A STUDY OF TEACHING METHODS TO PROMOTE CREATIVE THINKING SKILL OF PRIMARY SCHOOL STUDENTS IN GUI ZHOU, CHINA

BY

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Abstract

The aim of this study was 1) to explore the perspectives of rural primary school teachers in Xing Ren, Guizhou Province, regarding the cultivation of students' creative thinking skills and 2) to develop a teaching model better aligned with fostering creative thinking in the current educational context based on the teachers' responses.

This study employed a combination of questionnaire surveys and focus group interviews, selecting 354 rural primary school teachers from Xing Ren, Guizhou Province, China. Among these, 12 teachers from 6 schools were chosen to participate in focus group interviews. The questionnaire results revealed that teachers perceive significant deficiencies in the classroom environment and teaching methods related to fostering creative thinking skills. These areas demonstrated the highest developmental needs, as indicated by the Priority Needs Index (PNI = 0.66). While resources and collaboration (PNI = 0.66) and student engagement (PNI = 0.64) also warrant attention, the primary emphasis should be on enhancing the classroom environment and teaching methods to cultivate students' creative thinking skills. Additionally, the focus group interviews highlighted the importance of fostering a supportive classroom environment, emphasizing the active role of students in the learning process, and establishing effective communication with parents to support the development of creative thinking skills.

This study utilized the results from questionnaires and focus group interviews to develop guidelines for fostering creative thinking skills.

(Total 148 pages)

Keywords: Creative Thinking Skills, Primary School, Rural Guizhou, Teaching Methods, Student Engagement, Active Learning, Collaboration, Differentiation

Student's Signature …..... Thesis Advisor's Signature .....

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CHAPTER 1

INTRODUCTION

This study examines teaching methods that promote students' skills and creativity in China. This is important because skills and creativity are critical to student success in the 21st century, and China is increasingly emphasizing developing these skills in students. This chapter explains the background and rationale for the study, the research objectives, the research questions, the research hypothesis, the scope of the study, the conceptual framework, the operational definitions, the expected outcomes, and the limitations.

1.1 Background and Rationale of The Study

Education in China: Current Trends and Challenges

Current trends in educational development in China focus on improving the quality of education, expanding educational opportunities, and developing the skills needed for a globalized economy. These trends can potentially bring significant economic and social benefits to China.

The Chinese government has invested heavily in improving the quality of education. For example, the government has increased the education budget to 4% of GDP in 2022 (OECD, 2023). This investment has led to improvements in educational facilities, the recruitment of qualified teachers, and the development of modern curricula. (Ministry of Education of the People's Republic of China, 2023)

The Chinese government is striving to expand educational opportunities for the entire population. For example, the government extended compulsory education to 12 years (secondary school) and built new secondary schools in rural areas.

The Chinese government has recognized that the skills required for a globalized economy are changing. For example, the government has promoted the development of science, technology, engineering, and mathematics (STEM) skills, creativity, and innovation. (Chen, 2023)

The current trend in education development in China focuses on reforming the education system to make it modern and in line with changes in the world. The Chinese government has established strategies and plans for the long-term development of education, focusing on improving the quality of education, reducing educational inequality, and promoting education in all sectors of society.

Current trends in education development in China reflect the Chinese government's commitment to developing quality education for all its citizens. These trends can potentially create significant economic and social benefits for China.

The current trend of education development in China can be divided into four main areas:

Curriculum and teaching reform: The Chinese government has implemented curriculum and teaching reform to develop students' skills and creativity. The curriculum has been adjusted to be more flexible and cover a wider range of content. In addition, the government has greatly emphasized using technology and innovation in teaching to improve students' learning abilities.

Improving the quality of teachers: The Chinese government attaches great importance to improving the quality of teachers. The government provides teachers with continuous training and development opportunities to keep them up to date with the latest skills and knowledge in line with the changing curriculum and teaching.

Reducing educational inequality: The Chinese government has reduced disparities by distributing educational funding equally across all areas and promoting education in rural and remote areas.

Promoting education to reach all sectors of society: The Chinese government has promoted education by providing free education at the primary and lower secondary levels and supporting higher education.

The current trend of education development in China shows that the Chinese government attaches great importance to education development. It focuses on improving the quality of education, reducing educational inequality, and promoting

education to reach all sectors of society. These are key factors for China's further development.

Examples of the current trend of education development in China include

Technology and innovation in teaching, such as using digital learning materials, using robots to support education, and using artificial intelligence (AI) in assessment and evaluation. Integrating education in different disciplines allows students to combine knowledge from other disciplines. The use of participatory teaching so that students can learn through hands-on experience. The emphasis is on teaching life skills so students can lead a happy and successful life.

The current trend of education development in China has a positive impact on students and China's growth in many ways; for example, students acquire modern skills and knowledge that meet the needs of the labor market. Inequality in education is being reduced so that more educational opportunities are available. Education is promoted to reach all sectors of society so that people from all groups can realize their full potential.

However, education development in China still faces some challenges, such as the problem of remaining educational inequality—the lack of qualified teachers and the rising cost of education. The Chinese government and the relevant authorities must work together to overcome these challenges to make educational development in China more effective and achieve the goals that have been set.

The Importance of Skills and Creativity in Driving China’s Rapid Growth

China has developed rapidly in recent decades. From a poor and backward country, it has evolved into the second-largest economy in the world. This success is due to several factors, including government policy, investment in infrastructure, and a skilled and creative workforce.

The Chinese population has diverse science, technology, innovation, and management skills. These skills are developed through quality education and training. The Chinese government attaches great importance to education and allocates large

sums of money to develop the country's education system. As a result, the Chinese population has a high literacy rate and has the necessary knowledge and skills to work in various industrial and service sectors.

In addition, the Chinese population is capable of hard work and perseverance. This has enabled China to realize large and complex projects such as constructing high-speed railroads, creating new cities, and developing new technologies. (Ministry of Education of the People's Republic of China, 2023)

The Chinese population is known for its high level of creativity. This has enabled China to develop new products and services that meet the needs of consumers. For example, China is a world leader in artificial intelligence (AI) technology and 5G technology (State Council of the People's Republic of China, 2023). These achievements result from solid research and development and the support of the Chinese government.

The skills and creativity of the Chinese people have a great influence on national development. They help China to develop its economy, improve people's quality of life and enhance its competitiveness.

Regarding the economy, skills and creativity help China produce high-quality goods and services. This allows China to compete with other countries in the global market and attract foreign investment.

Regarding the quality of life, skills and creativity help Chinese people have higher incomes and access to quality goods and services. This allows people to achieve a better standard of living.

Competitiveness, skills, and creativity help China develop new technologies and innovations. This allows China to compete with other countries in the global market and become a leading country (World Economic Forum, 2023).

The skills and creativity of the Chinese population are key factors in China's rapid development. The Chinese government should continue to prioritize the development of the skills and creativity of the population for China to continue to develop sustainably.

China's Efforts to Promote Creativity in Education

China attaches great importance to developing creativity skills in students, believing that it is essential for driving the country's economy and society. The Chinese government has implemented some policies and measures to promote creativity skills in the education system (Ministry of Education of the People's Republic of China, 2023; State Council of the People's Republic of China, 2023) as follows:

Curriculum and pedagogy reform: The Ministry of Education of China has improved the curriculum and pedagogy to focus on developing creativity skills. It emphasizes student participation in various learning activities, such as collaborative learning, hands-on learning, and problem-solving learning. Curriculum and pedagogy focusing on creativity development include design and technology courses and art and Chinese language courses.

Teacher development: The government of China has emphasized the development of teachers with the knowledge and skills necessary to promote creativity skills in students. The Ministry of Education of China has organized teacher training on teaching methods encouraging creativity, such as learner-centered teaching, integrated teaching, and STEM education.

Support for extracurricular activities: The government of China has supported extracurricular activities that promote creativity skills in students, such as competitions, research, and experimental activities. Examples of extracurricular activities that encourage creativity include robotics competitions, invention competitions, and computer programming competitions.

As a result of the policies and measures implemented by the Chinese government, the creativity skills of Chinese students have been significantly developed. Examples of Chinese students' success in creativity include winning the world robotics competition, developing new applications that have been recognized internationally, and inventing innovations that benefit society. (World Economic Forum, 2023)

In addition to the policies and measures mentioned above, the Chinese government has also implemented other policies and measures to promote creativity

skills in students, such as the establishment of creativity development centers, the establishment of funds to support creativity education, and the establishment of networks of cooperation between schools and organizations in the field of creativity.

Promoting Skills and Creativity in Chinese Students Through Teaching and Learning

Studying and exploring ways to develop teaching and learning that promote skills and creativity for students in China is very important. This is because the development of skills and creativity in students is an essential factor affecting their success in learning and living in the future. Preparing to work and enter the urban society, industry, and local economy is also necessary. When students have good skills and creativity, they become individuals with the potential to solve problems and create innovations. that can change and develop society and the economy in the future.

Studies looking for ways to develop teaching and learning that promote skills and creativity for students in China should focus on the following (The Ministry of Education, 2023; The National Institute of Science and Technology Education, 2023; The Office of the Education Council, 2022)

Strengthening basic skills (Basic Skills Development): Developing basic reading, writing, speaking, listening, and numeracy skills is essential because it is a necessary basis for learning and applying knowledge in daily life and career.

Promoting critical thinking and creativity: Promotes analytical thinking, judgment, problem-solving, and creativity in learning by allowing students to experiment and create new ideas freely.

Utilizing Technology and Digital Learning: Using technology and online resources to support learning and create an engaging and practical learning experience.

Promoting Lifelong Learning: Promote lifelong learning and a commitment to continuous self-improvement by providing support and resources for learning to prepare for a rapidly changing society.

Supporting Diversity and Collaboration: Support cultural diversity, group learning, and collaboration. To create an open space and prepare students to participate in the pursuit of knowledge.

This study and survey will help in building an effective education system that appropriately develops skills and creativity in students in China and emphasizes building valuable personalities and stable careers in the future.

Based on the background and importance of the problem, the researcher is interested in studying the conditions and needs for teaching and learning to promote skills and creativity in primary school students in Chinese schools. This is to develop guidelines for teaching and learning that can engagingly meet these needs for those, directly and indirectly, involved and those interested in this topic.

1.2 Research Objectives

1.2.1 To study the problems of teaching that promote creativity thinking skills for primary school students in China.

1.2.2 To synthesize and present teaching guidelines that promote creativity thinking skills for primary school students in China.

1.3 Research Questions

1.3.1 What are the problems and limitations of the teaching methods used to promote creativity thinking skills for primary school students in China?

1.3.2 What teaching methods can be used to address the problems and limitations of the teaching methods that promote creativity thinking skills for primary school students in China?

1.4 Research Hypotheses

1.4.1 There is a lack of classroom enthusiasm in the teaching methods for fostering creativity thinking skills in Chinese elementary school students. Issues such as student dependency and limitations exist.

1.4.2 Suggestions can be proposed to address the issues and limitations of creativity thinking skills methods for fostering creativity in elementary school students

in China and to improve the creativity thinking skills methods for cultivating creativity.

1.5 Scope of The Study

1.5.1 Location of the Study

This study aims to enhance the creativity thinking skills of primary school students in Guizhou Province, China. The researchers visited several primary schools and obtained basic data from school teachers, such as their teaching experience and the number of students.

Formal visits used the focus group interview method to investigate teachers' understanding and thoughts on students' thinking and creative abilities from different aspects, resulting in corresponding data.

The research data cannot be widely referenced or summarized for all primary schools in China. However, it is still helpful in reflecting on the issues and teaching methods related to improving the creative thinking skills of Chinese primary school students. It may apply or be adaptable to other primary schools in China or other countries depending on specific circumstances and relevant factors.

1.5.2 Research Population

Population: 3020 primary school teachers in rural areas of Xing Ren (Gui Zhou Statistics Bureau, 2022)

Sample: 354 rural Xing Ren, China, primary school teachers were selected using the Yamane (1973) sample size formula and volunteer sampling to answer a quantitative questionnaire. 12 primary school teachers were also selected to collect qualitative data through in-depth interviews.

1.5.3 Timeframe

For this questionnaire, corresponding focus interviews will be conducted from March to May 2024.

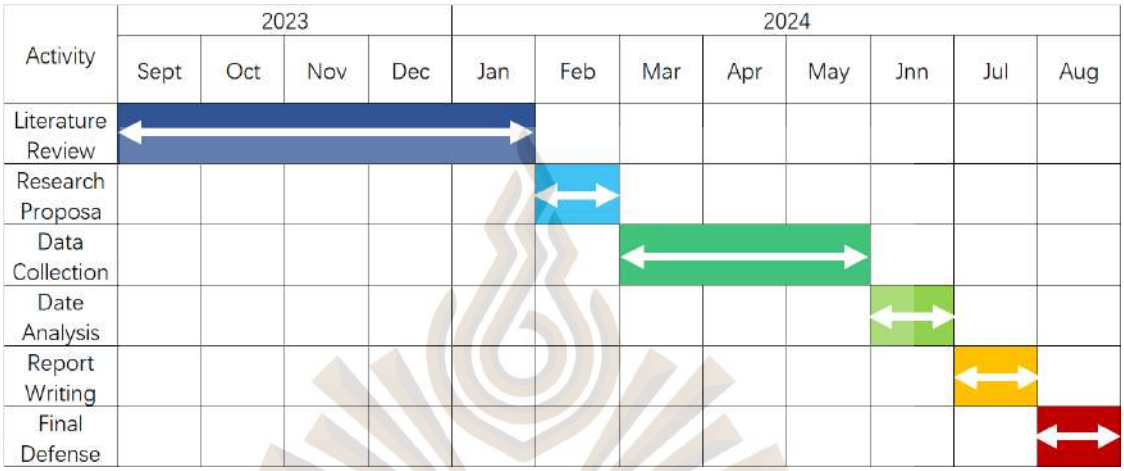

Figure 1.1 A general process of focus group development

1.5.4 Content of Plans

This research is a study of mixed methods, using quantitative methods with questionnaires and qualitative methods with focus group interviews. The schedule shows the expected management for this interview method, explaining each step and the implementation duration.

Table 1.1 Questionnaire and Focus Group Interview Schedule

Number	Research Steps	The required time
1	Write a description of the objective	6-8 weeks before the focus group interview
2	Identify participating users	
3	Collect participating users' addresses and phone information.	

Table 1.1 Questionnaire and Focus Group Interview Schedule (Cont.)

Number	Research Steps	The required time
4	Develop questions	4-5 weeks before the focus group interview
5	Prepare interview outline	
6	Determine the method and time of the meeting, write and send out invitation letters	3-4 weeks before the focus group interview
7	Confirm receipt of invitation letters	Two weeks before the focus group interview
8	Remind participating users	Two days before the focus group interview
9	Collect interview materials	
10	Conduct focus group interviews	On the day of the focus group interview
11	Send thank-you letters to participating users.	
12	Organize meeting records and summarize	One week after the focus group interview
13	Analyze interview data and write a report	2-3 weeks after the focus group interview

1.6 Definitions of Terms

Teaching Methods: Teachers employ methods or strategies to deliver instruction tailored to the subject matter, students' grade level, and learning styles.

Creative Thinking: Creative thinking is a novel, valuable, non-conclusive, highly flexible, persistent thinking activity that clearly outlines and solves problems. It

is manifested in breaking the routine problem-solving process, recombining established sensory experiences, exploring patterns, and obtaining new thinking results.

Focus Group Interview: The specific topics researchers propose are sometimes collected through communication dialogues among group members. This method usually targets particular themes, observing, discovering, discussing, and analyzing the same and different opinions among participants to draw certain research conclusions.

Primary School Students: Students enrolled in the basic education level, typically ages 6 to 12.

Quantitative Research: A research approach that utilizes mathematical and statistical methods to gather and analyze data, aiming to quantify and generalize findings.

Qualitative Research: A research approach that employs linguistic and social science methods to collect and analyze data, emphasizing the depth and context of the information gathered.

1.7 Conceptual Framework of this Study

This study collected data from focus group interviews involving primary school teachers teaching various subject programs to discuss improving students' creative thinking skills. The figure below shows a graphical representation of this framework.

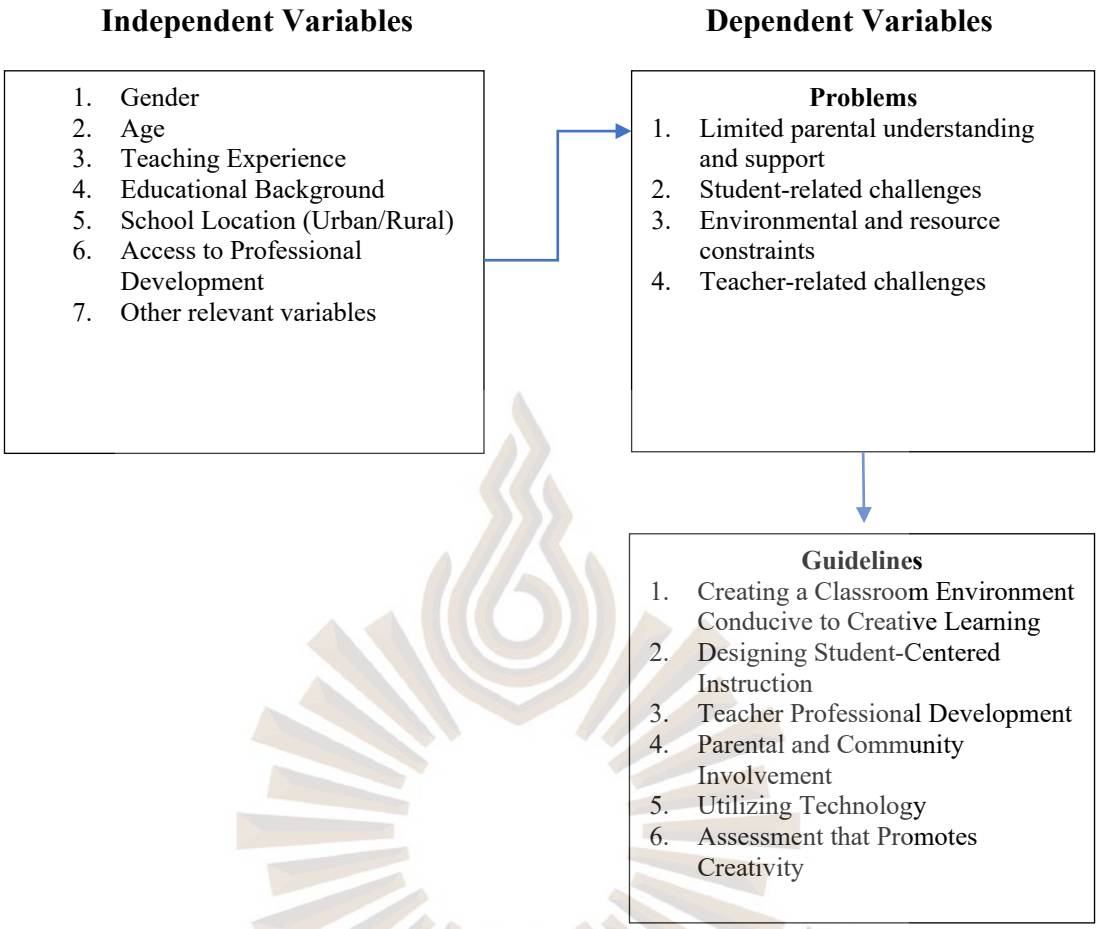

Figure 1.2 A research framework for focus group interviews

1.8 Limitations of the Study

1.8.1 Time Constraint

The data for this study was collected only in the month when the interviewees were interviewed, and most of the data was obtained within two hours of the interviews. The data collection should yield more comparative results if it is possible to conduct multiple focused interview sessions.

1.8.2 Limited Participants

This study was conducted among several strata of teachers in Xing Ren, China, so the results may only partially explain the thoughts of all teachers in China.

1.8.3 Location of the Study

This study will be conducted online, so the research results cannot be generalized to all school teachers.

1.9 Expected Outcomes of the Study

1.9.1 Gain an in-depth understanding of Chinese teachers' perspectives on enhancing.

1.9.2 Teachers understand creative thinking skills and implement teaching techniques emphasizing creativity.

1.9.3 Provide teachers with creative teaching methods suitable for the current teaching environment.

CHAPTER 2

LITERATURE REVIEW

This chapter aims to offer an insightful introduction to the concept of creativity thinking skills, its definition, and its development. It delves into the various factors that affect creativity thinking skills and examines how it influences teachers, students, and society from multiple perspectives. In addition, the chapter presents recommendations from accomplished scholars on how to enhance creativity thinking skills. Furthermore, it explores the findings of several project teams' experiments on augmenting student creativity thinking skills, compares the discrepancies in student creativity thinking skills among distinct experimental groups, and provides insight into the impact of diverse factors on creativity thinking skills.

