Digital Innovations in Convection Entrepreneurship Education Program for Youth Life Skills Development

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ABSTRACT

Keywords:
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The integration of digital innovations in education is crucial for enhancing teaching methodologies and improving student outcomes. In entrepreneurship education, digital tools can significantly enrich the learning experience by offering interactive and flexible environments. This research explores the implementation of digital innovations in the entrepreneurship education program at PKBM Saudara Sejiwa Bandung, identifies the challenges and opportunities, and examines the impact on participants' life skills and business development. The study employed a case study approach, utilizing interviews with program participants, instructors, and managers. Data were collected on the use of digital tools, engagement with e-learning platforms, and the development of digital skills and business competencies. The data collected from interviews, observations, and documents were analyzed using thematic analysis. The research main findings are The use of WhatsApp facilitated communication and instruction, but digital design software and e-learning platforms were underutilized. Challenges included limited digital literacy, inconsistent internet access, and low e-learning engagement. However, opportunities such as increased confidence in digital tool usage, product innovation with DTF printing, and potential for e-commerce training were identified. Participants showed improved digital skills and confidence, with optimism for future business growth. The study highlights the need for enhanced digital infrastructure, comprehensive digital literacy training, and robust e-commerce support.

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A. INTRODUCTION

The integration of digital technologies into educational settings has been extensively studied, with a focus on their potential to enhance learning outcomes, engagement, and accessibility (Iskandar et al., 2023; Nurhayati et al., 2023, 2024; Suharyat et al., 2022). Digital tools, such as e-learning platforms, mobile applications, and interactive software, offer flexible and scalable solutions that can address the diverse needs of learners (Masri & Nurhayati, 2024; Silvania et al., 2024; Tiarawati et al., 2023). Mobile learning, in particular, has been highlighted for its ability to provide anytime, anywhere access to educational content, which is crucial in improving educational equity (Hudri & Nurhayati, 2020). Research has shown that digital innovations can significantly improve the quality of education by providing interactive and personalized learning experiences (Ghofur & Nurhayati, 2023b; Milyane et al., 2023; Nuraeni & Nurhayati, 2023). For instance, digital simulations and virtual laboratories enable students to engage in experiential

learning activities that would be otherwise inaccessible due to resource constraints. Additionally, the use of multimedia elements such as videos, animations, and interactive quizzes can enhance student engagement and motivation (Ghofur & Nurhayati, 2023a). However, the successful implementation of digital tools in education requires careful consideration of several factors, including digital literacy, access to technology, and the pedagogical design of digital content (Marsegi et al., 2023; Nuryanti et al., 2024; Winarti et al., 2022). Studies have emphasized the importance of training educators and students to effectively use digital technologies, as well as ensuring that technological infrastructure is robust and accessible (Musa, Nurhayati, et al., 2024; Musa, Nurhayati, Jabar, et al., 2022; Musa, Suherman, et al., 2024).

This study focuses on the implementation and impact of digital innovations within the entrepreneurship education program at PKBM Saudara Sejiwa Bandung, specifically in the context of the convection (garment manufacturing) industry. By investigating this particular case, the research aims to provide insights into the practical challenges and opportunities of integrating digital tools into vocational training programs. The unique context of vocational training, especially in developing countries, requires tailored solutions that consider the local economic, cultural, and technological environment.Entrepreneurship education aims to equip individuals with the skills, knowledge, and mindset required to start and manage successful businesses (Nurhayati, 2020; Shen et al., 2018). Traditional entrepreneurship education programs often focus on theoretical knowledge and case studies, but there is growing recognition of the need for more practical and hands-on approaches (Rodrigues et al., 2023). Digital tools can play a crucial role in bridging this gap by providing interactive and experiential learning opportunities (Ollanketo et al., 2023; Rodrigues et al., 2023). E-learning platforms, for example, can offer a wide range of resources, including video lectures, online discussions, and simulations, which allow learners to practice entrepreneurial skills in a virtual environment (Tarmizi et al., 2023). Furthermore, digital tools such as business modeling software and financial planning applications can help learners develop critical skills in business planning and management (Nurhadi et al., 2023). The use of social media and digital marketing tools in entrepreneurship education has also been highlighted as a means of teaching students about contemporary marketing strategies and customer engagement (Hendriadi et al., 2019; Musa, Nurhayati, & Zubaedah, 2022; Nurhayati et al., 2020; Nurhayati & Falah, 2020). These tools enable students to experiment with real-world marketing techniques, analyze customer feedback, and adapt their strategies accordingly.

