INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT

OPEN ACCESS JOURNAL

Vol 14, Issue 01, (2025) E-ISSN: 2226-6348

The Practice of Teaching Reform of Mathematics Curriculum in Primary Schools in China- A Systematic Review

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To Link this Article: http://dx.doi.org/10.6007/IJARPED/v14-i1/24786 DOI:10.6007/IJARPED/v14-i1/24786

Published Online: 28 February 2025

Abstract

In China, the reform of primary school mathematics curriculum teaching has been in the process of continuous exploration and reform practice. Although the reform of primary school mathematics curriculum teaching has been carried out in various provinces and regions across China, and various regions have accumulated rich practical experience, there is a relative lack of systematic summary and comprehensive evaluation of these different practical methods. In order to fill this research gap, this systematic literature review focuses on the advantages of China's primary school mathematics curriculum teaching reform practice and conducts an in-depth exploration. This study adopts the PRISMA method. Since it is a review of the practice of primary school mathematics curriculum teaching reform in China, a comprehensive search is carried out based on the China National Knowledge Infrastructure database system (www.cnki.net). After multiple rounds of screening, 13 highly representative articles were carefully selected from a large number of literature. The research results clearly show that the primary school mathematics curriculum teaching reform has achieved remarkable results. This series of reforms has not only strongly promoted the development of primary school mathematics education in China, but also pointed out the direction for subsequent research and teaching practice.

Keywords: Primary School Mathematics, Teaching Reform, Core Literacy, Teaching Philosophy, Practical Strategy

Introduction

China's education reform is a systematic and continuous process. It always insists that education serves the socialist modernization construction, puts education in a strategic position of priority development, clarifies that education is an important cornerstone of national rejuvenation and social progress, takes the cultivation of socialist builders and successors with all-round development of morality, intelligence, physical fitness, aesthetics and labor as the fundamental task, and is committed to improving the ideological and moral and scientific and cultural level of the whole nation. In educational research, the derailment of educational theory and educational practice has always been a problem that has troubled people. Because people often focus on the consistency between practice and theory, but ignore its inherent differences, this leads to a disconnect between the two. Educational

technology is practical for educational theory and critical of educational practice. This is the premise for practice to turn to theory and practice innovation (Chen Xianghong & Han Hongsheng, 2017). For a long time, "receptive learning" has been the only learning method dominated by school education. Although it has many advantages in cultivating students' abilities in all aspects, it is too single and is not conducive to students' development. In order for children to become creators of a happy life and builders of a better society, teachers should strive to explore, combine traditional education models with new education models, and transform to information-based teaching models (Han Hongping, 2016).

With the rapid development of the information age, modern information technology has become the "focus" of today's education and teaching reform, which has a profound impact on the renewal of educational ideas and concepts, the improvement of teaching management and teacher management systems, the reorganization of teaching content and teaching resources, the transformation of teaching methods and teaching methods, and the use of teaching space and teaching equipment (Xu Jilin, 2018). The application of modern educational technology gradually improves hardware supporting facilities, strengthens information application, ensures the scientific nature of teaching courseware development, constructs multimedia teaching situations, and promotes the integration of technology and courses, thereby improving the effect of information-based teaching (Zhang Yu, 2022).

Excellent teaching in primary schools relies on a good classroom atmosphere, with an emphasis on motivation, personalization and spontaneity as necessary prerequisites. Adherence to these factors is essential to fostering an effective teaching environment (Emenike,2024).Primary school mathematics teaching needs to adopt innovative methods such as gamification to improve students' enthusiasm, participation and skill development, address individual differences and improve the overall learning efficiency of mathematics classes (Fan, S. 2023). In the context of the continuous updating of educational concepts and the rapid development of educational technology, in order to make China's primary school mathematics education better adapt to the needs of modern society and cultivate a new generation with innovative spirit and practical ability, the reform of primary school mathematics curriculum teaching has become an issue in China's education field. In-depth research is of great practical significance for grasping the trend of primary school mathematics teaching reform and improving teaching quality.