2.1 Creativity

2.1.1 Development and Definition of Creativity

The study of creativity began in the 1950s when Guilford, president of the American Psychological Association, emphasized for the first time that creativity is not only a talent or trait possessed by a few people but also an ability possessed by every ordinary person, which requires cognitive and cognitive skills. Explore creativity from a social process perspective. Guilford (1968) believes that "creativity" refers to the most special abilities of creative people." Although J.P. Guilford's definition of creativity does not indicate which specific personality traits suggest that a person is innovative, this definition has been widely recognized and accepted for a long time.

According to Gestalt psychologists like Wertheimer in 1945, problem-solving creativity and insight arise from understanding a problem's essential characteristics and how they relate to the ultimate solution.

Amabile's research challenged the conventional definition of creativity in the 1980s. She argued that for a comprehensive understanding of creativity, we need a conceptual and operational definition to accurately quantify it in empirical research.

In contemporary social psychology, creativity is acknowledged as the proficiency to produce inventive and appropriate concepts that are unique and practical.

At present, a dominant viewpoint in China characterizes creativity as the cognitive ability to employ all accessible information in pursuit of a particular goal, culminating in the development of a unique, noteworthy, and culturally or individually meaningful outcome. (Yu & Zeng,2001)

The notion of creativity is multifaceted and debated and has garnered significant attention since Guilford's seminal discourse in 1950. Scholars have examined this topic through various lenses, encompassing product, process, personality, and environment. Nevertheless, despite these diverse viewpoints, a widely accepted definition of creativity remains elusive. Indeed, preliminary data indicates that there are more than one hundred definitions of creativity. (Jia & Lin, 2014)

2.1.2 Characteristics of Creativity

There is a lack of a comprehensive definition of creativity, and its defining traits remain somewhat nebulous. Nevertheless, certain experts have posited hypotheses regarding the features of creativity. For instance, Mumford and colleagues (2010) assert that creativity entails deliberately engaging in innovative thinking and generating unique, practical, and socially significant outcomes with a particular objective in mind.

According to Wang's (2021) scholarly discourse, creativity can be defined as the cognitive capacity to extract or produce innovative and practical outcomes. It entails intricate, high-order psychological processes characterized by fluent, flexible, and original thinking activities.

The core of creativity is creative thinking, which is the decisive factor in exerting creative ability and forming creative results. (Zhang & Cao, 2004; Yuan, 2022)

The viewpoints posited by these esteemed scholars converge on the importance of thinking activities, notably creative thinking, within the context of the creative process. As such, the features that define creativity are inextricably linked to the attributes that characterize creative thinking, encompassing a wide range of cognitive abilities and dispositions.:

1) Fluency is the art of free-flowing ideas. It involves producing and articulating many thinking concepts in a brief timeframe while quickly assimilating and incorporating novel ideas and concepts.

2) Flexibility is breaking free from self-imposed mental constraints and approaching problems from a fresh perspective.

3) Uniqueness is the pinnacle of divergent thinking, where individuals can generate extraordinary and distinctive responses that stand apart from others.

Creativity is a cognitive process that utilizes mental faculties to generate novel ideas and innovative solutions.

2.1.3 Measurement Methods of Creativity

In the 1980s, creativity tests evaluated responses' fluency, flexibility, and uniqueness (Zheng, 1985).

In 1993, Dong Qi identified three historical development stages of creativity tests in "Children's Creativity Development Psychology".

Table 2.1 The three stages of creativity development described by Dong Qi

Time	Stage	Measuring Tools
Late 19th century to 1950s	generation stage	1. Galton's "free association" experiment 2. Binet and Henri's open-ended test 3. Gilpatrick's inkblot measurement

Table 2.1 The three stages of creativity development described by Dong Qi (Cont.)

Time	Stage	Measuring Tools
1950s ~ 1970s	development stage	1. Guilford "USC Divergent Thinking Test" 2. Torrance "Creative Thinking Test" 3. Kagan's "Divergent Thinking Test"
1970s to present	perfecting stage	special creativity test

Source: Researcher

In the 21st century, there are currently three common measures of creativity:

1) The University of Southern California Test: It was developed by Guilford and his colleagues at the University of Southern California in 1957 to study the theory of intelligence.

2) Torrance Creative Thinking Test: It is a creative thinking test compiled by Torrance, the former chairman of the Department of Educational Psychology at the University of Minnesota in the United States, in 1966. It is currently the most widely used creativity test. It is mainly suitable for testing the fluency, flexibility, originality, and accuracy of creative thinking for people of all ages.

3) University of Chicago Creativity Test: It is a creativity test compiled by Getzczs, J.W. and Jackson, P.W. at the University of Chicago in the early 1960s. It includes the following five items: word association test, usage test, hidden figure test, fable completion test, and composition question test. This set of tests is suitable for teenagers from upper elementary to high school. It is ideal for group testing and has a time limit.

In recent years, the measurement of creativity has become more advanced after decades of development. Zeng and Salvendy (2011) have identified ten categories of methods for measuring creativity: psychometric tools (divergent thinking tests), personality scales, attitude and interest series, biographical questionnaires, peer and teacher nominations, expert evaluations, product evaluation, performance excellence, self-reported creative activity, and achievement. (Tu & Fan, 2015)

The concept of creativity is complex and can be defined in numerous ways. However, a widely accepted definition is that creativity involves generating innovative and appropriate ideas. The characteristics of creativity include fluency, flexibility, and

originality. Fluency refers to the ability to create many ideas, flexibility involves thinking outside the box, and originality is the ability to develop new and unique ideas.

There are various methods to measure creativity, such as psychometric tools, personality scales, attitude and interest surveys, biographical questionnaires, peer and teacher nominations, expert evaluations, product evaluations, performance excellence, self-reported creative activity, and achievement. Modern creativity measurement methods are comprehensive and can assess various creative traits and expressions.

Creativity is valuable in various domains, such as art, science, business, and education. By understanding the characteristics of creativity and how it can be measured, individuals and organizations can better cultivate and enhance creativity.

2.2 Factors Affecting Creativity

Creativity is a remarkable human talent that various factors can influence. In this section, we will explore some factors that impact creativity.

In 1967, J. P. Guilford introduced a "three-dimensional model of intelligence," which analyzed creativity through content, operation, and product. Guilford believed that human intelligence is made up of many elements.

Another theory on creativity is the "multi-factor theory of creativity," proposed by Sternberg in 1988. This theory suggests that six factors affect an individual's ability to achieve high creativity: intelligence, knowledge, cognitive style, personality traits, motivation, and environment. To produce high creativity, these six factors must be effectively combined.

Chinese scholars Wang and Liang (2008) selected 100 innovators with outstanding achievements in innovation, analyzed their cases, and concluded that creativity is a complex interplay of various factors:

1) There exist two distinct levels of creativity: potential and actual.

2) To be an innovator, one needs a mix of both potential and actual creativity.

The picture below shows one of his models that explains the factors affecting creativity. Scholars divide these factors into internal and external factors.

An interesting perspective is the research conducted by Liu, Zhan, and Yu (2008). Their work provides valuable insights on the topic:

1) Internal factors influencing creative thinking: Personal intellectual and non-intellectual factors.

2) External factors that affect creative thinking: environment, education methods, and concepts.

He (2023) thinks:

1) Internal factors influencing creative thinking: Intellectual and non-intellectual factors.

2) External factors that affect creative thinking are family, school, and social factors.

It is worth noting that scholars have varying perspectives on the factors of creativity. However, the factors that influence creativity are relatively consistent across the literature. These factors can be broadly categorized as follows: intelligence, environment, personality, motivation, knowledge and experience, and cognitive style.

"Creativity is a multifaceted concept that is influenced by numerous factors. In summary, there are various variables that can impact an individual's creative abilities".

2.3 Benefits of Creativity

If society wants to continue to progress, it must persist in innovation. Innovation is the prerequisite for all reforms. Students are the foundation for the country's future development, and cultivating students' innovative abilities is the primary task of teachers (Dong, 2021). Creativity is also very important to bring education to a higher level in this era. Then, this node will discuss the benefits of creativity development from three aspects: students, teachers, and society.

2.3.1 For Students

Carrying out innovative education and cultivating students' creativity is a systematic project faced by education in the 21st century (Lin, 2009). So, what are the benefits of cultivating students' creativity?

1) Improved academic performance: Creative students can often understand and solve problems more flexibly and innovatively, contributing to improved academic performance in various subjects.

2) Enhance learning motivation: Adjust teaching methods to allow students to learn to collect extracurricular materials and carry out extracurricular activities, enrich reading teaching content, create a good reading atmosphere for students, and provide sufficient reading materials.

3) Cultivate innovative thinking: Developing creativity helps cultivate students' creative thinking, allowing them to come up with novel and unique ideas when solving problems, which will positively impact their future studies and work.

4) Enhanced self-confidence: By using creativity, students can better understand their talents and abilities, thereby increasing their self-confidence, which will help them face challenges with more confidence in learning and life.

5) Develop problem-solving skills: Creative students can understand and solve problems more flexibly and innovatively, which will help them better cope with various challenges in future study and work.

2.3.2 To Teachers

The value of teachers lies in cultivating outstanding talents, and teachers' creativity is reflected in better cultivating creative talents. Creativity, as the highest expression of the cognitive process, cannot be separated from the development of creative thinking (Jiao & Liu, 2013), and the internal motivation system of creative teachers is more complete and powerful, which can promote teachers to complete teaching goals better and Mission (Wang, 2023). It can be analyzed from the following five aspects:

1) Improve teaching effectiveness: Creative teachers can understand and teach knowledge more flexibly and innovatively, which will help improve teaching effectiveness and make it easier for students to understand and master knowledge.

2) Innovative teaching methods: Creative teachers can continuously innovate to improve teaching quality and effectiveness, better meeting students' learning needs.

3) Promote professional development: Teachers can continuously broaden their teaching horizons and knowledge and promote their professional development by cultivating students' creativity.

4) Improve problem-solving skills: Creative teachers can understand and solve problems more flexibly and innovatively, which will help them better deal with various challenges in the field of education.

5) Cultivate innovative thinking: By cultivating students' creativity, teachers can develop their creative thinking, allowing them to solve problems more flexibly and innovatively in future studies and work.

2.3.3 To Society

Innovation is the soul of national progress. There have been many scientific and technological revolutions, each of which has affected the pattern. In a sense, scientific and technological strength determines the change in the balance of world economic power (Ren, 2016). Then, when the country's creative talents increase and innovative technologies develop, then for What impact will it have on society?

1) Promote scientific and technological progress: Through innovative thinking and experimentation, new scientific principles, technical methods, and solutions can be discovered, promoting social progress.

2) Promote economic development: Through innovation and creativity, companies can develop new products, services, and business models, thereby increasing market share and profits. At the same time, creativity can also promote the creation of employment opportunities and provide more employment opportunities for society.

3) Improve social well-being: Through innovations in art, culture, education, and entertainment, people can enjoy a more colorful life experience and improve their quality of life.

4) Enhance national competitiveness: Through innovation and creativity, a country can enhance its status and influence on the international stage and strengthen its economic, technological, and cultural strength.

5) Cultivate talents: Through innovative thinking and practice, people can improve their abilities, expand their horizons, and prepare for future development.

In short, developing creativity has many benefits for students, teachers, and society. Therefore, paying attention to the cultivation and development of creativity of different groups is more conducive to the progress and development of society.

2.4 Strategies to Promote Creativity

The development of human civilization cannot be separated from human potential, and among all human potential, human creative potential is the most important. Developing students' creative potential has become a common concern in education in various countries (Deng & Li, 2001). Therefore, education reform in the new era focuses on cultivating students' creative abilities because this will help develop more innovative talents and promote sustainable economic development (Han, 2021). Discovering and nurturing students' creativity has gradually become an important goal of educational practice. Therefore, how to cultivate creativity has become the focus of competition in education quality worldwide. Many scholars have put forward their suggestions from various disciplines on this focus.

Stay curious: Curiosity is a psychological tendency to explore new things. The internal motivation drives people to actively observe the world and develop creative thinking. (Den & Li, 2001)

Interdisciplinary thinking: Better interdisciplinary integration in the teaching process and encourages students to solve problems across disciplines. During the problem-solving process, students' diverse abilities, such as design thinking, computational thinking, engineering and practice, collaboration, and communication, are cultivated, and students' creative potential is also revealed during the activities. (Mao, Wu, & Li, 2023)

Thinking association: The imagination of development is full of vitality and can be progressed and transformed. (Sun, Wan, & Ren, 2018) Connecting different ideas and perspectives through association can generate new innovative ideas. You can exercise your thinking association's ability by mind mapping, brainstorming, etc.

Change the environment: Create a teaching atmosphere for creative thinking and creativity, cultivate students' awareness of independent innovation, and stimulate students' potential for innovative thinking (Yue, 2019).

Take the initiative to try: Initiative is the prerequisite for creating. You must actively participate in learning and activities to learn and act creatively. Only with active participation can an active role be exerted (Zhu & Zhang, 2001).

Continuous learning: Learning new knowledge and skills can provide more sources and support for creativity. Continuous learning through reading, participating in training, communicating, etc. It can allow your creativity to be better utilized.

In conclusion, creativity can be cultivated in many ways. Maintaining curiosity, challenging yourself, diversifying your thinking, creating an environment, cultivating imagination and association skills, and continuous learning and practice are all effective ways to develop creativity.

2.5 The Relationship between Creativity and other Variables

This article discusses at node 2.2 that creativity is mainly affected by six factors: intelligence, environment, personality, motivation, knowledge and experience, and way of thinking because there is a complex relationship between them. Therefore, at this node, the following relationships between them will be described:

2.5.1 Intelligence

Intelligence is an ability that helps an individual understand complex concepts and adapt to life circumstances. It mainly allows individuals to continuously acquire knowledge from experience and overcome the problems they encounter. (Neisser et al., 1996)

There is a variable relationship between intelligence and creativity. For example:

1) J.P. Guilford's structural intelligence model divides intelligence into convergent and divergent thinking. Divergent thinking is considered a separate form of intelligence, distinct from operational intelligence measured in traditional intelligence tests.

2) Sternberg's triarchic intelligence theory divides intelligence into analytical, practical, and creative intelligence. He believes creative intelligence is crucial in solving new problems and responding to new situations.

3) Amabile's combination theory believes that creativity is jointly affected by domain-related skills, creative thinking, and motivation. Intelligence is seen in this theory as an important factor supporting creativity.

Next, this node will discuss the relationship between intelligence and creativity:

First, intelligence and creativity are not completely equivalent concepts. Intelligence is the ability to solve problems, learn new knowledge, and adapt to new environments, while creativity is the ability to generate novel and valuable ideas, solutions, or works.

Although, in inertial thinking, people think that people with high intelligence may be creative, not all people with high intelligence are highly innovative. Developing creativity requires going beyond the conventional modes of thinking involved in intelligence and the courage to try new and different ways of looking at and solving problems.

Secondly, creativity is expanded and applied based on intelligence. Creativity is not just the simple application of existing knowledge but requires individuals to innovate and make breakthroughs. Creativity requires individuals to break out of traditional thinking patterns and try new methods and ideas to find better solutions. Creativity expands and applies intelligence in this process, helping individuals better deal with complex problems and challenges.

Overall, there is a strong relationship between creativity and intelligence. Intelligence provides the necessary knowledge and skills for creativity, and creativity is expanded and applied based on intelligence. At the same time,

creativity and intelligence are relatively independent, representing different abilities and thinking modes, respectively. When cultivating and developing creativity, the role of intelligence should be fully recognized, and the influence of other factors, such as motivation and environment, should not be ignored.

The impact of intelligence on creativity is mainly reflected in the following points:

1) Intelligence provides the basis for creativity. Creativity requires individuals to have certain knowledge and skills and understand and analyze problems to generate new ideas and solutions. People with high levels of intelligence are generally better able to master knowledge and skills, have strong analytical and problem-solving abilities, and are, therefore, more likely to think creatively and practice creatively.

2) Intelligence promotes creativity. People with high intelligence usually have stronger thinking abilities and adaptability and can quickly make correct judgments and decisions in complex situations. These abilities can help individuals cope with challenges and opportunities and realize their creative potential.

3) There is a mutually reinforcing relationship between intelligence and creativity. On the one hand, intelligence can provide the necessary knowledge and skills for creativity, helping individuals better understand and analyze problems; on the other hand, creativity can also improve intelligence, prompting individuals to continuously explore and discover new knowledge and skills.

To sum up, intelligence has an important impact on creativity, providing the basis for creativity and promoting its development. At the same time, there is a mutually reinforcing relationship between intelligence and creativity. When cultivating and developing creativity, the role of intelligence should be fully recognized, and various factors should be considered comprehensively to achieve optimal creative performance.

2.5.2 Environment

Nicholson (1971) proposed that the environment plays an important role in a person's growth, and there is a positive relationship between the size of creativity and environmental variables. For example, a supportive and encouraging environment can

provide a fertile ground for creativity, while a restrictive and stressful environment can inhibit creativity.

The environment plays an important role in the development of creativity. The environment people live in has a direct impact on the way they think and the development of their creativity. An environment full of innovative atmosphere can often stimulate people's creativity. For example, science and technology innovation centers and art studios provide professional equipment and resources and give people a place to create.

Therefore, the environment has a huge impact on creativity. Although it does not directly produce creativity, it can put the creative person in a good state so that he can effectively exert his abilities, or on the contrary, it cannot produce creativity. The environment plays a role in inhibiting the development of creativity.

The environment has an important influence on creativity. Here are some detailed explanations of how the environment affects creativity:

1) Natural environment: The natural environment helps relax the body and mind and creates creative conditions. At the same time, the natural environment can also stimulate the individual's senses and attention. When the details of nature attract an individual, it will arouse the individual's curiosity and stimulate the individual's imagination: imagination and creativity. Individuals can improve their creativity by observing and thinking about everything in nature.

2) Social environment: Gao (2023) compares creativity to a social system. The social culture under this creativity system will guide people to actively participate in innovative activities and improve various technologies and systems, thereby promoting individual creativity—and the development of capabilities. An open, diverse, and inclusive social environment can encourage people to be brave enough to try and accept new things, thereby stimulating creativity. On the contrary, it will have the opposite effect.

Chen explained in "Cultural Industry Reader" that social culture adapts to each era's social form. From social customs and behavioral norms to values, from language and religious beliefs to art and entertainment, to technology and knowledge, these all fall within the scope of social culture.

Different social cultures will produce different creative thinking, which will lead to changes in creativity.

1) Family environment: A good family education environment can encourage individuals to think independently, innovate, and explore so that individual creativity can be better developed. Shao (1996) explained in "Children's Creativity and Family Environment" that in the family psychological environment, parents can let their children develop their creativity, and it can penetrate the entire environment and process. As time goes by, children will gradually experience the power of creation. The atmosphere generates the desire to create and the motivation to create. Creating a safe, relaxed, pleasant environment for children without feeling oppression or fear is an important emotional and psychological factor in developing children's creativity.

2) Cultural environment: Different cultural backgrounds and social customs will impact an individual's thinking and behavioral habits, affecting their creativity.

Torrance (1968) once compared the creative thinking development of students in grades 1 to 6 from 7 different cultural backgrounds and found that other cultures can breed various creative thinking abilities. The TTCT test scores are also different in different countries, such as Germany and Australia. In other countries, verbal creative thinking scores are higher than graphic creative thinking tests.

The United States has carried out extensive pioneering research on creativity to realize the strategic policy of stimulating national creativity. It has integrated creativity education into the entire national education system, allowing first-class institutions of higher learning to offer creativity courses. It has enhanced the creative consciousness of American citizens, cultivated the innovative thinking of American citizens, stimulated the creativity of American citizens, and prompted American technology and economy to achieve a major leap in a short period (Wang, 2003). This shows that creating a cultural environment for cultivating creativity plays a major role in improving creativity.

1) Working environment: A comfortable, open and flexible working environment can stimulate the creativity and innovation ability of organizational members.

In summary, the environment has a significant impact on creativity. The natural environment, social environment, cultural environment, and work environment will all impact creativity. Therefore, to better cultivate and develop creativity, individuals must create an environment conducive to creativity and provide more opportunities and support to freely express their ideas, try new things, and realize their potential.

