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Enhancing Entrepreneurial and Digital Marketing Skills among High School Students through Project-Based Community Engagement: A Case Study in Indonesia

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Abstract

Digital transformation has increased the importance of entrepreneurial and digital marketing skills among young learners. However, secondary education often provides limited opportunities for students to apply these competencies in practical contexts. This paper presents a university-led community engagement program designed to enhance entrepreneurial and digital marketing skills among high school students through a project-based learning approach. The program was implemented as a community service initiative in Indonesia and involved interactive lectures, hands-on digital content workshops, and a mini marketing campaign project. Data were collected using pre-test and post-test assessments, structured observations and project evaluations. The results indicate an average improvement of approximately 28% in students' understanding of entrepreneurship and digital marketing concepts, accompanied by increased engagement, creativity and collaboration during project activities. The findings demonstrate that integrating project-based learning within community engagement programs can effectively bridge the gap between theoretical instructions and real-world application at the secondary school level. This study provides practical insights for educators, community engagement practitioners and policymakers seeking to strengthen entrepreneurship education and digital skill development through experiential learning models.

Keywords

Entrepreneurship education, Digital marketing skills, Project-based learning, Community engagement, High school students

1. Introduction

Digital transformation has significantly reshaped how organizations create value, communicate with customers, and compete in increasingly dynamic markets. Advances in digital technologies and the widespread use of online platforms have elevated the importance of entrepreneurial capability and digital marketing knowledge as essential competencies in the modern economy (Chaffey & Ellis-Chadwick, 2019). These skills are no longer limited to higher education and professional contexts but are increasingly relevant at the secondary education level, where early exposure can influence future academic and career pathways. Entrepreneurship education introduced at an early stage enables students to develop creativity, problem-solving capacities, and adaptive thinking, which are pivotal for responding to rapid-fire technological and profitable changes (Nabi et al., 2017; Gibb, 2011). However, despite the growing recognition of these requirements, numerous secondary education institutions continue to emphasize theoretical instruction with limited openings for students to apply business and marketing generalities in real-world surrounds. This gap between abstract literacy and practical operation frequently results in students enjoying face-position knowledge without the capability to restate it into entrepreneurial action.

Previous studies suggest that experiential learning approaches particularly project-based learning are effective in addressing this limitation. Project-grounded literacy encourages active pupil participation, collaboration, and problem-solving through engagement with authentic tasks and palpable labors (Thomas, 2000; Bell, 2010). Within the environment of entrepreneurship education, this approach allows learners to witness request-acquainted thinking and decision-making processes. Nonetheless, the integration of digital marketing skills into entrepreneurship education at the secondary level remains limited, especially in developing countries. In Indonesia, the rapid-fire expansion of digital platforms and social media has created significant openings for entrepreneurial conditioning, particularly for small businesses and arising startups. High school students represent one of the most active groups of digital media users; still, their engagement is generally consumptive rather than productive or entrepreneurial in nature (Prensky, 2001; Hatlevik et al., 2018). This gap highlights the need for targeted educational interventions that can transform students from passive consumers into active generators and digital marketers.

Universities, through community engagement and community service programs can play a strategic part in addressing this gap by transferring knowledge and practical experience to schools and local communities (Bringle & Hatcher, 2002). Similar enterprise not only support pupil literacy but also strengthen collaboration between advanced education institutions and secondary seminaries. Against this background, this paper reports on a community grounded training program designed to enhance entrepreneurial and digital marketing skills among high academy students through a design grounded literacy approach. The program was enforced as part of a university led community service action in collaboration with a mate high academy in Indonesia. It combined theoretical instruction with practical shops and a mini marketing crusade design, enabling students to apply digital marketing generalities in a structured yet creative manner. The primary ideal of this study is to estimate the effectiveness of the intervention in perfecting students' knowledge, skills, and engagement in entrepreneurship related conditioning.

The contribution of this study lies in its practical exposure and its focus on secondary education within a community engagement frame. By presenting a case study from Indonesia, this exploration provides empirical perceptivity into how design-grounded community service programs can support entrepreneurship education and digital skill development at the high academy position. The findings are anticipated to inform preceptors, artificial engineering and operations operation interpreters, and policymakers seeking innovative educational models that bridge the gap between formal education and real-world business practices.

