

Product-Based Learning to Improve Entrepreneurial Spirit of Students

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ABSTRACT

This product-based learning method applies quasi-experimental research with one group pretest-posttest design. In product-based learning students are expected to produce products in the form of decorative lamps from zinc plates. The research population is students who take the plate work practice course for the 2020/2021 even semester. The sample of the study was one class of 27 students. The purpose of this research is to apply product-based learning to improve the entrepreneurial spirit of students who produce decorative light products from zinc plate creations from students of research subjects. In this study, product-based learning was able to increase the entrepreneurial spirit score of students. There is an increase in the entrepreneurial spirit before and after treatment of 10.24 points and the category of re-achievement at the level of achievement is pretty good to good. It can be concluded that product-based learning is effective in improving the entrepreneurial spirit of students.

Keywords: *Product-Based Learning, Entrepreneurial Spirit, Students.*

1. INTRODUCTION

Indonesia is now entering the era of the 4th industrial revolution accompanied by the rapid development of the digital revolution [1] causing the quality of Human Resources (HR) to follow these developments. The era of RI 4.0 will have many lost old jobs [2]. Human resources who are not ready to face this will be marginalized and become unemployed. Therefore, each country must prepare and carry out various efforts to compete in the era of the industrial revolution of 4.0 [3]. The Open Unemployment Rate (TPT) has decreased from 2015 to August 2019, TPT fell to 5.28 percent compared to last year's 5.34 percent (BPS: 2019). The cause of educated unemployment is the number of scholars who seek to find jobs, rather than creating jobs [4]. One of the efforts to overcome this problem is vocational education.

Vocational education is education for the world of work so that someone can do certain work [5], provide skilled labor [6]. Vocational education must be demand-driven orientation, keep up with the latest technological developments, prioritize skill improvement, and student evaluation refers to the standards of the world of work [7]. One of the higher education institutions engaged in the vocational field is the Mechanical Engineering Study Program (Prodi) of the Faculty of Teacher

Training and Education, Sriwijaya University (FKIP Unsri). Mechanical Engineering Education Study Program FKIP Unsri has the aim to produce vocational educator candidates. Graduates of the Mechanical Engineering Education study program in addition to being vocational educators can also become entrepreneurs by their field of education. Engineering students have high potential to become entrepreneurs and most engineering students actually create their own business after graduation [8]. One form of efforts to achieve these goals is to maximize and plan an effective and efficient learning process that is designed based on the characteristics of the development of students and the needs of society. Learning that is suitable for improving student skills and efforts are product-based learning.

Product-based learning is learning that directs students to systematic and standard work procedures to make or complete a product, through the actual work process [9]. The product-based learning model contains steps that facilitate students to actively learn, participate, interact, be competent to produce the necessary products [10]. Apart from that, it is carried out collaboratively, product-based learning must also be innovative, unique and focus on solving problems related to the life of learners or the needs of society. The advantage of the product-based learning process is that it can improve

learning outcomes, competence in the affective, cognitive, and psychomotor aspects of students [11]. It is hoped that product-based learning will be able to foster an entrepreneurial spirit of students. The implementation of product-based learning has been able to increase students' interest in entrepreneurship by 44% [12].

Entrepreneurship is a creative and innovative ability, keen to see opportunities and are always open to any feedback and the positive changes that can bring the business to continue to grow [13]. Entrepreneurship is proven to be the main solution to economic growth in both developed and developing countries [14]. One of the many industries that are developing in Indonesia is the creative industry [15]. Efforts to foster an entrepreneurial spirit are deemed necessary because the more developed a country is, the more educated people are and the more unemployed people, the more important the entrepreneurial world will be. Young people need to be motivated that they are no longer job seekers, but as job creators [16]. Students are expected to be future entrepreneurs and it will affect the well-being of themselves and society in the future [17].

In the Plate Work Practice course, students will be given a job theme then students can modify the job according to their wishes. The plate work practice course is one of the courses that require students to be active and creative in the learning process. The availability of adequate learning resources can help students be active in learning. However, student learning activities in the Plat Job Training course are often inadequate in the context of achieving student academic success.

