Study of Teaching Methods to Promote Creative Thinking Skills of Primary School Students in Guizhou, China

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Abstract

This mixed-methods study examines the challenges and teaching strategies for fostering creative thinking skills in primary school students in rural Guizhou, China. The study was conducted in three phases: documentary research, surveys, and in-depth interviews. The sample included 354 primary school teachers from Xing Ren, Guizhou, and 12 teachers from 6 schools participated in focus group interviews. Quantitative data was analyzed using descriptive statistics and the Priority Needs Index (PNI), while qualitative data was analyzed through thematic analysis. Results revealed that teachers identified a lack of focus on classroom environment and teaching methods for promoting creative thinking. The study emphasizes the need to improve classroom settings, teaching methods, and student involvement, as well as strengthen communication with parents to enhance creative thinking skills. Based on these findings, teaching guidelines for promoting creativity were developed.

Keywords: Creative Thinking Skills; Primary school students; Rural Guizhou; Teaching Methods

Introduction

Creative thinking skills are essential for success in the 21st century, as they enable individuals to navigate the complexities of modern life. These skills, which include critical thinking, problem-solving, and adaptability, are crucial in a rapidly changing world (UNESCO, 2024; OECD, 2022). They drive economic growth, social progress, and technological innovation, making them vital for future workforce readiness.

In China, rapid economic growth has been linked to a creative, skilled workforce, leading to government efforts to promote creativity through curriculum reform, teacher training, and extracurricular support (Ministry of Education of the People's Republic of China, 2023). However, rural areas face challenges such as limited resources and traditional teaching methods, hindering creativity-focused education (Qin, Qin, & Zhong, 2023).

This study focuses on primary schools in rural Xing Ren, Guizhou Province, exploring the challenges teachers face in fostering creative thinking and developing tailored teaching guidelines. It will examine teachers' beliefs, practices, and obstacles regarding creativity, aiming to inform effective strategies for rural educational contexts. The goal is to contribute to the development of contextually relevant teaching methods that enhance creativity in these settings.

The findings will provide valuable insights for educators and policymakers seeking to improve education quality and foster creativity in rural communities.

Research Objectives

1. To study the problems of teaching that promote creative thinking skills for primary school students in rural Guizhou, China.

2. To synthesize and present teaching guidelines that promote creative thinking skills for primary school students in rural Guizhou, China.

Literature Review

The development of creative thinking skills in primary school students is vital in today's rapidly changing world. These skills are essential for personal and societal progress. This review highlights the importance of creativity, effective teaching methods, and challenges in rural China, particularly in Guizhou, while identifying research gaps to guide this study on teachers' perspectives in nurturing creativity in rural schools.

1. The Importance of Creative Thinking Skills

Creative thinking is crucial for adapting to new challenges and generating innovations that can drive progress (Ramalingam et al., 2020; OECD, 2022). These skills enable students to solve problems, think critically, and contribute to societal advancement.

2. Teaching Methods to Promote Creative Thinking

Various teaching methods can foster creative thinking, such as project-based learning, inquiry-based learning, and design thinking (Kumar & Rani, 2023; Hwang et al., 2022). These approaches encourage students to explore ideas, experiment with solutions, and develop original innovations (Ekayana, Parwati, Agustini, & Ratnaya, 2024).

3. Challenges in Promoting Creative Thinking Skills in China

The promotion of creative thinking skills in China faces significant challenges due to the education system's strong emphasis on rote memorization and exam-based learning. The high-stakes examination culture, particularly the Gaokao, encourages a learning approach that prioritizes factual recall over creative problem-solving (Lee, H., 2024; Wang, J., & Chen, X., 2024). Research indicates that this approach limits students' ability to engage

in open-ended exploration and critical thinking, which are essential components of creativity (Hyun, L., 2024).

