Online Classroom and Effective Teaching in China K12 Education

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Abstract
Objectives: This research is to explore the development and importance of online classrooms in K12 education in China, as well as the guiding role of effective teaching theories for online classrooms.
Methodology: A systematic literature review was used to collect and analyze literature related to online classroom teaching methods and teaching motivation from multiple databases.
Findings: Online classrooms have a strong position and influence in K12 education in China, receiving attention and support from the government, schools, teachers, and students. The effective teaching theory is highly compatible with China's quality education ideology, providing theoretical guidance and practical reference for online classrooms. In addition, teaching motivation and the diversity of teaching methods also play an important role in effective teaching in online classrooms, which deserves further exploration and identification.
Significance: This study contributes to improving the teaching quality and effectiveness of online classrooms, promoting the comprehensive development of students, and providing theoretical support for the reform and innovation of K12 education in China.
Keywords: Online Classroom, Curriculum and Instruction, K12 Education, Teaching Methods, Teaching Motivation.

Introduction
In the 21st century, online classroom has become an important branch of the education field, especially under the influence of the COVID-19 epidemic, online classroom, as a flexible, efficient and safe teaching method, has received extensive attention and application. However, online classrooms also face some challenges and problems, such as the teaching motivation of teachers, the diversity of teaching methods, and the evaluation of teaching effectiveness, all of which require in-depth research and exploration. This article takes K12 education in China as the background, guided by effective teaching theory, and explores the impact of teaching motivation and teaching methods on the effectiveness of online classroom teaching, in order to provide some theoretical and practical references for the improvement and development of online classrooms.
In the past 70 years, China's K12 education has undergone a transformation from exam oriented education to quality education, from imparting knowledge to cultivating abilities,

and from adapting to society to improving personality. All of these reflect the development and progress of China's education. However, China's K12 education also faces some difficulties and challenges, such as uneven educational resources, low educational quality, and insufficient educational innovation, all of which require continuous reform and innovation.

Methodology
Systematic Literature Review (SLR) methodology has been employed in this study, encompassing the following procedures:
(1) Formulating research inquiries
(2) Selecting relevant databases
(3) Defining search terms
(4) Collecting and organizing findings from diverse databases
(5) Analyzing outcomes based on predetermined criteria and conducting the review process;
(6) Establishing conclusive results.
The articles analyzed in this study were sourced from popular databases such as CNKI, Baidu Scholar, Google Scholar, and Eric. The criteria that researchers use to select data are: (a) The articles must directly or indirectly support this research and address relevant issues. (b) These articles must be relevant to at least one theme of this study. Some important foreign articles may also be included in the analysis. After excluding irrelevant or insignificant ones, they conducted further analysis.

Results and Discussion
The K12 education in China
In China, K12 education, also known as basic education, comprises early childhood education (typically for children aged 3-5), compulsory education (typically for children aged 6-15), and high school education (typically for students aged 16-18) (Ministry of Education of China, 2007). This includes a range of schools such as kindergartens, primary schools, junior middle schools, and senior middle schools, which students must attend to receive K12 education. This research examines not only formal school education but also various tutorial schools, such as after-school tutoring institutions or extracurricular schools.

The development of K12 education in China over the past 70 years has been led by the government, which has taken into account the opinions of all sectors of society and education experts State Council of China (2010) to achieve reform and development. China's K12 education has shifted from a 'top-down' approach to a more balanced approach that focuses on both top-down and bottom-up strategies. The emphasis has moved from teaching knowledge to improving students' abilities and from cultivating individuals who can adapt to society to cultivating individuals with exceptional qualities (Wang & Yan, 2019). This approach is in line with the international community's development trend and draws on the advanced experiences of other educational powers.

The Chinese government, the Ministry of Education, provincial education departments, and schools at all levels attach great importance to educational research, as do other countries, especially in research related to K-12 education. High-quality research has always been the driving force behind reform and innovation. This study aims to provide theoretical support for the development of K-12 education in China and around the world.

The primary question in Chinese education is 'What should we cultivate in people?' (Wu & Guo, 2019). This is also the most important and highest task of all education systems. Establishing an educational purpose is of great significance in guiding students' development and planning various educational resources and efforts. The purpose of K12 education in China is to cultivate students' creativity and practical ability, and promote their all-around development in morality, intelligence, physique, and aesthetics (Zhang, 2022).

To achieve this goal, teaching is an essential component of education. Over the past 70 years, teaching has undergone significant changes as education has developed. Teaching effectively completes the task of education and achieves its purpose. Additionally, teaching plays a crucial role in the development of education. Since the turn of the 21st century, K12 education in China has prioritised teaching students to learn, emphasising the learning process rather than just the results. Attention has been paid to the students themselves, and the entire education system has become more student-centred (Yue, 2020). These four views are part of the 'New Teaching View' implemented under the 'New Curriculum Reform' by the Chinese government (Ge, 2019). This is the current teaching development direction for each teacher and a hot topic in educational research.

