Digital Entrepreneurship Education, Entrepreneurial Practice Learning and Entrepreneurial Intention: The China Experience

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Abstract: The flourishing development of digital entrepreneurship has not only disrupted traditional entrepreneurial thinking patterns, attitudes, and behaviors, but it has also generated unique entrepreneurial chances. This is the case at present. As we move further into the era of digitalization, it has become an essential worry that digital entrepreneurship education, when effectively applied in colleges and universities, may boost college students' entrepreneurial ability and willingness. This review aims to complete an analysis and synthesis of relevant literature on entrepreneurship education in higher education institutions, digital entrepreneurship education, and college students' entrepreneurial intents and practice learning. The research indicates a fundamental connection between teaching digital entrepreneurship, experience learning through entrepreneurial training, and the propensity of college students to engage in entrepreneurial intentions. Furthermore, the development of college students' entrepreneurial intention is positively impacted by digital entrepreneurship education and entrepreneurial practice learning in college while simultaneously expanding their aptitude for commercial companies. This review provides higher education institutions with important recommendations and potential sources of inspiration for entrepreneurship instruction.

Keywords: Entrepreneurship education, Digital entrepreneurship education, Entrepreneurship practice learning, Entrepreneurship intention

1. Introduction

The explosive growth of digital technology has revitalized the economy with new life and creativity, and it will play a significant role in shaping the social and economic landscape of the future. A report released in 2023 by the CAICT shows that the scale of China's digital economy reached 50.2 trillion yuan in 2022. The digital economy's share of GDP, at 41.5%, was equivalent to the share of the secondary industry in the national economy⁴. In 2021, the digital economy in China generated 256 million job opportunities, accounting for 34.3% of all jobs in the country that year. By 2030, up to 449 million jobs will be available due to the digital economy⁵. The rapid advancement of digital technologies, including the Internet of Things (IoT), big data, cloud computing, and artificial intelligence (AI), has propelled humanity into the digital economy era. This technological revolution has transformed traditional industries and generated many entrepreneurial opportunities. These developments reshape the economic landscape, foster new business models, and drive significant global economic growth. Universities are challenged to meet college students' employment and entrepreneurial requirements in the digital age and help them better realize value creation. Entrepreneurship education in universities plays a vital role in this regard. For college students, entrepreneurship education can stimulate their innovative thinking, shape their entrepreneurial personality, encourage them to innovate and start businesses, provide them with knowledge, skills, and resources to better understand and prepare for employment and entrepreneurship and help them achieve self-development in the workplace.

Research has shown that entrepreneurship theory courses, entrepreneurial practices, competitions, and other entrepreneurship education content or practices positively impact college students' entrepreneurial intentions⁶⁷⁸. According to the government's policy focus on building the digital economy in China, digital entrepreneurship is the main factor responsible for the continuous expansion of the digital economy⁹. Entrepreneurship education in universities should also continuously adjust and innovate with the changes in economic development, cultivate more innovative talents who can...
adapt to and lead the digital age, and improve the digital entrepreneurship ecosystem. Scholars believe that schools can support entrepreneurs in acquiring digital skills and platform resources by developing digital sustainability courses\(^7\) and cultivating students' digital entrepreneurship capabilities that integrate perception, cognition, and execution\(^8\) to adapt to personal and social development quickly. This transformation requires schools to update their entrepreneurship education concepts, incorporate cutting-edge digital technology content, strengthen digital entrepreneurship concepts, and build entrepreneurship education ecosystems based on digital technology\(^9\). Additional research is required to examine the influence of digital entrepreneurship education on college students' utilization of digital technology for entrepreneurial purposes. This paper establishes the theoretical connection between digital entrepreneurship education and entrepreneurial practice learning and intentions, providing a theoretical reference for effectively promoting entrepreneurship among college students.

2. Entrepreneurship Education

Two key drivers have recently fueled the rapid development of entrepreneurship education in China. Firstly, due to the explosive growth of knowledge and the acceleration of economic globalization, various industries are undergoing rapid transformation. Strengthening innovation capabilities is urgently needed in business or non-business organizations to maintain competitiveness and sustainable development. Current entrepreneurship education gradually emphasizes a "passive" knowledge and information transmission mode, making it closer to the actual entrepreneurial learning process and prompting students to transform theoretical knowledge into entrepreneurial practice\(^10\). In 1989, UNESCO first officially proposed the idea of entrepreneurship education as a way to teach students how to be creative and innovative. Since then, many universities have started to offer majors, minors, certificates, master's, and doctoral programs that are related to entrepreneurship\(^11\).