Another major challenge is the lack of teacher training and resources necessary for fostering creativity in the classroom. Many educators in China are trained to focus on delivering standardized content rather than encouraging divergent thinking (Zhou, Y., & Li, X., 2024). Despite efforts by the government to introduce educational reforms that promote inquiry-based and project-based learning, implementation remains difficult due to systemic constraints and cultural attitudes that favor structured, disciplined learning environments (Frontiers, 2024)

4. Knowledge Gap

While existing research has extensively examined creative thinking and innovative teaching methods in China, there remains a significant knowledge gap concerning rural schools. Most studies focus on urban areas, where schools benefit from better-trained teachers, abundant resources, and modern teaching technologies (Zhao, Y., 2021). However, rural schools face persistent challenges, such as limited access to updated educational materials, inadequate teacher training, and a reliance on traditional rote memorization methods, which hinder the development of creative thinking among students (Shikalepo, E. E., 2020).

Additionally, few studies have explored teachers' perspectives on fostering creativity in rural classrooms. Many rural educators lack professional development opportunities and struggle to implement modern pedagogical approaches effectively (Chowdhury, 2024. Furthermore, the socioeconomic challenges faced by rural communities - such as long travel distances to school and financial constraints - further exacerbate disparities in educational quality between rural and urban areas.

This study seeks to address these gaps by investigating teachers' views on effective methods for promoting creativity in rural primary schools in China. By highlighting educators' experiences and identifying key barriers, the research aims to contribute to more inclusive and equitable educational policies.

This review underscores the importance of creative thinking and outlines various strategies to foster these skills. However, challenges persist, especially in rural areas, highlighting the need for further research. The study will use a mixed-methods approach, combining quantitative surveys and qualitative focus groups, guided by the Priority Needs Index (PNI) to identify areas for intervention. The conceptual framework (Figure 1) connects teaching methods, such as student-centered instruction, teacher development, and technology use, to creative thinking skills, while addressing challenges like limited parental

support, resource constraints, and student-related issues. This approach aims to provide insights into effective methods for enhancing creativity in rural schools.
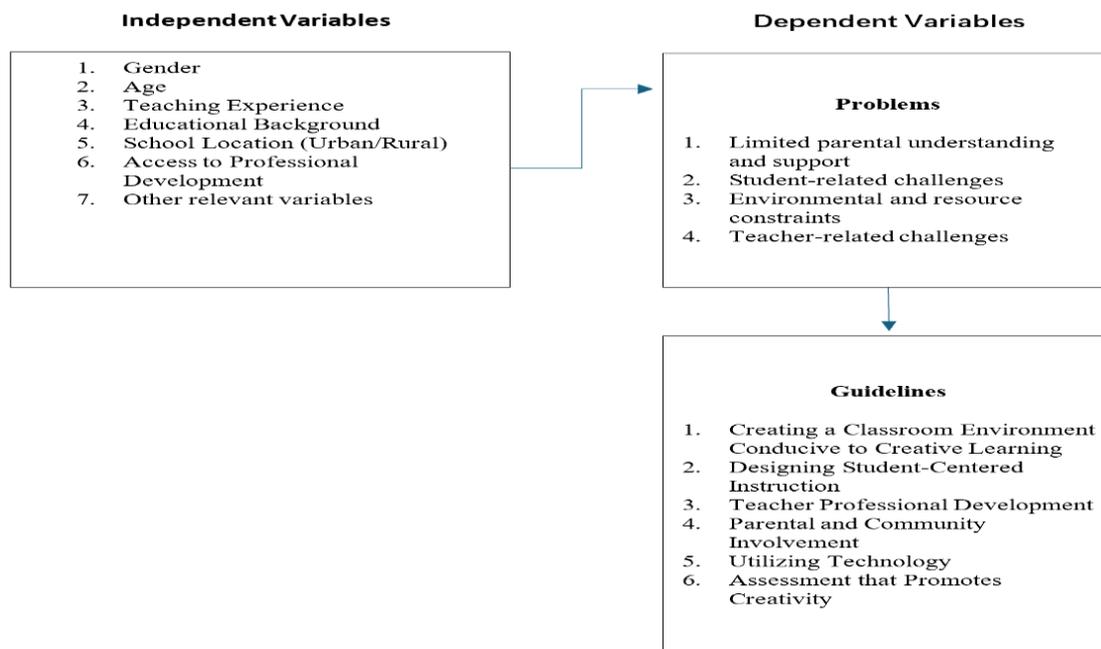
Independent Variables

1. Gender
2. Age
3. Teaching Experience
4. Educational Background
5. School Location (Urban/Rural)
6. Access to Professional Development
7. Other relevant variables

