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Original Paper

Reform of Digital Economy Innovation and Entrepreneurship Curriculum Education

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Abstract

Due to the application of digital technologies such as cloud computing, big data, the Internet of Things, artificial intelligence, and blockchain, digital industries such as intelligent transportation, smart energy, smart manufacturing, and smart homes have emerged. These changes have had a structural impact on the job market. The current education system urgently needs to make adaptive adjustments in cultivating students' digital economy innovation and entrepreneurship abilities, including curriculum design, teaching methods, and practical opportunities. This article is based on the background of the digital economy and the current situation of education, proposing the needs of educational reform, and constructing a curriculum design to cultivate students' innovation and entrepreneurship abilities and adapt to the digital economy employment market.

Keywords

innovation and entrepreneurship in the digital economy, educational reform, course design, teaching method

1. Introduction

The digital economy, as a higher-level economic stage following the agricultural and industrial economies, uses digital information and knowledge as key production factors. At present, most OECD member countries have formulated national strategies for the development of the digital economy, such as the US Digital Economy Agenda, the UK Digital Strategy, the Australian Digital Economy: Future Directions, and the EU's Artificial Intelligence Strategy. In 2020, China's 13 government departments including National Development and Reform Commission issued the Opinion on Supporting the Healthy Development of New Forms and Models, Activating the Consumer Market, and Expanding Employment, supporting the healthy development of 15 new formats and models. Adapting to the trend,

the education sector should also adapt to the trend of economic development, address the shortcomings of traditional innovation and entrepreneurship courses, and make reforms.

2. Method

2.1 Survey Questionnaire

Conduct a survey on students through a questionnaire to understand their understanding of the digital economy, their satisfaction with current innovation and entrepreneurship courses, and their needs for innovation and entrepreneurship courses.

2.2 Case Analysis

Research advanced educational reform practices for digital economy innovation and entrepreneurship courses, analyze feasibility, and draw on successful experiences.

3. Result

3.1 The Definition of Digital Economy Innovation and Entrepreneurship

"Digital Economy" was first proposed as an academic concept by Don Tapscott in 1993 in his book In 1998, the research report "The Emerging Digital Economy" by the US Department of Commerce described the development of the industrial economy into a digital economy driven by IT technology, and summarized the characteristics of the digital economy as "using the Internet as infrastructure, information technology as a leading technology, the information industry as a leading and pillar industry, and e-commerce as the engine of economic growth". However, at present, there is a lack of unified definition of the connotation of the digital economy. The concept definition in the 2016 G20 Digital Economy Development and Cooperation Initiative is widely cited in academia: the digital economy refers to a series of economic activities that use digital knowledge and information as key production factors, modern information networks as important carriers, and the effective use of information and communication technology as an important driving force for efficiency improvement and economic structure optimization. The increasingly digital, networked, and intelligent operation of various industries in the digital economy society has changed traditional innovation and entrepreneurship methods, giving rise to a series of new business models and formats.

According to the "innovation theory" first proposed by American geographer Peter Schumpeter in his book "Economic Development Theory", innovation refers to the establishment of a new production function, that is, the "recombination of production factors". Innovators combine resources in different ways to create new value, including introducing new products, adopting new technologies, opening up new markets, controlling new sources of raw material supply, and implementing new organizational forms and management models.

In the era of digital economy, the concept of innovation and entrepreneurship has further developed, and digital innovation mainly includes digital product innovation, digital organization innovation, and digital business model innovation. Digital product innovation refers to the inclusion or support of

digital technology in a product. Digital organizational innovation refers to the emergence of digital platforms, mainly including transactional platforms (such as Taobao and Amazon), social platforms (such as Weibo and Facebook), and innovative platforms (such as Taobao Open Platform and Apple iOS Platform). The digital innovation of business models refers to the provision of technologically superior products and services to enterprises using digital technologies such as artificial intelligence, big data, and cloud computing as key elements.