The Kauffman Foundation, a well-known American research organization that studies entrepreneurship education, describes entrepreneurship education as a way to teach people the information and skills required to take advantage of untapped business opportunities\(^12\). This process helps students become more knowledgeable and comfortable with uncertainty and teaches them how to find chances, combine resources, take risks, and start and run new businesses\(^13\). Models of entrepreneurship education have been examined from various perspectives, arguing that it should be integrated with other disciplines and supplemented by employment resources\(^14\). It was proposed that efforts should be made to train teachers' teaching and research abilities, strengthen university-industry cooperation, increase investment in entrepreneurship education, add practical courses, and organize entrepreneurship competitions to explore specific entrepreneurship education models. Integrated innovation and entrepreneurship education in universities with practice, deep integration with employment and entrepreneurship policies, better entrepreneurship and innovation environment and policy support for college students, and helping them grow and succeed will promote sustainable economic and social development\(^15\). Entrepreneurship education in universities is defined as integrating professional education, teaching college students about entrepreneurship, developing entrepreneurial skills and awareness, and preparing them for employment. This education includes theoretical and practical components and other entrepreneurial environmental factors\(^16\). Theoretical education mainly provides education in the primary classroom, and entrepreneurship lectures and reports are the main forms of secondary classroom education; practical education primarily includes entrepreneurship competitions, entrepreneurship training, and the establishment of entrepreneurship simulation practice bases, among other forms.

Although scholars' viewpoints vary, they all focus on cultivating and stimulating entrepreneurial awareness and abilities through entrepreneurship education to enhance students' comprehensive qualities. Entrepreneurship education is an educational method aimed at imparting entrepreneurial knowledge, cultivating entrepreneurial awareness and skills, and promoting students' employment through entrepreneurship.

3. Digital Entrepreneurship Education

As digital technology has advanced, a global tsunami of digital entrepreneurship has swept the globe, concentrating on creating digital goods and leveraging technology to improve established enterprises\(^17\). The changes in the digital macro environment require entrepreneurs to enhance their goals and abilities to match the characteristics of digital infrastructure and digital tools\(^18\). This has also posed new requirements and challenges for entrepreneurship education, necessitating the cultivation of
students’ ability to adapt to the digital age’s rapidly changing and uncertain environment. Digital entrepreneurship has become a meaningful way to address contemporary pressing social and environmental issues, and educational institutions can support entrepreneurs by developing digital sustainability courses to provide them with digital skills and expertise[19]. Digital entrepreneurship education uses big data, cloud computing, the Internet of Things, artificial intelligence, and virtual reality/augmented reality to enrich and expand teaching activities[20]. The key lies in reconfiguring entrepreneurship education using digital technology, integrating digital tools and business capabilities to strengthen the education system, and improving students’ ability to identify and pursue digital opportunities through modules on digital entrepreneurship, digital transformation, and entrepreneurship skills training[8][21].

With the advancement of digital tools, entrepreneurship education must be combined with technology, updating traditional teaching materials to provide students with digital entrepreneurship education on new businesses, identifying entrepreneurial opportunities, and launching digital businesses[22]. Digital educational resources can enhance teachers’ and students’ entrepreneurial abilities and digital literacy, promote personalized and collaborative learning among students, and improve teaching effectiveness and satisfaction[23]. College students perceive digital technology for entrepreneurship as being very user-friendly and beneficial, which helps encourage the development of entrepreneurial aspirations and ignites excitement for entrepreneurship[24]. Teachers’ digital literacy and entrepreneurship education methods are essential in increasing students’ interest, skills, and knowledge in entrepreneurship[25]. When designing entrepreneurship education, its contextualized nature must be considered, and the importance of context in the learning process must be recognized[26]. Teachers’ professional knowledge, abilities, and attitudes improve teaching quality and drive students to study for life, fostering inventive and entrepreneurial skills in the digital age.

