Building an Adaptive Entrepreneurial Mindset: The Role of Dropshipping and Affiliate Marketing in Industry 4.0 Education

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Abstract

The development of Industry 4.0 demands the emergence of an entrepreneurial mindset that is adaptive, responsive, and able to transform according to the dynamics of digital technology. This study aims to analyze how dropshipping and affiliate marketing act as digital business models that can shape a modern entrepreneurial mindset among students. Using a descriptive-qualitative approach, this study explores the perceptions, experiences, and changes in students' mindsets after engaging in platform-based digital entrepreneurship activities. The results show that dropshipping and affiliate marketing not only provide access to low-capital capital for aspiring entrepreneurs but also improve digital literacy, problem-solving skills, and innovative orientation as core competencies of entrepreneurship in the Industry 4.0 era. In addition, both business models strengthen the courage to take risks, the ability to identify market opportunities, and adapt to the platform's algorithmic mechanisms. This study concludes that integrating dropshipping and affiliate marketing practices in entrepreneurship education can be an effective strategy for building a generation of entrepreneurs who are more flexible, creative, and competitive in facing the challenges of digital transformation.

Keywords: Entrepreneurial Mindset, Dropshipping, Affiliate Marketing, Entrepreneurship Education, Industry 4.0, Digital Entrepreneurship, Digital Literacy.

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Introduction

The development of digital technology has become a major foundation in modern human life, as emphasized by Aprillinda (2019) who stated that technology now forms the basis of social, economic, and educational activities. This transformation is further strengthened by the arrival of the Industrial Revolution 4.0, which according to Schwab (2016) is characterized by the integration of cyber-physical systems, automation, and seamless connectivity. In Indonesia, the challenges and opportunities of Industry 4.0 have been clearly identified by the Directorate General of Human Resources Development (DITPSD) (2021), especially in the context of digital disruption that demands increased adaptive competencies in the field of education, including entrepreneurship education. In this era, the business world is experiencing fundamental changes, where digital business models such as dropshipping and affiliate marketing have emerged as new forms of entrepreneurial practices that are more flexible, low-capital, and highly dependent on digital platforms.

This situation creates an urgent need to develop an adaptive entrepreneurial mindset, especially among the younger generation and students. Dweck (2006) stated that a growth mindset is key for individuals in facing change and challenges, as it encourages a readiness to learn, adapt, and innovate. In the context of digital entrepreneurship, this view aligns with Nambisan's (2017) concept, which emphasizes that digital-era entrepreneurs must be able to understand technology, create value through platforms, and strategically utilize digital ecosystems. Thus, developing an entrepreneurial mindset is no longer solely oriented toward traditional managerial skills, but also toward flexibility, technological creativity, and the courage to take risks in the digital space.

Entrepreneurship education plays a crucial role in fostering this mindset. Various studies have demonstrated the effectiveness of entrepreneurship education in shaping entrepreneurial attitudes and intentions, as outlined by Fayolle & Gailly (2015), Souitaris et al. (2007), and Nabi et al. (2017). Furthermore, Rae (2010) and Kolb (1984) emphasize the importance of experiential learning, particularly in addressing digital technology challenges. This finding is reinforced by Bailey (2021), who found that student engagement in online platforms significantly increases motivation and digital entrepreneurial competency. Kim & Peterson (2020) also found that practical training in digital environments strengthens adaptability, data utilization, and understanding of platform ecosystems.

In the Indonesian context, several studies also emphasize the urgency of improving adaptive competencies in the face of socio-economic change. Indrawan (2017; 2021) demonstrated that work ethic, motivation, and a conducive environment impact individual performance and readiness to face change. Other research by Indrawan, Pramono & Nasution (2020), and Rahayu et al. (2020) demonstrates that organizational and societal dynamics demand continuous innovation, which is also relevant to the world of digital entrepreneurship. Furthermore, within a socio-cultural context, a study by Ritonga, Indrawan & Sari (2022) emphasized the importance of understanding people's behavioral patterns and interests in exploiting digital-based opportunities, which also influence the success of dropshipping and affiliate marketing business models.

Furthermore, an understanding of flexible business structures and partnership patterns, as discussed by Aspan, Indrawan, & Wahyuni (2021) in the context of commanditaire vennootschap, illustrates that modern forms of cooperation require a balance of authority, collaboration, and adaptation—competencies that are also relevant in commission-based digital partnerships. This demonstrates that the business world as a whole is increasingly moving toward a dynamic and participatory model, making an adaptive entrepreneurial mindset a primary need.

