

Enhancing Innovation and Entrepreneurship Education through 'Three-Whole Education' in Guangxi Universities: A Conceptual Analysis within the Rural Revitalization Context

Yang Zhi Xin^{*a}, Sun Jia Yi^b, Qiu Yun Song^c

^a Guangxi Minzu University, China yangzhixin4542@163.com

^b Guangxi Minzu University, China 15550501018@163.com

^c Shandong University of Finance and Economics, China bzhmqiuys@163.com

* Corresponding Author

ABSTRACT

This paper explores the integration of 'Three-Whole Education' to enhance innovation and entrepreneurship education in Guangxi universities within the context of rural revitalization. By employing a quantitative approach, the study investigates how the components of 'Three-Whole Education' (whole-person, whole-process, and whole-course education) synergize with innovation and entrepreneurship training to cultivate talents suited for addressing rural challenges. The analysis includes a review of relevant literature, theoretical frameworks, and empirical studies to propose a conceptual model. Findings suggest that 'Three-Whole Education' can significantly impact students' entrepreneurial skills and innovation capabilities, providing practical recommendations for educators and policymakers. The study also identifies research gaps and suggests future directions, emphasizing the need for longitudinal studies, comparative analyses, and robust measurement tools to further understand and optimize this educational approach in the context of rural revitalization.

KEYWORDS: three-whole education, rural revitalization, innovation, entrepreneurship education

I. INTRODUCTION

The cultivation of innovative and entrepreneurial talents is increasingly recognized as a critical component of higher education. In recent years, universities have been tasked with not only imparting knowledge but also fostering skills that prepare students for the dynamic demands of the modern workforce. This shift in educational focus is particularly relevant in the context of rural revitalization, where innovative solutions and entrepreneurial initiatives are essential for sustainable development. Guangxi Province, China, has embarked on significant rural revitalization efforts, highlighting the need for universities to adapt their educational approaches to support this goal (Liu & Li, 2020).

Innovation and entrepreneurship education equips students with the necessary skills to identify opportunities, develop innovative solutions, and create new ventures. This type of education is vital for economic growth and competitiveness, as it fosters a culture of creativity and problem-solving. Universities that emphasize innovation and entrepreneurship prepare graduates to contribute to the economy by starting their own businesses or driving innovation within existing organizations. This educational approach is crucial in addressing unemployment and underemployment, particularly in rural areas where traditional job opportunities may be limited (Fayolle & Gailly, 2015).

The concept of 'Three-Whole Education' (三全育人) refers to a comprehensive educational approach that emphasizes whole-person development, whole-process management, and whole-course involvement. This model aims to nurture students' intellectual, emotional, social, and ethical growth through a holistic and integrated educational framework. Whole-person development focuses on cultivating well-rounded individuals with diverse skills and competencies. Whole-process management ensures that education is continuous and coherent, encompassing all stages of a student's academic journey. Whole-course involvement integrates various subjects and disciplines, promoting interdisciplinary learning and application (Zhang & Huang, 2019).

Rural revitalization is a strategic initiative in China aimed at improving the living conditions and economic prospects of rural areas. This initiative involves various efforts, including infrastructure development, agricultural modernization, and the promotion of rural tourism. Guangxi Province, with its rich cultural heritage and diverse landscapes, has significant potential for rural revitalization. Universities in Guangxi are uniquely positioned to support this initiative by cultivating innovative and entrepreneurial talents who can drive local development and address rural challenges (Chen, 2021).

A. Research Problem and Objectives

Despite the potential benefits, there is limited research on how 'Three-Whole Education' can be leveraged to enhance innovation and entrepreneurship education in the context of rural revitalization. This study aims to fill this gap by exploring the integration of 'Three-Whole Education' into the curriculum of Guangxi universities to promote innovative and entrepreneurial talents. The specific objectives of the study are:

1. To examine the current state of innovation and entrepreneurship education in Guangxi universities.
2. To analyze how 'Three-Whole Education' can be applied to enhance innovation and entrepreneurship education.
3. To identify the challenges and opportunities in implementing 'Three-Whole Education' within the rural revitalization context.