2.5.3 Personality

Personality refers to a person's unique psychological characteristics, including emotions, motivations, values, and behaviors. Self-efficacy, proposed by the famous American psychologist Bandura in 1977, points out that an individual's judgment of whether they can complete a task refers to the perception and belief in the ability to complete an activity; and is based on self-efficacy.

Tierney and Farmer (2002) proposed the concept of "creative self-efficacy" and believed that creative self-efficacy refers to an individual's ability to produce creative works when engaging in specific tasks. Confidence's self-evaluation is part of an individual's self-concept.

Creative activities must be based on a certain degree of intelligence, but intelligence does not determine individual creativity, while positive fantasy is conducive to improving creativity (Yu, 1996) However, different personalities can produce different effects on creativity, such as:

Uniqueness enables creative people to see problems from a unique perspective too often and develop novel ideas and solutions. Openness enables creative people to have an open mind and mind and accept and tolerate different opinions and ideas. Flexibility enables creative people to respond flexibly to various complex situations and problems and to quickly adjust their thinking and behavior.

In addition to the core of creativity - innovative thinking, people with this way of thinking can often break through traditional thinking patterns and methods and develop novel and valuable ideas and solutions. Some people with self-expression can usually express their inner world and emotional experiences through their works or forms of expression. This form of self-expression helps individuals develop unique

personality traits while also helping to stimulate creativity and inspiration. Through self-expression, people can better understand themselves, discover their potential and value, and thus better achieve self-growth and development.

2.5.4 Motivation

Compared with questions raised by others, the problems discovered by oneself during the learning and inquiry process can stimulate the individual's intrinsic interest, which is more conducive to creative problem-solving (Duan & Cheng, 2018). Motivation is the driving force of creativity. People with strong intrinsic or extrinsic motivation are more likely to invest time and energy in creating and innovating.

When psychologist Amabile (1983) elaborated on the factors that affect the creative process, he explained that the motivation to complete the task initiates and maintains the creative process. It determines whether the individual is interested in the task and is willing to start and continue to explore a certain problem. Solution, so it can be considered that motivation refers to the inner motivation that drives people to take certain actions or pursue certain goals. So, what impact does motivation have on creativity?

First, motivation can stimulate people's creativity and enthusiasm. When individuals are strongly motivated to pursue a certain goal or solve a certain problem, they devote more concentration and effort to creative activities. This intrinsic motivation prompts individuals to use their imagination and innovative thinking to achieve goals or solve problems.

Second, the type and intensity of motivation also affect creativity. The operant conditioning theory of Skinner (1938), a famous American psychologist, believes that people or animals will adopt certain behaviors to act on the environment to achieve a certain purpose. When the consequences of this behavior are beneficial to the individual, it will be repeated in the future; when it is unfavorable, it will weaken or disappear. For example, individuals can be motivated to be creative to receive praise and rewards or realize self-worth. At the same time, individuals can be encouraged to be innovative to meet external expectations or needs.

Additionally, different types of motivation can reinforce each other. For example, Lewin (1939) pointed out that approach motivation is the behavioral energy aroused by positive stimuli or the motivation to direct behavior in the direction of positive stimuli, while avoidance motivation is the behavioral energy aroused by negative stimuli, or the motivation to direct behavior in the direction of positive stimuli. Motivation to direct behavior in the direction of negative stimuli. These different types of motivation can play a role in the various stages of creation, helping individuals overcome difficulties and challenges to achieve enhanced creativity.

Finally, motivation can affect an individual's cognition and attitude toward creativity. When individuals believe a task is meaningful, important, or valuable, they are more likely to devote time and energy to their creativity. Conversely, when tasks are viewed as boring or without value, an individual's creativity and motivation may be limited.

2.5.5 Knowledge

Knowledge does not have a unified and clear definition in the modern "A Hundred Flowers Blooming" theory. But there are also many various explanations of expertise. Like:

JTB theory proposed by Plato: For a statement to become knowledge, it must meet three criteria: proven, true, and believed.

Davenport (1998) and others believe that knowledge is information combined with experience, context, explanation, and reflection. It is high-value information that can help people make decisions and actions anytime.

The "Chinese Encyclopedia" describes "knowledge" as follows: "The so-called knowledge, in terms of the content it reflects, is a reflection of the attributes and connections of objective things, and is the subjective image of the objective world in the human brain.

Knowledge is an influencing factor of creativity, and many scholars have explored the relationship between the two:

Professor Cui (1997) once proposed in an organizational education experiment on professional English that knowledge refers to the experience

accumulated by people in understanding and transforming the world. Creativity refers to the ability to scientifically process accrued knowledge and expertise to produce new ideas, concepts, results, and products. She believes that the development of creativity requires a certain knowledge base, and knowledge is the crystallization of creation and development.

Deng (2002), director of the Beijing Institute of Literature in China, pointed out in the teaching of Chinese composition: "Knowledge is the 'achievement and crystallization of human cognition,' which can be divided into experience and theory. Moreover, 'association' is living. It means 'remembering another related person or thing from someone or something and thinking of other related people or things from a certain concept. A 'creative' person should have the ability to combine both. Therefore, he believes that " Creativity = Knowledge × (Lenovo ＋ Imagination)" in this structure, knowledge is the basis for creativity, and individuals can be obtained from the knowledge and experience to start a series of Lenovo, thus promoting creativity.

Two professors, Zhou and Yang (2007) from Huazhong University of Science and Technology in China, proposed in a collaborative document that knowledge and creativity are like the relationship between the foundation and the building. The richer the knowledge, the higher the creativity. A person can create something only if he has accumulated enough knowledge.

All in all, the relationship between knowledge and creativity is relatively complex, but from the results of many scholars, the following five points can be summarised:

1) Knowledge is the basis of creativity. Knowledge includes not only the understanding of facts and information but also the understanding of principles, laws, and theories. This in-depth understanding allows us to think about problems from different perspectives and provides new ideas for innovation.

2) Learning how to apply knowledge promotes creativity. In solving problems, we often need to obtain information from different knowledge fields and integrate this information to find new solutions. This ability to apply knowledge is an important component of creativity

3) Creativity affects the process of converting theoretical knowledge into practical applications. Because in this process, individuals need to understand

theoretical knowledge, and at the same time they need to have enough imagination to transform theoretical knowledge into actual products or services.

4) Knowledge creation is the highest expression of creativity. It is based on existing knowledge to create new knowledge or technology through innovation and breakthrough. This process requires a deep knowledge base, keen observation, and a strong spirit of exploration.

5) The dissemination of knowledge is an important manifestation of creativity. A good idea or invention's value must be effectively disseminated and understood by the public. Therefore, it is necessary to spread new knowledge through various methods, such as writing, speeches, production, etc., to stimulate the creativity of more people.

2.5.6 Way of Thinking

The way of thinking described here refers to the way of creative thinking. At this node, we will discuss creative thinking and how it affects creativity.

Shen (2005) put forward his views on creative thinking based on the practice of computer teaching. He believes that innovative thinking is the most advanced stage of human thinking. It requires the recombination of concepts to produce something new and can produce a flexible ability to effectively use acquired knowledge to discover and create new ideas and methods.

Wang (2020) believes that creative thinking mainly refers to the creation of new ideas and thinking through the reasonable use of imagination and the ability to associate, combined with existing knowledge and information.

Scholar He (2023) believes that creative thinking is an advanced form of individual cognitive development and a complex psychological process involving multiple disciplines such as education, psychology, and neurology, so it is difficult to define it uniformly.

In addition, many scholars have ideas about creative thinking and use them in related teaching experiments. Searching the China National Knowledge Infrastructure (CNKI) for literature on creative thinking, there are 78,138 articles, and we will find that nearly 80% are about the application of creative thinking in teaching classrooms

of various subjects. The definition of creative thinking is biased towards creative thinking. It is a unique way of thinking that seeks novel, unique, and creative solutions. It often involves breaking out traditional thinking patterns, challenging existing ideas and practices, and exploring new possibilities. Different creative thinking will bring different creative development to individuals.

Creative thinking is a core component of creativity. According to many scholars' explanations, innovative thinking seeks novel, unique, and creative solutions, breaks through traditional thinking patterns, challenges existing concepts and practices, and explores new possibilities. This way of thinking requires long-term practice and cultivation, so by learning and practicing creative thinking, one can improve one's level of creativity.

Creativity is a multidimensional ability that includes creative thinking, imagination, and innovative problem-solving. Creative thinking is an important aspect of this. It can help people generate new ideas and solutions, but transforming them into products or services requires innovative problem-solving skills.

By cultivating a creative way of thinking, one can improve one's level of creativity and be better able to generate new ideas and solutions to complex problems. At the same time, creative thinking can also help people discover and seize opportunities and open up new areas and possibilities.

Therefore, the relationship between creative thinking and creativity is mutually reinforcing. By cultivating an innovative way of thinking, one can improve one's level of creativity, allowing one to better deal with complex problems and open up new areas and possibilities. At the same time, the development of creativity also requires the support of other abilities, such as imagination and innovative problem-solving skills. Only with comprehensive abilities can create is truly unleashed.

2.6 Differences in Creativity among Different Age Groups

2.6.1 Different Stages of Creativity

Regarding the changes in thoughts at different ages, the first thing that comes to mind is Piaget's theory of children's cognition (Piaget, 1952) The theory is divided into the following four stages:

Table 2.2 Piaget's Theory of Cognitive Development

Age Range	Description of Stage	Developmental Phenomena
Birth-2	Sensorimotor - Experiencing the world through senses and actions	Object permanence Stranger anxiety
2-6 years	Preoperational- Representing things with words and images	Pretend play Egocentrism Language development
7-11 years	Concrete Operational - Thinking logically about concrete events and grasping concrete analogies	Conservation Mathematical transformation
12-adulthood	Formal Operational- Thinking about hypothetical scenarios and processing abstract thoughts	Abstract logic Potential for mature moral reasoning

Source: Piaget, 1952

The Cognitive-Developmental Theory proposed by Piaget has four stages. Children at each stage have unique characteristics of their respective stages, and the development of each stage must be based on the previous stage to achieve further growth.

In his research, Paul Torrence, the "Father of Creativity" in the United States, found that he conducted a large-scale, organized, creative thinking test on first-year primary school students to adults in Minnesota, USA. The results found that creative thinking in children to adults Development is not a straight line but a canine-shaped curve, with four sudden or stagnant "troughs" of creativity, namely at the ages of 5, 9, 13, and 17.

The research results of Hu, Lin, Shen, and Ade (2003) on developing scientific creativity among British teenagers are the same as Torrance's research results. However, for the scientific creativity of teenagers, the decline occurs at the age of 14,

which is higher than that of Torrance. The results are delayed by one year, presumably for two reasons:

1) In the transitional stage of physical and mental development, adolescents are susceptible to the pressure of social conventions. 14 is exactly the transition period from teenagers to young adults. Their logical thinking ability transitions from empirical to theoretical. Therefore, they are easily affected by social pressure, school pressure, teacher pressure, and peer pressure, which restricts consciousness and creates turmoil, which makes creative thinking difficult. More difficult:

2) On the other hand, "locked in" is a significant psychological characteristic of adolescents at this stage. Creativity performance at different ages is affected by various factors, including cognitive ability, knowledge accumulation, thinking patterns, motivation, etc.

Based on the above theories and experiments, this section will discuss early childhood from four aspects: cognitive ability, knowledge accumulation, thinking patterns, and motivation. Different changes in childhood and adolescence (the relationship diagram is placed at the after 2.6.5)

2.6.2 Cognitive Ability

In early childhood, an individual's cognitive ability mainly relies on intuition and perceptual knowledge. As age increases, cognitive ability gradually turns to more abstract and complex concepts. Developing this cognitive ability has important consequences for the performance of creativity.

In childhood, creativity manifests as rich imagination and curiosity, and a love of trying new things and exploring unknown areas. However, cognitive abilities often limit creativity, so innovative ideas in childhood may be simple or incomplete.

During adolescence, cognitive abilities develop further, and individuals have stronger analytical and problem-solving abilities. This allows individuals to better understand and apply complex concepts and skills in the creative process, leading to more innovative ideas.

2.6.3 Knowledge Accumulation

As people age, their knowledge accumulation also increases. This accumulation of knowledge has a positive impact on creativity.

In early childhood, individual knowledge mainly comes from daily life and perceptual experience, so creativity is more limited by these experiences.

Individuals begin to receive formal education and learning in childhood and can master more knowledge and skills. This knowledge and skills can stimulate creativity and help individuals put new ideas into practice.

During adolescence, individuals ' knowledge accumulation increases, and they can better utilize existing knowledge and skills when solving problems. Integrating different areas of knowledge can generate new ideas and innovative solutions.

2.6.4 Thinking Model

People of different ages have different thinking patterns.

In early childhood, an individual's thinking mode is usually intuitive, perceptual, and symbolic, and they are more inclined to learn new things through imitation and experimentation.

During childhood, children gradually develop abstract thinking and logical reasoning abilities. Be able to better understand and solve abstract problems and begin to use critical thinking to evaluate your own and other people's perspectives.

In adolescence, an individual's thinking model becomes more mature and perfect, and he has stronger critical thinking and problem-solving abilities. You can think more deeply about the problem's nature and the solution's feasibility. This mature mindset helps generate more creative ideas when solving problems.

2.6.5 Motivation

Motivation is a key factor in stimulating creativity. People's motivations and interests vary at different ages, and creativity manifests in various ways.

In early childhood, individual creativity is primarily driven by curiosity and a desire to explore. I am curious about the surrounding environment and like to try new things and explore unknown areas. This motivation drives them to ask questions, find answers, and try innovations.

In childhood, individual motivation comes more from pursuing knowledge and achievement. They are eager to learn new knowledge, master new skills, and gain recognition and praise from others. This motivation motivates individuals to work hard to create and innovate for better results and performance.

During adolescence, individual motivations may be more complex and diverse. In addition to pursuing knowledge and achievement, it may also be influenced by factors such as social pressure, self-actualization, and personal interests. These motivations motivate individuals to put in more effort and thinking during the creative process to achieve more creative goals.

Table 2.3 Differences in creativity among different age groups

	Early childhood	childhood	Adolescence-adulthood
Cognitive Ability	Rely on intuition, no obvious creativity	According to one's cognition, creativity is relatively simple to express	Have strong analytical skills and significantly improved creativity
Knowledge Accumulation	Knowledge comes from daily life, and creativity is limited by experience	Receive formal education and acquire knowledge and skills. Help individuals put new ideas into practice.	Knowledge accumulation is further enhanced, and new ideas and innovative solutions can be generated by integrating different knowledge areas.
Thinking Pattern	Tends to learn new things through imitation and experimentation.	Begin to have abstract thinking and logical reasoning abilities. Use critical thinking to evaluate ideas.	Have stronger critical thinking and problem analysis abilities. Ability to generate more creative ideas when solving problems
Motivation	Motivation mainly comes from curiosity.	Motivation comes from the pursuit of knowledge and achievement—the desire for recognition and praise from others.	The motives for removal are complex and diverse. In addition to pursuing knowledge and achievement, it may also be affected by social pressure, self-realization, and personal interests.

Source: Researcher

In summary, there are differences in creativity between different age groups regarding cognitive abilities, knowledge accumulation, thinking patterns, motivation, etc.

Comprehending these differences will help us understand the characteristics of creativity at different ages and provide more targeted guidance for cultivating and stimulating creativity.

In the education process, teachers should cultivate targeted creativity according to the characteristics of different age groups and fully tap into and develop the creative potential of each age group. At the same time, we also recognize that creativity is constantly evolving and changing. With age and experience accumulation, creativity can be enhanced through continuous practice.

2.7 Creativity in Different Situations

Creativity is a general, cross-domain personality trait and cognitive ability, and it is believed that creative personality and mental skills in diverse fields are the same or similar (Baer, 1998). Hocevar (1976) used 239 college students as subjects and examined the correlation between self-rated creativity performance in different fields (art, handicrafts, performing arts, mathematics, literature, and music) and found that creativity in six fields. There is a moderate correlation between performance.

Creativity is noted in various fields, including art, science, business, society, etc. However, no matter how the expressions of creativity change, the common characteristics at their core remain the same.

Creativity manifests itself in various situations, and its performance is influenced by numerous factors such as environment, personal experience, and knowledge background. Here are some possible expressions of creativity in different contexts:

Artistic creation: In the field of art, creativity is evident in the unique understanding and expression of beauty, as well as the innovation of existing art forms. For example, a creative painter might pioneer a new style or interpret a collective subject from a unique perspective.

Scientific research: In scientific research, creativity is mainly reflected in proposing new theories, discovering new laws, or inventing new technologies. For instance, a creative scientist may find a different substance or propose a new scientific theory.

Business innovation: In a business environment, creativity is mainly reflected in product development, market strategy, organizational management, etc. For resources, a creative entrepreneur might develop a new product or find a different way to market it.

Creativity in daily life: Creativity also manifests in various daily life situations. For instance, when solving problems, a resourceful person may find a new and efficient solution; in interpersonal communication, a creative person may use a unique way to express their views and emotions.

From the performance of creativity in the above four fields, we can summarize the commonalities of creativity in different fields as follows:

First, creativity's innovative nature often comes from questioning and challenging existing things. The spirit of daring to challenge and breakthrough is an important factor for creativity to be contained in countless fields.

Furthermore, creativity requires a rich imagination. Imagination is the source of creativity, which provides people with diverse perspectives on the world, thereby creating things that have never been done before.

Finally, creativity requires continuous learning and exploration. The process of innovation is a work of constant learning and exploration. Whether it is the learning of new knowledge or the exploration of new fields, it is a necessary condition for creativity. People can only discover new opportunities and develop new values through continuous learning and exploration.

In summary, although diverse fields have unique manifestations of creativity, they all share some basic common characteristics. These characteristics include a deep understanding of problems, the courage to challenge the status quo, a rich imagination, and continuous learning and exploration. These shared characteristics enable creativity to play an important role in diverse fields and promote the progress and development of human society.

2.8 Related Research

There are abundant examples of experiments in creativity research. This section will provide relevant research on student creativity experiments in diverse countries.

James (2015) with El Sistema (National et al. of Venezuela, founded in 1975 by Jose Antonio Abreu) and Reggio Emilia (founded in 1963 by Loris Malaguzzi in Reggio Emilia, Italy) to investigate the environment through Teresa Amabile's KEYS theory (2004), create her classroom plan and use this plan, the results are that creativity and learning are not rivals, but a powerful combination. Moreover, it emphasizes the importance of a robust, positive image of the child and an understanding of the great potential of creativity and education.

Chin and Siew (2015) used six-year-old preschool students in a kindergarten of the Ministry of Education in Kota Kinabalu, Sabah, as the research subjects, and passed the development and testing of FSCT (Preschool Children's Image Science Creativity Test). The verification was carried out to conclude that the creativity of preschool children can be cultivated through specific intervention programs.

Tran, Ho, and Hurle (2016) conducted questionnaires and in-depth interviews with 234 Vietnamese and international teachers on creativity advance teaching and explored teachers' views and practices on creativity teaching. The results found that teachers have a limited understanding of creativity and creativity teaching and indicated that to enhance students' creativity, teachers should fully understand creativity.

Li, Wang, and Shi (2004) took primary and secondary school students aged 9-16 as the research subjects and used practical creativity test tasks to explore the development of children's creativity and the impact of family environmental factors on creativity, and came to two conclusions:

1) Children's creativity gradually improves with age, but the three dimensions of creativity, novelty, fluency, and flexibility, develop unevenly. Fluency and flexibility improve faster between the ages of 9 and 11 than at other ages.

2) The family environment has direct and indirect effects on children's creativity. The unintended effect is achieved by affecting creative attitudes.

Ge and Bai (2007) used the Williams Creative Thinking Scale, revised by Lin Xingtai (1994), to screen out two groups of children with low and high levels of creativity and randomly assign them to the brainstorming training group and the forced association group. Method training group. The subjects and the control group underwent creativity training for five weeks. The result is that from the two dimensions of creativity, openness and accuracy, only brainstorming significantly improves children's creativity with low creativity levels, while the rest have no impact. Children's creativity training should consider the differences in individual creative creativity levels and the method's effectiveness.

An observation team formed by Huang et al. (2020) conducted a five-factor personality (Costa & McCrae & the 1980s) psychological assessment on 1,331 junior high school students in a Wenzhou school and found that, in addition to emotional (neurotic) traits, In addition, the other four personality traits all showed a significant positive correlation with the total score of creative tendencies; the innovative tendencies of junior high school students have substantial differences in the main effects of gender and age, with the second-grade students having the lowest creative tendencies; the five-factor personality of junior high school students The four dimensions and the total score except emotionality can positively predict creativity and the correlation between negative emotions and creativity is weak.