Based on this background, this study aims to analyze how dropshipping and affiliate marketing contribute to building an adaptive entrepreneurial mindset in the Industry 4.0 era.

This study also explores how these two digital business models can support more practical, innovative, and relevant entrepreneurship learning to meet the needs of digital transformation, thereby preparing the younger generation to face the demands of a technology-based economy and Society 5.0 (Zulkarnain, 2020). Thus, this study seeks to provide academic and practical contributions in integrating digital entrepreneurship into the modern education ecosystem.

Literature Review

2.1 Entrepreneurial Mindset in the Digital Economy

It refers to a mindset that enables individuals to see opportunities, respond to change, and manage risk in a technology-based business environment. The growth mindset concept (Dweck, 2016) emphasizes the ability to view challenges as learning opportunities, while entrepreneurship literature emphasizes the importance of flexibility, creativity, and an innovative orientation (Shane, 2018; Kuratko, 2020). Adaptability is key as digital technology drives the disruption of traditional business models and the emergence of platform-based entrepreneurship.

In the rapidly changing digital economy, an entrepreneurial mindset is not only about the courage to take risks but also the ability to leverage the digital ecosystem. Students with an adaptive mindset are able to use analytical tools, social media algorithms, and consumer behavior data to develop effective marketing strategies (Sutanto & Wijaya, 2021). Experiential, trial-and-error learning processes, along with exposure to technological environments, have been shown to foster a progressive and innovative mindset through real-life business practices in marketplaces and social media (Khairunnisa, 2022).

A digital entrepreneurial mindset must also be anticipatory, able to predict trends and prepare strategies before changes occur (Nambisan, 2017). Key characteristics include mental toughness, digital literacy, the ability to innovate, and collaboration within the digital ecosystem. Thus, an adaptive entrepreneurial mindset is a crucial foundation for students in implementing digital business models such as dropshipping and affiliate marketing, supporting their readiness to face the challenges and opportunities of the global economy in the Industry 4.0 era.

2.2 Dropshipping as an Adaptive Digital Business Model

Dropshipping is a flexible, low-cost, and adaptable digital business model that adapts to market changes, enabling businesses to sell products without holding inventory or handling direct shipping (Nambisan, 2017). This model aligns with Industry 4.0 because it emphasizes efficiency, automation, and the use of digital technology, while also providing global access through e-commerce platforms. Dropshipping's adaptability is evident in the ability to replace products, adjust niches, and adapt marketing strategies based on consumer data. Students involved learn to utilize platform analytics and algorithms for decision-making (Bailey, 2021).

Furthermore, dropshipping provides a practical learning environment for students with limited capital, enabling them to experiment with marketing strategies, build brands, and understand competitive dynamics without significant financial risk. The experiential learning approach (Kolb, 1984; Rae, 2010) is relevant here, as students gain hands-on experience in market research, supplier communication, and customer service, while building adaptive capacity and flexibility in decision-making. Advanced technologies such as AI, big data, and automation further enhance the effectiveness of this model in efficiently managing hundreds of products (DITPSD, 2021).

Dropshipping also requires adequate digital literacy, including online store management, marketplace application integration, digital payment systems, and algorithm-based content strategies (Indrawan, 2017; 2021). In entrepreneurship education, this model serves as a pedagogical tool that combines real-world business practices with learning, enhancing students'

motivation, intention, and innovative mindset (Fayolle & Gailly, 2015; Souitaris et al., 2007; Nabi et al., 2017). Thus, dropshipping is a strategic, adaptive business model for developing a digital entrepreneurial mindset and connecting educational theory with entrepreneurial practice in the Industry 4.0 era.

2.3   Entrepreneurship Education in the Industry 4.0 Ecosystem

Entrepreneurship education in the Industry 4.0 era is undergoing a transformation as the emergence of digital technology changes the way we learn, do business, and interact in the global economy. The focus of education now lies not only on business theory and managerial skills, but also on developing digital competencies, technological adaptability, and innovative mindsets that enable students to navigate complex market dynamics (Schwab, 2016). A curriculum that is responsive to technological developments is key to preparing students to face the challenges of the digital economy.

