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Increasing Digital Capacitation of Young Generation in Rural Areas through Technology-Based Entrepreneurship Training

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ABSTRACT

This study addresses the challenge of optimizing digital capacity among rural youth for economic empowerment in Cikawung Village, where limited digital knowledge and skills hinder the exploitation of business opportunities. The research aims to enhance digital capacity and empower rural youth economically through technology-based entrepreneurship training. The methodology includes practical training in online store creation, digital marketing, and business management, along with ongoing support. Expected outcomes encompass improved digital business skills among youth, establishment of youth-led digital enterprises, and increased economic independence in the rural community. The program seeks to foster technology-based entrepreneurship and positively impact rural youth economic empowerment through digital capacity optimization.

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1. INTRODUCTION

The digital era has brought significant changes in various aspects of life, including in the economic and business sectors. The development of information and communication technology (ICT) has created new opportunities for economic growth and community empowerment, especially in rural areas that are often left behind in technology adoption (Salemink et al., 2017). However, the digital divide between urban and rural areas remains a major challenge in optimally utilizing the potential of the digital economy (Philip & Williams, 2019).

Cikawung Village, as a representation of rural areas in Indonesia, faces similar challenges in optimizing its digital economy potential. With the majority of the population working as farmers and agricultural laborers, the village has a great opportunity to utilize digital technology to increase the productivity and added value of their agricultural products. However, the low level of digital knowledge and skills, especially among the younger generation, is a major obstacle in realizing this potential (Kurnia et al., 2018).

The younger generation, especially members of youth organizations, have a strategic role in driving digital transformation in rural areas. As a generation that is more adaptive to technology, they have the potential to become agents of change in developing digital economies in villages (Sujarwoto & Tampubolon, 2016). However, a lack of understanding of digital business opportunities and limited access to technology-based entrepreneurship training are major obstacles for them to optimally contribute to village economic development.

Previous research has shown that technology-based entrepreneurship training can be an effective solution in enhancing the digital capacity and economic empowerment of youth in rural areas (Asongu & Odhiambo, 2019). Through structured and sustainable training, young people can gain the necessary knowledge and skills to utilize digital technology in developing their businesses (Liao et al., 2020).

Based on this background, this study aims to analyze the effectiveness of technology-based entrepreneurship training programs in increasing the digital capacity of young people in Cikawung Village. Specifically, this research will examine:

1. Improved knowledge and skills of the younger generation in utilizing digital technology for business.
2. Change in understanding of digital business opportunities and online marketing strategies.
3. The impact of training on the establishment and development of digital businesses by youth organizations.
4. The contribution of the training program to increasing the economic independence and economy of the village community.

The results of this study are expected to make a significant contribution to the development of digital economic empowerment strategies in rural areas, especially through optimizing the role of the younger generation. In addition, the findings of this research can also serve as a reference for the government and other stakeholders in formulating policies and programs that support digital transformation in rural areas.

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2. METHODOLOGY

This research uses a mixed-method approach, combining quantitative and qualitative methods to gain a comprehensive understanding of the effectiveness of technology-based entrepreneurship training programs in improving the digital capacity of young people in Cikawung Village. This approach was chosen due to its ability to provide rich and in-depth data, as well as allowing data triangulation to increase the validity of the research results (Creswell & Creswell, 2018).

This study adopted an action research design with a participatory approach. This design was chosen for its ability to combine research with practical interventions, as well as actively involving participants in the research process (Reason & Bradbury, 2008). The research process consisted of four main stages: planning, action, observation, and reflection.

The research participants consisted of 50 members of the Cikawung Village youth organization, aged between 18-35 years. The selection of participants was done through purposive sampling technique, with the main criteria: (1) active members of the youth organization, (2) having an interest in digital entrepreneurship, and (3) willing to participate in the entire series of training programs. The number of participants was determined based on considerations of resource availability and the effectiveness of the training program implementation (Etikan et al., 2016).

The research instruments used include:

1. Pre-test and post-test questionnaires to measure changes in participants' digital knowledge and skills.
2. Semi-structured interview guide to explore participants' experiences and perceptions of the training program.
3. Observation sheet to record participants' progress and interactions during the training program.
4. Program evaluation form to assess the effectiveness and relevance of training materials.