Zhang, Fu, Xin, Chen, and Sha (2020) The research team conducted a 3-year follow-up test (to grade 6) on 203 fourth-grade students in a primary school in China. It analyzed the creativity of primary school students through the Hierarchical Linear Model (1988) Three dimensions (fluency, flexibility, and originality). It can be concluded that the creativity of primary school students in grades 4 to 6 shows an

increasing trend in the upper grades of primary school. Still, flexibility and originality show a different growth pattern from fluency, more importantly, it is found that there are individual differences in the initial level of creativity, and individuals with high initial levels improve faster.

Qin, Q., Qin, J., and Zhong (2023) conducted a creativity intervention experiment on rural children in two fourth-grade classes in rural China through painting psychology course counseling and analyzed the four dimensions of creativity intervention: risk-taking, curiosity, imagination, and challenge. The results show significant differences in the three dimensions of students' risk-taking, curiosity, and creativity under the intervention.

To sum up, the multiple research experiments in this summary show that creativity is a multi-dimensional ability whose formation is influenced by various factors. By comparing and analyzing participants' performance in separate experiments, we gain a deeper understanding of the nature and factors that influence creativity.

Creativity is not simply a single thinking process but a comprehensive ability that integrates imagination, innovative thinking, divergent thinking, problem-solving ability, experimental spirit, interdisciplinary thinking, and other elements. Cultivating creativity is of profound significance to personal development, social progress, national competitiveness, and innovative thinking and imagination improvement. In today's ever-changing era, we need to pay attention to the cultivation of creativity and constantly tap and unleash the potential of creativity to promote the sustainable development and development of human society.

CHAPTER 3

RESEARCH METHODOLOGY

The main purpose of this chapter is to understand teachers' views on cultivating students' creativity thinking skills, collect data, and put forward suggestions for cultivating creativity thinking skills. In this chapter, the researcher will use the research method - Mixed Methods Research (MMR), which organically combines the two main research paradigms of quantitative research. This chapter provides an overview of the research design and instruments and details on data collection and statistical data analysis procedures. Descriptions are presented in the following order:

3.1 Research Design

3.2 Population and Sample

3.3 Research Instruments

3.4 Data Collection Procedures

3.5 Data Analysis Statistics

3.6 Ethical Consideration

3.1 Research Design

Creative thinking skill is a critical skill for success in the 21st century. Students need to be able to think creatively to solve problems, generate new ideas, and adapt to change.

This study investigated teaching methods to promote the creative thinking skills of primary school students in China. The study used a mixed methods research design, which combined qualitative and quantitative methods.

The study consisted of three phases:

Phase 1: Documentary research

In the first phase, the researchers conducted documentary research to analyze data related to creative thinking skills. The researchers reviewed relevant literature, including articles, books, and reports.

Phase 2: Survey research

In the second phase, the researchers surveyed to study the current state of creative thinking instruction in primary schools in Guizhou Province, China. The survey was administered to 354 primary school teachers in Guizhou Province.

Phase 3: In-depth interviews

In the third phase, the researchers conducted in-depth interviews with 12 primary school teachers in Guizhou Province. The interviews focused on the teachers' experiences with teaching creative thinking skills.

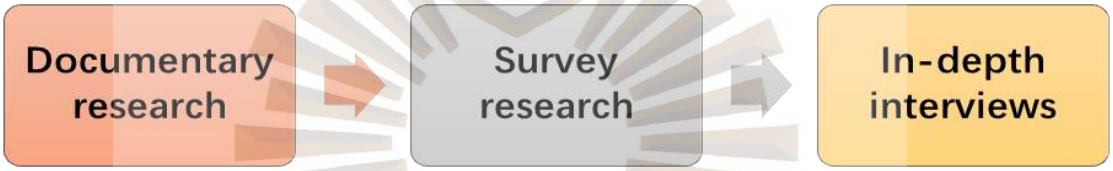

Figure 3.1 Three Phases to Research Design

3.2 Population and Sample

3.2.1 Population

Primary school teachers in rural areas of Xing Ren, with 3,020 people (Gui Zhou Statistics Bureau, 2022).

3.2.2 Sample

The sample size for the quantitative phase was determined to be 354 using the Yamane (1973) formula. The sampling method employed was convenience sampling, where participants were selected based on their accessibility and willingness to participate. The selection criteria included being a primary school teacher currently

teaching in a rural area of Xing Ren, Guizhou Province, China. For the qualitative phase, 12 primary school teachers were purposively selected from the pool of 354 questionnaire respondents. The selection criteria for the focus group interviews included a willingness to participate and the ability to articulate their thoughts and experiences clearly. The purposive sampling aimed to ensure a diverse range of perspectives and experiences related to teaching creative thinking skills in rural primary schools.

3.3 Research Instrument

Research instruments refer to research tools used in experiments. This study will use questionnaires and focus group interview transcripts.

Table 3.1 Research Tool Sample Number

Steps	Research Instrument	Number of Samples
1	Synthetic transaction log form	-
2	Questionnaire	354
3	In-depth Interview	12

3.3.1 Steps for Creating and Evaluating The Quality of A Synthetic Content form for The Research Study "A Study of Teaching Methods to Promote Creative Thinking Skill of Primary School Students in China"

1) Determine the purpose of the Synthetic Content Form
    1.1) Identify the data to be collected
    1.2) Define the data format
    1.3) Identify the users of the Synthetic Content Form
2) Design the structure of the Synthetic Content Form
    2.1) Identify the types of content
    2.2) Identify the data associated with each content type
    2.3) Define the data storage format

3) Develop the Synthetic Content Form

3.1) Develop a prototype Synthetic Content Form

3.2) Test the Synthetic Content Form with the target group

3.3) Refine the Synthetic Content Form based on the test results

4) Evaluate the quality of the Synthetic Content Form

4.1) Analyze the accuracy of the data

4.2) Analyze the completeness of the data

4.3) Analyze the usability of the Synthetic Content Form

3.3.2 In-Depth Interview Questions on Teaching Practices to Promote Creativity in Primary School Students in Rural Guizhou

Focus group interview is a scientific qualitative research method widely used in academic fields in the past 20 years (Kai-Wen Cheng & 2007).

This study will conduct focus interviews with 12 primary school teachers in Xing Ren, China. They will be divided into two groups and conduct one-hour interviews to collect the interviewees' answers and conduct data analysis. The steps for focus interviews are as follows:

1) Objectives

1.1) Identify key research questions/issues related to teaching creative skills.

1.2) Define the target population: primary school teachers in Guizhou Province, China.

2) Literature Review

2.1) Review literature on creative skills, teaching strategies, and the educational context in China.

2.2) Summarize key issues, concepts, and questions related to teaching creative skills.

3) Interview Question Design

3.1) Develop open-ended questions encouraging interviewees to think critically, share experiences, and provide their perspectives.

3.2) Create 13 questions covering four key areas: Understanding creativity thinking skills and Teaching, Methods and Impacts, Challenges and Solutions, Examples of teaching and learning guidelines

4) Question Testing and Refinement

4.1) Pilot the interview questions with a small sample to assess clarity, appropriateness, and comprehensiveness.

4.2) Refine the questions based on feedback from the pilot testing.

5) Interview Guide Development

5.1) Document all interview questions.

5.2) Write additional instructions for each question.

5.3) Specify interview guidelines, the interviewer's role, and data recording methods.

3.4 Data Collection Procedures

The data collection design is divided into phases:

3.4.1 Documentary Research

1) Objective: Collect information on creative thinking skills, teaching methods, and the current status of creative thinking instruction in primary schools.

2) Instruments: Academic documents such as articles, books, and reports.; Websites of relevant organizations; Educational statistics.

3.4.2 Survey Research

1) Objective: Study the current status of creative thinking instruction in primary schools in Guizhou Province, China.

2) Instrument: Questionnaire on the Current Status of Teaching Creativity in Primary Schools in Guizhou Province, China.

3) Sample: 354 primary school teachers from rural areas of Xing Ren City.

4) Sampling method: Volunteer sampling.

3.4.3 In-depth Interviews

1) Objective: Explore the experiences of primary school teachers with teaching creative thinking skills.

2) Instrument: In-depth interview questions about teaching creative thinking skills.

3) Sample: 12 primary school teachers from rural areas of Xing Ren City.

3.4.4 Quantitative Data Collection

1) Informed Consent and Research Information Inform 354 participants about the research data collection procedures. Explain the ethical guidelines set by the Rangsit University Ethics Committee.

2) Online Questionnaire Administration Coordinate with the participants to distribute the online questionnaire. Set a deadline for completing the questionnaire.

3) Data Analysis Collect data from the online questionnaire. Analyze the data after the deadline.

3.4.5 Qualitative Data Collection

1) Informed Consent and Research Information Inform 12 participants about the research data collection procedures. Explain the ethical guidelines set by the Rangsit University Ethics Committee.

2) Interview Scheduling: Coordinate with the participants to schedule interviews at their convenience.

3) Interviews: Conduct interviews based on the researcher-developed interview guide.

4) Content Analysis: Analyze the interview data using content analysis.

3.5 Data Analysis Statistics

The researcher analyzed the data to study teaching practices that promote creative thinking skills in elementary school students using two types of statistics:

3.5.1 Quantitative Data Analysis Statistics

1) Analysis of Personal Information of Respondents Frequency and percentage were used to analyze the respondents' personal information.

2) Analysis of General Data of the Study Variables.

3) The study variables included (1) intelligence, (2) environment, (3) personality, (4) motivation, (5) knowledge and experience, and (6) way of thinking

4) Tools Used: Mean, Standard Deviation, and Objectives: To describe the assessment of needs and to prioritize the modified PNI Need Order Index

3.5.2 Qualitative Data Analysis Statistics

1) Field Research

Structured interviews were conducted. Interviews were conducted based on a pre-developed interview schedule. Open-ended questions were used. Data was collected from the participants using this method.

2) Documentary Research

Relevant data was collected from books, research papers, and other documents. The focus was on concepts and theories relevant to the research synthesis.

3.6 Ethical Considerations

The study was conducted in accordance with ethical principles of human research. Prior to data collection, participants were informed of the objectives of the study, procedures, and their rights, including the right to participate voluntarily. Informed consent was obtained from all participants.

The following ethical principles are observed in this study

3.6.1 Informed and voluntary consent: With the help of the school principal and teaching director, the researchers provided all participants with comprehensive information about the study and were free to decide whether or not to participate, without coercion.

3.6.2 Anonymity and confidentiality: Participant data is confidential and anonymous to prevent identification.

3.6.3 Respect for the rights and dignity of participants: Researchers recognize the inherent dignity and worth of all participants and treat them with respect throughout the course of the study.

3.6.4 Protection from Harm: Steps have been taken to ensure that participants do not suffer any physical or psychological harm as a result of their participation in the study.

3.6.5 Transparency and Integrity: Research is conducted in a transparent and honest manner and findings are reported honestly and accurately.

CHAPTER 4

DATA ANALYSIS

This study uses a mixed approach to study the perceptions of rural primary school teachers in Guizhou, China, on students' creative thinking skills. The results were obtained from the following research tools: questionnaires and focus group interviews. In this chapter, the data results are presented in the following order:

4.1 A questionnaire analysis of primary school teachers in rural Guizhou, China.

4.2 Focus group interviews with 12 primary school teachers in rural Guizhou, China.

4.1 A Questionnaire Analysis of Primary School Teachers in Rural Guizhou, China

In this study, the sample size was determined to be 354 (N = 354) by the Taro Yamane sample method, and then the questionnaire was designed on a Likert scale, and we will calculate the identified needs by descriptive statistics, including mean and standard deviation, to assess actual and desired conditions, and the Priority Needs Index (PNI).

This part will present the data and research results obtained from data collection, divided into 2 sections as follows:

4.1.1 General Information of the Respondents

This section will present basic information about the study participants, such as gender, age, education, teaching experience, and the size of the school they teach.

Table 4.1 Basic Information on the Gender of the Participants

Basic Information	Number (People)	Percentage (%)
Male	197	55.65
Female	157	44.35

Table 4.1 shows that the majority of the research participants were male (197 participants, accounting for 55.65%), while the minority were female (157 participants, accounting for 44.35%).

Table 4.2 Basic Information on the Age of the Participants

Basic Information	Number (People)	Percentage (%)
Under 30 years old	18	5.08
30-40 years old	172	48.59
41-50 years old	164	46.33
Over 50 years old	0	0

From Table 4.2, it is found that most participants are between 30–50 years old, with the majority (48.59%) being between 30–40 years old. There are also a smaller number of participants under 30 years old (5.08%), and no participants over 50 years old.

Table 4.3 Basic Information on the Education Level of the Participants

Basic Information	Number (People)	Percentage (%)
Bachelor's degree	258	72.88
Master's degree	95	26.84
Above master’s degree	1	0.28

From Table 4.3, it is found that the majority of participants (72.88%) hold a Bachelor's degree. A smaller proportion (26.84%) hold a Master's degree, and a very small number (0.28%) hold a degree above a Master's.

Table 4.4 Basic Information on the Work Experience of the Participants

Basic Information	Number (People)	Percentage (%)
Less than 5 years	47	13.28
5-10 years	100	28.25
11-20 years	153	43.22
Over 20 years	54	15.25

From Table 4.4, we can see that the majority of participants have less than 10 years of work experience (65.38%). A smaller proportion of participants have 11–20 years of experience (23.08%), and an even smaller proportion have over 20 years of experience (11.54%).

Table 4.5 Basic Information on the Size of the School Taught

Basic Information	Number (People)	Percentage (%)
Small (less than 100 students)	102	28.81
Medium (100-500 students)	156	44.07
Large (over 500 students)	96	27.12

From Table 4.5, it is found that most participants (44.07%) teach at medium-sized schools (100–500 students). A slightly smaller proportion (28.81%) teach at small schools (less than 100 students). The remaining participants (27.12%) teach at large schools (over 500 students).

4.1.2 Quantitative Data Analysis

This section presents the results of the analysis of the dual-response needs questionnaire data. Descriptive statistics, including mean and standard deviation, were calculated to assess the actual and desired conditions for promoting creative thinking skills among primary school students in Guizhou, China. Additionally, the Priority Need Index (PNI) was computed to rank the identified needs in order of their urgency for improvement.

Table 4.6 Shows the results of the analysis of the actual and expected conditions, as well as the ranking of needs for promoting creative thinking skills of primary school students in Guizhou, China, overall

No	Assessment items	Actual condition (D)			Desired condition (I)			PNI	Rank
		$\bar{x}$	S.D.	Interpret	$\bar{x}$	S.D.	Interpret		
1	Classroom environment and teaching methods	2.50	0.02	Low	4.15	0.01	High	0.66	1
2	Student engagement	2.54	0.01	Medium	4.15	0.00	High	0.64	3
3	Promotion and support	2.57	0.00	Medium	4.12	0.03	High	0.61	4
4	Resources and collaboration	2.51	0.02	Medium	4.16	0.01	High	0.66	2
Summarize		2.53	0.01	Medium	4.15	0.01	High	0.64	

Table 4.6 An analysis of factors influencing creative thinking skills in primary school students in Guizhou Province, China, revealed a significant gap between current and desired conditions. Classroom environment and teaching methods were identified as particularly lacking, with both falling into the low to moderate range. In contrast, stakeholders expressed a strong desire for improvement across all areas, particularly in the classroom environment and teaching methods. This urgency is reflected in the Priority Need Index (PNI), where these two factors share the highest need for development (PNI = 0.66). While resources and collaboration, as well as student participation, also require attention (PNI = 0.66 and 0.64, respectively), the primary focus should be on enhancing classroom environments and teaching methods to foster creativity thinking skills among students.

Table 4.7 Shows the results of the analysis of the actual and expected conditions, as well as the ranking of needs for promoting creative thinking skills of primary school students in Guizhou, China, with regards to Aspect 1: Classroom environment and teaching methods

No.	Assessment items	Actual condition (D)			Desired condition (I)			PNI	Rank
		$\bar{x}$	S.D.	Interpret	$\bar{x}$	S.D.	Interpret		
1.1	Teachers encourage students to think creatively and try new things.	2.48	0.82	Low	4.10	0.88	High	0.66	2
1.2	The classroom environment is safe and supportive, fostering student self-expression.	2.45	0.85	Low	4.18	0.89	High	0.70	1
1.3	A variety of teaching methods are used to engage students and spark creativity.	2.54	0.81	Medium	4.17	0.90	High	0.64	4
1.4	The learning process is valued more than the outcome.	2.51	0.85	Medium	4.14	0.88	High	0.65	3
	Summarize	2.50	0.02	Low	4.15	0.01	High	0.66	1

Table 4.7 An analysis of classroom environments and teaching methods in Guizhou Province, China, revealed a significant discrepancy between the actual and desired conditions for fostering creative thinking in primary school students. The current state is characterized by a low overall rating (mean = 2.50), with specific aspects like encouraging creative thinking and promoting student expression identified

as particularly lacking. While the use of varied teaching methods and a focus on the learning process show moderate levels, stakeholders express a strong desire for substantial improvement across all aspects (mean = 4.15). This urgency is further emphasized by the Priority Need Index (PNI), which highlights the creation of a safe, expressive classroom environment (PNI = 0.70) and the encouragement of creative thinking (PNI = 0.66) as the most pressing needs. These findings underscore the need for immediate and comprehensive intervention to transform current practices, fostering environments that nurture and empower students' creative potential.

Table 4.8 Shows the results of the analysis of the actual and expected conditions, as well as the ranking of needs for promoting creative thinking skills of primary school students in Guizhou, China, with regards to Aspect 2: Student engagement

No.	Assessment items	Actual condition (D)			Desired condition (I)			PNI	Rank
		$\bar{x}$	S.D.	Interpret	$\bar{x}$	S.D.	Interpret		
2.1	Students have opportunities for independent learning and exploration.	2.56	0.88	Medium	4.15	0.89	High	0.62	3
2.2	Collaboration and peer learning are encouraged among students.	2.51	0.90	Medium	4.15	0.90	High	0.65	1
Summarize		2.54	0.01	Medium	4.15	0.00	High	0.64	3

Table 4.8 An analysis of student participation in promoting creative thinking among primary school students in Guizhou Province, China, revealed a moderate current state (mean = 2.54), indicating a need for improvement. While opportunities for independent learning and exploration exist, and collaboration is promoted, the levels are not optimal. Stakeholders strongly desire a higher level of engagement (mean = 4.15), emphasizing the urgency for change. The Priority Need Index (PNI) further highlights this, identifying the promotion of collaboration (PNI = 0.65) and

independent learning (PNI = 0.62) as the most pressing needs. These findings underscore the importance of fostering a more participatory learning environment to effectively nurture students' creative thinking skills.

Table 4.9 Shows the results of the analysis of the actual and expected conditions, as well as the ranking of needs for promoting the creative thinking skills of primary school students in Guizhou, China, with regards to Aspect 3: Promotion and Support

No.	Assessment items	Actual condition (D)			Desired condition (I)			PNI	Rank
		$\bar{X}$	S.D.	Interpret	$\bar{X}$	S.D.	Interpret		
3.1	Student creativity is praised and nurtured.	2.59	0.86	Medium	4.13	0.87	High	0.60	2
3.2	School administrators prioritize creative skills development.	2.55	0.86	Medium	4.12	0.91	High	0.62	1
Summarize		2.57	0.00	Medium	4.12	0.03	High	0.61	4

Table 4.9 An analysis of promotion and support for creative thinking skills in primary school students in Guizhou Province, China, revealed a moderate actual condition (mean = 2.57). While student creativity is moderately praised and nurtured, and school administrators show some prioritization of creative skills development, stakeholders strongly desire a higher level of support (mean = 4.12). This discrepancy highlights the need for significant improvement, particularly in prioritizing creative skills development at the administrative level and fostering a culture that values and nurtures student creativity. These findings underscore the importance of targeted interventions to bridge the gap between the current state and the desired level of promotion and support for creative thinking.