As a core component of the basic education system, primary school mathematics is a key stage for the cultivation of students' thinking ability and logical reasoning ability. However, there are many problems in China's current primary school mathematics teaching, such as the test-oriented tendency caused by traditional teaching methods, the single teaching model, and the difficulty in meeting students' personalized needs. These problems seriously restrict the comprehensive development of students. Therefore, it is urgent to study the practice of teaching reform in China's primary school mathematics curriculum. The importance of this study is reflected in the following aspects: for students, by exploring effective teaching reform measures, it can stimulate their interest in learning mathematics, cultivate independent learning ability, innovative thinking and cooperative spirit, improve core literacy, and lay a solid foundation for future learning and life. For teachers, the research results can provide them with rich teaching ideas and methods, help teachers better understand and implement teaching reforms, improve teaching level, and achieve professional growth. From the

perspective of education decision-making, the research conclusions can provide a strong basis for the formulation of education policies, make policies more targeted and scientific, and promote the overall development of China's primary school mathematics education.

Literature Review

Primary School Mathematics

Primary school mathematics is the cornerstone of the education system and is of great significance to students' growth. Primary school mathematics runs through students' learning career and plays a key role in their future development (Feng Guoju, 2022). Primary school mathematics can exercise students' logic and reasoning ability (Ge Mengxin 2020). In terms of course objectives, it is necessary to cultivate students' core mathematical literacy, covering aspects such as number sense and spatial thinking, to promote students' learning ability, strengthen mathematical experience and improve teaching quality and effectiveness (Liang Xun, 2022).

There are some urgent problems in primary school mathematics teaching in China. Some teachers are influenced by traditional education methods and tend to teach for the test. They pay too much attention to grades and ignore the cultivation of students' humanistic qualities and independent learning ability. Some teachers measure students by grades. At the same time, it is common to have vague teaching objectives and a single teaching model. The teaching content and methods are standardized and it is difficult to meet the personalized needs of students (Xi Xiuqin, 2021).

In order to improve the current teaching situation, many scholars have proposed specific reform directions and strategies. In terms of teaching methods, we advocate diversity and innovation, design math games, use multimedia teaching, and stimulate students' interest (Yao Qin, 2020). In terms of curriculum design, we emphasize optimization and personalization, carry out teaching reform based on interest, ability as the key, and application as the center, fully understand students' personalities, develop and use teaching materials. In terms of evaluation methods, we tend to be diversified, adopt diversified evaluation methods, fully understand students' learning situation, and promote student development (Zhou Qianqian, 2024).

Teaching Reform

There are many problems in traditional Chinese primary school mathematics teaching. For example, due to the influence of exam-oriented education, some teachers are grade-oriented and ignore the improvement of students' humanistic literacy. The teaching objectives are vague, and the pursuit of grades is the only way to ignore the cultivation of students' comprehensive abilities. The teaching model is single and lacks innovation, which makes it difficult to stimulate students' interest in learning. These problems hinder the all-round development of students and make teaching reform imminent. Some teachers are influenced by traditional education methods, and the exam-oriented education model is prevalent in teaching, which is not conducive to the cultivation of students' independent learning ability (Feng Guoju, 2022).

The core goal of teaching reform is to promote the all-round development of students and cultivate their core literacy, including logical thinking, spatial concepts, data analysis

capabilities, etc. At the same time, it focuses on cultivating students' independent learning ability, innovation ability and practical ability, so that students can adapt to the development of future society. Through teaching reform, students' core mathematical literacy is improved and their learning ability is improved (Liang Xun, 2022). Teaching reform under the concept of deep learning helps to cultivate students' high-order thinking and independent learning habits (Wu Xinyi, 2024).

In terms of teaching methods, we advocate diversity and innovation, such as game teaching, situational teaching, group cooperative learning, etc., to stimulate students' interest and initiative in learning. In terms of curriculum design, we emphasize optimizing course content, focusing on the connection with real life, developing and using teaching materials to meet students' personalized needs. We tailor teaching plans according to students' personality differences and develop life-oriented teaching content (Xi Xiuqin, 2021). In terms of evaluation methods, we advocate diversified evaluation and comprehensively consider students' knowledge mastery, ability development and learning process.

