



OPTIMIZING ENTREPRENEURSHIP PRACTICE THROUGH THE DEVELOPMENT OF A GAME SIMULATOR TO ENHANCE STUDENTS' ENTREPRENEURIAL SKILLS

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ABSTRAK

Pengembangan Skills Kewirausahaan di SMK seharusnya didasarkan pada basis Skills yang dimiliki Lulusan sesuai dengan bidangnya. Permasalahan saat ini adalah, guru kewirausahaan tidak selalu memberikan prakti kewirausahaan ataupun pembelajaran di kelas yang berbasis pada keahlian yang sedang dipelajari siswa. Pengabdian Kepada masyarakat ini bertujuan untuk mengoptimisasi Prakti pembelajaran Kewirausahaan Tematik yang berbasis pada keahlian siswa agar lebih optimal menghasilkan lulusan SMK berjiwawirusaha yang berbasis pada Keterampilan yang dimilikinya. penggunaan BMC Simulator Game sebagai alat optimalisasi pembelajaran kewirausahaan tematik tersebut merupakan gagasan orisinil dari tim Pengabdi Universitas Negeri Semarang untuk membantu Guru dalam menyelesaikan masalah praktik pembelajaran kewirausahaan di SMK. Pengabdian Kepada Masyarakat dilaksanakan di SMK Nurul Barki Boarding School. Pengabdian kepada Masyarakat ini dihasilkan output berupa pembelajaran inovatif dan kreatif berbasis pada Penggunaan media game interaktif, serta munculnya inisiatif wirausaha tematik dari siswa SMK. Luaran yang ditargetkan adalah: 1) Hak Cipta dari game yang dibuat oleh tim pengabdi dan Buku panduan penggunaan BMC Simulator Game.

ABSTRACT

The development of Entrepreneurship Skills in Vocational High Schools should be based on the skills possessed by graduates in accordance with their fields. The current problem is, entrepreneurship teachers do not always provide entrepreneurial practices or classroom learning based on the skills being studied by students. This Community Service aims to optimize thematic entrepreneurship learning practices based on student skills in order to more optimally produce vocational high school graduates with an entrepreneurial spirit based on the skills they have. The use of the BMC Simulator Game as a tool for optimizing thematic entrepreneurship learning is an original idea from the Semarang State University Community Service team to assist teachers in solving problems in entrepreneurship learning practices in Vocational High Schools. Community Service will be implemented at SMK Nurul Barki Boarding School. It is hoped that the implementation of this community service will produce output in the form of innovative and creative learning based on the use of interactive game media, as well as the emergence of thematic entrepreneurial initiatives from vocational school students. The targeted outputs are Copyright of the game created by the community service team and BMC Simulator Game user guidebook

INTRODUCTION

Based on Appendix I of Presidential Regulation of the Republic of Indonesia Number 2 of 2022, entrepreneurs are classified into two categories: nascent entrepreneurs and established entrepreneurs. Statistical data indicate that the proportion of nascent entrepreneurs has reached a promising level of 35.21%. By the end of 2023, Indonesia had generated approximately 52 million new entrepreneurs over the previous three years. This achievement represents a positive contribution to supporting national economic recovery and growth in the post-pandemic period. However, despite the encouraging trend in the number of nascent entrepreneurs, the proportion of established entrepreneurs who operate sustainable businesses and employ workers remains relatively low, accounting for only 3.01% of the total labor force. This figure is considerably lower than those of several ASEAN countries, such as Singapore and Malaysia, where the entrepreneurship ratio exceeds 5%. These statistics indicate a substantial gap between nascent and established entrepreneurs, suggesting that the transition from entrepreneurial initiation to sustainable business development remains limited. Therefore, greater efforts are required to maximize the contribution of nascent entrepreneurs toward becoming established entrepreneurs.

The implementation of the Merdeka Curriculum and the strengthening of the Pancasila Student Profile at the secondary education level have become strategic initiatives for cultivating entrepreneurial values from an early age. These values are integrated through various Pancasila Student Profile Strengthening Projects (P5), one of which is implemented in the Crafts and Entrepreneurship subject. Previous studies by Anindya (2023), Ombili et al. (2022), and Noviani, Setyowibowo, and Wahyono (2022) reported numerous challenges in implementing P5 within entrepreneurship education, particularly in fostering students' entrepreneurial character. These findings highlight the need to develop innovative models of entrepreneurship learning that are effectively integrated into entrepreneurship courses.

