Financial and Economic Risk in Developing Markets
Volume 3, Number 1, 2024

Students and the Digital Creative Economy in the Era of Industry 4.0/5.0

Muhammad Fuad Riyadi[1]

[1] Universitas Sarjanawiyata Tamansiswa, Yogyakarta, Indonesia

Abstract

Article history:
Received: January 10, 2024
Revised: February 23, 2024
Accepted: April 10, 2024
Published: June 30, 2024

Keywords:
Creative Economy,
Digital Entrepreneurship,
Higher Education,
Industry 4.0,
Students.

Identifier:
Zera Open
Page: 1-18
https://zeraopen.com/journal/ferdm

This study aims to analyze the role of university students in the digital creative economy within the context of Industry 4.0 and 5.0 using a descriptive qualitative approach. The research focuses on how digital natives, particularly students, actively contribute to innovation, technology adoption, and the development of creative business opportunities. Findings indicate that students possess significant potential as drivers of the creative economy through the utilization of social media, e-commerce platforms, and other digital tools that enable global market access. Higher education institutions play a crucial role by transforming into Education 4.0 and University 3.0 models, providing innovation ecosystems such as business incubators, entrepreneurship training, and international collaborations. However, students continue to face challenges including limited capital, uneven digital literacy, and intense competition in the digital marketplace. With government support, cross-sector collaboration, and continuous research and product development, students can maximize their contribution to sustainable growth in the digital creative economy. The study contributes theoretically by enriching the literature on student involvement in creative entrepreneurship, while also offering practical recommendations for strengthening digital entrepreneurship strategies both in Indonesia and globally.

1. Introduction

The development of the digital era marked by the industrial revolution 4.0 to 5.0 has brought fundamental changes to almost all aspects of human life, including business and entrepreneurial models. The accelerating digital transformation not only impacts the large industrial sector, but also provides new opportunities for individuals, especially the younger generation and students, to play an active role in the economy. Digitalization has changed the global economic landscape through massive internet penetration, an increasing number of social media users, and the development of e-commerce platforms that are increasingly shifting people's consumption patterns. In Indonesia itself, the contribution of the creative economy to the Gross Domestic Product (GDP) continues to increase along with the widespread use of information technology as a basis for innovation and development of products and services (Lestariningsih et al., 2019). The creative economy, in general, is defined as an economic activity that is based on creativity, ideas, and innovation in generating added value. In the digital era, this sector is growing rapidly because it is supported by information technology that allows the production, promotion, and distribution process to be carried out more efficiently and reach the global market.

Digitalization has expanded the creative economy ecosystem, including digital music, creative content, graphic design, applications, and e-commerce. This shows that there is a close correlation between innovation, digitalization, and the development of the creative economy which plays an important role in increasing the nation's competitiveness. In this context, students have a strategic position as a

digital native generation, namely those who were born and grew up with the development of digital technology. Generation Z and millennials, the majority of whom are in college, are the most active internet users. This makes students important actors in utilizing digital technology for ideas, production, promotion, and distribution of creative products. Several studies confirm that student involvement in digital entrepreneurship activities not only increases creativity, but also provides practical experience in facing real challenges in the digital business world (Rawat & Maulidditya, 2022). The role of students in the creative economy is even more evident when they are able to combine technological literacy with business innovation. Recent studies emphasize that higher education needs to encourage students to engage in creative digital projects to be ready to face the needs of industry 4.0 and 5.0. Through digital-based curriculum and training, students can develop entrepreneurial capacity while responding to global demands.

However, these great opportunities are inseparable from various challenges. The increasingly fierce competition in the digital market requires students to continue to adapt to technological developments. In addition, limited capital, network, and digital literacy are real obstacles for students to develop their creative businesses. The issue of data security, privacy, and intellectual property rights is also an issue that must be anticipated in the development of the digital economy (Nowak, 2020). Creative business opportunities in the digital era are very diverse, ranging from application development, e-commerce, digital content, dropshipping, to gaming. Wider market access through digital platforms provides opportunities for students to reach consumers both at the national and global levels. Studies on

student innovation strategies show that the use of digital technology is able to increase competitive advantage, especially in the context of digital-based creative industries (Fahmi et al., 2023).