Research Objectives and Questions

The research goal of this review is to sort out and analyze the research results in the field of China's primary school mathematics curriculum teaching reform, clarify the research status and existing problems in this field, provide direction guidance for subsequent research, and promote the development of China's primary school mathematics curriculum teaching. Therefore, a total of 3 questions are raised and answered in this review:

RQ1: What are the practical measures for the reform of mathematics curriculum teaching in primary schools in China?

RQ2: What are the achievements of China’s primary school mathematics curriculum teaching reform?

RQ3: What are the future directions for improvement in China’s primary school mathematics curriculum teaching reform?

Methodology

This systematic literature review strictly follows the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), and its process is rigorously divided into four key stages: identification, screening, eligibility review, and inclusion. As a highly respected reporting guideline, PRISMA, with its meticulous specifications and comprehensive requirements, provides extremely solid support for researchers to sift through the vast amount of academic literature. It helps researchers scientifically screen, deeply analyze, and rationally integrate the reviewed studies, injecting strong impetus into academic exploration.

In the identification stage, with the research topic as the core, we extensively explore various professional channels and actively collect relevant literature. We strive to ensure that the literature obtained is rich in content, diverse in types, and covers all research points in an all-round way, laying a solid information foundation for subsequent research. In the screening stage, we strictly follow the pre-set inclusion and exclusion criteria to carefully screen the collected literature, and ensure that the final included literature is of high quality and highly relevant to the research. In the qualification review stage, we strictly review the screened literature according to the pre-set inclusion and exclusion criteria. In the inclusion stage, we

systematically organize and deeply analyze the screened literature, sort out the logical context between the literature, and extract key viewpoints and important results, laying a solid foundation for subsequent comprehensive research.

To ensure that this review is of practical value to other users, we attach great importance to and strive to achieve transparency in the article identification and inclusion process. The carefully drawn Figure 1 clearly presents the entire process, providing a scientific, rigorous and transparent reference for researchers in related fields.