Dependent Variables

Problems

1. Limited parental understanding and support
2. Student-related challenges
3. Environmental and resource constraints
4. Teacher-related challenges

Guidelines

1. Creating a Classroom Environment Conducive to Creative Learning
2. Designing Student-Centered Instruction
3. Teacher Professional Development
4. Parental and Community Involvement
5. Utilizing Technology
6. Assessment that Promotes Creativity

Fig.1 Conceptual Framework

Research Methodology

This study employed a mixed-methods approach, combining quantitative and qualitative methods to provide a comprehensive understanding of the research topic. The research was conducted in three phases, integrating both surveys and focus group interviews to gather diverse perspectives and enhance the validity of the findings.

Phase 1: Documentary Research

The first phase involved documentary research to collect information on creative thinking skills, teaching methods, and the current state of creative thinking instruction in primary schools. Sources included academic articles, websites, and educational statistics.

Phase 2: Survey Research

The second phase included a survey conducted with 354 primary school teachers in Guizhou Province, China. The survey assessed factors influencing creative thinking skills, such as classroom environment, teaching methods, student engagement, resources, and support, focusing on both current and desired levels.

Phase 3: In-depth Interviews

The final phase involved in-depth interviews with 12 primary school teachers in Guizhou. The interviews aimed to explore teachers' experiences and perspectives on

teaching creative thinking, including their understanding of creativity, teaching methods, challenges, and perceived impacts on students.

Instrument Development

This study utilized two primary instruments for data collection: a questionnaire and in-depth interviews. The development and quality assessments of these instruments are as follows:

1. Questionnaire Development

The questionnaire was created in four stages: (1) designing the framework and developing questions, structured around the research framework and divided into sections for general information, Likert-scale items, and open-ended questions; (2) assessing content validity with five experts, yielding an Index of Item-Objective Congruence (IOC) of 0.87 to 1.00; (3) testing reliability with Cronbach's Alpha, resulting in a value of 0.92; and (4) conducting a pilot test with 30 participants, revealing an average Difficulty Index of 0.62 and a Discrimination Index of 0.45.

2. In-depth Interview Development

The interview guide was developed by (1) creating semi-structured questions for in-depth exploration, (2) reviewing content validity with experts, (3) assessing inter-coder reliability using Cohen's Kappa, yielding a value of 0.82, and (4) piloting the interview with three participants to refine and clarify questions.

Data Collection and Analysis

Quantitative data were collected via an online questionnaire assessing teachers' perspectives on promoting creative thinking. Ethical guidelines were followed, and informed consent was obtained. The data were analyzed using descriptive statistics, including mean, standard deviation, and the Priority Needs Index (PNI) to identify and prioritize areas for improvement.

Qualitative data were gathered through focus group interviews, exploring teachers' experiences in fostering creativity. Informed consent was also obtained, and interviews were scheduled at participants' convenience. The data were transcribed and analyzed using thematic analysis to identify key themes.

This mixed-methods approach allowed for data triangulation, enhancing the validity and depth of the findings. The results can inform the development of strategies to improve creativity education in Guizhou's primary schools. Ethical compliance throughout the process ensured participant rights were respected and the study's credibility was upheld.

Research Results

Objective 1. The survey of 354 teachers in Guizhou revealed significant gaps between current and desired conditions for fostering creative thinking in primary students. The classroom environment and teaching methods (PNI = 0.66) were identified as major deficiencies, along with resources, collaboration (PNI = 0.66), and student participation (PNI = 0.64). Key challenges include:

Limited Parental Understanding and Support: Many parents lack awareness of the importance of creative thinking, focusing instead on grades and traditional achievements, which limits the adoption of creative teaching methods.

Student-Related Challenges: Students face difficulties due to limited exposure to diverse perspectives and knowledge, making creativity difficult to develop. Differentiated instruction is needed to accommodate students' varying personalities, learning styles, and levels of initiative.

Environmental and Resource Constraints: Limited resources, traditional teaching methods, and societal pressures restrict creativity. Poverty and lack of access to educational resources further hinder students' creative development.