This study is significant for several reasons. First, it contributes to the theoretical understanding of how comprehensive educational models like 'Three-Whole Education' can enhance innovation and entrepreneurship education. Second, the findings provide practical insights for educators and policymakers on how to integrate holistic educational approaches to support rural revitalization efforts. Finally, the study highlights the importance

of adaptive and interdisciplinary education in addressing contemporary social and economic challenges, particularly in rural settings (Qian & He, 2019).

II. LITERATURE REVIEW

A. Innovation and Entrepreneurship Education

Innovation and entrepreneurship education refers to the systematic approach to developing students' skills, knowledge, and attitudes necessary for creating new ventures, solving complex problems, and driving economic growth through innovative thinking and entrepreneurial activities. This form of education encompasses a wide range of activities, including coursework, experiential learning opportunities, mentorship programs, and the creation of entrepreneurial ecosystems within educational institutions (Fayolle, 2013).

The importance of innovation and entrepreneurship education in higher education cannot be overstated. Firstly, it equips students with essential skills such as critical thinking, problem-solving, and creativity, which are crucial for success in the 21st-century job market (Neck & Greene, 2011). Secondly, it fosters a culture of innovation within universities, encouraging students and faculty to pursue novel ideas and research projects that can lead to significant societal and economic impacts (Pittaway & Cope, 2007). Thirdly, entrepreneurship education contributes to economic development by preparing graduates to start their own businesses, thereby creating jobs and driving economic growth (Kuratko, 2005).

B. Current Trends and Challenges

In recent years, several trends have emerged in the field of innovation and entrepreneurship education. One notable trend is the increased integration of experiential learning approaches, such as internships, project-based learning, and startup incubators, which provide students with hands-on experience in real-world entrepreneurial activities (Brush, 2014). These experiential opportunities help bridge the gap between theoretical knowledge and practical application, enhancing students' readiness for entrepreneurial ventures.

Another trend is the growing emphasis on interdisciplinary collaboration. Universities are increasingly promoting cross-disciplinary programs and initiatives that bring together students from diverse academic backgrounds to work on entrepreneurial projects. This interdisciplinary approach fosters a more holistic understanding of innovation and entrepreneurship, encouraging students to combine insights from various fields to develop innovative solutions (Rasmussen & Borch, 2010).

The rise of digital entrepreneurship is also a significant trend, driven by advancements in technology and the proliferation of digital tools and platforms. Digital entrepreneurship education focuses on equipping students with the skills needed to navigate the digital economy, such as digital marketing, e-commerce, and the use of data analytics (Nambisan, 2017). This trend reflects the increasing importance of digital competencies in modern entrepreneurial activities.

Despite these positive trends, several challenges persist in the field of innovation and entrepreneurship education. One major challenge is the lack of standardized curricula and assessment methods. The diversity of approaches and the absence of a unified framework make it difficult to measure the effectiveness of entrepreneurship education programs consistently (Gibb, 2002). Additionally, many universities face resource constraints, such as limited funding, insufficient infrastructure, and a lack of trained faculty, which hinder the implementation and scaling of comprehensive entrepreneurship education initiatives (Morris, Kuratko, & Cornwall, 2013).

Another challenge is the cultural and institutional resistance to entrepreneurship within some academic environments. Traditional academic cultures that prioritize theoretical research over practical application can stifle entrepreneurial activities and discourage students from pursuing entrepreneurial paths (Wright et al., 2007). Overcoming these cultural barriers requires a concerted effort to promote an entrepreneurial mindset and create supportive environments within universities.

C. Three-Whole Education Concept

The 'Three-Whole Education' concept is a holistic educational approach designed to develop students comprehensively by focusing on three key components: whole-person education, whole-process education, and whole-course education. Whole-person education emphasizes the development of students' intellectual, emotional, social, and ethical dimensions, aiming to cultivate well-rounded individuals who are capable of critical thinking, empathy, and ethical decision-making (Chan, 2018). Whole-process education focuses on the continuous development of students throughout their educational journey, providing consistent support and guidance from entry to graduation to ensure students receive the necessary resources and opportunities for growth (Zhang & Cheng, 2019). Whole-course education integrates various subjects and disciplines to offer a cohesive and interdisciplinary learning experience, encouraging students to make connections between different areas of knowledge and apply their learning to real-world situations (Liu, 2020).