Based on the observations and interviews of researchers with several students, that the learning process when students practice tends to only make products according to existing work drawings, which results in practical learning activities being less attractive and boring. Students feel not challenged to creatively produce products, so that interest and Student motivation in practicum are still low, it can be proven that in practicum only one or two students in one group are serious about carrying out the practical. The resulting product is not following market needs. The product is only used for display when it is finished. Some products do not have the criteria for the desired product, they have no selling value. This student entrepreneurial spirit is also lacking as evidenced by only 5 groups of students who passed the proposal for the Entrepreneurship Student Creativity Program (PKMW) in 2018.

Paying attention to the characteristics of the learning process, especially productive learning, product-based learning can meet the demands of the times and can direct students to systematic and standard work procedures to make or complete a product (goods or

services), through the actual production/work process. Product-based learning is to provide opportunities for students to do practical work that is market-oriented, and can produce a salable product and can improve student competence. Students are expected to be able to design their products, make business plans, and make entrepreneurship PKM proposals. Furthermore, the application of product-based learning is expected to be able to foster an entrepreneurial spirit of students, especially in entrepreneurship related to the manufacture and promotion of machining products. This is because entrepreneurship becomes an opportunity and at the same time becomes the standard of success or success in the workforce [18]. The purpose of this research is to apply product-based learning to improve the entrepreneurial spirit of students.

2. METHOD

This study used one group pretest-posttest design. The reason is that the treatment results can be found more accurately by comparing the conditions before and after [19]. The design can be described as follows:

$$O_1 \times O_2$$

Information

- O₁ = pretest score (before being given treatment)
- O₂ = posttest score (after being given treatment)

Pretest and posttest in the form of distributing questionnaires to determine the entrepreneurial spirit of students before and after participating in the product-based learning process. The research sample was 29 B class 2018 Indralaya students. The steps for implementing product-based learning according to [20] can be seen as in the picture below:

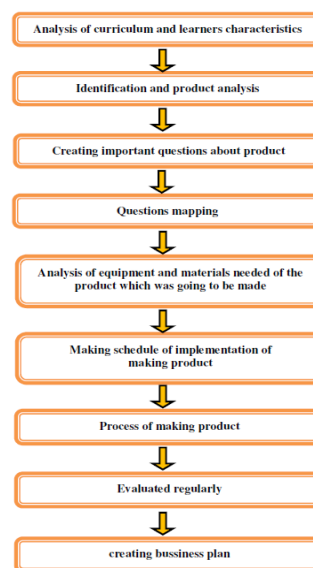


Fig. 1 Product based learning steps

The entrepreneurial spirit variable used a likert scale questionnaire. Instrument of the entrepreneurial spirit can be seen in table 1 at the bottom of this:

Table 1. Grating instrument entrepreneurial spirit

No	Indicator	Item	Number of grains
1	Confident	1, 2	2
2	Optimism	3	1
3	Dicipline	4, 5	2
4	Initiative	6, 7	2
5	Motivation	8, 9, 10, 11	4
6	Leadership Spirit	12, 13, 14	3
7	Like challenges	15, 16	2
8	Responsibility	17, 18	2
9	Human relationship	19, 20, 21, 22	4
	Sum		22

Sources [21]

Data obtained from the questionnaire described. To get an idea of the measurement results of the variables for each item, it is known by using a formula

$$Achievement\ Level = \frac{Score\ Achieved}{maximum\ Score} \times 100\%$$

Categorization of the respondent's achievement value is used by classification [22] as follows:

Table 2. Category Level of Achievement

Respondent achievement level	Category
90 – 100%	Very good
80 - 89 %	Good
65 - 79 %	Pretty good
55 - 64 %	Less
0 – 54 %	Very Less

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Description data of Entrepreneurial Spirit Pretest

The data collected is obtained based on the answers of respondents (students) by giving a questionnaire before treatment is carried out. Overall data description,

it can be seen that the Mean (average value) is 77.92, Standard Deviation 7.1, Mode 80 and Median 80, Range 24 and Sum 2104. The total number of students is 27.