Teacher-Related Challenges: Teachers struggle to balance creativity with curriculum demands and standardized testing. Classroom management during creative activities is difficult, and many teachers lack confidence in innovative pedagogical practices due to insufficient training.

In conclusion, the study highlights the complex challenges teachers in rural Guizhou face in promoting creativity, particularly related to parental attitudes, student characteristics, environmental limitations, and teacher-related factors.

Recommendations for Enhancing Creative Thinking Skills

Analysis of responses to open-ended survey questions from teachers in Guizhou revealed three key recommendations for promoting creative thinking: communication and expression (84 teachers), diverse learning activities (86 teachers), and motivation and recognition (102 teachers). Teachers emphasized the importance of encouraging questioning, idea exchange, and self-expression to foster creativity. They also highlighted the need for varied activities and environments to stimulate creative thinking. Recognizing students' abilities and boosting their confidence were seen as crucial for fostering innovative ideas. Although less frequently mentioned, strategies like challenging tasks, open-ended learning, and collaboration are still considered valuable. Limited focus on international exchanges and open learning environments may be due to resource or curriculum

constraints. The findings suggest a need to prioritize these areas while exploring additional strategies to enhance creativity.

Objective 2. Analysis of quantitative data from 354 teachers in Guizhou revealed that most were male (55.65%), aged 30-40 years (48.59%), held a bachelor's degree (72.88%), had less than 10 years of experience (65.38%), and worked in medium-sized schools (44.07%). Qualitative data from 12 rural teachers, primarily female (11 out of 12) and aged 30-40 (8 out of 12), also holding bachelor's degrees, led to the following synthesized guidelines for promoting creative thinking:

1. Creating a Conducive Classroom Environment: Establish a safe, open atmosphere for idea expression, hands-on learning, diverse resources, and collaboration.

2. Designing Student-Centered Instruction: Use varied activities that stimulate creative thinking, connect learning to real-life, encourage questions and idea exchange, and emphasize effort and initiative in feedback.

3. Teacher Professional Development: Provide training in creative pedagogy, promote lifelong learning, and foster professional learning communities to share creative methods.

4. Parental and Community Involvement: Raise awareness of creative teaching, encourage home-school collaboration, and use joint activities and creativity-enhancing homework.

5. Utilizing Technology: Leverage technology for student-centered learning and creative production using engaging tools like games, animations, and videos.

6. Assessment that Promotes Creativity: Use diverse assessments such as behavioral observation, presentations, and projects, focusing on effort and initiative, not just correct answers.

These guidelines can be adapted to the specific context of each school and community to effectively promote creative thinking skills among students in China.

Discussions

Objective 1: The analysis revealed significant gaps between current and desired conditions for fostering creative thinking skills in primary schools in Guizhou, particularly in classroom environment and teaching methods, both rated in the low to moderate range (PNI = 0.66). The need for improvements in resources, collaboration, and student participation was also highlighted (PNI = 0.64 to 0.66). These findings align with Chan and Lee (2020), who emphasized the shift from traditional to more innovative, student-centered teaching approaches.

The study identified several challenges, including **limited parental understanding and support**, where parents often prioritize academic achievement over creativity. This

mirrors Zhang (2021), who noted the influence of parental attitudes on creative teaching success. **Student-related challenges** such as limited exposure to diverse perspectives and varying initiative levels also emerged. These align with Bullard and Bahar (2023), who suggested that teachers' beliefs hinder fostering creativity. **Environmental and resource constraints**, including limited resources and societal expectations, were consistent with Xie, Hensley, Law and Sun (2019), who pointed out the negative impact of such limitations. **Teacher-related challenges** included difficulties in balancing creativity with standardized testing and curriculum demands, as discussed by Chen and Zhao (2020), and the lack of creative teaching training, which Zhou and Zhang (2019) argued was crucial for fostering creativity.

In conclusion, this study underscores the multifaceted challenges faced by teachers in integrating creativity into their practices. These challenges, including parental attitudes, student diversity, and resource constraints, align with previous research, emphasizing the need for improved resources, greater parental involvement, and better teacher training in creative pedagogies.