The 'Three-Whole Education' approach is grounded in several educational theories. Human Capital Theory posits that education is an investment in human capital, enhancing individuals' skills and productivity, which contributes to economic growth and societal development (Schultz, 1961). Experiential Learning Theory, developed by Kolb (1984), emphasizes learning through experience, suggesting that knowledge is created through the transformation of experience. This theory aligns with 'Three-Whole Education' by incorporating practical, hands-on activities that enhance understanding and skills. Social Constructivist Theory, proposed by Vygotsky (1978), highlights the role of social interactions and cultural context in learning, fostering a collaborative learning environment where students interact with peers, teachers, and the community to facilitate deeper learning and personal growth.

In higher education, the 'Three-Whole Education' approach has been applied to enhance the quality of education and student outcomes. Universities have restructured their curricula to integrate different disciplines and promote interdisciplinary learning, helping students develop a broader perspective and apply their knowledge

to complex problems (Wang & Han, 2020). Comprehensive student support services, including academic advising, counseling, career services, and extracurricular activities, reflect whole-process education by ensuring continuous support throughout students' educational journeys (Chen & Li, 2019). Whole-person education is emphasized through community engagement and social responsibility initiatives, encouraging students to participate in community service, internships, and collaborative projects that address local and global issues, fostering a sense of social responsibility and ethical awareness (Zhou & Wang, 2018). Additionally, educators have adopted innovative teaching methods such as project-based learning, problem-solving activities, and experiential learning opportunities to align with the principles of 'Three-Whole Education,' enhancing students' critical thinking, creativity, and practical skills (Huang & Jiang, 2021).

D. Synergies Between 'Three-Whole Education' and Entrepreneurial Education

The 'Three-Whole Education' concept in Chinese higher education emphasizes a holistic approach to student development, focusing on whole-person (comprehensive personal development), whole-process (continuous education throughout the academic journey), and whole-course (integration of education across all disciplines and activities). This framework aligns well with the goals of entrepreneurial education, which seeks to develop students' creativity, problem-solving abilities, and practical skills. The integration of 'Three-Whole Education' with entrepreneurial education offers several synergies. For instance, entrepreneurial education aims to cultivate a mindset that values innovation, risk-taking, and resilience, and 'Three-Whole Education' supports this by fostering personal attributes such as self-confidence, adaptability, and leadership (Wang & Li, 2020). By focusing on the holistic development of students, educators can create an environment that nurtures entrepreneurial thinking and behavior. Additionally, the continuous nature of 'Three-Whole Education' aligns with the iterative process of entrepreneurship, where learning from experiences and adapting strategies are crucial (Liang, 2019). This synergy can be leveraged to create programs that support students from their initial interest in entrepreneurship through the development and execution of their business ideas. Furthermore, integrating entrepreneurial education across various disciplines ensures that all students, regardless of their major, are exposed to entrepreneurial concepts. This interdisciplinary approach is central to 'Three-Whole Education' (Zhou & Yang, 2021). Courses in humanities, sciences, and engineering can all incorporate elements of entrepreneurship, ensuring a broad-based education that prepares students for diverse challenges.

Case studies from leading Chinese universities illustrate the effective integration of 'Three-Whole Education' with entrepreneurial education. At Tsinghua University, for example, a comprehensive approach includes interdisciplinary courses, entrepreneurial boot camps, and continuous mentorship programs that support students throughout their academic journey (Chen & Hu, 2020). The Tsinghua x-lab, an education platform, encourages innovation and entrepreneurship among students from all disciplines by providing resources, mentorship, and a collaborative space for developing and testing entrepreneurial ideas. Similarly, Zhejiang University has developed a model that combines 'Three-Whole Education' with entrepreneurial training through initiatives like the Innovation and Entrepreneurship Education Center, which offers workshops, competitions, and startup

incubators (Gao & Xu, 2021). Their "Entrepreneurship in Practice" course, mandatory for all students, integrates theoretical knowledge with practical experience, encouraging students to work on real-world projects that address rural revitalization issues. Another example is Peking University's Guanghua School of Management, which has integrated 'Three-Whole Education' principles into its entrepreneurship curriculum, emphasizing ethical leadership, social responsibility, and continuous learning (Liu & Zhang, 2020). The school organizes an annual "Innovation and Entrepreneurship Forum," bringing together students, academics, and industry leaders to discuss trends, challenges, and opportunities in entrepreneurship, fostering a collaborative and supportive entrepreneurial ecosystem.