Table 3. Pre-Test Frequency Distribution

No	Interval	Frekuensi	%
1	63-66	3	11,11
2	67-70	2	7,41
3	71-74	2	7,41
4	75-78	3	11,11
5	79-82	11	40,74
6	83-87	6	22,22
	Jumlah	27	100

Overall, the highest pre-test score was 87 and the lowest score was 63. Overall, the pre-test achievement level was at a score of 70.84 which was categorized as Pretty Good.

3.1.2 Description Data of Entrepreneurial Spirit Post Test

The data collected is obtained based on the answers of respondents (students) by giving a questionnaire after treatment. Description of the overall data, it can be seen that the Mean (average value) is 89.18, Standard Deviation 7.28, Mode 86 and Median 89, Range 35 and Sum 2408. The total number of students is 27.

Table 4. Post-Test Frequency Distribution

No	Interval	Frekuensi	%
1	67-72	1	3,71
2	73-78	1	3,71
3	79-84	2	7,41
4	85-90	12	44,44
5	91-96	8	29,62
6	97-102	3	11,11
	Jumlah	27	100

Overall, the highest posttest score was 102 and the lowest score was 67. Overall, the level of achievement of the pre-test score at 81.08 was categorized as Good.

3.1 Discussion

Permendikbud no. 3/2020 concerning Higher Education Standards the characteristics of the learning process in Higher Education include scientific, contextual, thematic, effective, collaborative and student-centred characteristics. Student-centered learning is an active learning where students are involved in what they learn [23]. Planning, teaching and

assessment procedures are based on students' needs, interests and abilities [24]. Learning in tertiary institutions is expected to be able to change behaviour and develop student competencies as human beings who are intelligent, comprehensive, and have character [25]. One of student-centred learning is product-based learning.

According to [26] the product-based learning model provides opportunities for teachers to manage classroom learning by involving project work. In line with the opinion above, [27] states that production-based learning is an innovative learning model and emphasizes contextual learning through complex activities. Production-based learning in the learning stages does lead to producing products that have commercial potential, this condition can be combined and integrated with entrepreneurial learning [28].

In learning the plate work practice course, students are expected to organize their learning. They are directed to make a product from scratch starting from analyzing products on the market, product design in the form of sketch images, opening drawings to the stage of making the product into finished goods. Production Based Learning Model provides opportunities for students to develop critical thinking skills and abilities as well as teamwork [29]. Students learn through collaboration and employ critical thinking skills as they engage in projects [30].

In this study, product-based learning was able to increase the entrepreneurial spirit of students. Student entrepreneurial spirit before treatment was 70.84 points or at the level of achievement of Pretty Good. After being given treatment in the form of product-based learning, students were given an entrepreneurial spirit questionnaire again. Based on the questionnaire, the score was 81.08 points or in the Good achievement category. Based on these data, it can be seen that there is an increase in entrepreneurial spirit before and after treatment, namely 10.24 points and the original achievement category at the level of achievement of Pretty Good to be Good. It can be seen that product-based learning can improve students' entrepreneurial spirit. The results of this study are supported by research conducted by [31] which states that in its implementation the Production-Based Learning Model can increase experience and increase understanding of the three learning domains as well as students' entrepreneurial skills which have an impact on increasing students' interest in entrepreneurship. The implementation of product-based learning has been able to increase students' interest in entrepreneurship by 44% [12]. The product-based entrepreneurship module can improve student learning outcomes in vocational higher education [32]. Besides, the effectiveness of product-based learning models is effective in improving student learning outcomes and activities [33].

Entrepreneurship learning activities with a production-based approach emphasize that entrepreneurship learning must be product-oriented that has commercial potential, designed and compiled in the form of good business planning [28]. institution is a very strategic place to instill entrepreneurial spirit. Planting the spirit of entrepreneurship to be more effective must be done through all subjects [34]. This production-based learning model can facilitate student interaction between them during the teaching and learning process in groups [29]. The production learning process can increase competence based on affective and psychomotor assessments [11]. Therefore the role of educators is to design learning methods to arouse the spirit of investigation and innovation, creativity to produce new knowledge, productive thinking, and motivation to learn and solve problems [35].

Learning that involves students directly in the entire business process starting from planning, production, and marketing can contribute to improving the entrepreneurial spirit of students [36]. This entrepreneurial spirit is very important to be cultivated to produce young entrepreneurs. Therefore, the University is expected to provide entrepreneurial knowledge and inspiration that will increase the chances of students choosing an entrepreneurial career [37], so that the need for entrepreneurial training is urgently needed [38].