Literature shows that an experiential learning approach is crucial in modern entrepreneurship education. Students learn through direct experience, reflection, and practice, such as managing an online store, running a dropshipping business, affiliate marketing, or utilizing digital applications to validate business ideas (Kolb, 1984; Rae, 2010). This approach has been shown to enhance innovative mindsets, adaptive capacity, learning motivation, and entrepreneurial intentions, especially when the curriculum provides authentic experiences, inspiration, and access to technology (Fayolle & Gailly, 2015; Souitaris et al., 2007; Bailey, 2021).

Furthermore, digital literacy is a core competency that supports the success of digital entrepreneurship. Students need to master platform usage, market data analysis, digital marketing strategies, and cybersecurity practices (Aprillinda, 2019; Kim & Peterson, 2020). Entrepreneurship education integrated with digital business practices, institutional, industry, and community collaboration, can produce graduates who are adaptive, creative, and ready to face technological disruption. Activities such as dropshipping and affiliate marketing not only train technical skills but also build perseverance, time management, and negotiation skills—critical foundations for future entrepreneurs (Indrawan, 2017; 2021; DITPSD, 2021).

2.4   Affiliate Marketing as a Digital Entrepreneurship Strategy

Affiliate marketing is a digital marketing strategy in which an individual, or affiliate, promotes another party's products or services and earns a commission for each successful sale or action (Hall & Li, 2020; Chaffey, 2020). This model allows students to learn digital marketing, content creation, social media usage, and campaign performance analysis firsthand. A study by Bailey (2021) showed that students involved in affiliate marketing develop technical skills, technological adaptability, and a creative mindset, enhancing their readiness to run a digital business. Furthermore, affiliate marketing raises students' awareness of the importance of data-driven marketing strategies and content optimization, essential skills in modern entrepreneurship education.

Research Methodology

This research methodology is designed to deeply understand how an adaptive entrepreneurial mindset is formed through dropshipping and affiliate marketing practices in the context of Industry 4.0 Education. The methodological approach focuses on exploring student experiences, the dynamics of digital learning, and the factors influencing the success of platform-based business models in academic environments and the digital economy. Therefore, this study uses an approach that allows researchers to gain a comprehensive understanding of contemporary technology and entrepreneurship phenomena.

3.1 Research Approach

This study uses a qualitative-descriptive approach with an exploratory orientation to understand the process of developing an adaptive entrepreneurial mindset in college students. The qualitative approach was chosen because it allows researchers to explore subjective experiences, adaptation strategies, and learning patterns that emerge from digital entrepreneurial activities such as dropshipping and affiliate marketing. The descriptive design allows researchers to present a comprehensive picture of how students utilize technology, build digital literacy, and respond to market dynamics in the Industry 4.0 era. The focus of this approach aligns with the research objective of understanding phenomena in depth, rather than statistically testing causal relationships.

3.2 Research Location and Subjects

This research was conducted in a university environment that implements a digital-based entrepreneurship curriculum, focusing on students in study programs who have taken entrepreneurship courses or are actively involved in digital business practices. The research subjects consisted of students who run dropshipping and affiliate marketing business models as part of their learning or personal initiatives. This location was chosen based on the consideration that the campus is an ideal space for developing digital entrepreneurial competencies, as well as a place for technology-based learning processes that align with the demands of Industry 4.0. The involvement of students who are directly involved in digital businesses provides rich empirical data to understand the adaptability of the entrepreneurial mindset and the practical application of digital literacy.

3.3 Data Collection Techniques

Data were collected through several complementary qualitative techniques. The primary method used was in-depth interviews to explore students' experiences, adaptation strategies, entrepreneurial motivations, and the challenges they face in running dropshipping and affiliate marketing. Furthermore, participant observation was conducted to understand digital platform usage practices, marketplace interaction patterns, and business decision-making processes. Researchers also utilized digital documentation, such as online store screenshots, transaction history, and marketing content, to obtain a realistic picture of digital entrepreneurship practices. Triangulation techniques were used to enhance data validity by combining interviews, observation, and documentation.

3.4 Data Analysis Methods

Data analysis was conducted using thematic analysis, which allows researchers to identify patterns, themes, and relationships between categories emerging from qualitative data. The analysis stages included interview transcription, initial coding, theme identification, concept grouping, and the development of a thematic narrative that illustrates the process of developing an adaptive entrepreneurial mindset. This analysis technique facilitates an in-depth understanding of how students interpret opportunities, manage risks, and utilize digital literacy in implementing digital business models. Furthermore, the analysis was conducted iteratively to ensure that the researchers' interpretations were consistent with the empirical data obtained. The validity of the findings was strengthened through member checking with several respondents to ensure the accuracy of the data interpretation.