Herdiansyah (2023) identified three key components that determine the successful implementation of the Pancasila Student Profile Strengthening Project (P5): (1) teacher readiness, (2) learning tools and materials, and (3) student participation. Regarding teacher readiness, teachers particularly those serving as Guru Penggerak (Driving Teachers) have received adequate facilitation and professional training from the Ministry of Education, resulting in relatively few implementation challenges. However, significant obstacles remain in terms of providing appropriate learning tools and instructional materials capable of promoting active student participation. One of the primary challenges is the absence of standardized instructional models that can effectively guide P5 implementation. Consequently, entrepreneurship practices conducted in schools do not necessarily foster meaningful student engagement. Furthermore, entrepreneurship learning that relies solely on practical activities without adequate theoretical support may limit students' understanding of sound entrepreneurial principles and business management practices.

Another issue concerns the uniform implementation model of P5 in entrepreneurship education across vocational high schools (SMK). Entrepreneurship learning is predominantly centered on basic retail business practices and simple buying-and-selling activities. However, entrepreneurship education in vocational schools should be closely aligned with students' vocational competencies and areas of specialization (Afifudin et al., 2023). Entrepreneurship that is designed according to students' vocational expertise is commonly referred to as skill-based entrepreneurship, which emphasizes utilizing professional competencies to establish and develop business ventures (Qian, 2017).

One vocational high school with considerable potential for developing skill-based entrepreneurship in Semarang City is SMK Nurul Barki Semarang. SMK Nurul Barki is a boarding

vocational school funded by the PLN State-Owned Enterprise Waqf Foundation (Yayasan Wakaf BUMN PLN), which provides free education for students from economically disadvantaged families. Therefore, entrepreneurship practices implemented at the school should be aligned with its vocational specializations, namely Mechatronics and Electrical Engineering, enabling students to develop entrepreneurial competencies based on their technical expertise.

Based on a preliminary discussion conducted with the Principal of SMK Nurul Barki, the partner institution, on December 8, 2023, several challenges and opportunities related to entrepreneurship learning were identified. These include the following:

1. Entrepreneurship learning remains monotonous and is not student-centered. In addition, students from Islamic boarding school (pesantren) backgrounds cannot fully participate in various learning activities due to limited access to smartphones and the internet.
2. Although the school has a well-equipped computer laboratory with reliable internet access, its utilization is still limited, serving only Information and Communication Technology (ICT) learning activities.
3. Only one teacher from the school has successfully passed the selection process to become a Guru Penggerak (Driving Teacher), and the school continues to experience challenges in optimizing the implementation of the Pancasila Student Profile Strengthening Project (P5).
4. Entrepreneurship practices are still general in nature and have not been designed thematically according to students' vocational competencies, unlike the entrepreneurship craft subjects that have been implemented. Furthermore, the school workshop, which serves as a practical learning facility, is primarily utilized for production activities rather than comprehensive entrepreneurship practices.

Based on the results of discussions with the Principal of SMK Nurul Barqi, it was identified that the most urgent issue requiring immediate attention is the suboptimal implementation of entrepreneurship education at SMK Nurul Barqi, Semarang City. In response to this challenge, the Community Service Team from Universitas Negeri Semarang seeks to maximize entrepreneurship learning by introducing innovative instructional media and practical learning activities based on the Skill-Based Entrepreneurship approach.

METHOD

Based on the problems identified jointly with the partner school, a systematic problem-solving process was designed not only to address the existing issues but also to provide an innovative model that can be adopted in other educational institutions facing similar challenges. The innovation introduced through this community service program is the development of a Business Model Canvas (BMC) Game Simulator as a practical learning medium to assist students in designing beginner-level business plans based on their vocational competencies. This game simulator is expected to be applicable not only at SMK Nurul Barqi but also at other vocational high schools implementing skill-based entrepreneurship learning.

The community service program employed the Participatory Action Research (PAR) approach. This method emphasizes active collaboration between the target community and the expert team throughout the implementation process. In this context, the partner school possesses valuable human resources, particularly teachers who actively participate in various educational activities, making PAR an appropriate approach for this program. PAR is particularly relevant because it positions the community not merely as research subjects but as partners, active participants, and evaluators of the

change process. Baum, MacDougall, and Smith (2006) explain that PAR differs from conventional research by integrating reflection, data collection, and action to improve community conditions through the direct involvement of individuals who experience the identified problems.

The PAR approach consists of several systematic stages, each of which plays an essential role in empowering the target community throughout the intervention process. The stages of the PAR method are illustrated in the following figure 1.