One of the government programs is to provide the Entrepreneurship Student Creativity Program (PKMW). Students are encouraged to make a business or produce products according to education and community needs. PKMW is prioritized to be filled with student productive activities with special patterns, as an integral part of students' intra or extra-curricular activities to equip them with product-producing skills and knowledge of startup businesses [39]. Entrepreneurship can help students to grow and improve their work and entrepreneurship skills, to promote the economic development of our country and to relieve labor pressures [40]. So that the problem of dismissal can be minimized considering that the higher a person's education, the lower his independence and entrepreneurial spirit [39]. It is expected that practical learning will contribute to students' entrepreneurial interest including industrial work practices, entrepreneurship subjects and school training in entrepreneurship [41]. And in the end, students are interested in the business world along with the increasing entrepreneurial spirit.

4. CONCLUSION

Efforts to develop the entrepreneurial spirit is necessary because entrepreneurship will affect the economy of a country. This research aims to implement product-based learning that can improve the

entrepreneurial spirit of students. The results showed an increase in the entrepreneurial spirit before and after treatment by 10.24 points and the category of re-achievement at the level of achievement is pretty good to good. Based on the results of the research, it appears that product-based learning can increase the entrepreneurial spirit of students.

The suggestions that the researchers propose are (1) The product-based learning process should be able to be applied to other learning, (2) For lecturers, it is better to develop product-based learning by combining other learning domains, for example, the use of practical modules, job sheets, pocketbooks, methods and others. - other.