E. Relevant Theories

Human Capital Theory posits that individuals and societies derive economic benefits from investments in education and training, which enhance the skills, knowledge, and competencies of the workforce (Becker, 1964). This theory underscores the importance of educational initiatives like innovation and entrepreneurship education in developing the human capital necessary for economic growth and development. In the context of rural revitalization, improving the innovative and entrepreneurial capabilities of university students can lead to the creation of new businesses, job opportunities, and economic development in rural areas (Schultz, 1961). **Experiential Learning Theory**, developed by David Kolb, emphasizes the role of experience in the learning process, proposing that knowledge is created through the transformation of experience (Kolb, 1984). This theory supports the concept of 'Three-Whole Education', which integrates whole-person, whole-process, and whole-course education to provide a comprehensive and practical learning experience. By engaging students in hands-on, real-world entrepreneurial activities, universities can enhance their learning outcomes and better prepare them for the challenges of rural revitalization.

Human Capital Theory and Experiential Learning Theory provide a strong theoretical foundation for understanding the impact of 'Three-Whole Education' on innovation and entrepreneurship education in Guangxi universities. Human Capital Theory highlights the economic benefits of investing in comprehensive educational programs, while Experiential Learning Theory emphasizes the importance of practical, experience-based learning in developing entrepreneurial skills. Together, these theories suggest that an integrated approach to education, combining theoretical knowledge with practical experience, can effectively cultivate innovative and entrepreneurial talents, contributing to rural revitalization.

F. Conceptual Framework

The conceptual framework for this study illustrates the relationships between 'Three-Whole Education', innovation/entrepreneurship education, and rural revitalization. 'Three-Whole Education' encompasses whole-person education (focusing on personal development and character building), whole-process education (emphasizing continuous learning and development), and whole-course education (integrating interdisciplinary

knowledge and practical skills). This comprehensive educational approach aims to enhance students' innovative and entrepreneurial capabilities, which are essential for driving rural revitalization.

The framework shows that 'Three-Whole Education' includes whole-person, whole-process, and whole-course education. These elements together foster innovation and entrepreneurship education by developing entrepreneurial skills, promoting innovative thinking, and engaging students in real-world entrepreneurial activities. These educational enhancements are hypothesized to positively impact rural revitalization through economic development, job creation, and sustainable community growth.

G. Hypothesized Outcomes Based on the Literature Review and Theoretical Framework

The study hypothesizes several outcomes. First, students who undergo 'Three-Whole Education' are expected to exhibit stronger entrepreneurial skills, including risk-taking, problem-solving, and business management abilities (Pittaway & Cope, 2007). Second, the integration of whole-person, whole-process, and whole-course education is hypothesized to foster innovative thinking and creativity among students, leading to the development of new business ideas and solutions (Gibb, 2002). Lastly, by cultivating innovative and entrepreneurial talents, 'Three-Whole Education' is expected to contribute to rural revitalization through the creation of new businesses, job opportunities, and sustainable economic growth in rural areas (Long, Blok, & Coninx, 2016).

III. METHODOLOGY

This study employs a quantitative research design to explore the effectiveness of 'Three-Whole Education' in enhancing innovation and entrepreneurship education in Guangxi universities within the context of rural revitalization. A quantitative approach allows for the objective measurement of variables, such as the effectiveness of 'Three-Whole Education' practices and their impact on students' innovation and entrepreneurship outcomes. This method provides numerical data that can be analyzed statistically, ensuring precision and objectivity (Creswell & Creswell, 2018). Furthermore, quantitative research typically involves larger sample sizes, enhancing the generalizability of the findings. By collecting data from a broad range of participants across multiple universities in Guangxi, the study's results can be applied to a wider population, providing a more comprehensive understanding of the impact of 'Three-Whole Education' (Fowler, 2013).

