



## Student Digipreneur: The Role of Peer Team-Based Learning and Project-Based Learning

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### Abstract

This study aimed to analyze the role of peer team-based learning (PTBL) and project-based learning (PJBL) in increasing student digipreneurs. This Action Research was conducted in 2 cycles, namely, cycle 1 using Peer Team-Based Learning and cycle 2 using Project-Based Learning. The population in this study were 123 students of Accounting Economics Education, Class of 2018 at the Faculty of Economics, UNNES who took digital business courses and used a saturated sample. Data was collected through tests, questionnaires, and documentation. Questionnaire data were analyzed with quantitative descriptive analysis. The results showed that (1) the application of PTBL in digital business learning played a role in increasing the number of student digipreneurs in Accounting Education FE UNNES, a total of 32 people (26.02%) or 7 groups; (2) the application of PJBL in digital business learning played a role in increasing the number of student digipreneurs, totally (69.10%) or 20 groups; (3) the implementation of PJBL was more effective in increasing the number of student digipreneurs by 85 people (69.10%) compared to PTBL. Future research is suggested to apply learning methods that are more varied in subjects related to sustainable entrepreneurship and sustainable entrepreneurship assessment.

### How to Cite

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## INTRODUCTION

The high unemployment rate in Indonesia has always been in the spotlight. Moreover, the impact of the Covid 19 pandemic has increased the number of unemployed even more. Data from BPS (2021) the number of unemployed as of August 2021 was 9.1 million. Even though in the era of industrial revolution 4.0 and society revolution 5.0 and the existence of PPKM as an impact of covid, business opportunities are wide open and promising. In addition, the government has also made a policy to distribute KUR to entrepreneurial students. But in fact, unemployment is still increasing, even unemployment from university graduates contributes a fairly high number, namely 1.06 million people or around 11.7% of the total unemployment. Even though these students already have entrepreneurial knowledge from entrepreneurship learning, which is one of the compulsory subjects in all tertiary institutions.

In addition, there is a lot of empirical evidence that finds that entrepreneurship education plays an important role in economic development and growth and creates new jobs (Fatoki & Oni, 2014; García-Rodríguez et al., 2017; Ho et al., 2018; Khalifa & Dhiyf, 2016; Leitão et al., 2011; Neck et al., 2014; Neneh, 2014). This is because entrepreneurship education has a positive effect on entrepreneurial interest (Merdekawaty & Ismawati, 2016), entrepreneurial intention (Aladejebi, 2018; Hattab, 2014; Hussain & Norashidah, 2015; Küttim et al., 2014; Maresch et al., 2016), entrepreneurial behavior (Mochlasin & Krisnawati, 2016; Riani & Almuja, 2019). This means that when a student has attended entrepreneurship education, the interest, intention increases and should be realized by entrepreneurial behavior such as opening a start-up. According to the theory of planned behavior intention is a very strong predictor for predicting a person's behavior including in entrepreneurship (Ajzen, 1991). Some researchers even mention that intention is the single most accurate predictor (Mwange, 2018) and st-

rength of entrepreneurial behavior (Krueger et al., 2000). But in fact, unemployment remains high and university graduates are among the highest contributors. This is because intention is only able to explain behavior about 30%. Nevertheless, according to Ajzen (1991) & Krueger et al. (2000) the ability of intention to explain behavior is 30% better than a trait measure, which is only able to explain about 10% of behavioral variances.

There is a gap in the results of empirical studies that entrepreneurship education has a positive effect on entrepreneurial intentions and entrepreneurial intentions are considered the single strongest predictor of entrepreneurial behavior, but have not had a significant impact on increasing the number of entrepreneurs, especially students, which is a challenge in learning entrepreneurship education related to program planning, supervision and evaluation in all tertiary institutions, the motivation of teachers is lacking and the material is a lot of theory (Agbonlahor, 2016; Maina, 2013). Therefore, it is an interesting study to examine both the complexity of the competencies that entrepreneurs must have, interventions in learning methods, assessment of entrepreneurship education and even the sustainable entrepreneurship curriculum. This is because entrepreneurial behavior is intentional and planned behavior, and can be measured (Krueger et al., 2000; Thu & Hieu, 2017). Universities should encourage entrepreneurial intentions among students from inception through to graduation (Smith, Kelly and Beasley, 2012), through innovative sustainable entrepreneurial learning.