Government support through creative economy policies and digital transformation is also an important factor. Digital MSME programs, strengthening financial literacy, and incentives for young entrepreneurs are one of the strategies in increasing student competitiveness in the digital economy. Other relevant development strategies include cross-sector collaboration, human resource capacity building, the use of digital marketing, to research and development of creative products (Lukita et al., 2023). Although many studies have discussed digital MSMEs and the creative economy in general, studies that specifically highlight the role of students as the main actors in this ecosystem are still relatively limited. This research gap emphasizes the urgency of this study to make a contribution both theoretically, namely enriching the literature on student involvement in the digital creative economy, and practically by providing recommendations for relevant development strategies. Thus, this research has a strong relevance to the context of Indonesia's digital economy as well as in the increasingly digitized global landscape.

2. Literature Review

2.1. Development of the Creative Economy in the Digital Era

The creative economy is one of the fastest-growing sectors in the digital era, especially since the emergence of the industrial revolution 4.0 and continues to the concept of society 5.0. This transformation is characterized by the digitalization of

almost all aspects of life, including business, education, and entertainment. The development of digital technology allows for a convergence between creativity, ideas, and technology that produces innovations of economic value. New digital-based business models, such as e-commerce, apps, and social media content, are becoming tangible evidence of the expansion of the creative economy that not only changes consumption patterns, but also expands employment and entrepreneurial opportunities (Rof et al., 2020).

In the global context, universities and higher education institutions play an important role in building a creative economy ecosystem. This is in line with the spillover approach phenomenon that connects university activities with student creative entrepreneurship. The process of transferring knowledge, research, and innovation from campus to the market creates opportunities for the younger generation to develop digital-based businesses (Lazzaro, 2021). In addition, increasing internet access around the world has accelerated the integration of students in the digital economy ecosystem. Not only in developed countries, but also in developing countries, students are increasingly involved in digital creative businesses as part of their strategies to deal with economic disruption. Therefore, the development of the creative economy in the digital era can be seen as a strategic instrument for sustainable development as well as a forum for students to contribute to national and global economic growth.

2.2. The Role of Students as Creative Economy Agents

Students are in a strategic position in the development of the creative economy, because they are digital natives who grow with technology. As the most

adaptive generation, students are able to utilize digital technology not only for information consumption, but also to create economic value through product and service innovation. Research shows that student involvement in digital entrepreneurship activities has a significant impact on creativity, practical experience, and global competitiveness (Weng et al., 2022). Activities such as digital content development, mobile applications, and e-commerce-based brands show the active role of students as creative economy agents.

In addition, universities act as catalysts that support the birth of creative entrepreneurs from students. Through the digital entrepreneurship curriculum, business incubator programs, and access to industry networks, students can develop ideas into real businesses that are competitive in the digital market. This can be seen in Malaysia's experience of building a digital entrepreneurship ecosystem through universities, where students are encouraged to create technology-based businesses with government and university support (Adam et al., 2023). The role of students is no longer limited to technology consumers, but also producers of creative innovations that contribute to the growth of the digital economy. Thus, students can be seen as the main driving force that bridges digital transformation with the strengthening of the creative economy sector in the era of globalization.

2.3. Opportunities and Challenges in the Student Creative Economy

The digital era provides great opportunities for students to engage in the creative economy, ranging from digital content businesses, gaming, applications, to e-commerce-based dropshipping models. Increasingly open market access through global platforms expands students' opportunities to reach consumers across

countries without geographical barriers. In addition, the increase in digital literacy and government policy support for the creative economy also increase the potential of students in developing competitive businesses. Research confirms that the development of human capital through higher education is an important factor in building student competitiveness in the digital realm (Zaborovskaia et al., 2020).

However, behind these opportunities, students also face great challenges. Competition in the digital market is getting tighter with the number of creative business actors. Limited capital, access to the market, and low digital literacy among some students are real obstacles. In addition, issues of data security, privacy protection, and intellectual property rights are often obstacles that need to be anticipated. Therefore, the success of students in optimizing creative economy opportunities is highly dependent on sustainable adaptation strategies, collaboration, and innovation (Shu et al., 2020). Universities are required to provide more support, for example through creative business incubation programs and digital marketing training. With this support, students are not only able to face challenges, but also turn them into opportunities that encourage sustainable creative economy growth.

3. Methods

This research uses a qualitative descriptive method that aims to describe and understand the phenomenon of student involvement in the creative economy in the digital era in depth. This method was chosen because it is suitable for analyzing the social, cultural, and student adaptation strategies to existing opportunities and challenges. The qualitative approach allows researchers to explore the meaning

behind student behavior in developing a digital creative business, rather than just measuring variables quantitatively. The research data is sourced from relevant academic literature studies, government policy reports related to the creative economy, and the results of observations of actual phenomena among students. The literature used includes research on the role of students in the digital economy, higher education transformation, and creative entrepreneurial strategies in the industrial era 4.0 and 5.0. These sources are selected to ensure that the data used is up-to-date and relevant to the context of the research.