Table 4.10 Shows the results of the analysis of the actual and expected conditions, as well as the ranking of needs for promoting creative thinking skills of primary school students in Guizhou, China, with regards to Aspect 4: Resources and collaboration

No.	Assessment items	Actual condition (D)			Desired condition (I)			PNI	Rank
		$\bar{x}$	S.D.	Interpret	$\bar{x}$	S.D.	Interpret		
4.1	Varied resources and teaching materials support creative development.	2.49	0.89	Low	4.13	0.88	High	0.66	1
4.2	Partnerships with parents and the community promote creativity.	2.54	0.86	Medium	4.19	0.87	High	0.65	2
Summarize		2.51	0.02	Medium	4.16	0.01	High	0.66	2

Table 4.10 An analysis of resources and collaboration for promoting creative thinking in primary school students in Guizhou, China, reveals a significant gap between current and desired conditions. The actual state, rated as low to moderate (mean = 2.51), is characterized by limited resources and moderate collaboration with parents and the community. However, stakeholders express a strong desire for substantial improvement (mean = 4.16) in both areas. The Priority Need Index (PNI) further emphasizes this urgency, with both aspects receiving a high score of 0.66, indicating an equal need for attention. This underscores the importance of investing in diverse resources and materials, as well as fostering stronger partnerships with parents and the community, to effectively cultivate creative thinking skills in students

Table 4.11 Results of content analysis of "Other suggestions" regarding promoting creative thinking skills of primary school students in Guizhou, China using frequency (f)

No.	List of suggestions	(f)
1	Encourage students to ask more questions and express their opinions	84
2	Set challenging tasks and stimulate innovative thinking	9
3	Provide students with space for independent exploration and practice	5
4	Broaden students' global perspectives through international exchanges	6
5	Stimulate students' thinking through different learning styles or characters	76
6	Develop students' abilities through a variety of activities, classes, or environments	86
7	Through various collaborations, students develop their abilities	23
8	Recognize students' innovative abilities and let students be recognized	102

Table 4.11 Content analysis of the frequency of use of "other recommendations" to promote students' creative thinking ability in Guizhou Province, China (f) shows that most teachers indicate the need to strengthen teachers' recognition of students' innovation ability and let students be recognized. The second is to allow students to cultivate students' innovation ability through mutual cooperation; The third part is encouraging teaching, asking students more questions and allowing them to express their opinions. The remaining teachers hope to enrich students' ideas and cultivate students' innovation ability through different educational environments or teaching activities.

4.2 Focus Group Interviews with 12 Primary School Teachers in Rural Guizhou, China

Twelve primary school teachers from rural Guizhou, China, participated in a one-hour focus group interview to gain deeper insights into their experiences and perspectives on fostering creative thinking in their classrooms. The interview sessions were audio-recorded, transcribed verbatim, and analyzed using thematic analysis to identify key themes and patterns. The teachers' responses were summarized using a structured interview record form. The following section presents the key findings from the analysis of the focus group interview data.

4.2.1 General Information of the Respondents

This section will present basic information about the study participants, such as gender, age, education, teaching experience, and the size of the school they teach.

Table 4.12 General Information of the Respondents

No.	Basic Information	Number (People)	Percentage (%)
1	Gender		
	Male	1	8.33
	Female	11	91.67
2	Age		
	Under 30 years old	3	25
	30-40 years old	8	66.67
	41-50 years old	1	8.33
	Over 50 years old	0	0
3	Education Level		
	Bachelor's degree	12	100
	Master's degree	0	0
	Above Master's degree	0	0

Table 4.12 General Information of the Respondents (Cont.)

No.	Basic Information	Number (People)	Percentage (%)
4	Teaching Experience		
	Less than 5 years	3	25
	5-10 years	8	66.67
	11-20 years	1	8.33
	Over 20 years	0	0

Table 4.12 provides information on the following:

Gender: The majority of the respondents were female (11 out of 12).

Age: Most respondents were between 30-40 years old (8 out of 12).

Education Level: All respondents held a Bachelor's degree.

Teaching Experience: The majority of respondents had 5-10 years of teaching experience (8 out of 12).

4.2.2 Qualitative Data Analysis

1) Understanding Creativity & Teaching:

Table 4.13 Teachers' Perspectives on Fostering Creative Thinking in Rural Guizhou, China (What do you think creativity teaching should look like?)

Number	Viewpoint
1	Similar to the model of the new teaching; give full play to the main role of students; Use innovative thinking to broaden the minds of new students.
2	divergent thinking; Study-based teaching.
3	Students have their own understanding and can apply it to their learning.
4	more heuristic teaching; More training in students' thinking.
5	Environment; Stimulate children's interests and talents, and let children use their imagination freely.
6	Break the stereotype of current students and let them learn the ability to self-deduce.

Table 4.13 Teachers' Perspectives on Fostering Creative Thinking in Rural Guizhou, China (What do you think creativity teaching should look like?) (Cont.)

Number	Viewpoint
7	Take the student as the main body and let the students.
8	flipped classrooms; Emphasis on teacher-student interaction; Teachers should be innovative.
9	Encourage students to take the initiative and let students realize teaching through exploration; It mainly cultivates students' innovative thinking and practical ability.
10	Ensure that children can learn knowledge and learn to innovate at the same time; Teacher-guided.
11	The class is also given to the students, guiding the students to discuss around the problem; student character; Not all students are suitable for teaching creativity.
12	The way of thinking of students in the lower stage is different from that in the higher stage: there is more teacher guidance in the lower stage, and there is more initiative in the higher stage. Classes need to be targeted.

In-depth interviews were conducted with 12 primary school teachers in rural Guizhou, China, to explore their perspectives on teaching to promote creative thinking. The analysis of the interview data revealed several key themes:

1.1) Teaching Methods that Promote Creative Thinking

(1) Most teachers believed that student-centered learning, project-based learning, and flipped classroom methods were effective in fostering creativity (Respondents 1, 2, 8).

(2) Some teachers emphasized heuristic teaching, which encourages students to think critically and solve problems independently (Respondent 4).

(3) Others highlighted the importance of creating a conducive learning environment and stimulating students' interest (Respondent 5).

(4) A few teachers suggested that teaching methods should be tailored to the students' age, with more teacher-directed instruction in lower grades and more opportunities for student initiative in higher grades (Respondent 12).

1.2) The Role of Teachers in Fostering Creativity

(1) Most teachers acknowledged the crucial role of teachers in motivating, inspiring, and guiding students (Respondents 8, 10).

(2) Some teachers emphasized the importance of building rapport with students and providing opportunities for them to express their ideas freely (Respondents 8, 11).

(3) Others believed that teachers should be creative themselves and able to design engaging learning activities (Respondent 8).

1.3) Individual Differences

(1) Some teachers emphasized the importance of individual differences, recognizing that students have different strengths and interests and that teaching should be tailored to each student's needs (Respondents 11, 12).

Conclusion

The analysis reveals that teachers in Guizhou have diverse understandings of teaching creativity. Most agree on the importance of student-centered methods and the teacher's role in motivating and supporting students. However, some teachers expressed concerns about individual differences and the challenges of implementing creative teaching practices in their classrooms. These issues should be considered in the design and development of future initiatives to promote creative thinking in education.

Table 4.14 Teachers' Perspectives on the Use of Creativity in Teaching in Rural Guizhou, China (Do you think teachers use creativity in teaching?)

Number	Viewpoint
1	It should be used. Some schools in China have begun to introduce creativity teaching, but students' autonomy is weak, and teachers need to guide students more.
2	It should be used. But you need the guidance of a teacher; It is beneficial for cooperation between students.
3	It should be used. But it mostly depends on the student's performance.

Table 4.14 Teachers' Perspectives on the Use of Creativity in Teaching in Rural Guizhou, China (Do you think teachers use creativity in teaching?) (Cont.)

Number	Viewpoint
4	It should be used. It is more effective than single teaching, there is a teaching atmosphere, and mutual communication is more effective.
5	It should be used. But the teacher should adjust according to the situation, and the lesson should be based on the student's situation.
6	It should be used. Teaching methods should change to broaden students' thinking.
7	It should be used. Modern teaching requires creative thinking, and now that textbooks have changed, teachers should change their thinking according to the design of the textbook. Think more about how you teach and mentor your students.
8	It should be used. Modern curriculum standards are being updated, and teachers need new teaching methods to improve their teaching.
9	It should be used. Through interesting teaching activities in the classroom, students can interact with each other and use innovative activities such as challenges to expand students' thinking.
10	It should be used. It depends on how the teacher teaches, and it is necessary to ensure that students are able to learn the knowledge points.
11	It should be used. However, it is necessary to distinguish between different situations, sometimes students' divergent thinking can affect students' grades, and teachers should teach in a targeted manner.
12	It should be used. Teachers should teach students to use creative thinking. Creativity, when used at the right time, can diverge thinking and create new effects on the basis of the original.

In-depth interviews with 12 primary school teachers in rural Guizhou, China, revealed that all teachers agreed on the importance of using creativity in teaching, but they had diverse opinions on how to implement it and the factors influencing its implementation.

1) The Importance of Using Creativity in Teaching

(1) All teachers agreed that using creativity in teaching is necessary (Respondents 1-12).

(2) Most teachers believed that using creativity would help foster a better learning atmosphere and encourage effective communication among students (Respondent 4).

(3) Some teachers believed that using creativity would help stimulate students' interest in learning (Respondent 9).

(4) Some teachers emphasized that using creativity is necessary to align with modern curriculum standards (Respondents 7, 8).

2) How to Implement Creativity in Teaching

(1) Many teachers believed that using engaging and challenging activities would help promote students' creativity (Respondent 9).

(2) Some teachers emphasized the importance of adapting teaching to the specific situation and individual learners (Respondents 5, 11).

(3) Some teachers suggested that student-centered teaching and collaborative learning would help foster creativity (Respondents 1, 2).

3) Factors Influencing the Implementation of Creativity in Teaching

(1) Some teachers were concerned that using creativity might negatively impact students' academic performance (Respondent 11).

(2) Some teachers indicated that the lack of student autonomy was a barrier to using creativity in teaching (Respondent 1).

Conclusion

Teachers in Guizhou shared the view that using creativity in teaching is important, but they had diverse opinions on how to implement it and the factors influencing its implementation. Future research should further investigate appropriate methods for implementing creativity in teaching within the context of rural schools in China, and how to encourage teachers to be more confident in using creativity in their teaching.

2) Methods & Impact:

Table 4.15 Methods Used to Teach Creative Thinking Skills in Rural Guizhou, China (What methods do you use to teach creativity skills to students?)

Number	Viewpoint
1	Gamification teaching allows students to increase their interest in learning in the process of PPT games; Multimedia teaching to drive students' learning; Group Cooperation: Complete tasks with group presentations.
2	Praise is the main thing, with substantive gifts; If the student is doing well, let the students share their ideas and resonate with each other.
3	Let students learn to expand their imagination.
4	Brainstorm before class to let students have ideas first; Insert games in class; After class, let the students talk on their own and gather information.
5	Develop students' intelligence through activities in the textbook.
6	Teaching through games allows students to expand their thinking through group cooperation.
7	In-depth student understanding of the curriculum; let students think for themselves, understand the knowledge points, and stimulate students' problem-solving ability.
8	In the classroom, interdisciplinary integration is used to give full play to students' abilities and stimulate students' potential; A variety of activities are offered for students to showcase themselves and stimulate their abilities.
9	Brainstorming, providing open-ended challenges and questions to guide students as they explore.
10	Make a teaching plan: Based on students, change the course structure to semi-open or fully open mode, so that students can try to modify the game rules of the corresponding course while mastering the knowledge points.
11	Read, induction; The texts in the textbook are taught in a situational way, generating associations and connecting life to teaching.
12	Career experience mechanism: Different plans are formulated for students in different stages, and different reward mechanisms are given for the completion of different tasks. Creativity works better when combined with reality.

The analysis of the interview data reveals that teachers in rural Guizhou utilize a diverse range of methods to foster creativity in their students, primarily focused on active learning and student-centered methods:

1) Gamification and Multimedia Instruction: Teachers leverage technology, such as PowerPoint games and multimedia presentations, to enhance student engagement and motivation in the learning process (Respondent 1).

2) Positive Reinforcement and Sharing: Teachers emphasize the importance of praise and tangible rewards to acknowledge students' efforts (Respondent 2). They also encourage students to share their ideas and learn from each other.

3) Encouraging Imagination: Some teachers focus on stimulating students' imagination and expanding their thinking through various activities (Respondent 3).

4) Brainstorming and Games: Brainstorming sessions before class and incorporating games during lessons are used to spark students' ideas and creativity (Respondent 4).

5) Textbook Activities: Teachers utilize activities within textbooks to develop students' intelligence and problem-solving skills (Respondent 5).

6) Cooperative Learning through Games: Group activities and games are employed to encourage collaboration and expand students' thinking (Respondent 6).

7) In-depth Curriculum Understanding: Teachers believe in fostering a deep understanding of the curriculum, encouraging students to think independently, and stimulating their problem-solving abilities (Respondent 7).

8) Interdisciplinary Integration and Showcasing: Teachers integrate various subjects to provide opportunities for students to showcase their talents and stimulate their potential through diverse activities (Respondent 8).

9) Open-ended Challenges and Questions: Teachers use brainstorming sessions, open-ended challenges, and thought-provoking questions to guide students in exploring and discovering new ideas (Respondent 9).

10) Modified Teaching Plans: Some teachers adapt their lesson plans to semi-open or fully open modes, allowing students to modify game rules and explore concepts while mastering knowledge points (Respondent 10).

11) Situational Teaching and Real-World Connections: Teachers connect textbook content to real-life situations, fostering associations and making learning more relevant (Respondent 11).

12) Career Experience Mechanisms: Teachers create different plans and reward mechanisms for students at various stages, emphasizing the importance of linking creativity with real-world applications and career aspirations (Respondent 12).

Conclusion

The findings highlight a strong emphasis on student-centered active learning methods, incorporating technology, collaboration, and real-world connections to foster creativity among primary school students in rural Guizhou. Teachers recognize the importance of tailoring instruction to individual needs and providing positive reinforcement. However, challenges such as limited resources and large class sizes may hinder the full implementation of these methods. Future research should explore ways to address these challenges and provide teachers with additional support to maximize the effectiveness of their creative teaching strategies.

Table 4.16 Teachers' Perspectives on the Impact of Creativity Cultivation on Students' Learning Methods and Grades (Do you think that after students participate in creativity cultivation, their learning methods or grades will change?)

Number	Viewpoint
1	No change. Modern teaching in China is basically based on grades, mainly learning by doing problems, and the cultivation of creativity is easy to cause divergent thinking.
2	There are changes. Students' learning styles become self-directed, they actively communicate with their teachers, and their comprehension increases.
3	There are changes. Students' grades will be affected.
4	There are changes. It will allow students to diverge their thinking.
5	There are changes. Outgoing students will have more noticeable changes in thinking.
6	There are changes. Creativity is more evident in the upper primary school years, where the student base dominates the development of creative thinking.

Table 4.16 Teachers' Perspectives on the Impact of Creativity Cultivation on Students' Learning Methods and Grades (Do you think that after students participate in creativity cultivation, their learning methods or grades will change?) (Cont.)

Number	Viewpoint
7	There are changes. Students' learning styles become more flexible, students will think more actively, and their grades will improve to a certain extent.
8	There are changes. It contributes to the improvement of students' self-confidence and class status, and if students maintain their interest, their grades will rise.
9	There are changes. Students will be more flexible in their learning and will not be limited to traditional teaching, but will focus more on understanding.
10	There are changes. Students will also use a flexible approach to problem-solving in the school's classrooms. Students will have a process-oriented process and steps to solve problems in life.
11	There are changes. Students' learning styles vary widely, and grades are progressively affected.
12	No change. Creativity is a gradual process of accumulation. Students in the lower grades are more susceptible, while students in the upper grades are less affected.

The analysis of the interview data reveals a range of perspectives among teachers regarding the impact of creativity cultivation on students' learning methods and grades:

1) Positive Impact on Learning Methods: The majority of teachers (10 out of 12) believe that creativity cultivation leads to positive changes in students' learning methods. They observe that students become more self-directed, actively engage in communication with teachers, demonstrate increased comprehension, and adopt a more flexible and understanding-focused methods to learning (Respondents 2, 4, 5, 6, 7, 8, 9, 10, 11).

2) Mixed Views on Impact on Grades: While some teachers believe that creativity cultivation positively affects students' grades (Respondents 3, 7, 8, 11), others hold that it does not directly influence grades or that the impact is more pronounced in upper primary school years (Respondents 1, 12). One teacher suggests

that the impact on grades depends on maintaining students' interest in the subject matter (Respondent 8).

3) Divergent Thinking and Problem-Solving: Several teachers highlight that creativity cultivation fosters divergent thinking, allowing students to approach problem-solving in more flexible and innovative ways (Respondents 1, 4, 10).

4) Individual Differences: Some teachers acknowledge that the impact of creativity cultivation varies among students, with outgoing students experiencing more noticeable changes in thinking and learning styles (Respondents 5, 11).

Conclusion

The findings suggest that teachers generally perceive creativity cultivation as having a positive impact on students' learning methods, leading to increased self-direction, engagement, and flexibility. However, there are differing views on the direct impact on grades, with some teachers emphasizing individual differences and the need for sustained interest to see improvements. The study highlights the importance of recognizing the diverse ways in which creativity cultivation can benefit students and the need for further research to understand the long-term effects on academic achievement.

3) Challenges & Solutions:

Table 4.17 Challenges Faced by Teachers When Teaching Creativity (What problems do you think teachers will encounter when teaching creativity?)

Number	Viewpoint
1	It will affect the progress of the class, and creativity can easily cause students' thinking to diverge.
2	Teaching goals are difficult to achieve.
3	The students' responses were unexpected and had nothing to do with the lesson; Students with weak self-control will be out of control.

Table 4.17 Challenges Faced by Teachers When Teaching Creativity (What problems do you think teachers will encounter when teaching creativity?) (Cont.)

Number	Viewpoint
4	When the answer is not single, students will not take the initiative to answer, and the phenomenon of conformity occurs; In group discussions, students are prone to different opinions.
5	It requires a process of acceptance, which is more difficult to implement at the primary level; Parents' understanding is low.
6	Traditional teachers are less receptive to new forms of teaching; parental acceptance is low.
7	Students do not understand the purpose of the course.
8	Lack of lesson plans can affect the progress of the class; Parents and other teachers at school do not agree on ideas that need to be negotiated; Students are prone to divergent thinking.
9	Teachers tend to idealize children; Some students may have difficulty accomplishing the teaching objectives, resulting in an uneven distribution of teaching.
10	the foundation of the student; the psychological state of the student; Students' abilities are inconsistent, resulting in uneven levels of acceptance.
11	Can creativity go hand in hand with students' knowledge? There is an imbalance between parents' perceptions of creativity and subject knowledge; Parents focus on student achievement; It can lead to a lack of self-confidence in students.
12	Unlike traditional education, it is still being explored; parents are not very well understood, and students are more uncontrollable in teaching creativity.

The analysis of the interview data reveals several key challenges that teachers in rural Guizhou face when implementing creativity in their classrooms:

1) Classroom Management and Progress: Teachers expressed concerns about maintaining control and ensuring progress when incorporating creative activities. They worry that open-ended tasks and divergent thinking might lead to off-topic discussions and disrupt the planned curriculum (Respondents 1, 3, 8).

2) Achieving Learning Objectives: Some teachers find it difficult to align creative activities with specific learning objectives, fearing that the focus on creativity might detract from content mastery (Respondents 2, 7).

3) Student Engagement and Participation: Teachers encountered challenges related to student engagement, with some students feeling overwhelmed by open-ended tasks or lacking the confidence to participate actively (Respondents 3, 4). Group dynamics and conflicting opinions can also pose challenges during collaborative activities.

4) Acceptance and Understanding: Teachers noted that implementing creative teaching methods requires a shift in mindset and may face resistance from traditional-minded colleagues and parents who prioritize rote learning and exam performance (Respondents 5, 6).

5) Resource Constraints and Professional Development: Limited resources, such as a lack of materials and training, can hinder teachers' ability to design and implement effective creative activities (Respondent 8).

6) Individual Differences: Teachers acknowledged the challenge of catering to diverse student needs and abilities, as some students may struggle with open-ended tasks while others excel (Respondents 9, 10).

7) Balancing Creativity and Knowledge: Teachers grapple with finding the right balance between fostering creativity and ensuring students acquire essential knowledge and skills (Respondent 11).

8) Parental Expectations: Parental pressure for academic achievement and a focus on standardized testing can create a conflict with the goals of creative education (Respondents 5, 6, 11).

9) Unfamiliarity with Creative Pedagogy: Some teachers expressed a lack of experience and confidence in implementing creative teaching methods due to limited exposure to innovative pedagogy during their training (Respondents 6, 12).

Conclusion

The findings highlight the multifaceted challenges that teachers in rural Guizhou encounter when integrating creativity into their teaching practices. These challenges encompass classroom management, curriculum alignment, student

engagement, stakeholder acceptance, resource limitations, and pedagogical expertise. Addressing these challenges will require a multi-pronged methods that includes professional development, resource allocation, curriculum reform, and fostering a supportive school culture that values creativity.