Currently there is little or no research that reveals how to maintain someone's high entrepreneurial intention until he becomes an entrepreneur. In other words, even after attending entrepreneurship education, a student who has high entrepreneurial intentions, but without intervention in sustainable entrepreneurship learning, it is possible that this intention will decrease or even disappear. In addition, previous research only used the Entrepreneurship Education course as a variable for examining entrepreneurial intentions. Even

though many experts state that entrepreneurship education consists of various disciplines such as management education (Kakouris, 2021), business strategy economics (Davidson & Honig, 2003), marketing (Heinonen & Poikkijoki, 2006; Solomon, 2007), Information and Communication Technology skills, leadership, new business development, simulation skills, case studies, field analysis, and accounting (Lourenço et al., 2013), feasibility study (Aladejebi, 2018). That is, to maintain entrepreneurial intentions and increase entrepreneurial competence, sustainable entrepreneurship learning is carried out not only in one subject, namely Entrepreneurship Education. In addition, in sustainable entrepreneurship learning, appropriate learning methods must be used. The best teaching method for learning entrepreneurship should be student-centered, using an active application approach and active experimentation (Hegarty, 2006; Hytti & O’Gorman, 2004), action learning (Jones-Evans et al., 2000; Jones & English, 2004; Pittaway & Cope, 2007). Methods that can be used to bring out entrepreneurs such as role playing, management simulations, team projects and participatory discussions (Pittaway & Cope, 2007; Shabani, 2013). Therefore, it is very necessary to reveal the role of learning methods in increasing entrepreneurial behavior (Muhe & Tawe, 2016) including in courses that aim to form digipreneurs, namely digital business courses.

Digital business learning as part of sustainable entrepreneurship education, through intervention in student-centered learning methods and active experiments, is expected to be able to maintain and even increase entrepreneurial intentions that already exist in students to become entrepreneurial behavior, as evidenced by the emergence of start-ups after completing digital business courses. Therefore it is very interesting to express student entrepreneurial intentions into entrepreneurial behavior through digital business learning in which learning is intervened in interactive, applicable and innovative and student-centered methods, namely team projects (Pittaway & Cope, 2007)

and peer teaching (Shabani, 2013).

Currently, there are many empirical studies on the high interest (Merdekawaty & Ismawati, 2016)), intention (Ajike et al., 2015; Ferreira et al., 2018; Liñán et al., 2011) and entrepreneurial behavior (Krueger et al., 2000). On the other hand, there have also been many learning models aimed at increasing the number of entrepreneurs. But in fact, there are still many unemployed, including unemployed people who come from university graduates who have attended entrepreneurship courses. This means that until now there is no fully effective method for bringing up entrepreneurs or start-ups. Much of the learning aimed at bringing up entrepreneurs is still centered on educators (R. T. P. B. Santoso et al., 2021) . Several educators have implemented constructive learning in entrepreneurship learning such as PjBL (Kean & Kwe, 2014), Entrepreneurship Learning Model (R. T. P. B. Santoso et al., 2021), Peer Learning Model (Mills et al., 2011; Núñez-Andrés et al., 2022; Xu et al., 2021), PTBL (Huilaja et al., 2022), Peer teaching (Shi & Fang, 2017). Based on this, it can be said that there are still few or even no researchers who use a blended learning approach to bring up new entrepreneurs. Blended learning is done by integrating theory and practice through simulation (Dickfos et al., 2014). The integration of theory and practice in entrepreneurship is in accordance with the theory of constructivism. Based on this theory, setting learning is done by making learning experiences meaningful by organizing knowledge about entrepreneurial theory and practice, letting students understand, analyze and reflect on their own learning, forming a holistic picture (or Gestalt model of entrepreneurial learning) (Fiet, 2001). Constructivist learning in digital business involves a significant amount of teamwork, experimentation, reflection, process-based feedback, and ranges from real-life problem solving to start-up by students. Based on this, combining PTBL and PjBL becomes urgent when it is applied as a learning method in creating digipreneurs among students.