Objective 2: The synthesized guidelines for promoting creative thinking skills were based on both quantitative data from 354 teachers and qualitative data from 12 rural teachers. These guidelines focus on creating a conducive classroom environment, designing student-centered instruction, enhancing teacher professional development, engaging parents and communities, utilizing technology, and implementing assessments that promote creativity. These practices reflect contemporary research on creative pedagogy.

Classroom environment: A supportive and open classroom that fosters risk-taking and exploration is essential for developing creativity (Zeng, X., 2021; Li, Y., 2020). Student-centered instruction, which incorporates real-life contexts, inquiry-based learning, and timely feedback, plays a crucial role in nurturing creative thinking (Lambert, N., Sugita, T., Yeh, J., Hunt, R., & Brophy, P., 2020; Hwang, G. J., Yang, L. H., & Wang, S. Y., 2022). Additionally, teacher professional development is vital for ensuring that educators can adapt to evolving student needs and move beyond traditional rote-based teaching (Yu, H., & Zhang, M., 2021; Zhang, Q., 2020).

Parental and community involvement significantly influences creativity development. Research suggests that when parents encourage autonomy and problem-solving, children tend to develop higher levels of creativity. Conversely, excessive psychological control from parents can hinder creative potential (Sun, Y., Wang, H., & Yang, C., 2023; Jiang, Q., Shi, L., Zheng, D., & Mao, W., 2023). Moreover, collaboration between teachers, parents, and the broader community creates an enriched environment that fosters innovation and independent thinking (Özyıldırım, G., 2024).

Technology integration also plays a crucial role in fostering creative thinking by offering dynamic, interactive learning experiences that promote problem-solving and collaboration (Scanlon, E., McAndrew, P., & O'Shea, T., 2019; Newton, D. P., & Newton, L. D., 2020). Finally, assessment methods that focus on the creative process rather than solely on outcomes encourage a growth mindset, further supporting the development of creativity (Zhang, L., & Liu, T., 2020; Zhou, X., & Zhao, M., 2021).

In conclusion, the synthesized guidelines offer a comprehensive framework for promoting creative thinking in primary education. These findings emphasize the importance of teacher development, engaging learning environments, and community involvement, consistent with the growing body of research on creative pedagogy.

Implications for Future Research and Practice: Future research should assess the effectiveness of these guidelines across diverse contexts and examine their long-term impact on student creativity. Investigating cultural factors and the role of technology integration in shaping creative thinking is crucial. In practice, these findings can inform teacher training, curriculum design, and assessment practices, empowering educators to foster creativity in primary students and develop innovative problem-solvers.

Knowledge from Research

The research findings highlight the multifaceted challenges and opportunities in fostering creative thinking skills among primary school students in rural Guizhou, China. The study identified several key factors that influence the development of these skills, including:

Teacher-Related Factors: The study emphasizes the crucial role of teachers in nurturing creativity. It underscores the need for teachers to possess creative teaching abilities, provide effective guidance and support, and engage in continuous professional development to stay abreast of innovative pedagogical approaches.

Student-Related Factors: The research recognizes the significance of student interest, motivation, personality, and prior knowledge in shaping their creative development. It highlights the necessity for differentiated instruction and personalized learning experiences to cater to the diverse needs and learning styles of students.

Environmental Factors: The study acknowledges the impact of the school environment, educational system, and parental support on fostering creativity. It emphasizes the importance of creating a supportive and stimulating learning environment that values innovation and encourages risk-taking. The research also underscores the need for effective communication and collaboration between teachers and parents to create a cohesive approach to nurturing creativity.

The key takeaway from this research is the identification of six approaches to fostering creative thinking skills. These six approaches are:

1. Creating a Classroom Environment Conducive to Creative Learning: The classroom environment should be safe and open, encouraging students to express their ideas, experiment, and collaborate without fear of judgment. The use of hands-on learning and diverse resources can further stimulate students' interest and imagination.

2. Designing Student-Centered Instruction: The focus should be on student-centered learning activities that promote problem-solving, critical thinking, and creative production. Connecting learning to real-life situations and encouraging questions and opinions can also enhance student engagement and foster creativity.

3. Teacher Professional Development: Teachers need ongoing training and support to develop their understanding of creative pedagogy and implement effective teaching methods. This includes training on student-centered learning activities, utilizing diverse teaching materials, and implementing assessments that promote creativity.