Table 4.18 Teachers' Proposed Solutions to Challenges in Teaching for Creativity (If the problems described above occur, how do you think these problems should be solved?)

Number	Viewpoint
1	Interdisciplinary teaching, integrated with other disciplines, will improve the quality of students.
2	Prepare yourself for teaching and ask questions to get students to think with questions.
3	Stop students' behaviors that are not related to the classroom in a timely manner, explain classroom rules, communicate ideas after class, set up problems, and let students return to class.
4	Ask questions before class to allow students to prepare on their own.
5	It is necessary to communicate with parents and let them visit the campus.
6	In township schools, there are many left-behind children, mainly depending on the school leadership policy.
7	To promote the new teaching model, it is necessary to distinguish priorities and carry out teaching in a planned manner, and direct adoption will lead to students' incomprehension and affect students' learning thinking. Pay attention to moderation.
8	Teachers should plan teaching and communicate with students' parents about education.
9	Let students preview before class; adopt motivational methods and give praise to students; Repetitive praise motivates students.
10	Parents should also be involved in students' daily learning so that parents can express their recognition of students; According to the student's situation, the teaching method is adopted in a timely manner, and the corresponding teaching guidance can be carried out if necessary; Teachers should guide students to classify the content of the class; Students will be given timely assistance.

Table 4.18 Teachers' Proposed Solutions to Challenges in Teaching for Creativity (If the problems described above occur, how do you think these problems should be solved?) (Cont.)

Number	Viewpoint
11	Build self-confidence in students.
12	Teachers need to control student's behavior beyond the classroom in a timely manner.

The analysis of interview data reveals the following key solutions proposed by teachers in rural Guizhou to address the challenges they face in fostering creativity in their classrooms:

1) Pedagogical Strategies:

(1) Interdisciplinary Teaching: Integrating creative thinking into various subjects can enhance students' overall learning experience (Respondent 1).

(2) Questioning Techniques: Teachers should prepare thought-provoking questions to stimulate students' critical thinking and inquiry (Respondent 2).

(3) Pre-Class Preparation: Assigning pre-class activities can help students prepare for creative tasks and engage more actively in class (Respondent 4).

(4) Motivational Methods and Praise: Positive reinforcement and praise can motivate students and build their confidence in their creative abilities (Respondent 9).

(5) Differentiated Instruction: Teachers should tailor their teaching methods to individual student needs and provide timely guidance and support (Respondent 10).

(6) Classroom Management: Establishing clear rules and expectations, addressing off-task behavior promptly, and communicating with parents can help create a conducive learning environment (Respondents 3, 12).

2) Collaboration and Communication:

(1) Parent-Teacher Collaboration: Engaging parents in their children's learning process and communicating with them about educational goals can foster a supportive environment for creativity (Respondents 5, 8, 10).

(2) School Leadership: School leaders play a crucial role in promoting new teaching models and addressing the specific needs of students, such as those from disadvantaged backgrounds (Respondent 6).

3) Student Empowerment:

(1) Building Self-Confidence: Encouraging students to believe in their abilities and take risks in their creative endeavors is essential (Respondent 11).

Conclusion

The findings suggest that teachers in rural Guizhou are actively seeking solutions to the challenges they face in teaching creativity. Their proposed solutions reflect a multi-faceted a methods that encompasses pedagogical strategies, collaboration, and student empowerment. By implementing these strategies, teachers can create a more supportive and engaging learning environment where students feel empowered to explore their creative potential. However, addressing these challenges requires a collective effort from teachers, parents, school leaders, and policymakers. Future research should focus on evaluating the effectiveness of these proposed solutions and identifying additional strategies to support teachers in their efforts to foster creativity in rural Guizhou classrooms.

Table 4.19 Challenges Faced by Teachers When Teaching Creativity Skills (What do you think are the biggest challenges in teaching creativity skills to students?)

Number	Viewpoint
1	Parents do not have a good understanding of innovative thinking, and there is a lack of information in communication.
2	After-class questions, because of the limited class time, the quality of the homework for students to complete the project is not ideal.
3	The educational environment is limited, and the minds of students are limited.
4	Traditional teaching has a great influence on students' ideas, which will limit students' ideas. Students' knowledge is limited; The attitude of parents, too much attention to grades,

Table 4.19 Challenges Faced by Teachers When Teaching Creativity Skills (What do you think are the biggest challenges in teaching creativity skills to students?) (Cont.)

Number	Viewpoint
5	Whether students have limited exposure to knowledge points or need more guidance from teachers.
6	Students are less knowledgeable; Thinking is easily divergent; It is difficult for teachers to grasp the progress of the class.
7	Student cooperation; student interests; student mood; Student initiative will be affected.
8	student motivation; the influence of conventional thinking; Environmental impacts.
9	Students' personalities, how to let students with slower personalities learn to take the initiative.
10	Students who like to create too much are more difficult to control; Students' thinking is too divergent.
11	Students are creative, but less motivated to learn; how teachers can motivate students; It is difficult to balance the opposition between creativity and disciplines; Communication between the school and parents.
12	The freshness of the students in the classroom; the difference in thinking between minors and adults, and the teacher should keep up with the students' ideas. Teachers should be empathetic and logical.

The analysis of the interview data reveals several key challenges that teachers in rural Guizhou face when fostering creativity skills in their students:

1) Limited Parental Understanding and Support:

(1) Parents may lack understanding of innovative thinking and its importance (Respondent 1).

(2) Communication with parents regarding the value of creativity in education is lacking (Respondent 1).

(3) Parental focus on grades and traditional academic success can hinder creative teaching methods (Respondent 4).

(4) Teachers need to find ways to engage parents in the creative learning process and communicate the benefits of developing creativity skills (Respondent 11).

2) Student-Related Challenges:

(1) A limited knowledge base and exposure to diverse perspectives can restrict students' creative potential (Respondents 4, 5).

(2) Students with different personalities and learning styles require varied methods to encourage creativity (Respondent 9).

(3) Some students may struggle with open-ended tasks and divergent thinking due to a lack of guidance or confidence (Respondents 5, 6).

(4) Overly creative students may find it difficult to manage and require strategies to balance creative expression with academic goals (Respondent 10).

(5) Maintaining student motivation and interest in creative activities can be challenging (Respondents 7, 8).

3) Environmental and Resource Constraints:

(1) Limited educational resources and a restricted learning environment can stifle creativity (Respondent 3).

(2) The influence of traditional teaching methods and societal expectations can create barriers to innovative approaches (Respondent 4).

(3) Environmental factors such as poverty and lack of access to educational resources can impact students' creative development (Respondent 8).

4) Teacher-Related Challenges:

(1) Balancing creativity with curriculum requirements and standardized testing can be difficult (Respondents 2, 11).

(2) Managing classroom dynamics and student behavior during creative activities can be challenging (Respondent 6).

(3) Teachers may lack experience or confidence in implementing creative teaching strategies (Respondent 12).

(4) Maintaining students' focus and ensuring meaningful learning during creative activities requires skillful facilitation (Respondent 12).

5) Additional Challenges:

(1) Student cooperation, interest, mood, and initiative can all impact the effectiveness of creativity instruction (Respondent 7).

(2) The gap in thinking between adults and children necessitates that teachers understand and adapt to students' perspectives (Respondent 12).

Conclusion

The findings highlight the diverse challenges teachers face in promoting creativity skills in rural Guizhou. These challenges involve parental attitudes, student characteristics, environmental limitations, and teacher-related factors. Addressing these challenges requires a multifaceted methods that includes engaging parents, providing differentiated instruction, creating a supportive classroom environment, and offering professional development for teachers.

Table 4.20 Teachers' Perspectives on the Best Approaches to Developing Teachers' Teaching of Creativity Skills (What do you think is the best approach to developing teachers' teaching of creativity skills?)

Number	Viewpoint
1	Not for the time being, there are regional restrictions, and the current educational environment is difficult to adapt.
2	In school, the number of students in each class is different, and various situations are prone to occur in the classroom. Teachers should consider ways to address these situations.
3	Students can experience the culture through the field and generate certain insights.
4	School training, professional lectures.
5	Let students be exposed to different knowledge points independently.
6	Design game teaching so that students can learn knowledge through playing.
7	Communicate more with students, use questionnaires and other methods to understand students, so that teachers can improve their teaching skills; Interdisciplinary communication between teachers helps to systematize teaching and learning, capturing students' attention in a variety of ways.

Table 4.20 Teachers' Perspectives on the Best Approaches to Developing Teachers' Teaching of Creativity Skills (What do you think is the best approach to developing teachers' teaching of creativity skills?) (Cont.)

Number	Viewpoint
8	To establish a lifelong learning perspective, teachers learn more and learn more about current information.
9	In professional training, teachers should learn to reflect on the problems in teaching, and teachers should learn more about various excellent teaching methods.
10	Make the course more life-like; Teaching methods need to be followed up and appropriate changes made; The syllabus should keep up with the times and be optimized.
11	brainstorming; small group teaching; points system; evaluation system; Field Exploration.
12	Ask students questions and ask them rhetorically; Conduct classroom teaching in a planned manner.

The analysis of the interview data reveals that teachers in rural Guizhou have diverse perspectives on the best approaches to developing their teaching of creativity skills. The responses can be categorized into the following key themes:

1) Professional Development and Training:

(1) School-based Training: Teachers emphasized the importance of school-based training programs, including professional lectures and workshops, to enhance their understanding of creative pedagogy and acquire practical strategies for fostering creativity in the classroom (Respondents 4, 9).

(2) Lifelong Learning: Teachers highlighted the need for continuous learning and staying updated on current educational trends and research findings related to creativity (Respondent 8).

(3) Reflective Practice: Teachers expressed a desire for opportunities to reflect on their teaching practices and learn from their experiences, both individually and collaboratively with colleagues (Respondents 8, 9).

2) Curriculum and Instruction:

(1) Game-based Learning: Several teachers advocated for incorporating game-based learning into the curriculum to make learning more engaging and enjoyable for students, thereby stimulating their creativity (Respondent 6).

(2) Field Trips and Experiential Learning: Teachers suggested that field trips and experiential learning activities can provide students with real-world experiences and stimulate their curiosity, leading to creative thinking (Respondent 3).

(3) Student-centered Learning: Teachers emphasized the importance of creating a student-centered learning environment where students are encouraged to take ownership of their learning, explore their interests, and express their ideas freely (Respondents 5, 12).

(4) Interdisciplinary Learning: Teachers highlighted the value of integrating creativity across different subjects and disciplines to help students develop a more holistic understanding of knowledge and apply their creative skills in various contexts (Respondent 7).

3) Classroom Management and Assessment:

(1) Differentiated Instruction: Teachers recognized the importance of tailoring instruction to individual student needs and abilities, providing appropriate challenges and support for all learners (Respondents 2).

(2) Formative Assessment: Teachers emphasized the use of formative assessment strategies, such as observations, discussions, and open-ended questions, to gain insights into students' creative thinking processes and provide feedback for improvement (Respondents 7, 12).

(3) Collaboration and Communication: Teachers highlighted the importance of creating a collaborative classroom environment where students feel safe to take risks, share their ideas, and learn from each other (Respondent 7).

4) Additional Methods:

(1) Making Learning Life-like: Teachers suggested that making learning more relevant to students' lives and interests can help them see the value of creativity and apply it in real-world contexts (Respondent 10).

(2) Points and Evaluation Systems: Some teachers proposed using points and evaluation systems to motivate students and track their progress in developing creativity skills (Respondent 11).

(3) Brainstorming and Small Group Teaching: Teachers mentioned brainstorming and small group teaching as effective strategies for generating ideas and encouraging collaboration (Respondent 11).

Conclusion

The findings reveal a variety of methods that teachers believe can be effective in developing their teaching of creativity skills. These methods include professional development, curriculum and instructional strategies, classroom management, and assessment practices. However, some teachers also pointed out challenges such as regional restrictions and the current educational environment, which may hinder the implementation of these methods (Respondent 1). Therefore, it is essential to consider these contextual factors and provide teachers with the necessary support and resources to effectively implement these strategies in their classrooms.

4) Examples & Student Response:

Table 4.21 Examples & Student Response: Strategies to Promote Creative Thinking Skills (Can you provide specific examples of activities or assignments you use to promote creativity skills in students?)

Number	Viewpoint
1	Assign creativity assignments; Divide into study groups.
2	Let the students who are willing to complete it share on their own and give teaching analysis.
3	creative and imagine the knowledge in the textbook.
4	Let students collect relevant knowledge through some interesting extracurricular assignments.
5	Have students work in groups to complete class tasks. If the relevant permission is obtained, students can take relevant extracurricular activities.

Table 4.21 Examples & Student Response: Strategies to Promote Creative Thinking Skills (Can you provide specific examples of activities or assignments you use to promote creativity skills in students?) (Cont.)

Number	Viewpoint
6	Teaching objects are introduced into the corresponding courses, so that students can learn knowledge points through actual objects.
7	use multimedia means to present teaching; Let students complete tasks and exercise students' abilities by grouping.
8	Expand other knowledge, let students understand the teaching objectives in various aspects, organize practical activities, so that students can combine teaching and play.
9	Classroom practice is used in parallel with the reward system.
10	Plan the course progress, set up a unit summary, and let students review each unit they complete.
11	Set up classroom practice activities according to characteristic topics, so that students can have interesting group division of labor and cooperation, sharing, and enhance students' interest.
12	Prepare questions for students before class and ask them questions to keep them focused during the lesson.

The analysis of the interview data reveals a variety of strategies employed by teachers in rural Guizhou to promote creative thinking skills among primary school students:

1) Collaborative Learning and Presentation: Teachers assign creative assignments and divide students into study groups, fostering collaboration and communication. Students who complete the assignments share their work, promoting peer learning and feedback (Respondent 1).

2) Encouraging Independent Work and Analysis: Teachers provide opportunities for students to work independently on creative tasks and share their results with the class, followed by teacher-led analysis and discussion (Respondent 2).

3) Imaginative Exploration of Textbook Content: Teachers encourage students to use their imagination to creatively engage with textbook knowledge (Respondent 3).

4) Extracurricular Activities and Enrichment: Teachers design interesting extracurricular assignments that allow students to collect and explore knowledge beyond the textbook, broadening their horizons and sparking creativity (Respondent 4).

5) Group Work and Extracurricular Integration: Teachers incorporate group work into classroom tasks and, when possible, encourage students to participate in relevant extracurricular activities to apply their knowledge and skills in diverse settings (Respondent 5).

6) Hands-on Learning with Teaching Objects: Teachers introduce tangible teaching objects into their lessons, allowing students to learn through direct experience and interaction with real-world examples (Respondent 6).

7) Multimedia Presentations and Group Tasks: Teachers utilize multimedia tools to enhance their presentations and engage students. They also assign group tasks that require students to apply their knowledge and develop their skills collaboratively (Respondent 7).

8) Expanding Knowledge through Practical Activities: Teachers encourage students to explore knowledge from various perspectives by organizing practical activities that combine learning with play, fostering a deeper understanding of the subject matter (Respondent 8).

9) Classroom Practice with Rewards: Teachers implement a reward system alongside classroom practice, incentivizing students to participate actively and creatively in their learning (Respondent 9).

10)Unit Summaries and Review: Teachers incorporate unit summaries and regular review sessions to help students consolidate their learning and reinforce their understanding of key concepts (Respondent 10).

11) Thematic Group Activities: Teachers design interactive group activities based on specific themes, allowing students to collaborate, share ideas, and enhance their interest in the subject matter (Respondent 11).

12) Pre-Class Questions and Focus: Teachers prepare questions for students before class and use them to maintain focus and engagement during the lesson (Respondent 12).

Conclusion

The findings highlight a diverse range of strategies employed by teachers in rural Guizhou to promote creative thinking skills. These strategies focus on active learning, collaboration, real-world connections, and individualized instruction. Teachers leverage various tools and techniques, including technology, hands-on activities, and differentiated instruction, to create an engaging and supportive learning environment where students can explore their creativity and develop essential 21st-century skills.

Table 4.22 Teachers' Perceptions of Students' Responses to Creativity-Promoting Activities (How do you think your students respond to these activities?)

Number	Viewpoint
1	They will express their ideas, but this will slow down the progress of the course; Concentration is greater.
2	Students' attention will be significantly improved compared to formal classes, Classroom discipline will be stronger, and thinking responses will also be improved.
3	It is difficult to start the class at first, because the students lack imagination and are confused, which leads to the need for external help.
4	Different students react differently.
5	Novelty, more active at the beginning, when you get used to it, it will be easier to grasp the progress.
6	Novelty, interest, and playfulness make classroom discipline difficult to control.
7	It is mainly based on the personality of the students. Most people are happier and find it interesting.
8	Students are excited; Students' organizational skills can be exercised; Parents recognize their students when they see the results of their hands-on activities.
9	Under the incentive system, students are not resistant to learning and are willing to participate in teaching activities.
10	Ninety percent of the students were happy to participate in the activity, while the rest of the students were less responsive for other reasons.

Table 4.22 Teachers' Perceptions of Students' Responses to Creativity-Promoting Activities (How do you think your students respond to these activities?) (Cont.)

Number	Viewpoint
11	Emotions are high, students' thoughts and thinking are easy to diverge.
12	Uneven distribution and high motivation lead to uneven distribution of teaching roles and easy quarrels. Students are prone to arguments in the teaching of divergent thinking.

The analysis of the interview data reveals a range of student responses to creativity-promoting activities in rural Guizhou classrooms:

1) Positive Responses:

(1) Increased Engagement and Focus: Most teachers reported that students show greater interest, excitement, and active participation in creative activities compared to traditional instruction (Respondents 1, 2, 5, 6, 8, 9, 10, 11). Students are more likely to express their ideas, think divergently, and collaborate with their peers.

(2) Improved Classroom Management: Some teachers found that creative activities lead to improved classroom discipline and stronger thinking responses (Respondent 2). Students' organizational skills are also exercised through hands-on activities, and parents recognize their children's progress (Respondent 8).

(3) Positive Emotional Response: Students generally enjoy creative activities, finding them novel, interesting, and playful (Respondents 5, 6, 7).

2) Challenges and Mixed Responses:

(1) Initial Difficulty and Adjustment: Some teachers noted that students may initially struggle with open-ended tasks and lack imagination, requiring external support to get started (Respondents 3, 5).

(2) Individual Differences: Student responses vary based on personality and learning styles, with some being more enthusiastic and others less responsive (Respondents 4, 7, 10).

(3) Classroom Management Issues: While some teachers reported improved discipline, others found that the novelty and excitement of creative activities can make classroom management more challenging (Respondent 6).

(4) Uneven Participation: Highly motivated students may dominate group activities, leading to an uneven distribution of roles and potential conflicts (Respondent 12).

Conclusion

The findings suggest that creative activities generally elicit positive responses from students, leading to increased engagement, focus, and enjoyment. However, teachers must be prepared to address challenges such as initial student hesitation, individual differences, and potential classroom management issues. Differentiated instruction, clear guidelines, and scaffolding can help ensure that all students benefit from these activities and develop their creative thinking skills.

Table 4.23 Teachers' Perceptions of Students' Creative Skill Development after Participating in Creativity-Promoting Activities (How do you think your students' creativity skills develop after participating in these activities?)

Number	Viewpoint
1	Extroverted students have divergent thinking, introverts need guidance, students with weak foundations will be interested in class, and students with strong foundations will pay attention to learning content independently.
2	Students respond differently, and the grades of students who love learning will improve.
3	It is still a bit difficult to change in the language subject, and imagination still has a little limitation.
4	Creativity has a greater impact on students with average grades, changing students' thinking and learning methods.
5	There are also differences in acceptance.
6	The level of acceptance of students is not the same, and the development of creativity is also different.

Table 4.23 Teachers' Perceptions of Students' Creative Skill Development after Participating in Creativity-Promoting Activities (How do you think your students' creativity skills develop after participating in these activities?) (Cont.)

Number	Viewpoint
7	Getting a virtuous development, the student is full of anticipation, and interest leads to the student being passionate.
8	Teaching activities vary in purpose and nature, and will also develop different abilities for students.
9	The development of students is different, and teachers should adjust their teaching according to the situation of students and find corresponding learning methods.
10	The situation of students is different, and it mainly depends on the guiding role of teachers.
11	The rewards are even more pronounced for students who are fully engaged in teaching. After going through a practical course, students will be more attentive and more engaged in their next learning. When encountering students with low initiative, students are reluctant to take the initiative to participate, and it is easy to resist.
12	At present, students' thinking is more inclined to the immediate and needs the assistance of teachers; For classrooms that specialize in teaching creativity, it is necessary to think about how to make students understand creativity.