Digital entrepreneurship differs from traditional entrepreneurship in terms of entrepreneurial entities, entrepreneurial organizations, entrepreneurial opportunities, entrepreneurial processes, and entrepreneurial outputs. Traditional entrepreneurship is primarily focused on individual entrepreneurs and organizations, while digital entrepreneurship is primarily focused on various entrepreneurial entities such as users, entrepreneurial teams, investors, and technical personnel. The single entity entrepreneurship model is developing towards a multi-level entity entrepreneurship model that is team oriented, corporate oriented, and ecological in the industrial chain. Resource integration is carried out, and digital technology is used to reduce the matching cost of entrepreneurial resources, such as resource exploration and contract signing. In terms of entrepreneurial organizations, traditional entrepreneurship is mainly centered around network organizations or individuals that benefit the enterprise, while digital entrepreneurship is carried out through virtual teams, online crowdfunding, social media interaction, and the integration and entrepreneurial ecosystem. In terms of entrepreneurial opportunities, traditional entrepreneurial opportunities come from individual prior experience, new technologies, new knowledge, and new market opportunities, while digital entrepreneurial opportunities come from markets created by digital technology and product and service reconstruction, innovation caused by user participation, and new application opportunities emerging in new scenarios. Digital entrepreneurial opportunities are constantly being discovered in the interaction of diverse entrepreneurial entities to identify and meet more fragmented and personalized user needs. In the process of entrepreneurship, digital entrepreneurship is based on the integration of resources and team building through a combination of online and offline entrepreneurial networks, breaking through the traditional planned and phased model of physical entrepreneurship. The open innovation model is established through the joint participation of digital technology and users, reducing intermediate links and communication costs, resulting in higher innovation efficiency and lower innovation risks. In terms of entrepreneurial output, compared to traditional fixed products and services, digital entrepreneurial products and services are self growing and dynamically evolving.

3.2 Educational Reform Needs

After clarifying the concept of innovation and entrepreneurship in the digital economy, it can be concluded that the transformation of the economic form from industrial economy to digital economy has led to changes in economic models and formats. The changes in economic models and formats inevitably require corresponding changes in innovation and entrepreneurship methods and thinking, which is the objective demand for the reform of the digital economy innovation and entrepreneurship

curriculum. In addition, the demand for the reform of the digital economy innovation and entrepreneurship curriculum also needs to be explored through research on students, pre entrepreneurs, and enterprises in the digital economy, in order to discover more relevant educational reform needs. After literature review and theoretical research, as well as visits to students and enterprises, the digital economy innovation and entrepreneurship course mainly has three major reform points. Firstly, the theoretical content design of the course is unreasonable; Secondly, there is a lack of practical opportunities required for the course, which is a requirement made by the objective reality of digital economy innovation and entrepreneurship; Thirdly, there is a lack of depth in the implementation of education.

3.2.1 Shortcomings in Course Content

After interviews with students and visits to enterprises, it was found that there are three problems with the content of the digital economy innovation and entrepreneurship course: lagging behind, insufficient interdisciplinary level, and untimely evaluation and feedback. Firstly, the digital economy is developing rapidly, with new technologies and models emerging one after another. The lack of timely updates to course content directly leads to a mismatch between the knowledge and skills learned by students and the actual market demand. Secondly, the digital economy involves multiple disciplines such as information technology, economics, management, etc. The current curriculum design has not effectively integrated these disciplines, resulting in a single knowledge structure for students. Thirdly, the curriculum lacks an effective evaluation and feedback mechanism, and teachers and even students themselves cannot timely understand the teaching effectiveness, making it difficult to make targeted improvements.

3.2.2 Insufficient Practical Opportunities

The combination of theory and practice is an important principle in education, especially in the digital economy era. Compared to the traditional industrial era, enterprises cannot provide more or even the same number of employment opportunities, and students need to start their own businesses more. However, during the learning process, students lack sufficient practical opportunities, do not understand the current situation and needs of the industry, and are unable to effectively apply the knowledge they have learned to practical work after leaving school. Moreover, in the era of digital economy, it is fully supported for students to engage in entrepreneurial activities at school. However, currently, due to the lack of practical opportunities, students are unable to independently explore entrepreneurial opportunities.

3.2.3 Lack of Depth in Innovation and Entrepreneurship Education

Firstly, there is a lack of education on innovative thinking and entrepreneurial abilities. Innovation and entrepreneurship education is not only about teaching theoretical knowledge, but more importantly, it is about cultivating students' innovative thinking and entrepreneurial abilities. This places high demands on curriculum design and teaching methods. Currently, innovation and entrepreneurship education courses have not delved into this level, resulting in limited educational effectiveness. Secondly,

employment guidance lacks personalization. Innovation and entrepreneurship education should include personalized employment guidance, and current education cannot cater to the different interests, abilities, and career plans of each student. Thirdly, there is a lack of international perspective. Under the background of globalization, the development of the digital economy has international significance, and the curriculum has not provided sufficient international perspectives, which affects the global competitiveness of students.

3.3 Educational Reform Strategies

In response to the demand for educational reform in digital economy innovation and entrepreneurship, research on advanced experience in educational reform can start with three methods: updating course content, introducing new teaching methods, and establishing effective feedback mechanisms. The source of advanced experience is the City College of Zhejiang University. The school decision-making team believes that under the new round of technological revolution and industrial transformation, the cultivation of applied talents faces structural contradictions on the education supply side, such as low matching with the demand for talents in the social development industry, shortage of high-quality applied talents, and convergence of training models. We need to explore personalized educational methods that match the current industrial development needs in the process of running applied universities. "Universities themselves need to stimulate endogenous transformation forces that actively adapt to national strategic needs and social transformation and development. This requires us to take the 'integration of industry and education, integration of science and education' that serves local development as the basic direction of educational philosophy reform, enhance the awareness and ability of education to serve economic and social development. We need to truly put talent cultivation and academic research on a platform that connects, and solve problems such as disciplinary segmentation and professional barriers through an organizational model".