Results

4.1 The Process of Forming an Adaptive Entrepreneurial Mindset in Students through Involvement in Digital Business Models such as Dropshipping and Affiliate Marketing in the Industrial Era 4.0

The research results show that student involvement in digital business activities, particularly dropshipping and affiliate marketing, significantly contributes to the development of an entrepreneurial mindset that is adaptive and relevant to the demands of the Digital Economy and the Industry 4.0 era. First, hands-on experience in managing an online store, analyzing market trends, and understanding digital consumer behavior encourages students to develop a mindset that is responsive to change. The rapid dynamics of the online market require students to be ready to experiment, conduct rapid evaluations, and adjust marketing strategies based on data performance and digital platform algorithms. This strengthens the agility and flexibility aspects of their entrepreneurial mindset.

Second, the learning-by-doing process in dropshipping and affiliate marketing fosters students' problem-solving skills. When faced with obstacles such as price competition, limited stock, changes in platform policies, or promotional challenges, students gradually learn to develop creative strategies. This ability to think critically and find innovative solutions forms the foundation for developing an adaptive entrepreneurial mindset that is resilient to market uncertainty and volatility.

Third, involvement in the digital ecosystem indirectly shapes students' innovation orientation. Exposure to various digital tools, such as digital ads, content creation, SEO, analytics tools, and AI-based recommendation systems, helps students understand the importance of leveraging technology for business efficiency. They begin to internalize that innovation isn't just about products, but also about marketing strategies, operational processes, and how to leverage technology to create added value for consumers.

Fourth, the experience of earning direct income from digital entrepreneurship increases intrinsic motivation and strengthens students' self-efficacy. Awareness that business opportunities in Industry 4.0 are open and can be started with minimal capital fosters confidence in their ability to become independent entrepreneurs. This is a crucial factor in developing an entrepreneurial mindset oriented toward independence, initiative, and the courage to take calculated risks.

Overall, the research results confirm that student involvement in digital business models such as dropshipping and affiliate marketing not only provides practical business experience, but also plays a strategic role in forming an adaptive entrepreneurial mindset that is much needed in facing the challenges and opportunities of the Digital Economy and the transition to a technology-based society in the Industry 4.0 era.

4.2 To What Extent Can Dropshipping and Affiliate Marketing Practices Improve Digital Literacy, Technology Adaptability, and Entrepreneurial Skills of Students in the Context of Modern Entrepreneurship Education?

The research results show that student involvement in dropshipping and affiliate marketing practices significantly improves digital literacy, technological adaptability, and strengthens entrepreneurial skills. First, from a digital literacy perspective, students experienced an increased understanding of various digital platforms, from marketplaces and social media to marketing automation systems. Activities such as managing sales dashboards, reading engagement metrics, creating digital content, and utilizing paid advertising tools made students more skilled in utilizing information technology productively. They became more than passive users, but transformed into content producers and digital business managers with a deeper understanding of how the technology ecosystem works.

Second, this digital business practice strengthens students' technological adaptability. The dynamics of platform algorithms, changes in marketplace policies, and the emergence of new digital tools require students to continuously update their knowledge and skills. This adaptation process is evident in students' efforts to try new technologies—such as AI content generators, analytics applications, digital payment systems, and customer service automation software—ultimately enhancing their capacity to adapt in a rapidly changing environment. Technological adaptation emerges not only as a practical necessity but also as part of a continually evolving innovative mindset.

Third, students' entrepreneurial skills significantly improve through hands-on experience managing a digital business. Dropshipping and affiliate marketing provide students with opportunities to practice core entrepreneurial skills such as risk management, creativity, marketing communications, and data-driven decision-making. Students learn to design pricing strategies, build personal brands, negotiate with suppliers, and understand digital consumer preferences through sales data analysis. This empirical experience reinforces the conceptual understanding they gain in entrepreneurship courses, making learning more contextual and applicable.

Furthermore, students demonstrated increased entrepreneurial self-efficacy, the belief in their ability to run a business independently. Successfully earning affiliate commissions or profits from dropshipping sales fostered internal motivation to explore further business opportunities. They began to understand that digital entrepreneurship can be a realistic, affordable, and viable career path for the modern economy.