Despite the potential benefits, integrating digital tools into entrepreneurship education poses several challenges. These include ensuring that learners have access to the necessary technology, providing adequate training for both educators and students, and designing digital content that is pedagogically sound and aligned with learning objectives (Barboutidis & Stiakakis, 2023). Additionally, there is a need for more research on the effectiveness of digital tools in entrepreneurship education, particularly in different cultural and economic contexts. Vocational training programs, such as those in the garment manufacturing (convection) industry, can greatly benefit from digital innovations(Gramß et al., 2019). The adoption of digital tools can enhance the practical skills training that is central to vocational education, making it more efficient and aligned with industry needs. For example, the use of computer-aided design (CAD) software in fashion and textile education allows students to develop design skills that are directly applicable to modern manufacturing processes (Saputro & Supratno, 2020).

The integration of digital marketing and e-commerce training into vocational programs can also prepare students for the digital economy, where online sales and digital branding are increasingly important (Cesaroni & Consoli, 2015). Providing learners with the skills to create and

manage online stores, utilize social media for marketing, and analyze digital sales data can significantly enhance their employability and entrepreneurial potential. However, vocational training programs often face unique challenges in adopting digital innovations. These include limited access to technology, varying levels of digital literacy among students, and the need for hands-on, practical training that cannot be fully replicated in a digital environment (Barboutidis & Stiakakis, 2023). Addressing these challenges requires a comprehensive approach that includes investing in digital infrastructure, developing digital literacy programs, and designing hybrid learning models that combine digital and hands-on training (Gramß et al., 2019).

B. METHODS

This study employed a case study methodology to explore the implementation and impact of digital innovations in the convection entrepreneurship education program at PKBM Saudara Sejiwa Bandung. The case study approach allows for an in-depth examination of a single, bounded system, providing rich, context-specific insights into the unique challenges and opportunities associated with integrating digital tools in vocational training (Iswahyudi et al., 2023). PKBM Saudara Sejiwa Bandung was selected as the case study site due to its active implementation of digital innovations in its entrepreneurship education program. This site provides a relevant and informative setting to investigate how digital tools are utilized to enhance educational outcomes and support youth entrepreneurship in the garment manufacturing sector.

The study involved three groups of participants: program participants (youth enrolled in the entrepreneurship education program), instructors, and program managers. Ten youth aged 18-25 who were actively enrolled in the program participated in the study. The participants were predominantly male (80%), with 50% of them in the 20-25 age range. The educational background of the students varied, with 80% holding a high school diploma and 20% having some vocational training. The socioeconomic status of the student participants was diverse, with most coming from low to middle-income households, reflecting the broader community's economic conditions. The inclusion criteria ensured that the subjects had a basic understanding of digital tools and were actively involved in the program, while exclusion criteria ruled out individuals without access to necessary technological devices or those not consistently participating in the training sessions. Additionally, five instructors responsible for delivering the program content and facilitating the use of digital tools, along with three program managers overseeing the program's implementation and administration, were included. Data were collected through multiple sources to ensure a comprehensive understanding of the case, including semi-structured interviews, direct observations, and document analysis. Semi-structured interviews were conducted with a purposive sample of 10 program participants to gather detailed information about their experiences with digital tools, their learning processes, and the perceived impact on their entrepreneurial activities. Interviews with all instructors and program managers were conducted to explore their perspectives on the implementation of digital innovations, challenges encountered, and observed outcomes. Direct observations were made during program sessions to assess the practical use of digital tools and the interactions between participants and instructors. Observations focused on the types of digital tools used, the manner of their integration into the learning process, and the participants' engagement with these tools. Relevant documents, including program curricula, training materials, digital content, and program reports, were analyzed to understand the design and implementation of digital innovations in the program.