The analysis of interview data reveals a range of teacher perspectives on the development of students' creativity skills after participating in creativity-promoting activities:

1) Individual Differences and Targeted Support: Teachers observe varying responses among students based on personality and initial skill levels (Respondent 1). Extroverted students tend to exhibit more divergent thinking, while introverted students may require more guidance. Students with weaker foundations may show increased interest in class, while those with stronger foundations tend to engage in more independent learning.

2) Impact on Academic Performance and Learning Styles: Some teachers report a positive impact on academic performance, particularly for students who are already motivated learners (Respondent 2). Others note that the development of creativity can lead to changes in students' thinking and learning methods, especially among those with average grades (Respondent 4).

3) Challenges and Limitations: Teachers acknowledge that promoting creativity in certain subjects, such as language arts, can be more challenging due to the limitations of imagination (Respondent 3). They also emphasize that student acceptance and engagement levels differ, impacting the overall effectiveness of these activities (Respondents 5, 6).

4) Positive Outcomes and Teacher's Role: Teachers report positive outcomes such as increased student anticipation, interest, and passion for learning (Respondent 7). They acknowledge that the purpose and nature of the activities influence the specific skills developed (Respondent 8). Teachers play a crucial role in guiding and adjusting their teaching methods to cater to individual student needs and abilities (Respondents 9, 10).

5) Motivation and Engagement: Teachers observe that practical courses and rewards significantly impact students who are already engaged in learning, making them more attentive and motivated (Respondent 11). However, students with low initiative may be reluctant to participate or resist creative activities.

6) Need for Further Understanding and Support: Teachers note that students tend to focus on immediate outcomes and require teacher assistance to develop a deeper understanding of creativity (Respondent 12). They suggest the need for specialized classrooms and methods to help students grasp the concept of creativity effectively.

Conclusion

The findings indicate that creativity-promoting activities have a positive impact on students' creative thinking skills, albeit with varying degrees depending on individual differences, prior knowledge, and motivation. Teachers play a crucial role in tailoring instruction, providing guidance, and creating a supportive environment for all students to develop their creative potential. Future research should

investigate the long-term effects of these activities and explore strategies to engage students with varying levels of motivation and initiative.

Table 4.24 Factors Influencing the Development of Students' Creative Thinking Skills in Rural Guizhou, China (What do you think are the most important factors in developing creativity skills in students?)

Number	Viewpoint
1	Stimulate students' interest in learning, and those with high grades will pay more attention.
2	Learning interests, character.
3	The integration of knowledge, the integration of what students have learned, is a creative integration.
4	students' recognition of creativity; teachers' ability to teach creatively; Parental approval.
5	Students' interests are mainly how the teacher guides.
6	student concentration; Whether the teacher's topic is engaging; student personality,
7	student initiative; the character of the student; The student's homeschooling environment.
8	Environment: School education has a system.
9	Environment: Support innovative scenes, starting from life.
10	A good foundation for students to be able to carry out teaching activities.
11	A student's mindset can affect how well they learn and communicate with each other.
12	Students pay more attention to what they know in front of them. Teachers need to be guided slowly.

The analysis of interview data reveals the following key factors identified by teachers as crucial for developing creativity skills in students:

1) Student-related Factors:

(1) Student interest and motivation: Teachers emphasized the importance of stimulating students' interest in learning to foster creativity

(Respondents 1, 2, 5, 6, 7). They believed that when students are genuinely interested, they are more likely to engage in creative thinking and problem-solving.

(2) Student personality and characteristics: Teachers recognized that individual differences in personality, learning styles, and initiative play a significant role in creative development (Respondents 2, 6, 7, 11). They emphasized the need for differentiated instruction to cater to these individual differences.

(3) Student's prior knowledge and foundation: A solid foundation in knowledge and skills was deemed crucial for students to engage in creative activities and explore new ideas effectively (Respondents 3, 10).

2) Teacher-related Factors:

(1) Teacher's ability to teach creatively: Teachers acknowledged that their own creativity and ability to teach innovatively are essential in fostering creativity in students (Respondent 4). They need to model creative thinking and provide opportunities for students to express their ideas freely.

(2) Teacher's guidance and support: Teachers play a crucial role in guiding and motivating students throughout the creative process (Respondents 5, 12). They need to provide clear instructions, feedback, and support, while also allowing for student autonomy and exploration.

3) Environmental Factors:

(1) School environment and system: The school environment and education system were identified as important factors that can either hinder or support creativity (Respondents 8, 9). Teachers believed that a supportive environment that values innovation and provides resources for creative activities is essential for fostering creativity in students.

(2) Parental approval and support: Parental involvement and support were considered crucial for students' creative development (Respondent 4). Teachers emphasized the need for effective communication with parents to raise awareness about the importance of creativity and to encourage their involvement in the learning process.

Conclusion

The findings highlight a multi-faceted understanding of the factors influencing students' creative development. Teachers recognize the interplay of student-related, teacher-related, and environmental factors in shaping students' creative potential. Addressing these factors requires a comprehensive methods that involves engaging students, empowering teachers, creating a supportive school environment, and fostering collaboration with parents.

Table 4.25 Teachers' Proposed Solutions to Challenges in Teaching Creativity (If the problems described above occur, how do you think these problems should be solved?)

Number	Viewpoint
1	Students are tired of learning, and the punishment mechanism will make students understand the importance of learning, which will play a role in teaching creativity.
2	Communicate with parents first, and then with students, and adopt certain teaching methods depending on the situation.
3	It is necessary to make the relationship between parents and students understand the relationship between creativity, so that parents and students can consciously carry out relevant point of view.
4	Creativity is taught in the classroom, and multimedia is used to encourage students to learn, and parents will understand when they see the students' achievements.
5	From the perspective of students, identify students' interests and prepare lessons effectively.
6	It is necessary to master classroom discipline first, so that students can concentrate on the classroom before conducting the class.
7	Cultivate students' character and guide them to exert their subjective initiative.
8	Parents participate in education and work together to create a good educational environment for students.
9	Teaching in combination with reality to guide students' autonomy.
10	Classes are promoted with a focus on the foundation of students.
11	Cultivate a positive mindset and a willingness to think.

Table 4.25 Teachers' Proposed Solutions to Challenges in Teaching Creativity (If the problems described above occur, how do you think these problems should be solved?) (Cont.)

Number	Viewpoint
12	Not deliberately, the teacher's sense of naturalness in teaching is not a deliberate reminder to students to carry out creativity education. Parents and teachers should understand and communicate with students.

The analysis of the interview data reveals a variety of solutions proposed by teachers in rural Guizhou to address the challenges they face in fostering creativity in their classrooms:

1) Student Engagement and Motivation:

(1) Punishment and Reinforcement: Some teachers believe in using punishment mechanisms to underscore the importance of learning and encourage student participation (Respondent 1).

(2) Communication and Personalized Teaching: Others emphasize open communication with parents and students, tailoring teaching methods to individual needs and situations (Respondent 2).

(3) Building Awareness and Understanding: Several teachers stress the importance of educating both parents and students about the value of creativity, fostering a shared understanding and commitment (Respondent 3).

(4) Showcasing Achievements: Some teachers suggest using multimedia presentations to showcase student achievements in creative activities, thereby demonstrating the value of creativity to parents (Respondent 4).

(5) Interest-Based Learning: Identifying and catering to students' interests is seen as a key factor in promoting engagement and motivation (Respondent 5).

(6) Combining Learning with Reality: Connecting learning to real-life situations and encouraging student autonomy is proposed as a way to enhance engagement and guide students' independent exploration (Respondent 9).

2) Classroom Management and Discipline:

(1) Establishing Classroom Discipline: Teachers recognize the need for a well-managed classroom environment where students can focus and participate effectively in creative activities (Respondent 6).

(2) Promoting Positive Mindsets: Cultivating positive mindsets and a willingness to think creatively are seen as essential for overcoming challenges and promoting student engagement (Respondent 11).

3) Collaboration and Support:

(1) Parental Involvement: Teachers suggest that parental participation in education and collaboration with teachers can create a supportive environment for cultivating creativity (Respondent 8).

(2) Teacher-Parent Communication: Open communication between teachers and parents is crucial to understanding student needs and developing effective strategies (Respondent 12).

4) Teacher's Role and Methods:

(1) Cultivating Character and Initiative: Teachers emphasize the importance of nurturing students' character and encouraging them to take initiative in their learning (Respondent 7).

(2) Focusing on Fundamentals: Ensuring a strong foundation in basic knowledge and skills is considered essential before promoting more advanced creative thinking (Respondent 10).

(3) Authenticity and Naturalness: Some teachers advocate for a natural and non-deliberate methods to teaching creativity, allowing it to emerge organically within the learning process (Respondent 12).

Conclusion:

The findings highlight a diverse range of strategies proposed by teachers to address challenges in fostering creativity. These strategies encompass student engagement, classroom management, collaboration with parents, and teacher development. While some teachers advocate for more traditional methods like punishment and discipline, others emphasize student-centered methods, communication, and creating a supportive environment. Future research could explore

the effectiveness of these various strategies and their impact on student creativity in rural Guizhou schools.

4.3 Research Findings Regarding the Challenges in Teaching to Promote Creative Thinking Skills in Elementary School Students (According to Objective 1)

The research findings highlight several key challenges faced by teachers in Guizhou when promoting creative thinking skills in primary school students:

4.3.1 Limited Parental Understanding and Support:

1) Parents may lack a comprehensive understanding of creative thinking and its significance in education.

2) Communication with parents about the value of creativity and its role in the learning process needs to be improved.

3) The emphasis on grades and traditional academic achievements by parents can create obstacles to implementing teaching methods that foster creativity.

4.3.2 Student-Related Challenges:

1) A limited knowledge base and exposure to diverse perspectives can hinder students' creative potential.

2) Students exhibit various personalities, learning styles, and levels of initiative, requiring differentiated instructional approaches to encourage creativity.

3) Some students may struggle with open-ended tasks and divergent thinking due to a lack of guidance or confidence.

4) Highly creative students may be challenging to manage and require strategies to balance creative expression with academic goals.

5) Maintaining student motivation and interest in creative activities can be difficult.

4.3.3 Environmental and Resource Constraints:

1) Limited educational resources and a restrictive learning environment can impede the development of creativity.

2) The influence of traditional teaching methods and societal expectations can create barriers to adopting innovative approaches.

3) Environmental factors such as poverty and lack of access to educational resources can negatively impact students' creative development.

4.3.4 Teacher-Related Challenges:

1) Balancing the cultivation of creativity with curriculum requirements and standardized testing poses a challenge.

2) Managing classroom dynamics and student behavior during creative activities can be demanding.

3) Teachers may lack experience or confidence in implementing creative teaching strategies due to limited exposure to innovative pedagogy during their training.

4) Maintaining students' focus and ensuring meaningful learning during creative activities necessitates skillful facilitation.

In conclusion, the study underscores the multifaceted challenges teachers encounter when integrating creativity into their teaching practices in rural Guizhou. These challenges encompass parental attitudes, student characteristics, environmental limitations, and teacher-related factors.

Addressing these challenges will require a multifaceted approach that includes:

1) Engaging parents in understanding and supporting creative learning

2) Providing differentiated instruction to cater to diverse student needs

3) Creating a supportive classroom environment that encourages risk-taking and exploration

4) Offering professional development opportunities for teachers to enhance their creative teaching skills.

4.4 The Results of Synthesizing and Presenting Teaching Guidelines That Promote Creative Thinking Skills for Primary School Students in China (Based on Research Objective Number 2)

From an analysis of quantitative and qualitative data from teachers in Guizhou, China, the following synthesized guidelines for teaching practices that promote creative thinking skills in elementary school students have emerged are as follows:

4.4.1 Creating a Classroom Environment Conducive to Creative Learning:

1) Fostering a Safe and Open Atmosphere: Establish an environment where students feel safe to express opinions, exchange ideas, and experiment without fear of mistakes.

2) Promoting Hands-On Learning: Organize activities that allow students to engage in practical experiences, experiment, create works, and learn from direct experiences.

3) Providing Diverse Resources and Learning Materials: Offer a variety of learning materials, such as art supplies, science equipment, games, and technology, to stimulate students' interest and imagination.

4) Encouraging Collaboration: Create opportunities for students to work together, exchange ideas, and learn from each other.

4.4.2 Designing Student-Centered Instruction:

1) Employing Diverse Learning Activities: Design a range of learning activities, such as problem-solving, critical thinking, thinking outside the box, and creative production, to stimulate students' creative thinking.

2) Connecting Learning to Real Life: Incorporate real-life situations, everyday problems, or interesting social issues into learning to help students see the connection between classroom knowledge and the outside world.

3) Stimulating Questions and Opinions: Create an atmosphere where students are encouraged to ask questions, express opinions, and exchange ideas freely.

4) Providing Constructive Feedback: Offer feedback that focuses on developing students' creative thinking, emphasizing effort and initiative over just correct results.

4.4.3 Teacher Professional Development:

1) Training Teachers in Creative Pedagogy: Provide training for teachers to acquire knowledge and skills in creative teaching, such as designing student-centered learning activities, using diverse teaching materials, and implementing assessments that promote creativity.

2) Promoting Lifelong Learning for Teachers: Support teachers in continuous learning and self-development regarding new concepts and methods of creative teaching.

3) Building Professional Learning Communities: Create opportunities for teachers to exchange knowledge, share experiences, and collaborate on developing creative teaching methods.

4.4.4 Parental and Community Involvement:

1) Raising Awareness of Creative Teaching: Communicate and raise awareness among parents and the community about the importance of creative teaching and how they can support their children in developing this skill.

2) Building Home-School Collaboration: Establish collaboration between home and school to promote students' creative thinking, such as through joint activities, assigning homework that fosters creativity, and maintaining regular communication.

4.4.5 Utilizing Technology:

1) Employing Technology as a Learning Tool: Use technology, such as computers, the internet, and digital learning media, to promote student-centered learning, collaboration, and creative production.

2) Developing Learning Materials that Promote Creativity: Create engaging and challenging learning materials, such as games, animations, and videos, to stimulate students' creative thinking.

4.4.6 Assessment that Promotes Creativity:

1) Employing Diverse Assessment Methods: Utilize a variety of assessment formats, such as behavioral observation, presentations, essays, and project creation, to assess students' creativity comprehensively.

2) Providing Development-Oriented Feedback: Offer feedback that focuses on developing students' creative thinking, emphasizing effort and initiative over just correct results.

These guidelines can be adapted and developed to suit the context of each school and community, effectively promoting creative thinking skills among students in China.

From the study, the researcher has synthesized 6 key guidelines to promote creative thinking skills in elementary school students, as illustrated in this image. These guidelines encompass various aspects, ranging from creating a classroom environment conducive to creative learning to implementing assessments that foster creativity. They are as follows:

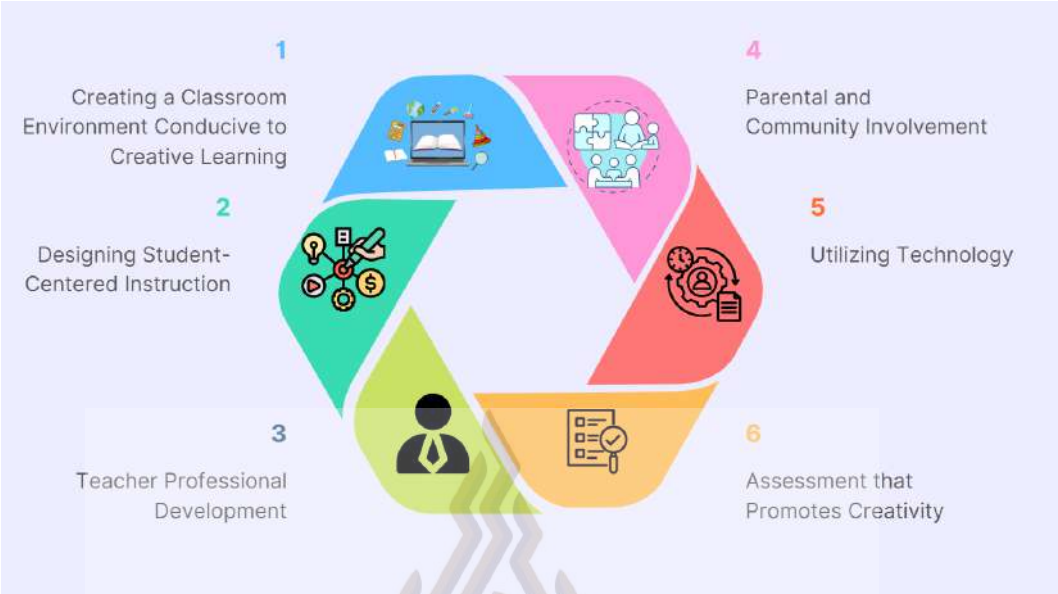

Figure 4.1 Fostering Creativity in Chinese Primary Schools: A Holistic Approach

CHAPTER 5

CONCLUSION, DISCUSSION AND RECOMMENDATIONS

The research aimed to investigate teaching methods that foster creative thinking skills in primary school students in Guizhou, China, using a mixed-methods approach with both quantitative surveys and qualitative focus group interviews. Quantitative analysis revealed a moderate current state of creativity promotion in schools, with a significant need for improvement in classroom environments and teaching methods. Teachers expressed a strong desire for professional development and resources to enhance their creative teaching practices. Qualitative findings highlighted a range of teacher perspectives on creativity, the challenges they face, and potential solutions. Teachers emphasized student-centered active learning, collaboration, and real-world connections as key strategies. However, limited resources, parental attitudes, and student engagement presented challenges. The study concludes by proposing multifaceted methods to address these challenges, including teacher training, resource allocation, and parental involvement, to create a more supportive environment for cultivating creativity in Guizhou's primary schools.

5.1 Summary

The research aimed to investigate the challenges and propose teaching guidelines to foster creative thinking skills in primary school students in Guizhou, China. Quantitative analysis using questionnaires revealed that the current state of creativity promotion in schools is moderate, particularly lacking in classroom environments and teaching methods. Teachers expressed a strong desire for professional development and resources to enhance their creative teaching practices. Qualitative findings from focus group interviews highlighted various teacher perspectives on creativity challenges and potential solutions.

The study identified several key challenges in promoting creativity in Guizhou primary schools. These include limited parental understanding and support, diverse student needs and challenges, environmental and resource constraints, and teacher-related factors such as balancing creativity with curriculum demands and a lack of experience with creative pedagogies.

Based on the research findings, six guidelines are proposed to address these challenges and promote creative thinking skills among students:

1) Fostering a Creative Classroom Environment: Creating a safe and open atmosphere, encouraging hands-on learning, providing diverse resources, and promoting collaboration.

2) Designing Student-Centered Instruction: Employing diverse learning activities, connecting learning to real-life, encouraging questions and opinions, and providing constructive feedback.

3) Enhancing Teachers' Knowledge and Skills: Providing professional development on creative teaching, promoting lifelong learning for teachers, and establishing professional learning communities.

4) Engaging Parents and the Community: Raising awareness about creative teaching and fostering collaboration between home and school.

5) Utilizing Technology: Integrating technology as a learning tool and developing creative learning materials.

6) Implementing Creativity-Fostering Assessment: Employing diverse assessment methods and providing development-oriented feedback.

These guidelines can be adapted and implemented in various school and community contexts to effectively promote creative thinking skills among primary school students in China.

5.2 Discussion of the Research Findings

The research findings highlight the complexity and multifaceted nature of fostering creativity in primary school students in rural Guizhou, China. The quantitative data revealed a moderate level of creativity promotion in schools, indicating a need for improvement, particularly in classroom environments and teaching methods. This aligns with previous research that has identified similar challenges in promoting creativity in educational settings globally (Beghetto, 2007; Kaufman & Beghetto, 2009).

The qualitative data provided rich insights into teachers' perspectives, revealing a diverse range of beliefs and practices regarding creativity. While teachers generally recognized the importance of creativity and expressed a desire to foster it in their students, they also faced numerous challenges. These challenges included limited resources, a lack of parental support, and difficulties in balancing creativity with curriculum demands and standardized testing. These findings resonate with studies conducted in other developing countries, where similar constraints have been reported (Craft, 2001; Runco, 2010).