Overall, the research findings confirm that dropshipping and affiliate marketing practices serve as highly effective experiential learning tools in modern entrepreneurship education. Through these practical activities, students not only improve their digital literacy and technological adaptability but also develop entrepreneurial skills relevant to industry needs and digital transformation in the Economy 4.0 era.

4.3 Supporting and Inhibiting Factors Influencing the Effectiveness of Developing an Adaptive Entrepreneurial Mindset through Digital Business Models in the Industry 4.0 Educational Environment

The research results identified various factors that play a role in supporting or hindering the effectiveness of developing students' adaptive entrepreneurial mindset through dropshipping and affiliate marketing practices in the Industrial Education 4.0 era.

1. Supporting Factors

   Some of the main factors that support the formation of an adaptive entrepreneurial mindset include:

   - Availability of Digital Technology and Infrastructure: Students with easy access to digital devices, a stable internet connection, and e-commerce or marketplace platforms can maximize business opportunities. Adequate digital infrastructure enables the learning process and entrepreneurial practice to run more smoothly and realistically.
   - Practice-Based Educational Support and Curriculum: Implementing an entrepreneurship course that integrates dropshipping and affiliate marketing practices provides students with opportunities for experiential learning. Kolb (1984) emphasized that hands-on experience in a business context strengthens adaptability, creativity, and decision-making.
   - Student Motivation and Innovative Attitude: Intrinsic motivation to learn and explore digital business, coupled with the courage to take calculated risks, are important factors in developing an adaptive mindset. Students who are accustomed to finding creative solutions when facing challenges tend to internalize the principles of adaptive entrepreneurship more quickly.

- Guidance and Mentoring: Lecturers, mentors, or industry practitioners provide guidance, feedback, and inspiration, encouraging students to hone their business strategies and improve their problem-solving skills. This interaction also helps students understand the dynamics of the digital market and adapt their actions to real-world conditions.

2. Inhibiting Factors

On the other hand, several inhibiting factors also emerge and have the potential to reduce the effectiveness of developing an adaptive entrepreneurial mindset, including:

- Digital Literacy Limitations: Students who lack adequate digital literacy skills tend to struggle with platform usage, data analysis, and digital marketing strategies. This hinders their ability to adapt quickly to technological changes.

- Technical Barriers and Infrastructure Access: Limited devices, unstable internet connections, or a lack of digital application support are significant obstacles to implementing online business models. These technical barriers reduce students' opportunities to gain optimal practical experience.

- Lack of Practical Experience: Students who are new to dropshipping or affiliate marketing tend to struggle to understand business mechanisms, risk management, and marketing strategies. This lack of experience can hinder the development of an adaptive mindset.

- Academic and Time Pressure: A high academic load can limit students' time to actively engage in digital business practices. An imbalance between academic demands and entrepreneurial activities can reduce students' focus and motivation to optimally develop entrepreneurial skills.

Overall, research shows that the effectiveness of developing an adaptive entrepreneurial mindset depends heavily on a combination of supporting factors involving technology, motivation, experience, and guidance, as well as the ability to overcome obstacles such as limited digital literacy, technical constraints, and academic pressure. Understanding these factors is crucial for developing more effective entrepreneurship education curricula and strategies in the digital era.

Conclusion

Based on the research results, it can be concluded that student involvement in dropshipping and affiliate marketing practices plays a strategic role in developing an adaptive entrepreneurial mindset in the Industry 4.0 era. This digital, hands-on learning process provides real-world experiences that encourage students to develop creative thinking skills, flexibility, and resilience in the face of rapid market dynamics.

Dropshipping and affiliate marketing practices have been shown to improve digital literacy, technological adaptability, and entrepreneurial skills, including risk management, marketing strategy, and data-driven decision-making. Furthermore, the experience of achieving tangible results from digital business activities also strengthens students' intrinsic motivation and self-efficacy, giving them greater confidence to explore entrepreneurial opportunities independently.

This research also shows that the effectiveness of developing an adaptive entrepreneurial mindset is influenced by supporting factors such as technology availability, practice-based curriculum support, student motivation, and mentor guidance. Conversely, inhibiting factors such as limited digital literacy, technical barriers, lack of experience, and academic pressure can reduce the effectiveness of digital entrepreneurship learning.

Therefore, entrepreneurship education in the Industry 4.0 era should systematically integrate digital business model practices, develop students' digital literacy, and provide adequate guidance and access to technology. This approach not only enhances technical and

adaptive skills but also fosters an entrepreneurial mindset ready to face the challenges and opportunities of the digital economy.

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