China is developing new business models and forms using digital technology. The Internet, social media, cloud computing, and big data propel digital entrepreneurship models that combine digital technology with commercial prospects, lowering entrepreneurship costs and hurdles[27]. Due to national “mass entrepreneurship and innovation” policies, more college students are becoming entrepreneurs or job creators, with 9% more entrepreneurial college students in 2019[28]. However, in the digital era, entrepreneurship is characterized by the digitization of elements, the diversification of subjects, and the high ambiguity of processes[29], requiring entrepreneurs to engage in advanced learning and enhance their goals and abilities to match the characteristics of digital infrastructure and digital tools[18]. Therefore, entrepreneurship education in China urgently needs to undergo digital transformation, i.e., to develop digital entrepreneurship education. The educational approach of digital entrepreneurship education follows the fashion of the digital era. To encourage students’ participation in creative entrepreneurial activities based on digital technology, digital material should be integrated into teaching and applied to entrepreneurship education.

4. Entrepreneurial Practice Learning

Practices of Entrepreneurship Learning is essentially learning by doing since entrepreneurial knowledge is fundamentally practical, meaning that it is primarily derived from practice and is constantly updated and enhanced by practice[30]. The more college students participate in entrepreneurial practice education, the greater their entrepreneurial intentions[31]. An empirical examination of how lectures, entrepreneurship courses, competitions, training, internships, and self-efficacy affect college students’ entrepreneurial intentions and relationships found that entrepreneurial practice learning significantly impacts their entrepreneurial intentions[12]. Participating in social practice activities, engaging in entrepreneurial design competitions, establishing university entrepreneurship parks, and setting up student entrepreneurship practice associations are effective ways to cultivate college students’ entrepreneurial practice abilities[32], helping students understand the methods and complexities of enterprise entrepreneurship, improving their entrepreneurial intentions[33], and contributing to the increase in entrepreneurial success rate[34]. Entrepreneurship competitions are not only carriers of innovation and entrepreneurship education reform but also essential platforms for promoting students’ comprehensive development, illustrating that these competitions positively impact college students' entrepreneurial intentions[36].

In China, university entrepreneurial practice activities are an extension of classroom learning. They are generally conducted through entrepreneurial competitions and clubs, focusing on encouraging students to engage in entrepreneurial-related activities. Engaging in entrepreneurial practice teaching is about something other than the entrepreneurial outcome. However, the process is about cultivating
young entrepreneurs and allowing students to gain experiential insights during the entrepreneurial process. Entrepreneurship competitions, business design, and simulated enterprise creation most reflect the characteristics and nature of entrepreneurship education, stimulating students' potential and enhancing college students' innovative entrepreneurship capabilities[37]. The 1998 "Tsinghua Entrepreneurship Program" competition at Tsinghua University introduced Chinese college students to entrepreneurship. Subsequently, the Chinese government introduced a series of policies to encourage universities to establish entrepreneurship practice platforms, organize national competitions, and support students in creating entrepreneurship clubs, further improving the entrepreneurship practice system.

5. Entrepreneurial Intentions

The concept of entrepreneurial intent was initially introduced by academic Bird in 1988, and it is a psychological condition that guides an entrepreneur's focus, effort, and actions toward a particular objective[38]. A study on whether entrepreneurial education can enhance college students' entrepreneurial intentions stated that entrepreneurial intention refers to an individual's subjective attitude and tendency to plan for entrepreneurship and prepare to implement entrepreneurial actions[39]. The stronger the entrepreneurial intention, the easier it is to carry out actual entrepreneurial behavior. Similarly, entrepreneurial intentions refer to individuals' attitudes or tendencies to establish, operate, or develop new commercial behaviors[40]. Entrepreneurial intentions are the internal motivation for individuals to choose entrepreneurship, reflecting the likelihood of individuals engaging in entrepreneurial behavior at any future moment[41]. Entrepreneurial intentions are considered essential predictors of entrepreneurial behavior. Based on previous research on entrepreneurial intentions, college students' entrepreneurial intentions can be defined as the anticipated judgment of whether they intend to engage in entrepreneurial activities based on their entrepreneurial knowledge, abilities, and psychological states.