Data analysis is carried out through an interpretation process with an emphasis on an in-depth understanding of the phenomenon. For example, how students use social media for branding, how they use the marketplace for product distribution, and strategies used to deal with capital limitations. This approach allows researchers to provide a complete picture of the dynamics of the student creative economy, both in terms of opportunities and challenges. To maintain the validity of the data, this study applied source triangulation. That is, information from various academic literature is compared with policy reports and real practices that occur in the field. This triangulation is important to minimize bias and ensure the validity of research findings. In this way, the results of the research not only provide a description, but are also able to produce a comprehensive interpretation of the phenomenon of the student's creative economy.

In addition, qualitative descriptive methods were also chosen because of their flexibility in explaining the ever-evolving phenomenon. The creative economy in the digital era is dynamic, so this method provides room for researchers to adapt their

analysis to the latest developments in the field. The research focuses not only on economic aspects, but also on the social, technological, and educational dimensions that affect student involvement in creative business. Thus, the use of qualitative descriptive methods in this study aims to explore a deep understanding of how students play a role as the main actors in the creative economy of the digital era, how they take advantage of opportunities, and how they face challenges in the midst of rapid technological change.

4. Results

The role of students in the digital creative economy is increasingly prominent along with the development of the industrial revolution 4.0 and the transition to the society 5.0 era. The findings of the study show that students are not only passive consumers of technology, but also active actors who are able to create digital-based innovations. As a digital native generation, they are used to the use of the internet, social media, and technology-based applications from an early age, so they can adapt more quickly to emerging creative business opportunities. The digital transformation that has occurred in recent years provides space for students to develop innovation-based products and services, both in the form of digital content, applications, and e-commerce-based businesses. The existence of high-speed internet, Internet of Things (IoT), and big data accelerates the innovation process while expanding market access that was previously difficult to reach (Serrano et al., 2023).

One of the main findings is the increasing involvement of students in developing social media-based digital creative businesses. Platforms such as

Instagram, TikTok, and YouTube are the main platforms for students to brand products and services. Through digital marketing strategies, students utilize social media algorithms to expand consumer reach. This approach has proven to be effective because of its relatively low cost compared to conventional media, as well as its ability to reach cross-regional and even global markets. Research in Ukraine shows that the implementation of the Education 4.0 model that focuses on creativity, technology, and collaboration has helped students develop digital entrepreneurial skills, including in promotion and distribution strategies (Kovaliuk & Kobets, 2021). Thus, social media is not only a means of communication, but also a creative economy instrument that allows students to build a professional brand identity.

Other findings show that students' opportunities in the creative economy are not limited to the local market, but also global. Digitalization opens up wider access to various international e-commerce platforms such as Shopee, Tokopedia, Lazada, and Amazon. Some students even take advantage of the dropshipping model to start a business with limited capital but a wide market reach. The success of students in penetrating the international market is also supported by their ability to utilize digital payment and logistics integration which is increasingly growing. Recent research underscores the importance of technology-based innovation in higher education to create an environment that supports students in designing creative products that are able to compete globally (Tan et al., 2021). With the support of an international innovation ecosystem, students can expand their networks while accessing cross-border business opportunities.

Higher education plays an important role in encouraging student participation in the creative economy sector. The findings show that universities that adopt the University 3.0 model have succeeded in creating a more conducive digital entrepreneurship ecosystem. This model emphasizes not only the university's function as a place of teaching and research, but also as a center for entrepreneurial development. This proves that universities are not only educational institutions, but also incubators for the growth of students' creative economy. In addition to the role of universities, government policies are also a determining factor. A recent study in India shows that the National Education Policy 2020 (NEP-2020) provides a huge boost for students to develop creativity and entrepreneurial skills. This policy emphasizes the integration of digital technology in higher education and encourages students to engage in digital-based business innovation. With supportive regulations, students have a greater opportunity to actively participate in the creative economy while strengthening the nation's competitiveness in the digital era.

The contribution of students to the creative economy is also evident in the context of Southeast Asia. In Malaysia, universities and the government have succeeded in creating a digital entrepreneurship ecosystem that functions as a solution to the high unemployment rate after the pandemic. Through mentoring programs, training, and access to industry networks, students are able to establish digital-based businesses on a varied scale (Adam et al., 2023). The same thing also happens in Indonesia, where efforts to strengthen human capital through the role of universities have been proven to increase students' capacity to contribute to the development of the national creative economy (Bakhri & Layaman, 2023). These

two cases show that the combination of government policies and university support has a great influence on the success of students in the creative economy sector.