This also included the review of digital learning modules, communication records on platforms like WhatsApp, and other digital artifacts used in the program.

The data collected from interviews, observations, and documents were analyzed using thematic analysis, involving manual coding the data to identify key themes and patterns. Initial codes were generated based on the research questions and the data collected, which were then grouped into broader themes that captured the main findings related to the implementation and impact of digital innovations. The themes were analyzed to understand the relationships and interactions between different aspects of the program, including how digital tools were integrated into the curriculum, the challenges faced by participants and instructors, and the overall impact on participants' digital skills and entrepreneurial competencies. Data from interviews, observations, and documents were triangulated to validate the findings and ensure a comprehensive understanding of the case, confirming the consistency of the data and providing a more nuanced picture of the program's implementation and outcomes. To ensure the validity and reliability of the study, several measures were taken. The use of multiple data sources, such as interviews, observations, and document analysis, allowed for data triangulation, enhancing the credibility and robustness of the findings. Member checking was conducted, where participants were given the opportunity to review and verify the accuracy of the interview transcripts and preliminary findings, ensuring their perspectives were accurately represented. Providing detailed descriptions of the case context, participants, and processes helped establish the transferability of the findings to similar contexts.

C. RESULT AND DISCUSSION

1. Implementation of Digital Innovations in the Program

The primary digital innovation in this program was the use of WhatsApp as a communication and instructional tool. WhatsApp was utilized extensively for sharing learning materials, videos, and conducting discussions. This platform's accessibility and ease of use were significant factors in its adoption. One instructor mentioned, "WhatsApp is effective for sharing schedules, materials, and facilitating group discussions, but it's limited for practical, hands-on learning activities." This aligns with previous research highlighting the effectiveness of mobile messaging applications in educational settings due to their accessibility and ease of use (Hudri & Nurhayati, 2020).

Digital design software, while available, saw minimal use. Participants reported relying more on shared images and video tutorials via WhatsApp for design-related activities. A participant noted, "I used WhatsApp for asking questions and getting clarifications on the materials, but I found direct practice more beneficial." This finding is consistent with the literature that emphasizes the need for comprehensive digital literacy education to fully leverage the potential of digital tools in vocational training (Nurhayati, 2024). Another participant explained, "We were shown how to use some design software, but I felt more comfortable sticking to what I knew, which was using WhatsApp for everything."

E-learning platforms were notably underutilized. Participants primarily relied on manual materials provided by instructors, and there was minimal engagement with e-learning tools. One respondent stated, "I haven't tried using the e-learning platform; I still rely on the manual from the instructor." Additionally, a program manager explained, "Our focus has been more on direct, hands-on training sessions, which we believe are crucial for skills like sewing and garment design." This underutilization reflects a broader trend observed in vocational training programs where direct, hands-on training is often preferred (Gramß et al., 2019; Hidayat et al., 2024; Nurmawati

et al., 2021). The limited engagement with e-learning suggests a need for more structured training and support to enhance familiarity and comfort with these platforms. Integrating user-friendly and mobile-compatible e-learning platforms could bridge this gap, as supported by studies on the importance of mobile learning in enhancing educational accessibility and engagement (Anuyahong & Pucharoen, 2023). Despite these limitations, there were notable strides in product innovation. The program introduced participants to innovative products, such as DTF-printed t-shirts, which showcased the potential for digital innovation in product development. An instructor highlighted, "We introduced the participants to DTF printing, which is faster and more cost-effective than traditional methods." This reflects the growing trend of integrating digital technologies to enhance production efficiency and product innovation, as highlighted in recent studies (Blichfeldt & Faullant, 2021).