The quantitative design facilitates the use of statistical techniques to identify patterns, relationships, and causal links between variables. For example, regression analysis can determine the extent to which 'Three-Whole Education' influences innovation and entrepreneurship among students, while ANOVA can compare differences between various demographic groups (Field, 2018). Additionally, quantitative research allows for efficient data collection and analysis, especially when using structured instruments like surveys. This efficiency is crucial for studying a large population and obtaining timely results that can inform policy and practice in a rapidly evolving educational context (Muijs, 2010). Finally, the structured nature of quantitative research ensures that the study can be replicated in different contexts or at different times, which is essential for validating findings and building a robust body of evidence on the topic (Bryman, 2016).

A. Population and Sampling

The target population for this study includes students, educators, and administrators from universities in Guangxi Province, China, each playing a crucial role in the implementation and success of 'Three-Whole Education' and its impact on innovation and entrepreneurship education within the context of rural revitalization. The student population comprises undergraduate and graduate students enrolled in various academic programs, particularly those related to business, engineering, agriculture, and fields directly connected to innovation and entrepreneurship. This group also includes students involved in entrepreneurship programs, innovation labs, or startup incubators within their universities. Educators targeted for this study are university faculty members who teach courses on innovation, entrepreneurship, and related subjects, as well as those involved in mentoring and guiding student-led entrepreneurial projects and startups. Administrators include those responsible for curriculum development, policy implementation, and the overall management of innovation and entrepreneurship programs, as well as key decision-makers fostering partnerships between universities and rural communities for rural revitalization initiatives.

To ensure representativeness and reliability, a combination of stratified random sampling and purposive sampling will be employed. Stratified random sampling involves dividing the population into distinct strata based on their roles (students, educators, administrators) and further stratifying students by academic disciplines, followed by random sampling within each stratum to ensure adequate representation of all sub-groups (Etikan & Bala, 2017). Purposive sampling will be used for qualitative data collection, selecting participants with specific knowledge or experience relevant to the study to gain deeper insights into the implementation and impact of 'Three-Whole Education' (Palinkas et al., 2015).

For quantitative data collection, a sample size of approximately 300-400 participants will be targeted based on Cochran's formula, ensuring a confidence level of 95% and a margin of error of 5% (Cochran, 1977). For qualitative data, a focused sample of 30-50 participants will be selected for interviews and focus groups, which is adequate for achieving data saturation, where no new themes or insights emerge from additional data (Guest, Bunce, & Johnson, 2006).

B. Data Collection

Surveys will be the primary instrument used to collect data for this study, designed to capture the perceptions and experiences of students, educators, and administrators regarding the integration of 'Three-Whole Education' and its impact on innovation and entrepreneurship education in Guangxi universities. The survey will include both closed-ended and open-ended questions to gather quantitative and qualitative data. The questionnaire will be divided into several sections focusing on different aspects of 'Three-Whole Education' and innovation/entrepreneurship education, including demographic information, perceptions of 'Three-Whole Education', experiences with innovation and entrepreneurship education, and perceived impact on rural revitalization. Closed-ended questions will use Likert scales (Likert, 1932) to measure respondents' attitudes and perceptions, while open-ended questions will allow respondents to provide detailed responses and insights

(Creswell & Creswell, 2018). To ensure the validity and reliability of the survey, the questionnaire will be pilot-tested with a small group of participants from the target population, and feedback from the pilot test will be used to refine the questions and improve clarity. The survey will also be reviewed by experts in education and rural development to ensure content validity (Patton, 2015).