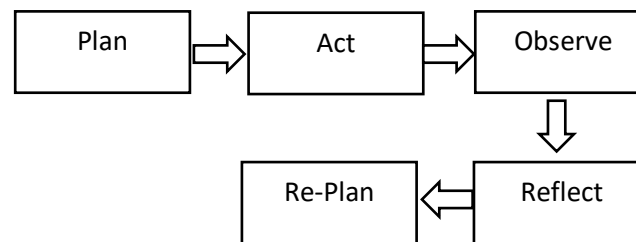


Figure 1. Implementation of the Community Service Program

This community service program was conducted at Nurul Barqi Vocational High School (SMK Nurul Barqi), Semarang City. The school is a boarding vocational high school specializing in the electrical engineering field. SMK Nurul Barqi offers two areas of expertise: Mechatronics and Electrical Installation. The program targeted both entrepreneurship teachers and students enrolled in the Entrepreneurship course.

The community service team implemented the Entrepreneurship Practice Optimization Program Assisted by a Game Simulator through five sequential activities. The objectives and expected outputs of each stage were mapped and presented in the previous section. Furthermore, based on the problems identified in the partner school, as described earlier, several alternative solutions were implemented through the following activities.

Table 1. Operationalization of the Program Activities

No.	Activity Operationalization	Target	Achievement Indicators
1	Initial Problem Identification	Identify the initial needs for problem-solving, supporting components, and implementation strategies.	Needs assessment results for the program development.
2	Follow-up Focus Group Discussion (FGD) for Practice Media Development	Conduct an in-depth discussion on the requirements for developing entrepreneurship practice media based on a Business Model Canvas (BMC) Game Simulator. At this stage, the roles and responsibilities of each stakeholder in the development process were also determined.	Prototype of the practice media.2. Draft of the practice module.3. Distribution of development responsibilities.

3	Development of Entrepreneurship Practice Media Based on the BMC Game Simulator	1. Develop the practice module.2. Develop the BMC Game Simulator application.	Entrepreneurship practice module using the BMC Game Simulator.2. BMC Game Simulator application.
4	Workshop on the Use of the Game Simulator in Entrepreneurship Practice	1. Conduct a workshop on the use of the BMC Game Simulator application involving teachers and school workshop managers.2. Disseminate and implement the application for students.	Improved understanding of the use of the learning media.2. Results of the implementation among students.
5	Program Evaluation and Follow-up	Evaluate the program based on:1. Teachers' perceptions of the use of the learning media.2. Students' perceptions of entrepreneurship practice activities.3. Follow-up actions.	Follow-up plan for the further development of the BMC Game Simulator application.

RESULTS AND DISCUSSION

The community service program conducted by the UNNES community service team was implemented in collaboration with SMK Nurul Barqi, Semarang City. This partnership facilitated the implementation of the program and streamlined the development process of the Entrepreneurship Game Simulator. The collaboration also involved various stakeholders, particularly educational media developers, who contributed to the development of the learning media.

Overall, the community service activities were carried out in August. However, one final stage remains, namely the pilot testing of the Entrepreneurship Game Simulator as a learning medium. During the implementation, the community service team also had the opportunity to collaborate in mentoring the development of other instructional media for vocational high schools in Semarang City.

The achievement of the program outcomes can be observed through the successful development of the Entrepreneurship Game Simulator, which was collaboratively designed by the teachers and the community service team. The teachers played a significant role in determining the learning materials and designing the game questions, while the community service team focused on providing technical assistance and facilitating the development of the game software. The effectiveness of the product will be further evaluated through pilot testing involving students.

The primary innovation produced through this program is an Entrepreneurship Game Simulator, developed through close collaboration between the teachers and the community service team. The main features of the simulator are as follows:

Cross-platform accessibility. The game can be used effectively on both personal computers (PCs) and Android-based mobile devices. Nevertheless, the PC version is emphasized because the partner school operates as a boarding school where students are not permitted to use mobile phones.

Progressive learning levels. The simulator consists of five game levels with progressively increasing difficulty. Each level is designed to foster students' critical thinking, creativity, innovation, and problem-solving skills.

Easy installation and portability. The game is simple to install and portable, enabling users to access and operate it conveniently across different devices.

The interface of the Entrepreneurship Game Simulator developed through this program is presented as follows:



Figure 2. Game Simulator Interface

After the game simulator had been successfully developed, a socialization session on its use was conducted by aligning its implementation with students' learning activities. This activity was carried out in collaboration with teachers at SMK Nurul Barqi Semarang. Based on the discussion with the teachers, it was agreed that the game simulator would be implemented as a supplementary learning resource within the Flipped Classroom approach. In this approach, the game simulator was used as an additional learning activity outside regular classroom hours, allowing students to continue participating in their scheduled classroom instruction without disruption. The outcomes achieved from this activity are presented in greater detail in Table 2 below.