REFERENCES

- [1] J. Lou, C. Jiang, P. Zheng, and Z. Huang², A Research of Blended Teaching Based on the Flipped Classroom Model Applies to Vocational Education --Experiment in the Major of Numerical Control Lathe, *Sci. J. Educ.*, vol. 4, no. 2, p. 73, 2016, doi: 10.11648/j.sjedu.20160402.19.
- [2] A. P. Natasuwarna, Tantangan Menghadapi Era Revolusi 4 . 0 - Big Data dan Data Mining, in *Seminar Nasional Hasil Pengabdian Kepada Masyarakat 2019*, 2019, pp. 23–27.
- [3] N. A. K. Ayu, *Persaingan Industry 4.0 di ASEAN: Dimana Posisi Indonesia?* Yogyakarta: Forsil Institue, 2018.
- [4] A. Syam, H. Akib, M. Yunus, and S. Hasbiah, Determinants of Entrepreneurship Motivation for Students at Educational Institution and Education Personnel in Indonesia, *J. Entrep. Educ.*, vol. 21, no. 2, 2018.
- [5] P. Sudira, *TVET Abad XXI: Filosofi, Teori, Konsep, dan Strategi Pembelajaran Vokasional*. Yogyakarta: UNY Press, 2016.
- [6] A. F. Chukwunwendu, New Dimensions in Sourcing and Utilization of Resource Materials for Effective Teaching and Instruction in Technical Vocational Education and Training (TVET) in Nigeria, *Educ. J.*, vol. 4, no. 6, p. 24, 2015, doi: 10.11648/j.edu.s.2015040601.15.
- [7] A. Firdaus and Barnawi, *Profil Guru SMK Profesional*. Yogyakarta: Ar-Ruzz Media, 2012.
- [8] B. H. Sababha *et al.*, Entrepreneurial Mindset In Engineering Education, *J. Entrep. Educ.*, vol. 23, no. 1, pp. 1–14, 2020.
- [9] BNSP, *Model-Model Pembelajaran SMK*, 2008. https://www.academia.edu/34895320/Model_mode_l_pembelajaran_smk.
- [10] Ganefri, The development of production-based learning approach to entrepreneurial spirit for engineering students, *Asian Soc. Sci.*, vol. 9, no. 12 SPL ISSUE, pp. 162–167, 2013, doi: 10.5539/ass.v9n12p162.
- [11] R. Mursid, Pengembangan Model Pembelajaran Praktik Berbasis Kompetensi Berorientasi Produksi, *J. Cakrawala Pendidik.*, vol. 5, no. 1, pp. 27–40, 2013, doi: 10.21831/cp.v5i1.1257.
- [12] I. Y. Basri, D. Faiza, M. Nasir, and N. Nasrun, Implementasi Pembelajaran Berbasis Produk Dalam Rangka Menyiapkan Lulusan SMK Menjadi Wirausahawan Muda, *INVOTEK J. Inov. Vokasional dan Teknol.*, vol. 19, no. 1, pp. 43–52, 2019, doi: 10.24036/invotek.v19i1.433.
- [13] R. Saragih, Membangun USAha Kreatif, Inovatif dan Bermanfaat melalui Penerapan Kewirausahaan Sosial, *J. Kewirausahaan*, vol. 3, no. 2, pp. 26–34, 2017.
- [14] K. D. Maina and M. E. Nyambura, Combined Effect of Personality Factors and Cognitive Factors on Students' Self-Employment Intentions in Technical, Vocational Education and Training in Kenya, *Int. J. Bus. Econ. Res.*, vol. 8, no. 3, p. 133, 2019, doi: 10.11648/j.ijber.20190803.17.
- [15] W. A. F. Abdullah, Strategi Pengembangan SDM dalam Persaingan Bisnis Industri Kreatif di Era Digital, *Adliya J. Huk. dan Kemanus.*, vol. 13, no. 1, 2019.
- [16] N. Yuliani, D. Novita, and D. Pramestari, Menumbuhkan Jiwa Wirausaha Kawula Muda Di Era Milenial Melalui Pendekatan Inside-Out, *Ikraith-Abdimas*, vol. 2, no. 2, pp. 12–22, 2019, [Online]. Available: <https://media.neliti.com/media/publications/268416-menumbuhkan-jiwa-wirausaha-kawula-mudadi-8c70e932.pdf>.
- [17] E. Qosja and E. Druga, Entrepreneurial spirit and factors affecting it: Case study based on the students of the European University of Tirana, *Int. J. Soc. Sci. Educ. Res.*, vol. 1, no. 3, pp. 680–691, 2015, doi: 10.24289/ijsser.279146.
- [18] B. Suroto, Nofrizal, and Fatkhurahman, Identifikasi Jiwa Kewirausahaan Mahasiswa (Studi Kasus Pelaksanaan Program Unggulan Kewirausahaan), *J. Benefita*, vol. 1, no. 3, pp. 154–162, 2016, doi: 10.22216/jbe.v1i3.459.
- [19] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta, 2014.
- [20] Ganefri and H. Hidayat, Production based Learning: An Instructional Design Model in the