The validity and reliability of the research instruments were tested through expert judgment and pilot testing before being used in the main study (Taherdoost, 2016). Data collection was conducted in several stages:

1. Pre-test: Conducted before the training program began to measure the baseline of participants' digital knowledge and skills.
2. Participatory observation: Conducted during the training program to record participants' progress and interactions.
3. Post-test: Conducted after the training program was completed to measure changes in participants' digital knowledge and skills.
4. In-depth interviews: Conducted with 15 selected participants to explore their experiences and perceptions of the training program.
5. Focus Group Discussion (FGD): Conducted with small groups of participants (5-7 people) to discuss the impact of the training program and digital business development plans.

Data analysis used a mixed-method parallel convergent approach, where quantitative and qualitative data were analyzed separately and then combined for interpretation of the results (Creswell & Plano Clark, 2018).

1. Quantitative data analysis: Using descriptive and inferential statistics (paired t-test) to measure changes in participants' digital knowledge and skills before and after the training program.
2. Qualitative data analysis: Using thematic analysis techniques to identify key themes

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from the interviews and FGDs (Braun & Clarke, 2006).

3. Integration of results: The results of the quantitative and qualitative analyses were combined to provide a comprehensive understanding of the effectiveness of the training program and its impact on youth digital capacity.

3. RESULT AND DISCUSSION

3.1 Participant Profile

Of the 50 participants involved in this study, 60% were male and 40% female, with an age range of 18-35 years (M = 24.6, SD = 4.2). The majority of participants (70%) had a high school/vocational school educational background, 20% had a diploma, and 10% had an undergraduate degree. Most participants (80%) had no previous entrepreneurial experience, while 20% had tried running a small business.

Table 1. Participant Statistic

Category	Details
Participants	50 participants
Gender Distribution	60% male, 40% female
Age Range	18-35 years (M = 24.6, SD = 4.2)
Educational Background	70% high school/vocational, 20% diploma, 10% undergraduate
Entrepreneurial Experience	80% no experience, 20% had tried a small business

3.2 Improved Digital Knowledge and Skills

The results of paired t-test analysis showed a significant increase in participants' digital knowledge and skills following the training program ($t(49) = 15.67$, $p < .001$, $d = 2.21$). The mean pre-test score (M = 42.3, SD = 8.7) increased substantially in the post-test (M = 78.6, SD = 10.2). The largest increases were seen in the aspects of understanding e-commerce ($\Delta M = 45.2\%$), digital marketing ($\Delta M = 38.7\%$), and online business management ($\Delta M = 36.9\%$).

Table 2. Digital Knowledge and Skills

Category	Details
Pre-Test Score	M = 42.3, SD = 8.7
Post-Test Score	M = 78.6, SD = 10.2
Paired t-Test Results	$t(49) = 15.67$, $p < .001$, $d = 2.21$
Significant Increase in Knowledge	Yes, indicating a substantial improvement after the training
Largest Knowledge Area Increases	- E-commerce ($\Delta M = 45.2\%$) - Digital Marketing ($\Delta M = 38.7\%$) - Online Business Management ($\Delta M = 36.9\%$)

This finding is in line with the research of Bakhshi et al. (2017) which showed that structured training can effectively improve digital literacy and technology skills among young people. The significant increase in understanding of e-commerce and digital marketing

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reflects the relevance of the training materials to participants' practical needs in developing digital businesses.

3.3 Improved Digital Knowledge and Skills

Thematic analysis of interview and FGD data revealed significant changes in participants' perceptions of digital business opportunities. Before the training, the majority of participants (75%) perceived digital business as "difficult" and "irrelevant" to rural conditions. However, after the training, 90% of participants stated that they saw "great opportunities" in digital business and felt "more confident" to start a technology-based business.

This change in perception was explained by one of the participants:

"Previously I thought online business was only for city people. But after this training, I realized that we in the village can also use technology to sell local products to a wider market." (P7, Interview)

This finding confirms the importance of exposure and education in changing the mindset of young people towards digital economic opportunities, as argued by Mack and Faggian (2013) in their study on digital entrepreneurship in rural areas.