Despite the huge opportunities available, the challenges faced by students remain significant. The findings show that capital constraints are one of the main obstacles. Many students have creative ideas but are constrained by funds to realize them. In addition, uneven digital literacy is also a problem, especially for students in areas with limited access to technology. Another challenge is the fierce competition in the digital market that requires students to continue to innovate to stay relevant. In this context, students' internal intentions and motivations prove to be decisive factors. Recent research has found that students with strong intentions towards digital entrepreneurship are more likely to successfully develop sustainable creative ventures, especially within the framework of industry 5.0 that emphasizes human collaboration with smart technologies (Nagadeepa et al., 2023). This shows that in addition to external support, psychological aspects and individual commitment are also very important in student success.

Several case studies show the success of students in taking advantage of digital creative economy opportunities. For example, students who start an e-commerce-based fashion business manage to increase their sales through innovative digital marketing strategies. There are also students who develop mobile applications for local needs, such as food delivery services or digital education platforms, which then receive investment support from campus incubators. This study corroborates the findings that students have the potential to become creative entrepreneurs who not only focus on profits, but also on social solutions that benefit society. Research and

development support on campus is a key factor in strengthening student innovation so that it can transform into a sustainable business.

Overall, the results of this study show that students have an increasingly important role in the digital creative economy ecosystem. With the support of the education ecosystem, government policies, and internal motivation, students are able to optimize digitalization opportunities to create business innovations. However, this success is inseparable from the challenges that must be faced, ranging from limited capital, low digital literacy, to tight competition. Therefore, a collaborative strategy between students, universities, the government, and the industrial sector is a solution to strengthen students' contributions in the development of a sustainable creative economy. With this condition, students can be seen not only as passive participants in digital transformation, but as the main driving force that brings significant changes in the national and global economy.

5. Discussion

The results of the research that have been presented show that students have a strategic position in the digital creative economy ecosystem. However, to understand this phenomenon more deeply, it is necessary to have a discussion that highlights the relationship between the research results and previous theories, global relevance, and implementation challenges. First, student involvement in the digital creative economy can be seen as a logical consequence of the transformation of higher education towards Education 4.0. Universities began to function not only as a center of science, but also as a driver of innovation and entrepreneurship. This is

in line with the results of research showing that the integration of digital technology in the education ecosystem encourages students to be more active in developing creative businesses (Kovaliuk & Kobets, 2021). In other words, universities no longer only produce graduates as a workforce, but also as entrepreneurs who are able to adapt to industrial disruptions. This model is in line with the concept of University 3.0, where the university's functions are expanded to become centers for innovation, applied research, and the creation of digital startups.

Second, the research findings also show that good ecosystem support such as business incubators, access to funding, and industrial networks play a major role in the success of students as creative economy actors. This is consistent with the literature that emphasizes the importance of innovation models in building digital entrepreneurship in the university environment. International projects that connect students across countries, for example, not only strengthen collaboration skills, but also increase the global competitiveness of the creative products produced (Tan et al., 2021). Thus, the results of this study strengthen the view that student involvement in the creative economy cannot be separated from the structural support that exists in the higher education environment and government policies.

Third, even though the opportunities are huge, the challenges faced by students are still significant. Fierce competition in the digital market and limited resources are the main obstacles. However, the internal motivation of students, including entrepreneurial intentions, is no less important factor in encouraging success. Research shows that students with strong intentions for digital entrepreneurship are more likely to succeed in developing sustainable creative

businesses (Serrano et al., 2023). This discussion shows that internal factors (intention, motivation, creativity) must go hand in hand with external factors (ecosystem support, policies, infrastructure).

Thus, the results of this study confirm that students are not only part of the consumers of the digital economy, but also the main producers and innovators. However, this contribution can only be maximized if there is synergy between higher education, government policies, and the industrial sector. The relevance of this research is also global, because the phenomenon of student involvement in the digital creative economy occurs in various countries with similar patterns even though the policy and infrastructure contexts are different. Therefore, further research is needed to explore regional differences in supporting the role of students as key actors in the digital age creative economy.

6. Conclusion

This research confirms that students have a vital role in the development of the creative economy in the digital era. As a digital native generation, students are able to utilize technology to create innovation, build creative businesses, and expand market access to the global realm. Their role is not only as digital consumers, but also as producers as well as main actors in facing the challenges and opportunities of the industrial revolution 4.0 and 5.0. The results show that student engagement is greatly influenced by internal factors, such as intention, motivation, and creativity, as well as external factors, such as education ecosystem support, government policies, and digital infrastructure. Universities with the Education 4.0 and University

3.0 models have proven to be able to be catalysts that support students in developing creative businesses. Support in the form of incubation programs, access to funding, digital literacy training, and international collaboration strengthen students' capacity to compete in the global market.