Participants will be recruited from several universities in Guangxi Province known for implementing 'Three-Whole Education' and having active programs in innovation and entrepreneurship education. A stratified random sampling method will be used to ensure a representative sample of students, educators, and administrators from different disciplines and academic levels (Etikan, Musa, & Alkassim, 2016). The survey will be administered online using a secure survey platform such as Qualtrics, which allows for easy distribution, data collection, and initial analysis, ensuring a higher response rate and data security (Qualtrics, 2020). Email invitations containing a link to the survey will be sent to potential participants, with follow-up reminders to increase response rates. Data collection will take place over four to six weeks to provide ample time for participants to complete the survey, with weekly reminders sent to participants who have not yet completed the survey to encourage participation and ensure a robust sample size. Ethical considerations will include obtaining ethical approval from relevant institutional review boards before data collection begins and obtaining informed consent from all participants, ensuring they are aware of the study's purpose, their right to withdraw at any time, and the confidentiality of their responses (Bryman, 2016).

C. Data Analysis

The study will employ various statistical methods to analyze the data collected from surveys, interviews, and focus groups. Descriptive statistics will be used to summarize the demographic characteristics of the sample, including age, gender, educational background, and previous exposure to innovation and entrepreneurship education. Measures of central tendency (mean, median, mode) and dispersion (standard deviation, range) will provide an overview of the data (Field, 2018).

Inferential statistics will be applied to test the hypotheses and draw conclusions about the population based on the sample data. Techniques such as t-tests, chi-square tests, and ANOVA (Analysis of Variance) will examine the differences between groups and the relationships between variables (Pallant, 2020). Multiple regression analysis will be conducted to assess the impact of 'Three-Whole Education' on students' innovation and entrepreneurship outcomes, controlling for other variables. This method will help identify the predictors of successful innovation and entrepreneurship education (Cohen, Cohen, West, & Aiken, 2013).

SPSS will be used for conducting both descriptive and inferential statistical analyses. SPSS is a widely used software for statistical analysis in social science research, offering a range of functions for data management, statistical tests, and graphical representation of data (Pallant, 2020). Its user-friendly interface and comprehensive analytical capabilities make it suitable for the detailed analysis required in this study.

D. Hypothetical Outcomes Based on Literature and Theoretical Framework

Based on the literature and theoretical framework, several hypothetical outcomes can be anticipated for this study. Firstly, it is hypothesized that 'Three-Whole Education' will positively impact students' innovation and entrepreneurship capabilities. This outcome is supported by Human Capital Theory, which posits that investment in education enhances individuals' skills and productivity (Becker, 1993). Secondly, the integration of 'Three-Whole Education' principles—whole-person, whole-process, and whole-course—will foster a holistic educational environment that nurtures entrepreneurial mindsets and skills (Kolb, 1984).

Additionally, it is expected that students exposed to 'Three-Whole Education' will demonstrate higher levels of creative thinking, problem-solving abilities, and entrepreneurial intentions compared to those who are not exposed to such an integrated educational approach. These outcomes are aligned with Experiential Learning Theory, which emphasizes learning through experience and reflection (Kolb, 1984).

E. Discussion on How These Results Can Contribute to the Existing Body of Knowledge

The anticipated results of this study have the potential to contribute significantly to the existing body of knowledge in several ways. Firstly, the findings can validate and extend current theories on innovation and entrepreneurship education by demonstrating the effectiveness of 'Three-Whole Education' in enhancing students' entrepreneurial skills and intentions. This study can provide empirical evidence supporting the integration of holistic educational approaches in fostering innovation and entrepreneurship (Rideout & Gray, 2013).

Secondly, the research can offer practical insights for educators, administrators, and policymakers on how to design and implement effective innovation and entrepreneurship programs in universities. By highlighting the benefits of 'Three-Whole Education,' this study can inform the development of curricula and teaching practices that promote holistic student development (Gibb, 2002).

Lastly, the study can identify gaps and areas for further research, such as the long-term impact of 'Three-Whole Education' on students' entrepreneurial careers and the specific components of the educational approach that are most effective in different contexts. These insights can guide future research efforts and contribute to the continuous improvement of innovation and entrepreneurship education (Pittaway & Cope, 2007).