The proposed guidelines offer comprehensive methods to address these challenges and promote creative thinking skills among students. The emphasis on creating a safe and open classroom environment aligns with research highlighting the importance of psychological safety for creativity (Amabile, 1996). Encouraging hands-on learning and providing diverse resources are also supported by research on the role of experiential learning and environmental enrichment in fostering creativity (Sternberg & Lubart, 1999).

The study's focus on student-centered instruction, collaboration, and real-world connections is consistent with contemporary pedagogical methods that emphasize active learning and student agency (Bruner, 1996; Vygotsky, 1978). Furthermore, the recommendation to involve parents and the community aligns with

research on the importance of social and cultural factors in shaping creativity (Csikszentmihalyi, 1996).

The use of technology as a learning tool and the development of creative learning materials are also promising strategies, as research has shown the potential of technology to enhance creativity in educational settings (Beghetto & Kaufman, 2013). However, the study also highlights the need for professional development to equip teachers with the skills and knowledge to effectively integrate technology into their teaching practices.

Finally, the emphasis on diverse assessment methods and developmental feedback aligns with research on the importance of assessing creativity in multiple ways and providing students with constructive feedback to support their growth (Plucker, Beghetto, & Dow, 2004).

5.3 Limitations and Future Research

This study has several limitations. The sample size was relatively small and limited to rural Guizhou, which may not be representative of the entire Chinese primary school population. Additionally, the study relied on self-reported data from teachers, which may be subject to bias. Future research should include a larger and more diverse sample, as well as multiple data sources, to enhance the generalizability and validity of the findings.

Furthermore, the study focused on teachers' perspectives and did not directly assess students' creative thinking skills. Future research should include measures of student creativity to examine the effectiveness of the proposed guidelines in improving student outcomes. Longitudinal studies would also be valuable to understand the long-term impact of creative teaching methods on students' development.

5.4 Implications for Educational Practice

Despite its limitations, this study offers valuable insights for educational practice in China and other contexts. The findings highlight the importance of holistic methods for fostering creativity, encompassing the classroom environment, teaching methods, teacher professional development, parental involvement, and the use of technology. By addressing the challenges identified in this study and implementing the proposed guidelines, schools can create a more conducive environment for nurturing creativity in primary school students.

This study also underscores the need for further research on creativity in education, particularly in developing countries. By understanding the unique challenges and opportunities in different contexts, educators and policymakers can develop more effective strategies to promote creativity and prepare students for the demands of the 21st century.

5.5 Suggestions

Recommendations for applying the research findings are as follows:

5.5.1 Recommendations for Schools:

1) Promote Teacher Training and Development: Schools should regularly organize training workshops and professional development activities to enhance teachers' understanding of creative pedagogy and equip them with practical strategies for fostering creativity in the classroom. These programs should cover topics such as designing student-centered learning activities, utilizing diverse teaching materials, and implementing assessment strategies that promote creativity.

2) Provide Diverse Resources and Learning Materials: Schools should allocate sufficient budgets to procure and develop a wide range of learning materials, including art supplies, science equipment, games, and technology. Teachers should be encouraged and supported to access and utilize these resources effectively.

3) Create a Creativity-Fostering Environment: Schools should cultivate an atmosphere that promotes creativity at all levels. This involves encouraging students to think critically, express themselves freely, experiment with new ideas, and value diverse perspectives.

4) Foster Collaboration Among Teachers, Parents, and the Community: Schools should establish effective communication channels and collaborative platforms to involve parents and the community in supporting students' creative development. This can include workshops, parent-teacher meetings, and community-based projects that encourage creative expression.

5.5.2 Recommendations for Teachers:

1) Continuous Professional Development: Teachers should actively engage in ongoing professional development to stay abreast of the latest research and trends in creative pedagogy. This can be achieved through attending workshops, seminars, reading academic literature, and collaborating with colleagues.

2) Design Student-Centered Learning Activities: Teachers should create learning activities that empower students to take ownership of their learning, analyze information, solve problems, and express their creativity. These activities should consider individual student interests and learning styles.

3) Connect Learning to Real Life: Teachers should integrate real-world situations, everyday problems, and relevant social issues into their lessons to help students see the relevance and application of knowledge beyond the classroom.

4) Encourage Questions and Expression: Teachers should foster a classroom environment where students feel comfortable asking questions, expressing their opinions, and engaging in open discussions without fear of judgment or criticism.

5) Provide Constructive Feedback: Feedback should focus on students' efforts, creative processes, and individual growth rather than solely on correct answers. This method encourages experimentation, risk-taking, and a growth mindset.

6) Utilize Technology as a Learning Tool: Teachers should leverage technology, such as computers, the internet, and digital media, to facilitate student-centered learning, collaboration, and creative expression.

5.5.3 Recommendations for Parents:

1) Understand the Importance of Creative Teaching: Parents should be informed about the significance of creativity thinking skills in education and how they can benefit their children's overall development.

2) Support and Encourage Participation in Creative Activities: Parents should encourage their children to participate in activities that foster creativity, such as reading, music, art, or extracurricular clubs.

3) Communicate Regularly with Teachers: Open communication between parents and teachers is essential to sharing information about students' progress, interests, and challenges, enabling a collaborative effort to support their creative development.

5.5.4 Recommendations for Policymakers:

1) Establish Policies and Standards for Creative Teaching: Policymakers should promote creative teaching at all educational levels by setting clear policies and standards and supporting schools in implementing creative pedagogies.

2) Allocate Budget for Teacher Development and Resources: Adequate funding should be allocated to support teacher training in creative teaching methods and to provide schools with diverse learning resources.

3) Raise Awareness about the Importance of Creative Teaching: Policymakers should initiate public awareness campaigns to highlight the value of creativity in education and encourage societal support for developing creative skills in children and youth.

These recommendations aim to create a holistic and supportive ecosystem for nurturing creativity in primary school students in China. By addressing the identified challenges and implementing the suggested strategies, schools, teachers, parents, and policymakers can collectively contribute to fostering a generation of creative thinkers who are well-equipped to thrive in the 21st century.

5.6 Recommendations for Future Research

5.6.1 Longitudinal Studies on the Impact of Creative Teaching: Conduct longitudinal research to examine the long-term effects of creative teaching methods on students' development, including creative thinking skills, academic achievement, and other relevant skills.

5.6.2 Comparative Studies in Diverse Contexts: Investigate the differences in creative teaching methods and their effectiveness in various contexts, such as urban versus rural schools or schools with varying sizes and resources, to develop tailored teaching guidelines for specific contexts.

5.6.3 Development of Contextually Relevant Assessment Tools: Develop and validate assessment tools that accurately measure creative thinking skills in the Chinese context, taking into account cultural and social nuances.

5.6.4 Research on Collaboration among Stakeholders: Explore effective strategies to enhance collaboration among teachers, parents, and the community in fostering students' creative thinking skills, such as through workshops, meetings, or the establishment of collaborative networks.

5.6.5 Investigation of the Relationship between Creativity and Other Factors: Further investigate the relationship between creativity and other factors, such as learning motivation, learning styles, and socioeconomic backgrounds, to gain a comprehensive understanding of the factors that influence creative development in students.

5.6.6 Action Research on Creative Pedagogies: Conduct action research to develop and test new creative teaching methods and evaluate their impact on students' creative thinking skills over time.

5.6.7 Cross-Cultural Comparative Studies: Compare creative teaching methods in China with those in other countries to identify best practices and common challenges, providing insights for further improvement.

5.6.8 Policy-Oriented Research: Investigate the effects of educational policies and reforms on promoting creativity in schools, offering valuable information for policymakers.

These recommendations aim to encourage future research on creative teaching in China and contribute to a deeper understanding of how to effectively foster creativity in students.

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APPENDICES

APPENDIX A
LETTER OF APPROVAL

RSU มหาวิทยาลัยรังสิต RANGSIT UNIVERSITY

Suryadhep Teachers College

STC.4800/1278

18 June 2024

Subject: Request for Permission to Collect Data for a Master's Thesis at Ba Ling primary school

The Principal
Ba Ling primary school

Dear Sir/Madam,

Miss Zhang Ting, Student ID: 6406897, is currently enrolled in the Master of Education Program in Curriculum and Instruction at Suryadhep Teachers College, Rangsit University, Pathumthani, Thailand. She is preparing to collect data for her thesis from primary school teachers for her research titled "A Study of Teaching Methods to Promote Creative Thinking Skills of Primary School Students in Guizhou, China."

The objectives of this research are:

1. To investigate the challenges in teaching methods that foster creative thinking skills among primary school students in China.
2. To synthesize and present teaching guidelines that enhance creative thinking skills among primary school students in China.

Upon completion, this study will be submitted as partial fulfillment of the requirements for the Degree of Master of Education Program in Curriculum and Instruction. It is anticipated that the research findings will be beneficial to all relevant parties. Therefore, I kindly request your permission to allow Miss Zhang Ting, Student ID: 6406897, to collect data from primary school teachers. All procedures will be conducted in strict adherence to ethical principles for research involving human subjects.

On behalf of Rangsit University, I sincerely appreciate your assistance and support in Miss Zhang Ting's thesis endeavor.

Yours sincerely,

Malivan Praditteera, Ed.D.
Dean
Suryadhep Teachers College

Permission to Collect Data

Name: [Name of Principal or Authorized Person] .....

☐ I grant permission for data collection for this research.

☐ I do not grant permission for data collection for this research.

Signature: LvChui Hua

...../...../.....

RSU มหาวิทยาลัยรังสิต RANGSIT UNIVERSITY

Suryadhep Teachers College

STC.4800/1276

18 June 2024

Subject: Request for Permission to Collect Data for a Master's Thesis at An Qing primary school

The Principal
An Qing primary school

Dear Sir/Madam,

Miss Zhang Ting, Student ID: 6406897, is currently enrolled in the Master of Education Program in Curriculum and Instruction at Suryadhep Teachers College, Rangsit University, Pathumthani, Thailand. She is preparing to collect data for her thesis from primary school teachers for her research titled "A Study of Teaching Methods to Promote Creative Thinking Skills of Primary School Students in Guizhou, China."

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Yours sincerely,

Malivan Praditteera, Ed.D.
Dean
Suryadhep Teachers College

Permission to Collect Data

Name: [Name of Principal or Authorized Person] .....

I grant permission for data collection for this research.

I do not grant permission for data collection for this research.

Signature: .....

...../...../.....

RSU มหาวิทยาลัยรังสิต RANGSIT UNIVERSITY

Suryadhep Teachers College

STC.4800/1275

18 June 2024

Subject: Request for Permission to Collect Data for a Master's Thesis at Gou.Bian primary school

The Principal
Gou.Bian primary school

Dear Sir/Madam,

Miss Zhang Ting, Student ID: 6406897, is currently enrolled in the Master of Education Program in Curriculum and Instruction at Suryadhep Teachers College, Rangsit University, Pathumthani, Thailand. She is preparing to collect data for her thesis from primary school teachers for her research titled "A Study of Teaching Methods to Promote Creative Thinking Skills of Primary School Students in Guizhou, China."

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Yours sincerely,

Malivan Praditteera, Ed.D.
Dean
Suryadhep Teachers College

Permission to Collect Data

Name: [Name of Principal or Authorized Person] .....

☐ I grant permission for data collection for this research.
☐ I do not grant permission for data collection for this research.

Signature: Wang Chang .....

.....

RSU มหาวิทยาลัยรังสิต RANGSIT UNIVERSITY

Suryadhep Teachers College

STC.4800/1273

18 June 2024

Subject: Request for Permission to Collect Data for a Master's Thesis at Bai Tun primary school

The Principal
Bai Tun primary school

Dear Sir/Madam,

Miss Zhang Ting, Student ID: 6406897, is currently enrolled in the Master of Education Program in Curriculum and Instruction at Suryadhep Teachers College, Rangsit University, Pathumthani, Thailand. She is preparing to collect data for her thesis from primary school teachers for her research titled "A Study of Teaching Methods to Promote Creative Thinking Skills of Primary School Students in Guizhou, China."

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1. To investigate the challenges in teaching methods that foster creative thinking skills among primary school students in China.
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On behalf of Rangsit University, I sincerely appreciate your assistance and support in Miss Zhang Ting's thesis endeavor.

Yours sincerely,

Malivan Praditteera, Ed.D.
Dean
Suryadhep Teachers College

Permission to Collect Data

Name: [Name of Principal or Authorized Person] .....

☐ I grant permission for data collection for this research.
☐ I do not grant permission for data collection for this research.

Signature: .....

.....

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RSU มหาวิทยาลัยรังสิต RANGSIT UNIVERSITY

Suryadhep Teachers College

STC.4800/1274

18 June 2024

Subject: Request for Permission to Collect Data for a Master's Thesis at Xin Yuan primary school

The Principal
Xin Yuan primary school

Dear Sir/Madam,

Miss Zhang Ting, Student ID: 6406897, is currently enrolled in the Master of Education Program in Curriculum and Instruction at Suryadhep Teachers College, Rangsit University, Pathumthani, Thailand. She is preparing to collect data for her thesis from primary school teachers for her research titled "A Study of Teaching Methods to Promote Creative Thinking Skills of Primary School Students in Guizhou, China."

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Dean
Suryadhep Teachers College

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Name: [Name of Principal or Authorized Person] .....

☐ I grant permission for data collection for this research.
☐ I do not grant permission for data collection for this research.

Signature: .....

...../...../.....

RSU มหาวิทยาลัยรังสิต RANGSIT UNIVERSITY

Suryadhep Teachers College

STC.4800/1277

18 June 2024

Subject: Request for Permission to Collect Data for a Master's Thesis at Ma Chang primary school

The Principal
Ma Chang primary school

Dear Sir/Madam,

Miss Zhang Ting, Student ID: 6406897, is currently enrolled in the Master of Education Program in Curriculum and Instruction at Suryadhep Teachers College, Rangsit University, Pathumthani, Thailand. She is preparing to collect data for her thesis from primary school teachers for her research titled "A Study of Teaching Methods to Promote Creative Thinking Skills of Primary School Students in Guizhou, China."

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1. To investigate the challenges in teaching methods that foster creative thinking skills among primary school students in China.
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Yours sincerely,

Malivan Praditteera, Ed.D.
Dean
Suryadhep Teachers College

Permission to Collect Data

Name: [Name of Principal or Authorized Person] .....

I grant permission for data collection for this research.

I do not grant permission for data collection for this research.

Signature: .....

.....

APPENDIX B

EXPERTS WHO VALIDATED RESEARCH INSTRUMENTS

NO.	Name	Position/Title	Institution
1	Mao Jinjin	Lecturer	School of Business and Business, Guizhou University of Finance and Economics
2	Wei Jin	Lecturer	School of Business and Business, Guizhou University of Finance and Economics
3	Wang Tai ying	Associate Professor	School of Business and Business, Guizhou University of Finance and Economics

APPENDIX C

RELIABILITY TEST RESULTS OF QUESTIONNAIRE

Cronbach's alpha coefficient	Standardized Cronbach's alpha coefficient	Number of items	Number of samples
0.956	0.969	8	30

APPENDIX D
QUESTIONNAIRES

Questionnaire: Current and Desired States of Promoting Creative Skills for Primary School Students in China

问卷调查：中国小学生创意技能提升现状与理想状态

Target Audience: Primary school teachers in China

目标受众：中国小学教师

Objective: To gather information on the current state of creative skills promotion in primary schools in China and to identify desired changes and strategies for improvement.

目的：收集有关中国小学创意技能推广现状的信息，并确定预期的变化和改进策略。

Part 1 Demographic Information

1. Gende 性别 r:

   ☐ Male 男

   ☐ Female 女

2. Age 年龄:_____ .

3. Teaching experience (years) 教龄:_____ .

4. Education level 教育水平:

   ☐ Bachelor's degree 本科生

   ☐ Master's degree 硕士生

   ☐ Doctor's degree 博士生

5. Teaching location 教学所在地:

   ☐ Urban school 城市

   ☐ Rural school 农村

Part 2: Promoting Creativity in the Classroom 课堂中的创造力

Instructions: Please read each question carefully and answer using the following rating scale:

说明：请仔细阅读每个问题，并使用以下评分量表回答：

Rating Scale 评定量表 :

1 = Strongly Disagree 非常不同意

2 = Disagree 反对

3 = Neutral 一般

4 = Agree 同意

5 = Strongly Agree 非常同意

Instructions: Please read each question carefully and answer using the following

说明：请仔细阅读每个问题并使用以下方法回答

Rating Scale 评定量表:

1 = Never 从不 2 = Rarely 很少 3 = Sometimes 有时 4 = Often 经常 5 = Always 总是

No. 序号	Assessment items 评估内容	current condition level 当前状态					desired level of condition 期望状态				
		5	4	3	2	1	5	4	3	2	1
1.	**Classroom environment and teaching methods 教室环境和教学方式:**										
1.1	Teachers encourage students to think creatively and try new things. 教师鼓励学生思想创新和尝试新事物										
1.2	The classroom environment is safe and supportive, fostering										

No. 序号	Assessment items 评估内容	current condition level 当前状态					desired level of condition 期望状态				
		5	4	3	2	1	5	4	3	2	1
	student self-expression. 教室环境具有安全性和包容性，促进学生自我表达										
1.3	A variety of teaching methods are used to engage students and spark creativity. 采用多种教学方法吸引学生并激发创造力。										
1.4	The learning process is valued more than the outcome. 学习过程比结果更有价值。										
2.	**Student Engagement:** **学生参与度**										
2.1	Students have opportunities for independent learning and exploration. 学生能够独立学生和探索										
2.2	Collaboration and peer learning are encouraged among students.										

No. 序号	Assessment items 评估内容	current condition level 当前状态					desired level of condition 期望状态				
		5	4	3	2	1	5	4	3	2	1
	鼓励学生之间互相合作和学习										
3.	**Promotion And Support:** **推广与支持**										
3.1	Student creativity is praised and nurtured. 学生的创造力应该受到表扬和培养										
3.2	School administrators prioritize creative skills development. 学校管理人员应该优先考虑创造性技能的发展。										
4.	**Resources And Collaboration:** **资源与协作**										
4.1	Varied resources and teaching materials support creative development. 通过多样化的资源和教材促进创造力发展。										

No. 序号	Assessment items 评估内容	current condition level 当前状态					desired level of condition 期望状态				
		5	4	3	2	1	5	4	3	2	1
4.2	Partnerships with parents and the community promote creativity. 与家长或其他组织形成伙伴关系共同促进创造力。										

Part 3: Other suggestions 其他建议

Thank you for your information.

感谢您提供的信息

APPENDIX E
FOCUS GROUP INTERVIEW

FOCUS GROUP INTERVIEW

In-depth Interview on Teaching Practices for Creative Thinking Skills in Primary School Teachers in China

This in-depth interview is part of a master's degree research in the Curriculum and Instruction program at Suryadhep Teachers College, Rangsit University. The main objective is to study the current state of teaching practices that promote creative thinking skills among primary school teachers in China.

Introduction

The interview is divided into four sections:

- Understanding Creativity & Teaching
- Methods & Impact
- Challenges & Solutions
- Examples & Student Response

Focus Group Interview Record

General Information:

Date:……..…

Time:……..…....

Location:……...….

Moderator:……...……..…

Participants:……..….

Interview Questions

1. Understanding Creativity & Teaching:

1.1 What do you think creativity teaching should look like?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

1.2 Do you think teachers use creativity in teaching?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

2. Methods & Impact:

2.1 What methods do you use to teach creativity skills to students?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

2.2 Do you think that after students participate in creativity cultivation, their learning methods or grades will change?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

3. Challenges & Solutions:

3.1 What problems do you think teachers will encounter when teaching creativity?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

3.2 If the problems described above occur, how do you think these problems should be solved?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

3.3 What do you think are the biggest challenges in teaching creativity skills to students?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

3.4 What do you think is the best Methods to developing teachers' teaching of creativity skills?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

4. Examples & Student Response:

4.1 Can you provide specific examples of activities or assignments you use to promote creativity skills in students?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

4.2 How do you think your students respond to these activities?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

4.3 How do you think your students' creativity skills develop after participating in these activities?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

4.4 What do you think are the most important factors in developing creativity skills in students?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

4.5. If the problems described above occur, how do you think these problems should be solved?

Number	Viewpoint
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Discussion Notes:	
Summary of Results:	
Notes:	

BIOGRAPHY

Name	Zhang Ting
Date of birth	February 10, 1994
Place of birth	Gui Zhou, China
Education background	Guizhou University of Finance and Economics, China Bachelor of Finance and Economics, 2019 Rangsit University, Thailand Master of Education in Curriculum and Instruction, 2024
Address	Guiyanh, China
Email Address	zhangtingistina@gmail.com