2. Literature Review

2.1 Entrepreneurship Education in Secondary Schools

Entrepreneurship education has gradually gained popularity as an integral part of the contemporary education system. At the secondary level, entrepreneurship education seeks to instill an entrepreneurship culture that encompasses creativity, initiative, and persistence, as opposed to merely learning about start-ups (Jena, 2020). There have been various studies conducted prior to this that show entrepreneurship education to have constructive effects on attitudes toward innovation and entrepreneurship, as well as skills such as communication and teamwork (Fayolle & Gailly, 2015; Hidayat et al., 2020). Nevertheless, the orthodox ways of entrepreneur training and education have historically placed greater emphasis on conceptual understanding rather than experiential learning. Classroom instruction might impede students' capacity for the internalization of the processes involved in such dynamism (Rasmussen & Sørheim, 2006). Consequently, there has been support for learning methodologies that focus on active involvement and problem-solving within authentic settings, especially within the secondary education environment (Thomas, 2000; Bell, 2010).

2.2 Digital Marketing Skills and Youth Education

Digital marketing has now become an integral part of modern enterprise, amidst the vast use of social media, mobile devices, as well as online platforms. Skills in digital content creation, audience engagement, data-driven communication, and digital engagement are now more important than ever for small businesses in order to remain competitive in a digital landscape. As far as young learners are concerned, digital marketing provides an entry point into entrepreneurial activities as it is most relevant to their use of digital technologies on a day-to-day level. Despite the great potential for digital marketing knowledge, it seems that the topic is under included in the curricula of many second level schools. A set of modern studies shows that the knowledge level of the examined subjects on the usage of digital tools for social purposes seems extremely high, while it remains limited regarding business purposes (Tondeur et al., 2017; Ratten & Usmanij, 2021). The aforementioned finding underlines the mere knowledge of digital tools as inefficient without further pedagogical support on value creation. Inclusion of digital marketing skills training

within secondary education has been observed to promote increased digital literacy, awakening for entrepreneurships as well as preparedness for future work. It has been reverberated within educational research circles that planning for digital skills acquisition along with executing practical tasks can help students unswerving in turning their prodigal exposure to technology into productive and entrepreneurial uses thereof (Van Laar et al., 2019). Thus, incorporating digital marketing education for entrepreneurship within secondary education can be beneficial for well-rounded skill training and increased educational practicality. Recent studies emphasize that digital marketing competencies are increasingly critical for youth employability and entrepreneurial readiness in the digital economy (Verhoef et al., 2021).

2.3 Project-Based Learning in Community Engagement

Project-Based Learning, or PBL, is a learning method and strategy in the instructional process that involves learning by doing and working on meaningful projects with the intention of resolving real-life issues while delivering specific results or products. In PBL, the learner is able to link the theoretical and the applicative and it has been demonstrated to improve motivation, understanding, and thinking skills (Kokotsaki et al., 2016). In the context of community engagement, the application of PBL is becoming increasingly prominent as a tool that ensures effective knowledge transfer and capacity building. Community-based projects involving PBL enable students to utilize academic knowledge to meet the actual needs of the community as well as develop professional and social skills. Findings of empirical research have confirmed that community-based initiatives involving PBL improve the perceived relevance of learning, enhance civic responsibility, and promote a lasting partnership between the educational institutions and the community (Celio, Durlak, & Dymnicki, 2011). Additionally, the implementation of PBL in community services has been discovered to facilitate the experiential learning approach to meet the fundamental requirement of developing applied competencies such as entrepreneurship and digital competencies among students in secondary schools (Wiek, Xiong, Brundiers, & van der Leeuw, 2014). These confirm the appropriateness of the application of the PBL approach for community services implemented in the context of enhancing entrepreneurship competencies and digital competencies in the context of the secondary education level. More recent research also confirms that PBL enhances digital and entrepreneurial competencies in technology-driven educational environments (OECD, 2022).

3. Methods

3.1 Research Design

This study adopts a descriptive case study methodology within a community engagement framework to investigate the efficacy of a project-based training program designed to improve high school students' skills in both entrepreneurship and digital marketing. The descriptive case study is more suited to investigating educational interventions in natural settings, especially when there is more emphasis on process, implementation, or outcomes, as compared to a study investigating cause-and-effect relationships under carefully controlled conditions (Yin, 2018). The intervention was organized in the framework of a community service project by a university.

3.2 Participants and Context

This project was conducted in collaboration with SMA Katolik Santo Yoseph Denpasar Indonesia. A total of 30 students from grade XI were involved. The project had involved students chosen by the partner institution based on their availability, as is usually the case for purposive sampling practiced within educational case study projects (Creswell & Poth, 2018). Before the project took place, students tended to use digital forms extensively for social interaction purposes. There was little exposure to organized entrepreneurial/marketing ventures.

3.3 Stages of the Entrepreneurship Training Program

The community-based entrepreneurship training program was implemented using a structured four-stage learning framework as illustrated in Figure 1 designed to develop students' entrepreneurial understanding, problem-solving skills and practical digital marketing competencies through experiential learning.