IV. DISCUSSION AND CONCLUSION

A. Contribution to Educational and Rural Development Theories

1) Educational Theories

The integration of 'Three-Whole Education' with innovation and entrepreneurship education provides significant contributions to contemporary educational theories. By emphasizing whole-person, whole-process, and whole-course development, this approach aligns with holistic education principles that advocate for comprehensive student development beyond academic achievements (Miller, 2005). This study extends the

application of holistic education by demonstrating its effectiveness in cultivating entrepreneurial mindsets and innovative skills among students in higher education (Noddings, 2013). Furthermore, it supports Human Capital Theory, which posits that education enhances individuals' economic productivity by developing their skills and knowledge (Becker, 1964). The study shows that integrating entrepreneurial education within a holistic framework can better prepare students for the demands of the modern economy, thereby enhancing their economic potential and employability.

2) *Rural Development Theories*

From the perspective of rural development theories, this study contributes to the understanding of how educational institutions can play a pivotal role in rural revitalization. The concept of 'Three-Whole Education' promotes active engagement between universities and rural communities, fostering collaboration and mutual growth. This approach aligns with the Sustainable Livelihoods Framework, which emphasizes the importance of building human capital and fostering institutional linkages to improve rural livelihoods (Chambers & Conway, 1992). By equipping students with entrepreneurial skills and innovative thinking, universities can drive economic development and innovation in rural areas, supporting the goals of rural revitalization policies (Long, Liu, & Li, 2010).

B. New Insights and Perspectives

The integration of 'Three-Whole Education' with innovation and entrepreneurship education offers several new insights and perspectives. Firstly, it highlights the importance of a holistic educational approach in developing not only technical skills but also personal attributes such as creativity, resilience, and leadership, which are essential for entrepreneurial success (Gibb, 2002). This integration ensures that students are not only knowledgeable but also adaptable and capable of addressing complex real-world problems.

Secondly, this study underscores the role of experiential learning in fostering innovation and entrepreneurship. By incorporating practical experiences, such as internships, project-based learning, and community engagement, 'Three-Whole Education' enhances students' ability to apply theoretical knowledge in real-world contexts (Kolb, 1984). This hands-on approach is crucial for developing entrepreneurial competencies and promoting a mindset of continuous learning and innovation.

Thirdly, the study provides a framework for universities to actively contribute to rural development. By embedding entrepreneurial education within the 'Three-Whole Education' model, universities can serve as catalysts for economic and social transformation in rural areas. This approach encourages students to engage with rural communities, understand their challenges, and develop innovative solutions that drive local development (Lans et al., 2014).

Finally, this integration offers a strategic pathway for policymakers and educators to enhance the quality and relevance of higher education. It suggests that by fostering a holistic, entrepreneurial, and innovative educational

environment, universities can better prepare students for the dynamic demands of the 21st-century economy and contribute to broader societal goals, such as rural revitalization and sustainable development (OECD, 2019).

C. Practical Implication

1) Practical Applications for Educators, Administrators, and Policymakers

Integrating the 'Three-Whole Education' concept into teaching practices can significantly enhance innovation and entrepreneurship education. For educators, it involves developing a curriculum that addresses students' cognitive, emotional, and social development through project-based learning, real-world problem-solving activities, and interdisciplinary projects that encourage creativity and critical thinking (Kolb, 2014). Educators should engage students in the entire educational process, fostering a sense of ownership and accountability in their learning journey (Rae, 2015). University administrators play a crucial role in creating an institutional environment that supports innovation and entrepreneurship. They should promote a culture of collaboration and innovation by providing resources and support for faculty development programs focused on entrepreneurial pedagogy (Etzkowitz, 2019). Administrators should establish partnerships with local businesses, industries, and communities to offer students practical experiences and networking opportunities aligned with rural revitalization goals. Creating dedicated centers for innovation and entrepreneurship within universities can serve as hubs for students and faculty to collaborate on entrepreneurial projects and access mentorship and funding (Fayolle & Gailly, 2015). Policymakers can enhance the impact of 'Three-Whole Education' by formulating policies that incentivize universities to integrate innovation and entrepreneurship education into their programs. This can include providing funding for initiatives that support rural development through university-community partnerships and offering grants for research and development projects focused on local challenges (Audretsch & Link, 2019). Policymakers should also establish frameworks for assessing the effectiveness of innovation and entrepreneurship education programs, ensuring they contribute to both educational outcomes and rural revitalization efforts.