4. Parental and Community Involvement: The research emphasizes the importance of engaging parents and the community in supporting students' creative development. This can be achieved through communication and collaboration between home and school, raising awareness about the importance of creativity, and involving parents in creative activities.

5. Utilizing Technology: Technology can be a valuable tool for promoting creative thinking. It can facilitate student-centered learning, collaboration, and creative production. The development of engaging and challenging learning materials using technology can further stimulate students' creativity.

6. Assessment that Promotes Creativity: The assessment methods should be diverse and focus on evaluating students' creative thinking processes and products. Providing development-oriented feedback that emphasizes effort, and initiative can further encourage students' creative development.
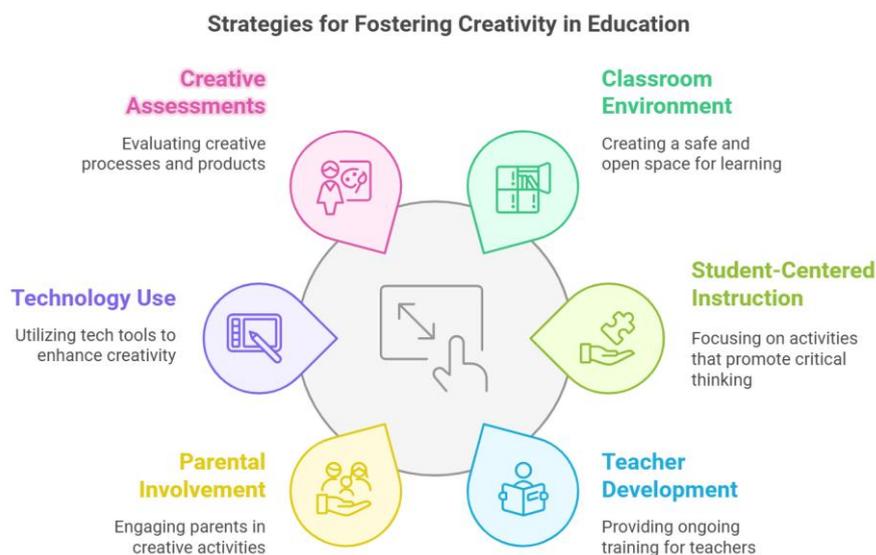

Fig.2 Fostering Creativity in Chinese Primary Schools: A Holistic Approach

Conclusion

This study has provided valuable insights into the current state of teaching practices that promote creative thinking skills among teachers in primary schools in Guizhou, China. It has also proposed a set of guidelines aimed at enhancing these skills. The findings underscore the necessity of addressing the challenges faced by educators and fostering a supportive environment conducive to creativity. By implementing these guidelines and continuing to research effective strategies for nurturing creativity, we can empower students to become the innovative thinkers and problem solvers required in the 21st century.

Suggestions

Suggestions for Enhancing Creative Thinking Skills in Primary School Students

1. Using in the Classroom

1.1 Implementing Student-Centered Learning: Teachers should adopt student-centered learning approaches that prioritize student autonomy and exploration. This involves creating opportunities for students to take ownership of their learning, experiment with different ideas, and collaborate with peers. Techniques such as project-based learning and inquiry-based learning can facilitate an environment where creativity flourishes.

1.2 Integrating Technology: Utilizing technology as a learning tool can significantly enhance creative thinking. Teachers should leverage digital platforms to provide students with access to diverse resources, enable them to create and share their work, and foster collaboration. Incorporating technology into lessons can help stimulate students' creativity and engagement.

2. Further Study

2.1 Exploring Teacher Professional Development: Future research should focus on developing comprehensive professional development programs that equip teachers with the skills and knowledge necessary to foster creativity in their classrooms. This includes training on innovative teaching methods, creative pedagogy, and strategies for integrating creativity into the curriculum.

2.2 Investigating Community Involvement: Further studies could explore the impact of parental and community engagement on students' creative thinking skills. Research could examine effective strategies for involving parents in the educational process and creating partnerships with local organizations to support creativity in schools.

By implementing these strategies in the classroom and pursuing further research, educators can create a more supportive environment for nurturing creativity in primary school students, preparing them to meet the challenges of the 21st century effectively.

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