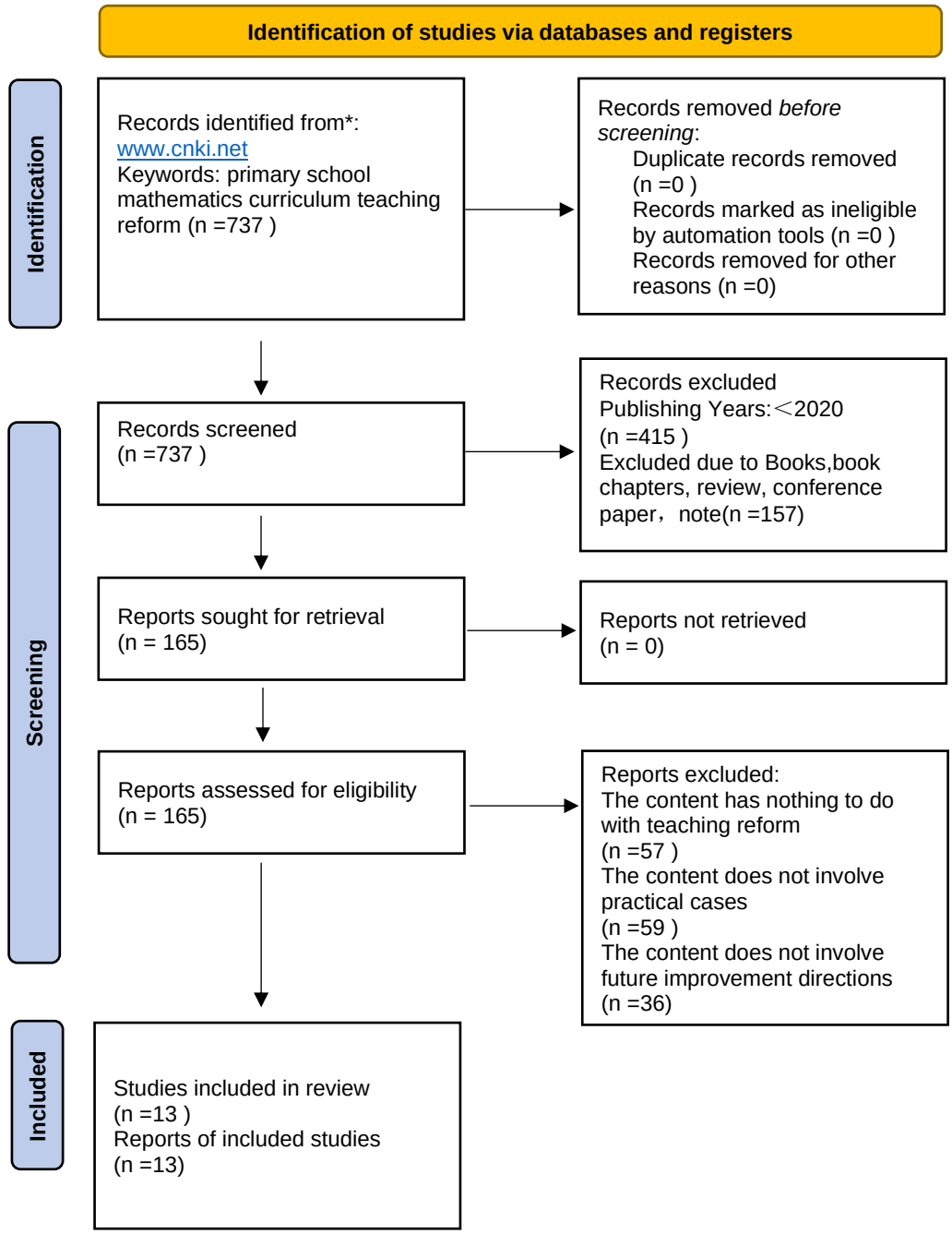

Figure 1 PRISMA flow diagram

Phase 1: Identification

Following the PRISMA guidelines, the first stage of a systematic review is to identify relevant studies, which is the cornerstone of the entire study. In this critical stage, we rigorously screened out materials that are closely related to the research topic. For this study on China's primary school mathematics curriculum reform, we carefully selected the China National Knowledge Infrastructure Database System (www.cnki.net) as the main platform for information retrieval after careful consideration. The China National Knowledge Infrastructure Database System (www.cnki.net) is a very influential paper database in China. Its rich academic resources cover many subject areas, especially in the field of education. The number of related papers on primary school mathematics curriculum reform is considerable and diverse. In addition, the database can help us quickly locate relevant information in a large number of documents, greatly expanding the breadth and depth of paper retrieval, providing a broad space for in-depth research on the practice of China's primary school mathematics curriculum reform, helping us obtain more comprehensive and valuable information, and laying a solid foundation for subsequent research work.

When conducting the study "Reform Practice of Primary School Mathematics Curriculum Teaching in China: A Systematic Review", designing a set of accurate and comprehensive keywords is undoubtedly a critical step in the entire research process. To this end, we carefully designed keywords that closely revolve around the research topic to ensure the comprehensiveness and accuracy of the search. These keywords are closely related to the research topic and aim to obtain all literature related to primary school mathematics curriculum and teaching reform practices (Table 1). Through such a cleverly constructed keyword combination, the core research results in this field can be explored comprehensively and in depth. These rich and detailed literature materials will also lay the foundation for subsequent systematic reviews, help us deeply understand the current situation and future trends of primary school mathematics teaching reform in China, and provide strong theoretical basis and practical guidance for educational practice. A total of 737 documents on the application of primary school mathematics curriculum teaching reform practices were retrieved through the China National Knowledge Infrastructure database system (www.cnki.net).