6. The Relationship between Digital Entrepreneurship Education, Entrepreneurial Practice, and Entrepreneurial Intention

6.1 The Relationship between Digital Entrepreneurship Education and Entrepreneurial Intentions

According to research, entrepreneurship education can have a significant and good influence on people's intentions to pursue entrepreneurship[42]; it also has a definite and positive influence on those intentions[43]. Entrepreneurship education that does not align with the natural world may become a significant obstacle to university students' entrepreneurship. Lei and Chen (2021), based on the perspective of design thinking, integrated the concepts and methods of Design Thinking (DT) into digital entrepreneurship education, systematically designing digital entrepreneurship education, effectively improving its performance[20]. University students' entrepreneurship typically relies on social media, professional forums, e-commerce websites, and platforms driven by related information technologies, requiring an excellent digital environment to provide entrepreneurial opportunities. Digital infrastructure helps derive convenient innovation spaces and platforms, providing more sources of information and resources and enhancing students' information acquisition capabilities, thereby enhancing students' entrepreneurial awareness and thinking and promoting entrepreneurial intentions. Digital entrepreneurship courses also help students discover potential entrepreneurial opportunities, enhancing their interest in experiencing entrepreneurship[44]. Furthermore, digital entrepreneurship courses expose students to more entrepreneurial resources, motivating them to participate in entrepreneurial activities and consequently increasing their entrepreneurial intentions[45].

6.2 The Relationship between Digital Entrepreneurship Education and Entrepreneurial Practice Learning

The more reasonable and continuous the entrepreneurship education is promoted, the more likely students who receive entrepreneurship education will implement corresponding entrepreneurial behaviors[43]. Digital entrepreneurship education follows the trend of the digital age, applying digital technology to entrepreneurship teaching and integrating digital content into education models. It provides knowledge of digital entrepreneurship and how to do it, promotes student entrepreneurial practice by cultivating digital entrepreneurial capabilities, and encourages students to link life with entrepreneurship. Chinese scholars Ma and Wang (2022) constructed an entrepreneurship capability
framework for the digital age: possessing basic digital skills and professional knowledge, as well as digital entrepreneurship perception, cognition, and execution capabilities[49]. Corresponding capabilities can be cultivated only by transforming traditional entrepreneurship education into digital entrepreneurship education. Students who have received digital entrepreneurship education tend to be more open toward various changes, are more willing to adapt to new environments, and master skills such as accessing and utilizing big data, working in uncertain digital environments[46], and participating in entrepreneurial practices.

6.3 The Relationship between Entrepreneurial Practice Learning and Entrepreneurial Intention

Entrepreneurial practice is a crucial component of entrepreneurship education, serving as a practical application and enhancement of classroom instruction in university entrepreneurship programs. Universities prioritize and endorse students' entrepreneurial endeavors, encouraging them to engage with accomplished business ideas and practitioners to enhance their learning experiences. This coping method improves students' motivation and interest, boosts entrepreneurial self-efficacy, enhances entrepreneurial ability, overcomes obstacles connected to career development, and facilitates self-employment. Most scholars' research has proven that entrepreneurial practice positively influences university students' entrepreneurial intentions. Entrepreneurial learning methods with strong practicality, such as entrepreneurial competitions, business plans, and the creation of simulated enterprises, affect students' entrepreneurial learning processes, helping them perceive real entrepreneurship and thereby increasing university students' entrepreneurial intentions[47]. In addition, incorporating organized practice into digital entrepreneurship education has a more beneficial impact on students' inclinations to engage in entrepreneurial activities[48].

7. Future Research Prospects

The literature study demonstrates that digital entrepreneurship education effectively fosters the entrepreneurial aspirations of prospective entrepreneurs by employing digital technology to meet emerging needs and capitalize on market prospects. Universities should adapt to the requirements of the digital era by focusing on digital entrepreneurship education for students, offering additional practical learning platforms to enhance their overall skills, identifying more entrepreneurial prospects, and actively participating in the current era of "mass entrepreneurship and innovation." Currently, digital entrepreneurship education in China is in the early stages of exploration. Although Chinese researchers have extensively researched entrepreneurship education, further inquiry is necessary to comprehend the present condition of digital entrepreneurship education in universities and its influence on entrepreneurial ambitions. Specifically, an empirical study is required to investigate the precise mechanisms by which digital entrepreneurship education impacts entrepreneurial intentions. Some scholars concentrate on the impact of digital entrepreneurship education as an external element that directly affects entrepreneurial inclinations while disregarding the indirect consequences of other factors. Prior studies have discovered that students' entrepreneurial activities significantly influence their desire to become entrepreneurs. Further investigation is required to determine if entrepreneurial practice factors mediate between entrepreneurship education and entrepreneurial intentions. Most studies consider them as preceding elements that influence entrepreneurial intentions. Henceforth, future researchers can further explore digital entrepreneurship education to understand its implementation better, how university students effectively engage in entrepreneurial practice learning, and the correlation between these practices and entrepreneurial intentions.

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