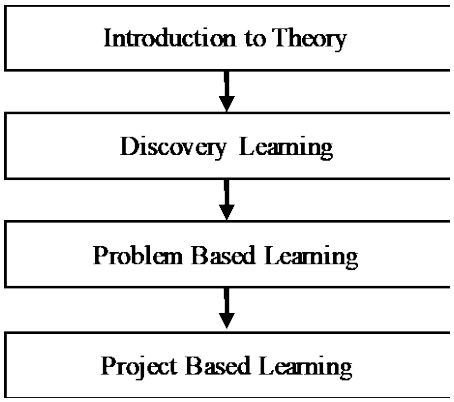

Figure 1. Project-based entrepreneurship training framework (Adapted from Gozali et al., 2020)

Stage 1 included teaching introductory lessons about entrepreneurship and marketing. Stage 2 included the application of discovery learning using business games. These allowed students to learn entrepreneurial ideas in an interactive and collaborative process. Stage 3 included the application of problem-based learning. Here, students were required to analyze business problems and provide possible solutions. This allowed for development of critical thinking capabilities among students. Stage 4 included the application of project-based learning. Here, students were required to create a mini-marketing project.

3.4 Data Collection and Analysis

The study adopts a mixed-methods paradigm, which involves the utilization of various data collection tools, such as the pre-test and post-test questionnaires, observation sheets, and assessment grids of the completed projects. The employment of a variety of data tools contributes to the ability of the study to accomplish methodological triangulation, which increases the validity of the study's findings in a qualitative or mixed educational study (Merriam & Tisdell, 2016). The quantitative data was analyzed using descriptive analysis to establish the variations in the levels of the students' knowledge before and following the intervention. The pre-test and post-test instruments consisted of structured questionnaires measuring students' understanding of entrepreneurship concepts, digital marketing knowledge and application of marketing strategies. Each component was assessed using a percentage-based scoring system. Observations were conducted using structured observation sheets focusing on student participation, collaboration, and communication. Project evaluations were carried out using predefined criteria including creativity, feasibility and clarity of marketing strategy.

4. Results and Discussion

4.1 Improvement in Knowledge and Skills

The pre-test analysis showed that the students had little knowledge about basic entrepreneurship and online marketing concepts. These areas include market segmentation, value proposition, as well as online promotion. The pre-test also showed that the students knew about online platforms and applications more as consumers, and not as the platforms for entrepreneurship and marketing. After the adoption of the four-stage project-based approach to the training program, the results from the post-test showed that the levels of knowledge among the students were notably improved as shown in Table 1. Table 1 presents the comparison of mean scores across three key competency areas, demonstrating consistent improvement in all measured dimensions following the intervention.

Table 1. Comparison of Pre-Test and Post-Test Scores

Assessment Component	Mean Pre-test Score	Mean Post-Test Score	Improvement (%)
Entrepreneurship Fundamentals	56	72	+28.6%
Digital Marketing Concepts	54	69	+27.8%
Applications of Marketing Strategies	52	67	+28.8%
Overall Average	54	69	+28%

Note: Scores are expressed as percentages. Improvement was calculated based on the difference between mean pre-test and post-test scores.

On average, the results showed that the students' scores improved by approximately 28% compared to their pre-test scores. A paired comparison of pre-test and post-test mean scores indicates a consistent improvement across all assessment components, suggesting that the intervention had a meaningful and practically significant impact on students' learning outcomes. This improvement reflects enhanced understanding of entrepreneurship concepts as well as increased familiarity with digital marketing fundamentals. Beyond the quantitative findings, qualitative observations during the training sessions revealed a notable increase in student engagement in discussing business concepts and marketing strategies. Students actively participated in group discussions and demonstrated an improved ability to articulate marketing objectives and identify target audiences during project presentations. These findings are consistent with prior studies indicating that experiential and project-based learning approaches enhance student engagement, conceptual understanding, and skill development in entrepreneurship education (Kokotsaki et al., 2016; Freeman et al., 2014). Overall, the results suggest that integrating project-based learning within community-based educational interventions provides an effective approach to bridging the gap between theoretical knowledge and practical application. This finding reinforces the role of experiential learning as a key pedagogical strategy for developing entrepreneurial and digital competencies at the secondary education level.

4.2 Student Engagement and Learning Experience

The entire training course was characterized by the extreme involvement of students in every phase of learning. Active participation became even more notable during discovery learning and group-based problem-solving activities, where students were able to interact more with peers and facilitators. Students became more confident in expressing ideas, asking questions, and contributing towards discussions on entrepreneurship and digital marketing concepts during sessions compared to the initial sessions. The project-based learning stage was the heart of enhancing students' learning experiences. Students were more motivated and claimed ownership during the development of the mini marketing projects. Group collaboration allowed students to share responsibilities, negotiate ideas, and integrate different perspectives in designing promotional content and simple marketing strategies. This collaborative process supported peer learning and reinforced the practical application of concepts introduced during the earlier stages of the program.