Table 1
Summarizes the Search Strings used in this Study in Each Database

database	Search string
www.cink.net	(TITLE-ABS-KEY("Primary School Mathematics Course") AND TITLE-ABS-KEY("Teaching Reform Practice"))

Phase 2: Screening

When searching for relevant research literature using the China National Knowledge Infrastructure database system (www.cnki.net), we first removed those that obviously did not meet the research objectives or standards from a large number of potential literature to ensure that the final collection of literature included in the review was highly relevant to the research topic and of high quality. In view of the rapid development of modern information technology and the continuous innovation of educational concepts, teachers' use of teaching methods is undergoing changes, so we used literature from 2020 to the present as an

important time standard for inclusion. We strictly screened the relevant articles on the reform and practice of primary school mathematics curriculum teaching (Table 2). In this way, we eliminated 415 articles that did not meet the time requirements and 157 articles that did not meet the literature type standards, including books, book chapters, review articles, conference papers and other non-research publications. After the screening step, we obtained 165 documents.

Table 2
Inclusion and exclusion criteria

Standard	Inclusion	Exclude
Year of publication	2020~2025	＜2020
Article Type	Research Articles	Books, book chapters, review articles, conference proceedings, notes
Content	Teaching Reform nvolve practical cases future improvement directions	Not related to these contents

Phase 3:Qualification Review
According to the preset inclusion and exclusion criteria, we conducted a rigorous review of the screened literature to ensure that it met the inclusion criteria and supported the purpose and needs of this study. 57 articles were not related to teaching reform, 59 articles did not involve actual cases, and 36 articles did not involve future improvement directions. Through this series of screening steps, we ensured that the literature included in the review not only met the requirements of the research topic, but also had high academic quality. In the end, 13 high-quality documents passed the qualification review, providing a reliable basis for subsequent analysis.

Phase 4:Inclusion
In the final stage, through a detailed review of the full text, these 13 documents were identified and included in this systematic literature review. These 13 articles not only deeply explored the practice of primary school mathematics curriculum teaching reform, but their research objectives, methods used, and conclusions were highly consistent with the direction of our review, providing solid data and theoretical support for the entire study.

Next, we will dig deeper into the key findings of these studies and explore the specific practical measures, achievements, and future directions for improvement of the primary school mathematics curriculum reform. We sincerely hope that through such analysis, we can provide practical teaching ideas for Chinese educators in their daily teaching, provide a strong reference for educational decision makers to formulate policies, and open up new research perspectives for subsequent researchers.

Results
In the process of studying "China's Primary School Mathematics Curriculum Teaching Reform Practice", we carefully designed three key research questions around the core theme as an important entry point for analyzing this field. These three questions focus on the key links and

core elements in the practice of primary school mathematics curriculum teaching reform. We conducted a comprehensive and in-depth comprehensive analysis of the 13 representative articles previously selected. During the analysis process, we disassembled and studied these articles from various angles. The following are the results closely related to these three research questions.

RQ1: What are the practical measures for the reform of mathematics curriculum teaching in primary schools in China?

The included articles mentioned that the measures for the reform of primary school mathematics curriculum teaching are as follows: (1) encouraging students to have a sense of questioning, (2) using modern information technology to teach, (3) stimulating students' interest in learning, (4) innovating teaching methods, (5) organizing students to learn cooperatively, (6) innovating curriculum content design, (7) stimulating students' innovative thinking, and (8) innovating homework design. The results are organized into a table, as shown in Table 3.