3.4 Digital Business Establishment and Development

Despite the high success rate, participants also reported some key challenges in growing their digital businesses:

1. Inadequate internet infrastructure (70% of participants)
2. Limited start-up capital (60% of participants)
3. Difficulty in building trust with online consumers (50% of participants)
4. Logistical constraints for product delivery (40% of participants)

One participant described this challenge:

"The internet signal in our village is still often unstable. This makes it difficult for us to respond quickly to customer orders or update products regularly." (P12, FGD)

These challenges are in line with the findings of Philip et al. (2017) on structural barriers to digital economy development in rural areas. This suggests the need for a holistic approach that not only focuses on individual capacity building, but also on improving infrastructure and supporting ecosystems.

3.5 Economic and Social Impacts

Quantitative data analysis showed an average income increase of 35% among participants who successfully started a digital business within the first three months. Although still in its early stages, this increase demonstrates the significant potential of digital businesses in improving the economic well-being of young people in villages.

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In addition to economic impacts, the program also has positive social impacts. The results of the thematic analysis revealed:

1. Increased self-confidence and self-efficacy among participants (90% of respondents)
2. Strengthening social cohesion through collaboration in business groups (75% of respondents)
3. Increased interest of the younger generation to stay and contribute to the village (65% of respondents)

One participant stated:

"Before I thought I had to go to the city to get a good job. But now I feel I can build a bright future in my own village through digital business." (P23, Interview)

This finding confirms the argument of Townsend et al. (2013) that digital empowerment can be a catalyst for economic and social revitalization in rural areas.

3.6 Factors Supporting the Success of the Program

Qualitative data analysis identified several key factors that contributed to the success of the program:

1. Practical and results-oriented training approach (hands-on approach)
2. Training materials are contextualized and relevant to local potentials
3. Continuous post-training mentoring
4. Collaboration with local stakeholders (village government, cooperatives, MSMEs) 4.
5. Utilization of technology that suits local infrastructure conditions

One of the training instructors explains:

"We don't just focus on theory, but more hands-on practice. For example, participants directly create online stores and upload their products during the training sessions." (I2, Interview)

This approach is in line with Rae's (2017) recommendation on the importance of experiential learning in entrepreneurship education.

3.7 Implications for Policy Development

The findings of this study have some important implications for policy development:

1. The need to integrate digital entrepreneurship education into the formal education curriculum in rural areas.
2. The urgency of improving digital infrastructure in villages as a prerequisite for digital economy development.
3. The importance of creating a supporting ecosystem involving various stakeholders (government, private sector, academia, community) to support digital entrepreneurship in villages.
4. The need for a long-term mentoring program to ensure the sustainability of digital businesses that have been started.

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As argued by Nambisan (2017), the development of digital entrepreneurship requires a holistic and adaptive policy approach, given the rapid dynamics in the digital technology and business landscape.

4. CONCLUSION

This research demonstrates the effectiveness of technology-based entrepreneurship training programs in enhancing the digital capacity and economic empowerment of youth in rural areas. The main findings show:

1. Significant improvement in participants' digital knowledge and skills, especially in aspects of e-commerce, digital marketing, and online business management.
2. Positive changes in young people's perceptions of digital business opportunities in rural areas.
3. High success rate in establishing new digital businesses by participants in a relatively short time post-training.
4. Positive impact on income generation and social empowerment of village youth.

Nonetheless, the study also identified some key challenges, mainly related to digital infrastructure and access to capital, that need to be addressed to optimize the potential of the digital economy in rural areas.

The implications of this study emphasize the importance of a comprehensive approach to digital empowerment of rural youth, which includes not only individual capacity building, but also infrastructure improvement and the creation of a supporting ecosystem. The integration of digital entrepreneurship education into the formal and non-formal education system in villages, as well as multi-stakeholder collaboration, are key in realizing inclusive digital transformation in rural areas.

For future research, it is recommended to conduct a longitudinal study to evaluate the sustainability of digital businesses that have been started, as well as analyze the long-term impact on the economic and social structure of the village. In addition, comparisons with other rural areas that have different characteristics can provide a more comprehensive understanding of the factors that influence the success of digital empowerment programs in rural areas.

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