sampling plan, analyze the processed data, write reports, write journals, and be responsible for data analysis.

ASNI JOHARI; contribute to planning and monitoring sampling, analyzing the data obtained, interpreted data, compiled journals, and supervised student. MUHAMMAD RUSDI and EVITA ANGGEREINI; contribute to planning and monitor sampling, analyze the data obtained, and pie performance charts or bars, interpreting data, journaling, and supervised students.

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