Under the guidance of the above decision-making, the City College of Zhejiang University is restructuring its educational space and treating the city as a "laboratory"; Innovate organizational reform and establish a new paradigm of science and education innovation complex. The specific measures include the following: taking the lead in setting up the "Hangzhou General Theory" with local cities as the research object, enhancing understanding of the past, present, and future of cities through on-site inspections, taking the relationship between people and cities as a topic, inviting local big data bureau personnel to attend classes, and guiding students to understand the relationship between cities and numbers; Invite architects from Yunqi Engineering Institute to discuss how to link specific scenarios through programs and algorithms.

Signed a strategic cooperation agreement with Xihu District, Hangzhou City to jointly build an Advanced Materials Additive Manufacturing Innovation Research Center, and carry out research and application of 3D printing technology around metals, ceramics, and composite materials; Signed a cooperation agreement with Hangzhou High tech Zone (Binjiang) to jointly build the Binjiang Innovation Center and contribute to the promotion of digital economy innovation cities.

As the first pilot construction of the "Urban Digital Governance" science and education innovation complex in the country, its members cover the School of Computer and Computational Science, School of Information and Electrical Engineering, School of Law, and School of Business on campus, making it a relatively stable cluster. This team can also become a think tank, providing services to off campus institutions. For example, the research topic on traffic governance in Hangzhou is led by 55 teachers from relevant colleges and 544 students, selecting 50 transfer stations and densely populated stations in Hangzhou, as well as 241 subway stations that have already been opened, to conduct a survey on subway connecting facilities. Over the course of a week, we will gain a deeper understanding of people's travel habits and diverse needs, and identify the problems in public transportation. By sorting and analyzing the research data results, the research team will ultimately obtain "three lists" - a list of public transportation needs for citizens, an evaluation list of the implementation of the "one stop, one policy" planning plan for subway stations, and a list of problems discovered by teachers and students through research experience. This will provide data support for the development of traffic governance research in Hangzhou and promote the resolution of practical problems in Hangzhou. The Science and Education Innovation Complex is a continuously improving organizational innovation reform plan, which will also become the most important organizational change for Zhejiang University City College to truly establish its characteristics. The school has laid out and constructed a Science and Education Innovation Complex in eight areas, including "intelligent manufacturing", "smart health care", "smart transportation", "cultural protection and inheritance", "urban digital governance", "urban security", "national spatial planning", and "international cultural tourism".

The school also pioneered the "Urban Digital Governance Innovation Class" nationwide, implementing a separate system. Every year, more than 3000 second year undergraduate students from various majors in the school are selected for excellence. In order to seamlessly integrate what students have learned with urban digital governance practices, the Innovation Class implements a dual mentor system. In addition to school teachers, leaders of relevant units closely related to urban digital governance form an off campus mentor team, providing students with opportunities for frontline practice and internship training. "The 'Urban Digital Governance Innovation Class' is an innovative exploration of the school in talent cultivation reform. As a supporting unit for the integration of education, science and technology, and talent in the social system, universities need to adapt to the needs and changes of the industrial environment, policy environment, and social environment in the innovation and development of discipline construction".

In terms of course resources, the school collaborates with the Executive Bureau of the Zhejiang Provincial High People's Court to establish a special class for civil compulsory enforcement. The course faculty is jointly built by both parties, and teachers from the court will share many issues and experiences from law enforcement in the classroom through case studies. The school's credit system prioritizes the protection of genuine "hard courses" and school enterprise cooperation courses, and increasing the knowledge of these two courses is of great benefit to the overall quality development of

students.

3.3.1 Update Course Content

Based on the successful experience of Zhejiang University City College, the reform of the content of digital economy innovation and entrepreneurship courses should be based on economic practice, emphasizing application training and thinking training.

3.3.1.1 The Course Content Is based on Economic Practice

The category of digital economy includes digital and industrialization and industrial digitalization. Digital industrialization refers to the added value of the information industry, including basic telecommunications, electronic information product manufacturing, software and information services, and Internet industries. Industrial digitization includes the contribution of digital technology to agriculture, industry, and service industries. There are currently 10 digital application scenarios in China, including intelligent transportation, smart energy, smart manufacturing, smart agriculture and water conservancy, smart healthcare, smart tourism, smart communities, smart homes, and smart government. The course content design can be based on the layout of two major categories and ten major digital economy application scenarios in practice, integrating the required disciplines of various categories and application scenarios, and designing learning content for each class hour.