Observational data obtained during the training showed a clear improvement in the students' communication skills and their critical thinking abilities. Students were observed to explain their objectives of the project more clearly and justify their choices of marketing strategies at the time of presentation. Real-world oriented tasks helped them to contextualize the theoretical knowledge into practical contexts, which again made the learning useful and relevant. Overall, it enhanced the students' positive attitudes towards entrepreneurship and digital marketing. Interactive activities, real-life problem scenarios, and project-based outputs contributed to sustained engagement and deeper understanding. This finding is consistent with previous studies indicating that experiential and project-based learning approaches enhance student engagement, communication skills and learning relevance in entrepreneurship education settings (Kokotsaki et al., 2016). These results suggest that the applied and experiential nature of the training framework effectively supported student engagement within a community based entrepreneurship education context. Figure 2 illustrates student engagement during the project-based learning activities, highlighting active participation, collaboration, and presentation of marketing projects

Figure 2. Student Engagement and Learning Experience at SMA Katolik Santo Yoseph Denpasar Indonesia

4.3 Discussion

The results of this study prove that the community-oriented and project-driven training program contributed effectively towards the enhancement of the entrepreneurial knowledge and online marketing competencies of the students, as well as their levels of engagement in the learning activities. The increase of about 28% in the post-test scores reflects that the designed four-stage model of education helped the learners achieve effective cognitive transfer regarding the basics of business and application of fundamental marketing theories. This outcome is backed by various theories, indicating that experience and active education models help learners apply their concept-related knowledge through practical experiences and activities in their surroundings (Prince, 2004). The high level of student engagement witnessed in the training sessions further accentuates the efficacy of the learning design formulated in the training processes. Student engagement, motivation, and participation witnessed in the group discussions and project sessions suggest satisfactory affective and behavioral responses of students towards learning. This corresponds with the findings of various studies conducted in the past, which highlighted that student-centric and activity-based learning environments promote motivation as well as engagement in entrepreneurship education, particularly in business education (Freeman et al., 2014).

Apparently, the combination of discovery learning, problem-based learning, and project-based learning under one teaching approach allowed for both cognitive and affective aspects of learning to be accomplished. Through the step-by-step learning process, students were able to enhance their entrepreneurship skills, decision-making skills, and digital marketing skills. Interestingly, the same observation is found in secondary education settings; structured experiential learning is capable of filling the gap that resides between theory and practice applications (Hägg & Kurczewska, 2019). Added to this, the community engagement element of the initiative added further significance to the process of learning by grounding it in a genuine context. The initiation of community-based projects by a higher institution such as a university has been identified as a potent approach for knowledge transfer and development, especially if it is incorporated into a participation-based learning approach (Bandy, 2017). The training model proposed in this research work, therefore, serves as a viable approach for incorporating entrepreneurship education and computer skill development at a secondary school level.

The findings of this study are consistent with previous research emphasizing the effectiveness of experiential and project-based learning in enhancing entrepreneurial competencies and student engagement (Kokotsaki et al., 2016; Freeman et al., 2014). Furthermore, the integration of digital marketing elements aligns with the growing need for digital skill development in education, particularly in preparing students for participation in the digital economy (Van Laar et al., 2019). This reinforces the importance of combining experiential learning with digital competencies in secondary education contexts. Despite these findings, this study is limited by its small sample size and single-case context, which may affect the generalizability of the results.

5. Conclusion

This study investigated the improvement of entrepreneurial and digital marketing skills among senior high school students in Indonesia through a project-based community engagement approach. The findings indicate that the program effectively enhanced students' knowledge, engagement, and practical competencies. This study contributes empirically by demonstrating that structured project-based community engagement can serve as an effective model for integrating entrepreneurship and digital marketing education at the secondary level. Despite these contributions, this study has several limitations. The intervention was conducted with a relatively small sample size in a single school, which may limit the generalizability of the findings. In addition, the present study is based on short-term analysis and is based on pre-test and post-test results and outputs of the projects, and hence the long-term effect of the training intervention on the entrepreneurial activities and digital marketing endeavors of the students is not taken into consideration. Future studies should involve larger and more diverse samples as well as longitudinal approaches to evaluate long-term effects. Further studies may also incorporate more advanced analytical methods or comparative designs to assess the effectiveness of different educational approaches in entrepreneurship and digital marketing education.

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