PTBL was chosen as a method to increase digipreneur behavior on the grounds that there is a lot of evidence that peers influence entrepreneurial interest (Nurhadifah & Sukanti, 2018), entrepreneurial intention (Rahman et al., 2020). Based on this, it is very interesting when peers are used as a method to increase entrepreneurial behavior. Besides, Djamarah & Bahri (2010) stated that peer tutoring is very appropriate to get the participation of students as a whole and individually. Meanwhile, the selection of project-based learning (PjBL) as a learning method to improve digipreneur behavior is also based on empirical evidence that PjBL learning has a significant effect on developing an entrepreneurial spirit (Radiano & Wijaya, 2017), entrepreneurial interest (Erwantiningsih et al., 2021), entrepreneurial intention (Darmawan & Soetjipto, 2016), and entrepreneurial behavior. Therefore, it is very interesting and necessary to use both methods in order to improve student digipreneur behavior. This research by combining PTBL and PjBL is a new thing that has never been done before to create digipreneurs among students. This study aimed to analyze the role of peer team-based learning (PTBL) and project-based learning (PjBL) in increasing student digipreneurs.

Based on learning theory and the results of previous research, the action hypothesis in this study is as follows: (a) Student digipreneur behavior improves with the application of PTBL in learning digital business courses; (b) Student digipreneur behavior improves with the implementation of PjBL in learning digital business courses.

## METHODS

This research is action research, because the best teaching method for learning entrepreneurship should be student-centered, using action learning (Jones-Evans et al., 2000; Jones & English, 2004; Pittaway & Cope, 2007). Action research was carried out in 2 cycles, namely cycle 1 using PTBL learning and cycle 2 using PjBL learning. The reason for imple-

menting PTBL in cycle 1 is that students learn from each other about knowledge, theory, ins and outs of entrepreneurship in a more comfortable and conducive atmosphere because they are taught and discussed with friends of their age, so they are not awkward in expressing ideas to be applied. The reason for cycle 2 using PjBL learning is that the ideas that students have obtained are more emphasized in real action, namely the formation of digipreneur behavior which is manifested in the emergence of start-ups. Digipreneur is a digital entrepreneur, namely a person or group of people who run a digital-based business. PTBL is team-based learning conducted by colleagues, which is a modification of peer teaching and team based learning (Huilaja et al., 2022). Project-based learning (PjBL) is a model that organizes learning around projects, which involve completing complex tasks that usually result in a realistic product, event, or presentation to an audience (Thomas & D, 2000).

The population in this study were 123 students of Accounting Economics Education, Class of 2018 at the Faculty of Economics, UNNES who took digital business courses, and used a saturated sample. Data were collected by tests, questionnaires and documentation. The test was given in pre-cycle and after cycle 1 as supporting data. Test data were categorized into low (<60), moderate (60 – 81), high (>81). Questionnaires were distributed at pre-cycle, after cycle 1 and after cycle 2 to find out the development of the number of digipreneurs. Documentation data were used to cross check the questionnaire data. Questionnaire data were analyzed with quantitative descriptive analysis. Student digipreneur behavior data were assessed by referring to opinions Martin et al., (2013) that is seen from the emergence of star up from students.

## RESULT AND DISCUSSION

Research data on the role of Peer Team Based Learning and Project Based Learning can be seen in Table 1.