After each class hour, targeted practical training assignments are added to measure the rationality of course content design and the mastery of students based on the quality of the assignments. And incorporate employment guidance into the course content to help students understand the employment trends in the digital economy, master job search skills, and how to plan their careers.

3.3.1.2 Emphasize Application Training and Thinking Training

With themes such as "identifying entrepreneurial opportunities", "building entrepreneurial teams", "assembling entrepreneurial resources", "entrepreneurial marketing", etc., throughout the entire process of entrepreneurship, design application training and thinking training. The implementation scenario of training can start from campus and gradually expand to use society as the training scenario.

Compared to other theoretical disciplines, the Digital Economy Innovation and Entrepreneurship Guidance Course, as an innovation practice course, should pay more attention to the guidance of thinking and methods. For example, reverse thinking, psychological thinking, tracking thinking, alternative thinking, and divergent thinking. In terms of innovative methods, such as simulation innovation, creative enumeration, analogical innovation, and brainstorming, etc.

3.3.2 Introducing New Teaching Methods

In terms of teaching methods, guided by Constructivism and Situated Learning, the digital economy innovation and entrepreneurship course is suitable for project-based learning, case analysis, and practical operations. Constructivism believes that learning is the process in which learners actively construct knowledge, emphasizing the importance of learners' subjective initiative and experience. Therefore, project-based learning can be the core learning method of this course, with students as the center, guiding them around a certain theme or problem in the digital economy, completing projects

through teamwork, and cultivating students' innovative thinking, entrepreneurial spirit, and risk management abilities.

The theory of situational learning holds that learning occurs in specific social and cultural contexts, and knowledge is closely linked to practice. In the digital economy innovation and entrepreneurship course, students can learn and practice in real situations through simulating entrepreneurial environments, internships, and on-site inspections, which requires establishing closer school enterprise cooperation relationships. The teaching method of case studies mainly plays a role in analyzing successful educational reform practices and how these practices can help students successfully enter the employment market in the digital economy field.

3.3.3 Establish a Feedback Mechanism

The digital economy innovation and entrepreneurship course should not only meet the learning needs of students, but also adapt to the development trend of the digital economy, which depends on the joint efforts of education policy makers, schools, teachers, and students. The success or failure can be evaluated through methods such as student satisfaction surveys, employment rate statistics, and corporate feedback, and continuous improvement can be made based on the feedback. This requires the establishment of an evaluation system, which includes teaching evaluation and student feedback. Teaching evaluation includes teaching content, teaching methods, and teaching quality. Students provide feedback on their opinions on teaching content, teaching methods, and practical activities.

4. Discussion

Based on the data obtained from the survey questionnaire, the author found that the main problem of innovation and entrepreneurship education is not in the quality of students, but in the rationality of curriculum design and the adaptability of teaching methods. Through the comparison of the existing literature, the consistent solution to the improvement of the digital economy innovation and entrepreneurship curriculum is the improvement of teaching methods, but this paper progressiveness proposes the improvement of the curriculum content in line with the actual industrial situation and the establishment of an effective feedback mechanism. Provide inspiration for innovation and entrepreneurship education reform policies and education reform practices. In terms of innovation and entrepreneurship education reform policies, the government should formulate more policies to help universities and enterprises establish connections. This goal can be achieved by granting benefits to enterprises, encouraging them to be willing to provide internships and practical positions for universities or help universities obtain data needed for scientific research in a public interest manner; In the practice of educational reform, it is more inclined to put students at the center, whether it is the design of course content or the determination of teaching methods. However, this article does have limitations in studying the demand for digital economy innovation, entrepreneurship, and education reform due to the lack of enterprise data sources.

References

Casadesus-Masanell, R., & Zhu, F. (2013). Business model innovation and competitive imitation: The case of sponsor-based business models. *Strategic Management Journal*, *34*(4), 464-480. https://doi.org/10.1002/smj.2022

Garud, R., & Giuliani, A. P. (2013). A narrative perspective to entrepreneurial opportunities. *Academy of Managment Review*, *38*(1), 157-161. https://doi.org/10.5465/amr.2012.0055

Hinings, B., Gegenhuber, T., & Greenwood, R. (2018). Digital innovation and transformation: An institutional perspective. *Information and Organization*, *28*(1), 52-61. https://doi.org/10.1016/j.infoandorg.2018.02.004

Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurial Theory and Practice, Forthcoming*, *41*(6), 1029-1055. https://doi.org/10.1111/etap.12254

Tapscott, D. (2015). Rethinking Promise and Peril in the Age of Networked Intelligence. *McGraw Hill Education*, *14*.