However, challenges remain, such as limited capital, uneven digital literacy, and fierce competition in the digital market. Therefore, a sustainable adaptation strategy, cross-sector collaboration, and creative product research and development are key to ensuring that students can continue to contribute to the creative economy ecosystem. Theoretically, this research contributes by enriching the literature on the role of students in the digital creative economy, which is still relatively limited compared to the study of MSMEs. Practically, this study provides recommendations for development strategies based on collaboration and ecosystem support that can be applied both in Indonesia and globally. With the synergy between higher education, government, and industry, students can be the main driving force in creating sustainable creative economic growth in the digital era.

References

Adam, S., Fuzi, N. M., & Rozan, M. Z. A. (2023). Empowering the Digital Entrepreneurship Ecosystem in Malaysian Higher Education Institution (HEI) Towards Developing Income Generation. In *Finance, Accounting and Law in the Digital Age: The Impact of Technology and Innovation in the Financial Services Sector*. Cham: Springer International Publishing, 13-21.

Bakhri, S., & Layaman, L. (2023). Model of Strengthening Human Capital in Creative Economic Development Through The Role of Higher Education. *Al-Mustashfa: Jurnal Penelitian Hukum Ekonomi Syariah*, *8*(2), 215-227.

Fahmi, F. Z., Krismiyaningsih, E., Sagala, S. A. H., & Rustiadi, S. (2023). Creative industries and disaster resilience: A focus on arts-and culture-based industries in Indonesia. *International Journal of Disaster Risk Reduction*, *99*, 104136.

Kovaliuk, T., & Kobets, N. (2021, September). The Concept of an Innovative Educational Ecosystem of Ukraine in the Context of the Approach" Education 4.0 for Industry 4.0". In *ICTERI*, 106-120.

Lazzaro, E. (2021). Linking The Creative Economy With Universities' Entrepreneurship: A Spillover Approach. *Sustainability*, *13*(3), 1078.

Lestariningsih, E., Maharani, K., & Lestari, T. K. (2019). Measuring creative economy in Indonesia: Issues and challenges in data collection. *Asia-Pacific Sustainable Development Journal*, *2018*(2), 99-117.

Lukita, C., Hardini, M., Pranata, S., Julianingsih, D., & Santoso, N. P. L. (2023). Transformation of entrepreneurship and digital technology students in the era of revolution 4.0. *Aptisi Transactions on Technopreneurship (ATT)*, *5*(3), 291-304.

Nagadeepa, C., Mukthar, K. J., Asnate-Salazar, E., Castillo-Picon, J., Méndez, R. Y., & Mory-Guarnizo, S. (2023). Students intention towards digital entrepreneurship–Industry 5.0. In *The International Conference On Global Economic Revolutions*. Cham: Springer Nature Switzerland, 233-249.

Nowak, H. (2020). Education for entrepreneurship during Industrial Revolution 4.0: Opportunities and challenges. *Przedsiębiorczość-Edukacja*, *16*(1), 74-84.

Rawat, B., & Maulidditya, D. (2022). Entrepreneurship in information technology as a method for improving student creativity in the digital economy. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, *4*(1), 32-37.

Rof, A., Bikfalvi, A., & Marquès, P. (2020). Digital transformation for business model innovation in higher education: Overcoming the tensions. *Sustainability*, *12*(12), 4980.

Serrano, D. R., Fraguas-Sánchez, A. I., González-Burgos, E., Martín, P., Llorente, C., & Lalatsa, A. (2023). Women as Industry 4.0. entrepreneurs: unlocking the potential of entrepreneurship in Higher Education in STEM-related fields. *Journal of Innovation and Entrepreneurship*, *12*(1), 78.

Tan, S. C., Chan, C., Bielaczyc, K., Ma, L., Scardamalia, M., & Bereiter, C. (2021). Knowledge building: Aligning education with needs for knowledge creation in the digital age. *Educational Technology Research and Development*, *69*(4), 2243-2266.

Weng, X., Chiu, T. K., & Tsang, C. C. (2022). Promoting student creativity and entrepreneurship through real-world problem-based maker education. *Thinking Skills and Creativity*, *45*, 101046.

Zaborovskaia, O., Nadezhina, O., & Avduevskaya, E. (2020). The impact of digitalization on the formation of human capital at the regional level. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 184.