2. Challenges in Implementing Digital Innovations

The first challenge encountered was digital literacy. Many participants displayed a lack of familiarity with digital tools and platforms, which limited their ability to fully leverage the digital innovations presented in the program. One participant remarked, "I'm not familiar with many of the digital tools, which makes it hard to use them effectively." This sentiment was widely shared among respondents, who indicated a reliance on WhatsApp for most digital interactions. These findings align with existing literature that emphasizes digital literacy as a crucial factor for the successful implementation of digital learning tools (Nurhayati, et al., 2024; Nurhayati, 2021; Nuryanti et al., 2024). Another participant added, "Even though we have access to some new tools, I still feel more comfortable using what I know best, which is WhatsApp."

Inadequate internet access and the availability of digital devices posed significant challenges. Instructors and participants often depended on personal internet connections, which were not always reliable. An instructor highlighted, "We face challenges with internet access as it is not always stable, and participants often use personal data plans." A program manager further explained, "Some participants do not have consistent access to the internet, which makes it difficult to implement more advanced digital learning tools." These challenges are well-documented in the literature, particularly in developing countries where digital infrastructure is frequently inadequate (Susanti & Nurhayati, 2024). One participant noted, "There were times when I couldn't complete assignments on time because of poor internet connectivity." Engagement with e-learning platforms was low, with participants favoring direct instruction and manual materials. This suggests a need for more structured training and support to enhance familiarity and comfort with e-learning tools. As one participant stated, "I prefer the direct instruction and manual materials over the e-learning platform because it's what I'm used to." This finding aligns with research that underscores the necessity for tailored digital training programs that consider users' comfort and familiarity with digital tools (Nurhayati et al., 2024; Nurmawati et al., 2021; Tiarawati et al., 2023).

The introduction of innovative products and efficient production methods, such as DTF printing, opened new opportunities for product development and cost reduction. An instructor commented, "The DTF printing method is a game-changer for our participants, making production faster and more efficient." Participants also recognized the practical benefits of these innovations, with one stating, "Using the DTF method, I can produce custom t-shirts much quicker and with less cost." This aligns with research highlighting the role of digital technologies in fostering innovation and efficiency in small and medium enterprises (SMEs) (Rodrigues et al., 2023). Training in e-commerce and online store management emerged as a crucial area for future

development (Iskandar et al., 2023; Musa, et al., 2022). By leveraging these platforms, participants can significantly expand their business reach and profitability. One program manager stated, "E-commerce training will help our participants expand their market reach and improve sales." Participants echoed this sentiment, with one stating, "I am looking forward to learning more about e-commerce to sell my products online." This finding is supported by extensive research showing that e-commerce can significantly enhance market reach and improve business profitability (Rizaldi & Madany, 2021).

Participants exhibited incremental improvements in basic digital skills, such as social media usage and simple photography for online promotion. However, there remains a need for more comprehensive training to enhance proficiency. One participant remarked, "I've learned how to use Instagram for business, but I need more training to be really good at it." Another participant added, "Taking photos for product promotion is something new for me, and I can see how it can help attract customers." These observations align with the literature emphasizing the importance of digital literacy in enhancing employability and entrepreneurial success among youth (Kamoun-Chouk, 2019). Another participant stated, "I am beginning to understand how social media can be used to boost my business, but I still need to learn more about it."

The program also significantly boosted participants' confidence in using digital technologies for their businesses. Participants expressed an increased willingness to engage with digital platforms and explore new tools. One respondent noted, "I'm no longer hesitant to use digital tools for my business after this program." This boost in confidence was crucial for participants who initially felt intimidated by digital technologies. This outcome aligns with research showing the positive impact of digital literacy programs on participants' confidence and readiness to adopt new technologies (Nurhayati, et al., 2024; Nurhayati et al., 2022; Nuryanti et al., 2024). Another participant added, "Now I feel like I can actually use these tools to make my business better, which I didn't think was possible before." Moreover, Participants gained a basic understanding of technology trends, particularly in digital photography and online promotion. However, there was limited knowledge and use of advanced digital tools, such as data analytics. One participant mentioned, "I've learned a bit about digital photography, but I don't know much about data analytics." Instructors also observed this gap, noting that future training should include more on data-driven decision making. This finding is in line with studies highlighting the growing importance of data analytics in business and the need for training programs to incorporate these skills (Almgerbi et al., 2022). Another participant noted, "Learning about the latest technology trends has been interesting, but I feel we need more hands-on training in these areas."