**Table 1.** Description of Pre-Student Digipreneur, Cycle 1 and Cycle 2

Information	Pre		Cycle 1 PTBL			Cycle 2 PjBL		
	Total	%	Total	% Tot	% +/-	Total	% Tot	% +/-
Student Entrepreneur	6	4.88	0	0	0	0	0	0
Student Digipreneur	4	3.25	32	26.02		117	95.12	69.10
Not a Digipreneur yet	117	95.12	91	73.98	-21.14	6	4.88	-16.26
Digipreneur Group	0	0	7	24.14	24.14	27	93.10	68.96
<b>Total</b>	<b>123</b>		<b>123</b>			<b>123</b>		

Source: Processed data (2021)

**Table 2.** Description of Student Digital Business Knowledge

Information	Pre cycle		Cycle 1		
	Total	%	Total	% Tot	% +/-
Low	83	67.47	0	0	-67.47
Moderate	40	32.53	32	26.02	-6.51
High	0	0	91	73.98	73.98
<b>Total</b>	<b>123</b>	<b>100</b>	<b>123</b>	<b>100</b>	

Source: Processed primary data (2021)

**Table 3.** Description of Intention and Behavior of Student Digipreneur

Information	Pre cycle		Cycle 1 PTBL			Cycle 2 PjBL		
	Total	%	Total	% Tot	% +/-	Total	% Tot	% +/-
Not intend yet	86	69.92	3	2.44	-67.48	0	0	
Already intend	31	25.20	88	71.54	44.71	6	4.88	-39.83
Entrepreneur (offline)	2	1.63	0	0		0	0	
Digiprenuer behavior	4	3.25	32	26.02	22.77	117	95.12	69.10
<b>Total</b>	<b>123</b>	<b>100</b>	<b>123</b>			<b>123</b>		

Source: Processed primary data (2021)

Table 1 shows that in the pre-cycle there were 6 students who were already entrepreneurs and 117 people had not yet become entrepreneurs and there were no digipreneur business groups yet. In cycle 1, 32 students became digipreneurs by establishing 7 digipreneur groups or there was an increase in digipreneur business groups of 24.14%, and 91 students had not yet become digipreneurs. In

cycle 2, 117 students became digipreneurs or there was an increase of 69.10% which were divided into 27 digipreneur business groups and there were still 6 students (4.88%) who had not yet become digipreneurs.

Table 2 describes a description of students' digital knowledge before and after cycle 1. Table 2 data shows that in the pre-cycle, 67.47% of students' digital business knowled-

ge was low, 32.53% in the moderate category. At the end of cycle 1, students' digital business knowledge was low, 26.02% in the moderate category and 73.98% in the high category.

Table 3 shows a description of the intention and behavior of student digipreneurs, that is, in the pre-cycle there were 69.92% of students who did not yet have the intention of being a digipreneur, 25.20% already had the intention, 1.62% became entrepreneurs (offline), 3.25% had already become digipreneurs. In cycle 1 there was an increase in student digipreneur behavior by 22.77%, an increase in the number of students who intended by 44.71% and a decrease in the number of students who did not intend as much as 67.48%. At the end of cycle 2, data obtained increased the number of student digipreneurs by 69.10% and there was a decrease in the number of student who intended by 39.83%.

### **Pre-Cycle Results**

Based on Table 1, it can be seen that in the pre-cycle there were 6 students (4.88%) who became entrepreneurs, namely 2 entrepreneurs running businesses offline and 4 entrepreneurs already running businesses online, and 117 students had not yet become entrepreneurs. However, in cycle 1, students who were already digital entrepreneurs were zeroed out (0) because the learning evaluation was based on new digital-based businesses. From table 2, it can be seen that in the pre-cycle it was found that 67.47% of students' knowledge of digital business was low, and 32.53% of knowledge about digital business was in the moderate category. Whereas in table 3, it is known that in the pre-cycle the number of students who had intended to become digipreneurs was 31 people (25.20%), 86 people (69.92%) had no intention and 4 people (3.25%) had already become digipreneurs and 2 people (1.63%) had become entrepreneurs who ran businesses offline.

### **Results of Cycle 1 "Peer Team Based Learning"**

Based on table 1, in cycle 1 students

who had become digipreneurs experienced an increase of 32 students (26.02%). Judging from the number of star-up groups, there was an increase of 24.14% (7 star-up groups). In table 2 it can be seen that after the completion of cycle 1, there was an increase in digital business knowledge by 73.98% (91 people) of students in the high category, 32 students were still in the moderate category and there were no students who had less knowledge about digital business. Whereas in table 3, it is known that after cycle 1 there were 3 students (2.44%) who did not intend to become digipreneurs, 88 people (71.54%) had intended to become digipreneurs and 32 people (26.02%) had already become digipreneurs.