Table 3
Measures for the reform of Chinese primary school mathematics curriculum teaching practice

References	Encourage students to have a sense of questioning	Teaching with the help of modern information technology	Stimulate students' interest in learning	Innovative teaching methods	Organize students to study collaboratively	Innovative course content design	Stimulate students' innovative thinking	Innovative homework design
Feng, G. J.2022	√	√	√	√				
Ge, M. X.2020				√	√			√
Lu, K. R.2023			√					
Liang, X.2022	√		√	√		√		
Mao, Z. C.2022			√		√	√		
Ma, S. Y. 2023					√	√		√
Wu, X. Y.2024		√	√		√			
Wang, Y. F.2024		√	√			√		
Xi, X. Q.2021		√			√			√
Yang, J.2022	√				√			
Yao, Q.2020		√	√					
Zhou, Q. Q.2024		√		√	√			
Zhou, R.2020		√						

In the 13 papers on the reform and practice of primary school mathematics teaching, using modern information technology to teach, stimulate students' interest in learning, and organize students to learn cooperatively are the keys to improving teaching quality. These three aspects complement each other and jointly promote the reform of primary school mathematics teaching, help students develop in an all-round way, and improve teaching efficiency and quality.

With the help of modern information technology teaching, teachers can produce micro-courses or courseware with rich pictures and texts and strong human-computer interactivity to meet students' personalized learning needs. (Xi Xiuqin, 2021) proposed using information and network technology to allow students to choose learning content independently; they can also use multimedia teaching methods to expand students' knowledge, diverge their thinking, and stimulate students' interest in learning.

Teachers can connect with real life to make students aware of the importance of mathematics. (Yao Qin, 2020) mentioned that in the classroom, students' mathematical awareness should be cultivated by combining real life examples. At the same time, teachers should give students appropriate encouragement to maintain their curiosity and enhance their interest in learning. Organizing students to learn cooperatively can make students the masters of learning and promote the collision of ideas.

In teaching, opportunities for autonomy, cooperation, and exploration should be provided. For example, in the teaching of axially symmetrical figures, students can learn by doing through group cooperation tasks; this not only helps to activate creative thinking, but also develops students' personality and allows students to make progress together through communication and cooperation. (Xi Xiuqin, 2021)

RQ2: What are the achievements of China's primary school mathematics curriculum teaching reform?

The included articles mentioned that the achievements of the reform of primary school mathematics curriculum teaching practice are as follows: (1) teaching philosophy oriented to moral education, (2) organizing interesting practical activities, (3) carrying out aesthetic education, (4) cultivating students' independent learning habits, (5) using multimedia technology, (6) creating a learning environment integrated with life, (7) improving students' core literacy, (8) cultivating students' learning attitudes and habits, and (9) cultivating students' sense of cooperation. The results are organized into a table, as shown in Table 4.

Table 4
Achievements in the Reform of Chinese Primary School Mathematics Curriculum Teaching

References	Moral education-oriented teaching philosophy	Organize interesting practical activities	Carry out aesthetic education	Cultivate students' independent learning habits	Use multimedia technology	Create a learning environment that integrates learning with life	Improving students' core literacy	Cultivate students' learning attitudes and habits	Cultivate students' sense of cooperation
Feng, G. J.2022				√	√	√			
Ge, M. X.2020						√	√	√	
Lu, K. R.2023	√			√			√		
Liang, X.2022						√	√	√	
Mao, Z. C.2022		√		√		√	√		
Ma, S. Y. 2023	√	√	√						
Wu, X. Y.2024		√		√	√	√			
Wang, Y. F.2024		√				√	√		√
Xi, X. Q.2021				√	√	√			√
Yang, J.2022		√		√					√
Yao, Q.2020				√		√			√
Zhou, Q. Q.2024				√	√				√
Zhou, R.2020				√		√			√

In the 13 documents on primary school mathematics teaching reform and practice, cultivating students' independent learning habits, creating a learning environment integrated with life, and cultivating students' sense of cooperation have become important achievements in improving teaching quality and promoting students' all-round development.

Teachers cultivate independent learning habits by guiding students to preview in advance. Before teaching "Hours, Minutes, and Seconds", teachers use games and real-life examples to guide students to preview, so that students can form a preliminary understanding of

knowledge. Creating a learning environment that combines with life can enable students to better understand and apply mathematical knowledge (Feng Guoju, 2022).