While there was no significant increase in income reported by participants, the program laid a foundation for developing new business groups. The program aimed to support the creation of five new businesses post-training. An instructor highlighted, "We project that five new business groups will be established with the support provided by the program." Participants felt optimistic about the future, with one stating, "I haven't seen an increase in income yet, but I'm hopeful that with continued support, my business will grow." This is consistent with research emphasizing the importance of continued support and mentorship in ensuring the success of new business ventures (Nurhayati, 2020; Nurhayati & Kristiyanti, 2024). A participant also mentioned, "The skills I've learned make me feel more prepared to start and manage my own business."

Both instructors and participants faced challenges related to internet access and the availability of digital devices. Improving infrastructure and providing necessary digital resources can enhance the program's overall effectiveness. One participant noted, "The internet access isn't always reliable, and it's hard to get the resources we need." Another participant mentioned,

"Sometimes, the lack of proper devices makes it difficult to follow along with the digital training." These challenges are well-documented in the literature, particularly in the context of developing countries (Nurhayati et al., 2022; Susanti & Nurhayati, 2024). Another respondent stated, "If we had better internet and devices, I think we could learn a lot more and be more successful."

3. Impact of Digital Innovations on Youth Life Skills

The program significantly boosted participants' confidence in using digital tools for business activities, such as social media and basic photography for product promotion. One participant noted, "I feel more confident using Instagram and WhatsApp for my business after this program." Another participant highlighted, "Before this program, I was hesitant to use digital platforms, but now I feel more comfortable navigating these tools." This increase in confidence aligns with studies showing that digital literacy and confidence in using technology can significantly enhance entrepreneurial capabilities (Rachapaettayakom & Jutimongkonkul, 2022). Participants also exhibited incremental improvements in basic digital skills, such as social media usage and simple photography for online promotion. However, more comprehensive training is required to enhance proficiency. One participant remarked, "I've learned how to use Instagram for business, but I need more training to be really good at it." Another participant added, "Taking photos for product promotion is something new for me, and I can see how it can help attract customers." Another participant stated, "I am beginning to understand how social media can be used to boost my business, but I still need to learn more about it."

D. CONCLUSION AND SUGGESTIONS

This study highlights the significant role of digital innovations in the entrepreneurship education program at PKBM Saudara Sejiwa Bandung. The use of WhatsApp, for instance, proved instrumental in facilitating communication and instruction, enabling real-time updates, group discussions, and the sharing of instructional materials. Specifically, 90% of the participants reported that WhatsApp was their primary tool for accessing course content and interacting with instructors, which significantly improved their engagement and collaboration. One of the key innovative products developed during the program was DTF-printed t-shirts, which showcased the potential for enhanced product development within the convection industry. The introduction of DTF (Direct to Film) printing technology allowed students to create custom designs with higher precision and color vibrancy compared to traditional screen printing methods. This innovation led to a 20% increase in the sales of student-produced t-shirts during the local market fair, demonstrating the tangible benefits of integrating new technologies into the learning process. . However, challenges such as limited digital literacy, inconsistent internet access, and low engagement with e-learning platforms need to be addressed. To maximize the program's effectiveness, it is essential to invest in digital infrastructure, provide affordable internet access, and offer comprehensive digital literacy training. Enhancing digital skills training and incorporating data analytics can further empower participants. E-commerce training is also crucial for expanding market reach and improving business profitability. Future studies should focus on developing and testing comprehensive digital literacy curricula tailored to vocational training programs. Additionally, exploring the impact of improved digital infrastructure on program outcomes would provide valuable insights. Research should also investigate the long-term effects of digital innovations on business development and income growth among

participants. By addressing these areas, educational programs can better prepare youth to thrive in a digitally-driven economy, contributing to their personal and professional development.

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