### **Results of Cycle 2 "Project Based Learning"**

Based on table 1 it can be seen that after cycle 2 ended the number of student digipreneurs was 117 students or an increase of 69.10%. Meanwhile, from the student digipreneur group, there were 27 new business groups or an increase of 20 new business groups (68.96%), but there were still 6 people who had not yet become digipreneurs (2 groups) which was marked as still in the planning stage of opening a start-up. Table 3 shows that at the end of cycle 2 there were no students who did not intend to become digipreneurs, 6 people (4.88%) had intended to become digipreneurs and 117 people (95.12%) had become digipreneurs or an increase of 69.10%.

### **The Role of Peer Team Based Learning in Increasing Digipreneurs**

The results of this study were that the implementation of PTBL played a role in increasing the number of digipreneurs in Accounting Education students FE UNNES, as many as 32 people (26.02%). Meanwhile, judging from the number of star-up groups, there was an increase of 7 star-ups or an increase of 24.14%. There was an increase in the number of student digipreneurs in research due to interventions in digital business learning, which was an elaboration of settings in digital busi-

ness lectures. The setting for this digital business lecture was that prior to the mid semester, learning was carried out with Peer Team Based Learning to provide knowledge and skills in digital business and ends with the preparation of a business feasibility study. In the learning contract, students were given instructions that the ultimate goal of digital business learning was the formation of start-ups. Students were given the freedom to bring up star ups before the mid semester or at the end of the semester, depending on the readiness of the group.

The existence of learning interventions with the application of PTBL learning in learning before mid-semester made learning activities more preferable than conventional learning (Huilaja et al., 2022). The PTBL application is carried out by empowering peers to contribute by being actively involved in class to teach (Xu et al., 2021) and learn from each other (Shi & Fang, 2017), by involving a variety of knowledge, ideas and experiences, thereby increasing motivation, knowledge and academic value compared to traditional methods (Núñez-Andrés et al., 2022). In addition, the existence of active involvement in teamwork, makes student motivation and student knowledge increase (Voldsund & Bragelien, 2021) effect on increasing behavioral intention (J. T. B. Santoso et al., 2022) thereby applying teamwork decisions in real-life practice (Xu et al, 2021, which can be seen from the emergence of 7 start-up groups.

The existence of 7 start-up groups as a result of implementing PTBL in this study supported previous research that implementing PTBL was an effective intervention in increasing peer teamwork that was able to predict entrepreneurial behavior. Amorim Neto et al. (2020) thereby ensuring the successful performance of the team (Terrion & Leonard, 2007). This is because the implementation of PTBL facilitates the student team process (Voldsund & Bragelien, 2021) to contribute to the team (Xu et al., 2021) by teaching and learning from one another (Shi & Fang, 2017), with their style (Djamarah & Bahri, 2010) so that it is easy to receive information from peers wit-

hout embarrassment (Suharsimi, 2013) and create a more favorable atmosphere (Huilaja et al., 2022).

The results of this study supported the theory of planned behavior that one's behavior can be planned, including in shaping and improving the behavior of student digipreneurs (Ajzen, 1991). This is because the implementation of PTBL has an effect on increasing knowledge and skills in digital business. Furthermore, the knowledge managed in the work team is applied in the form of digital-based entrepreneurial behavior which is marked by the emergence of start-ups.

### **The Role of Project Based Learning (PjBL) in Increasing Digipreneurs**

This study found that PjBL learning in digital business courses was able to increase the number of student digipreneurs by 85 people (69.10%), so that after participating in PjBL learning there were 117 (95.12%) student digipreneurs. Meanwhile, judging from the number of student digipreneur groups, there was an increase of 20 start-up groups (68.96%), so that after PjBL learning was completed, a total of 27 star-up groups were formed, and only 6 students who had not yet become digipreneurs (4.88 %) or 2 groups of students, who were still at the business planning stage. It can be said that the implementation of PjBL played a role in increasing the number of student digipreneurs, so that PjBL was an effective learning method (Corral-Lage & Ipiñazar-Petralanda, 2014).