- Context of Vocational Education and Training (VET), *Procedia - Soc. Behav. Sci.*, vol. 204, no. November 2014, pp. 206–211, 2015, doi: 10.1016/j.sbspro.2015.08.142.
- [21] A. H. Nasution, *Entrepreneurship Membangun Spirit Teknopreneurship*. Yogyakarta: Andi Offset, 2007.
- [22] N. Sudjana, *Metoda Statistika*. Bandung: Tarsito, 2005.
- [23] J. K. Brown, Student-Centered Instruction: Involving Students in Their Own Education, *Music Educ. J.*, vol. 94, no. 5, pp. 30–35, 2008, doi: 10.1177/00274321080940050108.
- [24] G. Al Murshidi, The Impact of Student-Centered Learning Approach Through Workshops Conduction on The UAE University Female Students, *Eur. J. Bus. Manag. Rev.*, vol. 2, no. 5, pp. 31–43, 2014.
- [25] H. Hidayat, How is the Application and Design of a Product-Based Entrepreneurship Learning Tools in Vocational Higher Education?, in *1st International Conference on Technology and Vocational Teachers (ICTVT 2017)*, 2017, vol. 102, no. Ictvt, pp. 223–228, doi: 10.2991/ictvt-17.2017.38.
- [26] J. F. Thompson, *Foundations of vocational education: Social and philosophical concepts*. New Jersey: Prentice-Hall, 1973.
- [27] W. Sanjaya, *Strategi Pembelajaran: Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana Prenada Media Grup, 2006.
- [28] H. Hidayat, S. Herawati, A. Hidayati, and E. Syahmaidi, Pembelajaran Kewirausahaan Dengan Pendekatan Berbasis Produksi Sebagai Alternatif Mempersiapkan Lulusan Berkualitas Di Pendidikan Tinggi, in *Seminar Nasional Pakar ke I*, 2018, pp. 123–, [Online]. Available: <http://trijurnal.lemlit.trisakti.ac.id/index.php/pakar/article/download/2709/2339>.
- [29] H. Hidayat, Impact of Learning with the Production- Based Learning Model in Vocational School, *Int. J. Res. Eng. Soc. Sci.*, vol. 07, no. 2, pp. 1–6, 2017.
- [30] S. Bell, Project-Based Learning for the 21st Century: Skills for the Future, *Clear. House A J. Educ. Strateg. Issues Ideas*, vol. 83, no. 2, pp. 39–43, 2010, doi: 10.1080/00098650903505415.
- [31] I. Kusumaningrum, G. Ganefri, and H. Hidayat, Improving Students Entrepreneurial Interest using Production Based Learning Model in TVET, in *The 3rd UPI International Conference on Technical and Vocational Education and Training (TVET)*, 2015, pp. 69–74, doi: 10.2991/ictvet-14.2015.17.
- [32] A. Yulastri, H. Hidayat, G. Ganefri, F. Edya, and S. Islami, Learning outcomes with the application of product based entrepreneurship module in vocational higher education, *J. Pendidik. Vokasi*, vol. 8, no. 2, p. 120, 2018, doi: 10.21831/jpv.v8i2.15310.
- [33] J. Jeprimansyah, G. Ganefri, and A. Ambiyar, Development of Product Based Learning Models on Multimedia Learning Materials in SMK N 2 Padang, in *5th UPI International Conference on Technical and Vocational Education and Training (ICTVET 2018)*, 2019, vol. 299, no. Ictvet 2018, pp. 431–433, doi: 10.2991/ictvet-18.2019.98.
- [34] A. C. Wicaksana and S. Sukiman, the Cultivation of Entrepreneurial Spirits To the Students of Vocational Highs School (Smk) Through Subject of Islamic Religious Education and Ethics, *Sunan Kalijaga Int. J. Islam. Educ. Res.*, vol. 2, no. 2, pp. 45–64, 2019, doi: 10.14421/skijier.2018.2018.22.03.
- [35] I. D. L. Ríos, A. Cazorla, J. M. Díaz-Puente, and J. L. Yagüe, Project-based learning in engineering higher education: Two decades of teaching competences in real environments, *Procedia - Soc. Behav. Sci.*, vol. 2, no. 2, pp. 1368–1378, 2010, doi: 10.1016/j.sbspro.2010.03.202.
- [36] I. Siswanto, Seminar Nasional 2011 “Wonderful Indonesia, 2011, no. 77, pp. 1–13.
- [37] D. Turker and S. S. Selcuk, Which factors affect entrepreneurial intention of university students?, *J. Eur. Ind. Train.*, vol. 33, no. 2, pp. 142–159, 2009, doi: 10.1108/03090590910939049.
- [38] G. Ganefri, H. Hidayat, A. Yulastri, and I. Ifdil, The need analysis of the production based entrepreneurship training model: learning entrepreneurship in higher education, *COUNSE-EDU Int. J. Couns. Educ.*, vol. 5, no. 3, pp. 58–63, 2020, doi: 10.23916/0020200528530.
- [39] S. H. B. Banu, Pengembangan Jiwa Kewirausahaan di Kalangan Dosen dan Mahasiswa, *J. Ekon. Bisnis*, no. 2, pp. 114–122, 2009, [Online]. Available: [BB Siswoyo - Jurnal Ekonomi Bisnis, 2009 - fe.um.ac.id](http://www.fe.um.ac.id).
- [40] Q. Xiaoxing, Research on Innovation and Entrepreneurship Education, *High. Educ. Res.*, vol. 5, no. 6, pp. 209–213, 2018, doi: 10.2991/ssme-18.2018.35.
- [41] M. Wibowo, Pembelajaran Kewirausahaan dan Minat Wirausaha Lulusan SMK, *Eksplanasi*, vol. 6, no. 2, pp. 109–122, 2011.