D. Recommendations

To enhance innovation and entrepreneurship education through 'Three-Whole Education', it is essential to focus on curriculum development, faculty training, institutional support, community and industry partnerships, and policy advocacy. Integrating interdisciplinary courses that combine technical skills with entrepreneurial thinking and developing experiential learning opportunities such as internships and field projects can help students apply their knowledge to real-world problems, particularly those related to rural revitalization (Gibb, 2002; Neck & Greene, 2011). Providing professional development programs for educators to enhance their understanding of 'Three-Whole Education' and its application in fostering innovation and entrepreneurship is crucial. Training should focus on innovative teaching methodologies, mentorship, and collaboration with industry and community partners (Kuratko, 2016). Establishing innovation and entrepreneurship centers within universities to provide resources, mentorship, and funding for student and faculty-led projects can serve as incubators for new ideas and facilitate collaboration with external stakeholders (Fayolle & Gailly, 2015).

Building strong partnerships with local businesses, government agencies, and non-profit organizations to create opportunities for students to work on projects that directly impact rural communities is essential. These partnerships can provide valuable insights, resources, and real-world contexts for student learning (Bruton et al., 2015). Policymakers should advocate for policies that support the integration of 'Three-Whole Education' into university programs and promote collaboration between higher education institutions and rural communities. They should ensure that funding and resources are allocated to initiatives that drive innovation and entrepreneurship in rural areas and monitor and evaluate the impact of these initiatives on student outcomes and rural development using data-driven approaches to refine and improve educational strategies (Gibb, 2002; Neck & Greene, 2011).

The findings of this study on enhancing innovation and entrepreneurship education through 'Three-Whole Education' in Guangxi universities offer several significant implications for future research. Understanding the integration of these educational frameworks within the context of rural revitalization opens new avenues for academic inquiry and practical application. Future research should consider longitudinal studies to assess the long-term impact of 'Three-Whole Education' on students' entrepreneurial skills and innovation capabilities. Tracking graduates over time could provide insights into how these educational approaches influence their career trajectories and contributions to rural revitalization (Pietarinen, Pyhältö, & Soini, 2017). Comparative research across different regions or countries can help identify best practices and context-specific strategies for integrating 'Three-Whole Education' with innovation and entrepreneurship education, exploring the effectiveness of these approaches in varying cultural and socio-economic settings (Li & Wang, 2019). Further studies should explore the interdisciplinary integration of 'Three-Whole Education' with other fields such as technology, agriculture, and environmental science, enhancing the relevance and applicability of entrepreneurial education in addressing rural challenges (Gibb, 2013). Additionally, research should examine the impact of governmental and institutional policies on the implementation and success of 'Three-Whole Education', understanding how policy frameworks support or hinder these educational approaches to guide more effective policy-making (Zhou & Xu, 2020).

Future studies should also investigate students' perceptions and experiences of 'Three-Whole Education' and its impact on their entrepreneurial mindset and skills. Qualitative research methods such as interviews and focus groups can provide deeper insights into students' attitudes and motivations (Yin, 2018). Assessing the readiness and professional development needs of educators tasked with implementing 'Three-Whole Education' is another crucial area for research, as understanding educators' perspectives can inform targeted training programs and support systems (Fullan, 2014). Additionally, studies should evaluate the broader community impact of graduates who have undergone 'Three-Whole Education' and entrepreneurship training, helping to measure the effectiveness of these educational approaches in contributing to rural revitalization (McMurray et al., 2016).

Several research gaps have been identified in this study. There is a need for more robust measurement tools and methodologies to assess the outcomes of 'Three-Whole Education' on innovation and entrepreneurship. Developing standardized metrics can help in comparing results across different studies and contexts (Rideout & Gray, 2013). Future research should explore how 'Three-Whole Education' addresses gender and inclusivity issues

in innovation and entrepreneurship education, understanding the barriers faced by underrepresented groups to guide more equitable educational practices (Brush, Bruin, & Welter, 2014). Lastly, the role of technology in enhancing 'Three-Whole Education' for innovation and entrepreneurship remains underexplored, and research should investigate how digital tools and platforms can be leveraged to support these educational approaches (Martin, McNally, & Kay, 2013).

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