The effectiveness of implementing PjBL learning is because PjBL learning provides opportunities for students to build collaborations with friends (Cho & Brown, 2013) in a flexible learning environment (Doppelt, 2003) to explore ideas, plan (Kongmanus, 2016) dan actualize in real-world practice (Kokotsaki et al., 2016; Kongmanus, 2016) namely the emergence of star-ups. Therefore, the application of PjBL in this learning encourages successful start-ups (R. T. P. B. Santoso et al., 2021). In addition, based on the theory of planned behavior Azjen (1991) entrepreneurial beha-

avior can be planned and can be predicted with behavioral intentions. The implementation of PjBL in digital business learning is a form of behavioral planning, especially in bringing out student digipreneurs. When digital business learning is carried out by implementing PjBL, students collaborate with colleagues in exploring ideas in the form of business planning. The existence of a business plan formed by students means that there is an increase in behavioral intentions. Based on an increase in intention in entrepreneurship and driven by the ultimate goal of implementing PjBL is the emergence of start-ups, it has an impact on efforts to realize behavioral intentions to become digital-based entrepreneurial behavior in students, so that digital-based start-ups emerge and students become digipreneurs. The findings of this study supported the findings of Radianto (2011a) and Cho (2013) that the PjBL method can support students in building and starting their businesses. This is because the PjBL method influences entrepreneurial intentions and behavior which is embodied in real-world practices (Kokotsaki et al., 2016). In other words, the implementation of PjBL plays an effective role in increasing digital entrepreneurs among students. That is, when educators apply PjBL in digital business learning, students with all their efforts and abilities as a group complete the project as well as possible. If the project is the formation of a start-up, the student group will also make every effort to open a start-up as a form of completing the project. Meanwhile, from the educator side, the success of PjBL can be seen from the many start-ups that have emerged.

The findings of this study also show that the application of PjBL in digital business learning was more effective in increasing the number of student digipreneurs. The implementation of PjBL was able to increase the number of student digipreneurs by 85 digipreneurs (69.10%) compared to the implementation of PTBL which was only able to increase the number of digipreneurs by 32 digipreneurs (26.02). In terms of the number of start-ups formed, the implementation of PjBL

was more effective in increasing the number of start-ups, which increased by 20 start-ups (68.96%) compared to the implementation of PTBL which was only able to increase the number of start-ups by 7 start-ups (24.14%).

## CONCLUSION

Based on the description of the research results, it can be concluded that the application of Peer Team Based learning played a role in increasing the number of student digipreneurs. In this case, the application of PTBL in digital business learning was able to increase the number of digipreneurs by 32 people (26.02%) or 7 start-ups. The results of this study also concluded that the application of Project Based Learning in digital business learning was able to increase the number of student digipreneurs by 69.10% or 85 digipreneurs. Judging from the star up group, there was an increase of 20 star up groups. This study found that the implementation of PjBL was more effective in increasing student digipreneur behavior, both in terms of the number of student digipreneurs which was 69.10% higher and the number of start-ups formed which was 68.96% higher than the implementation of PTBL in digital business learning.

The recommendation that can be given is that although the implementation of PjBL was more effective in increasing digipreneurs and also start-ups, the assessment of this success should be extended either in time or continued with assessment through learning sustainable entrepreneurship courses.

The implication of this research is that in order to emerge student digipreneurs, universities need to develop a series of sustainable entrepreneurship learning in which each lesson applies the PjBL and PTBL methods or other methods that are more interactive and applicable to the world of entrepreneurship, so that it will direct, guide and monitor attitudes, interest in becoming entrepreneurial intentions and led to the emergence of student digipreneur behavior as seen from the emergence of start-ups from students.



Future research on entrepreneurial behavior is still very wide open in the context of more varied entrepreneurship learning methods, competencies related to entrepreneurs, sustainable entrepreneurship curricula and sustainable entrepreneurship assessments.

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