Teachers should follow the principle of practicality and design teaching content closely related to real life. For example, in the teaching of "Area of Polygon", by designing inquiry questions related to life, students can apply mathematical knowledge in practice and improve their ability to apply knowledge (Mao Zhengchen, 2022). Teachers make full use of online resources and introduce real-life examples to help students connect what they have learned with real situations, thereby improving their understanding and application of knowledge. Cultivating students' sense of cooperation helps improve students' comprehensive abilities (Zhou Qianqian, 2024).

Teachers divide students into groups, let them discuss within the group, explore in-depth mathematical problems, cultivate a spirit of unity and cooperation, and improve classroom learning efficiency. For example, in the teaching of the "Measurement" lesson, teachers organize students to work in groups to measure the length of objects (Wu Xinyi, 2024). Personalized teaching should put students in a dominant position and generate efficient activities among students. For example, in the teaching of discount problems, through group discussions and tests, students can improve their mathematical application ability in cooperative communication (Yang Jing, 2022).

RQ3: What are the achievements of China's primary school mathematics curriculum teaching reform?

The included articles mentioned that the future improvement directions of primary school mathematics curriculum teaching reform practice are as follows: (1) pay attention to individual differences among students, (2) improve teachers' professional quality, (3) innovate teaching methods, (4) focus on cultivating students' learning habits, (5) optimize teaching models, and (6) improve the teaching evaluation system. The results are organized into a table, as shown in Table 5.

Table 5
The future direction of improvement in the practice of China's primary school mathematics curriculum teaching reform

References	Pay attention to individual differences among students	Improve teachers' professional quality	Innovative teaching methods	Focus on cultivating students' learning habits	Optimize teaching mode	Improve the teaching evaluation system
Feng, G. J.2022	√	√				
Ge, M. X.2020		√	√	√		
Lu, K. R.2023		√			√	√
Liang, X.2022		√	√		√	
Mao, Z. C.2022	√		√		√	
Ma, S. Y. 2023	√	√	√			
Wu, X. Y.2024		√	√	√		
Wang, Y. F.2024	√	√		√		
Xi, X. Q.2021	√	√	√		√	√
Yang, J.2022	√	√	√		√	√
Yao, Q.2020			√	√		√
Zhou, Q. Q.2024	√					√
Zhou, R.2020				√	√	√

Among the 13 documents on primary school mathematics teaching reform practices, paying attention to students' individual differences, improving teachers' professional qualities, and innovating teaching methods have become the most discussed directions for future improvements.

There are significant differences among students in terms of thinking and learning methods. Teaching should respect these differences and tailor teaching plans for students so that each student can learn content that suits them (Xi Xiuqin, 2021). Teachers should focus on teaching according to students' learning stage and knowledge level, and lay a good foundation for students in all aspects (Zhou Ran, 2020). In order to meet the needs of students with different learning styles, teachers can use different auxiliary teaching methods for visual and auditory learners. Teachers can also pay attention to students' learning process and help students improve their thinking ability by asking targeted questions and guiding students to establish a collection of wrong questions (Yang Jing, 2022).

In terms of improving teachers' professional quality, teachers should reflect regularly, constantly update their knowledge, use the Internet to acquire professional knowledge, and keep up with the times (Ge Mengxin, 2020). Teachers should carefully select teaching methods during the lesson preparation stage and flexibly adjust them according to different

teaching contents to stimulate students' enthusiasm for learning (Yao Qin, 2020). Teachers should guide teaching with materialist dialectics, handle various relationships in teaching, and optimize teaching models according to the new curriculum standards (Wang Yunfeng, 2024). In terms of innovative teaching methods, the teaching of "intersection and verticality" is used as an example to show how situational teaching methods can help students understand abstract concepts by constructing sensory situations. In addition, games are integrated into the classroom to effectively stimulate students' interest in learning (Wang Yunfeng, 2024). Using information technology to teach, by making micro-classes and using online learning platforms, students can learn more easily, while teachers can understand students' learning status and adjust teaching strategies in a timely manner (Zhou Qianqian, 2024).