Table 2. Results and Follow-up Actions

No.	Target	Outcomes	Follow-up Actions
1	Development of an innovative product for entrepreneurship learning	An innovative product in the form of an Entrepreneurship Game Simulator was developed. The game can be used by students as an integral part of the entrepreneurship learning process.	Integrate the game into both classroom and extracurricular learning activities according to the instructional plan developed by teachers.
2	Improved teachers' understanding of how to use the Game Simulator	Teachers participated in a training and socialization session on the use of the game simulator. They also gained an understanding of how to integrate the game into entrepreneurship learning activities.	Modify both the instructional model and the game so that it can be applied to other learning topics.
3	Increased student engagement in entrepreneurship learning	The game encouraged greater student participation during and outside classroom learning, providing students with additional opportunities for independent learning.	Enhance student engagement by organizing competitions using the developed game simulator.

4	Enhanced students' creativity and innovativeness in entrepreneurship	Interview results indicated that students were highly interested in using the game, which contributed to increased creativity and a better understanding of entrepreneurial concepts.	Conduct further studies to evaluate the effectiveness of the game simulator in improving students' creativity.
5	Increased teacher participation in entrepreneurship learning	Teachers actively participated in designing and modifying the game, as demonstrated through the Focus Group Discussion (FGD) sessions conducted with the community service team.	Provide additional training to enable teachers to optimize the use of the game simulator as a learning medium for students.

Based on the outcomes achieved, a clear relationship can be identified between the community service activities and the objectives that were established. The entrepreneurship game served as an instructional medium to optimize learning activities. This finding is consistent with the study by Suri, Novriana, and Susanti (2022), which highlights the relationship between the use of game-based learning and improvements in the learning process. Furthermore, the implementation of the game also contributed to enhancing students' creativity. This result is in line with the findings of Alwhaibi et al. (2024), who reported that game-based learning activities can significantly improve students' creativity.

CONCLUSION AND RECOMMENDATIONS

Based on the results and discussion of this community service program on optimizing entrepreneurship learning through the use of a game simulator, it can be concluded that the program successfully achieved its primary objective of developing an innovative learning medium in the form of an entrepreneurship game simulator. The program also addressed challenges in entrepreneurship learning, particularly those related to student engagement and learning activities. Through this community service initiative, both teachers and students gained practical solutions to enhance the implementation of entrepreneurship learning in vocational high schools.

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REFERENCES

Anindya, E.I., 2023. *Implementasi Proyek Penguatan Profil Pelajar Pancasila Sebagai Upaya Untuk Menumbuhkan Jiwa Kewirausahaan Di Smk Negeri 2 Adiwerna* (Doctoral dissertation, Universitas Pancasakti Tegal).

- Arifudin, D., Indriyani, R., Ihsan, I. and Astrida, D.N., 2023. Peningkatan Brand awareness Melalui kegiatan Pelatihan Visual branding Sebagai Implementasi P5 (Projek Penguatan Profil Pelajar Pancasila) Tema Kewirausahaan. *BERNAS: Jurnal Pengabdian Kepada Masyarakat*, 4(3), pp.2049-2058.
- Baum, F., MacDougall, C., & Smith, D. (2006). Participatory action research. *Journal of epidemiology and community health*, 60(10), 854.
- Hardiansyah, H., 2023. Implementasi Projek Kewirausahaan Dalam Mendukung Profil Pelajar Pancasila Di SMAN 1 Sikur. *Jurnal Visionary: Penelitian dan Pengembangan dibidang Administrasi Pendidikan*, 11(2), pp.128-134.
- Noviani, L., Setyowibowo, F. and Wahyono, B., 2023. L Penguatan Kompetensi Guru Dalam Implementasi Proyek Penguatan Profil Pelajar Pancasila. *Transformasi Dan Inovasi: Jurnal Pengabdian Masyarakat*, 3(2), pp.90-95.
- Ombili, H., Doloan, M.D., Rauf, S., Rahmat, A. and Husain, R., 2022. Project Program Sekolah Untuk Mewujudkan Profil Pelajar Pancasila Melalui Literasi Kewirausahaan Di SDN 29 Kota Selatan. *Jurnal Sosial Humaniora dan Pendidikan*, 1(3), pp.75-79.
- Qian, H., 2017. Skills and knowledge-based entrepreneurship: evidence from US cities. *Regional Studies*, 51(10), pp.1469-1482.
- Suri, A., Novriana, N., & Susanti, D. (2022). Improving student learning outcomes with educational game-based interactive learning media. *International Journal of Education and Teaching Zone*, 1(1), 16-19.
- Alwhaibi, R. M., Alotaibi, M. S., Almutairi, S. F., Alkhudhayr, J. E., Alanazi, R. F., Al Jamil, H. F., & Aygun, Y. (2024). Exploring the relationship between video game engagement and creative thinking in academic environments: cross-sectional study. *Sustainability*, 16(20), 9104.