Discussion

China's primary school mathematics teaching reform has continued to deepen in practice, showing important value in teaching methods, student training and future improvement directions.

In terms of reform measures, the application of modern information technology has injected new vitality into the classroom, making teaching methods more diverse, meeting the learning needs of different students and broadening their knowledge. At the same time, combining mathematics with real life and guiding students to think through actual cases or interesting questions can not only stimulate their interest in learning, but also allow them to feel the practicality of mathematics more intuitively. In addition, the promotion of cooperative learning allows students to shift from passively accepting knowledge to actively exploring, colliding their thoughts and making progress together in communication and discussion. These measures complement each other and lay a solid foundation for improving teaching quality.

From the actual results, the reform of mathematics teaching has not only cultivated students' independent learning habits, but also enhanced their ability to apply mathematical knowledge to reality. The formation of habits allows students to be more proactive in the learning process, form the ability to think independently, and lay a good foundation for future continuous learning. Integrating mathematics into daily life enables students to apply what they have learned in practice and improve their problem-solving ability. At the same time, the cultivation of cooperative awareness enables them to exercise in teamwork, communication and other aspects. The improvement of these abilities also meets the society's demand for comprehensive talents.

Although the reform has made significant progress, there is still room for further optimization. Paying attention to individual differences is the key to teaching students in accordance with their aptitude. Every student is different in terms of thinking style, learning pace, etc. Only by respecting these differences can we help them better understand and master mathematical knowledge. At the same time, the professional quality of teachers plays a decisive role in the quality of teaching. Teachers need to continue to learn, reflect constantly, and flexibly adjust teaching strategies to guide students more effectively. In addition, innovative teaching methods are still an important direction of reform. For example, situational teaching, gamification learning, information technology-assisted teaching, etc. can make the classroom more lively and improve student participation and learning effects.

It is worth noting that each aspect of teaching reform does not exist in isolation, but rather influences and promotes each other. For example, the exploration of innovative teaching methods is highly consistent with the goal of improving students' autonomous learning ability, and the cultivation of autonomous learning is closely related to teaching students in accordance with their aptitude. Only by continuously optimizing teaching strategies and forming a systematic reform approach can primary school mathematics education truly play its due role and enable students to benefit from mathematics learning for life.

Conclusions

In recent years, China's primary school mathematics teaching reform has achieved remarkable results, which not only improved the quality of classroom teaching, but also pointed out the direction for future development. The innovation of teaching methods has brought new vitality to the classroom, and the students' learning experience has also improved accordingly.

During the reform process, teachers paid more attention to cultivating students' questioning spirit, encouraging them to think actively and ask questions actively. At the same time, the integration of information technology has broadened the teaching methods and made the classroom more vivid. In addition, the development of various interesting teaching activities not only enhances students' interest in mathematics, but also subtly cultivates their autonomous learning ability. The impact of these changes is multifaceted. Mathematical education is no longer just the imparting of knowledge, but is closely integrated with moral education, and value guidance is infiltrated into the learning process. Through gamification learning, project-based inquiry and other methods, students' sense of cooperation, logical thinking and practical ability have been exercised.

Looking to the future, reforms still need to continue to deepen. First of all, teaching should pay more attention to individual differences among students, avoid a single teaching method, encourage teachers to teach students in accordance with their aptitude, and let every child find a learning path that suits them. At the same time, teachers' professional qualities also need to be continuously improved to adapt to the changes of the times and the growing learning needs of students. Of course, the innovation of mathematics teaching cannot stop at the current exploration. How to make the classroom more lively and interesting? How to mobilize students' initiative? These are issues that need further research and practice in the future. Perhaps, through richer teaching methods and more flexible classroom design, mathematics will no longer be boring, but a subject full of challenges and fun. Future mathematics education should not only consolidate students' knowledge base, but also cultivate their innovative thinking and practical ability. Only by continuously integrating resources and optimizing teaching strategies can primary school mathematics teaching develop in a more scientific and efficient direction, help students' growth, and make mathematics an important tool for them to understand the world and explore the future.

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