The implementation of the 'New Teaching View' is dependent on continuous research and reform. Research on teachers' teaching has always been a focus of K12 education research in China. The aim is to enhance teaching continuously to improve the overall educational outcomes. However, currently, teaching research in China has more things can do. Therefore, there is a need to increase research on teaching Yan (2019), particularly in the online class environment. This issue must be addressed to implement the 'New Teaching View' of the 'New Curriculum Reform' in the online classroom. According to some experts, online courses may have a lower fault tolerance rate and higher requirements for teaching. It is important to continuously improve teachers' teaching and research to create a more interactive experience for students. These efforts align with the 'New Teaching View' of the 'New Curriculum Reform' mentioned above. In comparison to face-to-face teaching, online teaching requires improvement. The Chinese government has also outlined corresponding requirements. Teachers must enhance their teaching abilities in the online classroom, continuously address issues related to online teaching, and conduct relevant research (China Education Daily, 2021).

In May 2022, the website of the People's Daily, stated that online teaching has become the main teaching method and has been given more responsibilities and significance. It emphasized the need for joint efforts from various parties to promote its development and further research (People.com, 2022). At the official level, research on online classroom teaching has become a top priority for K12 education in China.

The consensus among schools, education experts, and the government is to increase research on teachers' online classroom teaching. This research aligns with the national strategic direction in the field of education, which requires continuous promotion, as it is an important premise and extension of the major educational policy of further implementing the 'New Curriculum Reform'. Therefore, this research is of great importance and significance.

COVID-19 has further enhanced the importance of online classroom
In the past, the development of K12 teaching in China has always been led by the government and jointly promoted and implemented by all sectors of society, including the government, schools, and society (State Council of China, 2010). All changes are based on professional

judgement and expert opinions, taking into account the actual situation and opinions of all parties involved. However, the epidemic in early 2020 brought about changes in China's education system, driven by external factors. Due to the impact of Covid-19, campuses around the world were forced to close, resulting in significant financial losses (Hou, 2020). As a result, online classes have become increasingly important in teaching.

Prior to 2019, like many other countries, K12 education in China primarily focused on face-to-face teaching. Most students typically attend a designated learning facility and acquire knowledge under the guidance of teachers. Despite the development of online teaching over the years, it has remained a supplementary teaching method. Regardless of technological advancements, online teaching has not garnered sufficient attention in K12 education. Some elective courses are allocated to online teaching, not because they are more suitable for online teaching, but because the school needs to meet certain indicators or complete specific tasks.

Education departments and schools have implemented online classes to prevent the spread of infection on campus. This approach not only ensures the safety of students but also minimises disruptions to the learning process. Since 2020, there has been a significant shift towards online learning in response to the outbreak. As Dhawan (2020) notes in their study, online classrooms have proven to be a valuable tool during the Covid-19 crisis. Although the harmfulness of the virus has decreased in recent years and many schools have resumed face-to-face teaching, the accumulated experience of online classes has highlighted their importance as a teaching tool. Online classes can achieve effects that cannot be achieved in face-to-face teaching. Therefore, many schools in various countries have entered the era of blended learning (Du, 2020). They have equipped themselves with sufficient online learning resources for numerous courses, which has facilitated the development and maintenance of 'teachers' online teaching' and 'students' online learning'. On one hand, online learning can effectively support student learning (Wang, 2017). On the other hand, it can also facilitate the development of online education to cope with external crises (Feng, 2020). It is important to maintain a clear and objective language, avoiding biased or emotional language. Additionally, it is crucial to use precise subject-specific vocabulary when it conveys the meaning more accurately than a similar non-technical term. Finally, the text should be free from grammatical errors, spelling mistakes, and punctuation errors. There has been a significant push towards enhancing online classroom teaching for students, which has gained widespread understanding and support from all sectors of society. Regardless of whether students attend public or private schools, or participate in regular or extracurricular activities.

It is important to note that K12 online classrooms in China can be divided into two categories: those dominated by schools (including public and private schools) and those offered by after-school tutoring institutions or extracurricular schools (such as various tutorial schools). Although the tasks of these schools in implementing online classrooms may differ, they all adopt the same teaching methods, and the operation mechanism of the entire online classroom system is relatively similar. Due to the epidemic, both types of schools have increased the duration and course density of online classes, making it the mainstream teaching mode. This could be one reason why the China has proposed further development of online classrooms (Zhongtai Securities, 2022). Online classrooms have become a national strategy that requires the joint efforts of all people (People.com, 2022).

In addition to their importance in teaching and learning, online courses also hold a strong position in China's national economy and politics, which reinforces the significance of this study.

Since the beginning of the epidemic, the market scale of K12 online classrooms has grown rapidly. According to Anonymity (2021), the number of minor internet users in China has exceeded 183 million, which is more than 1/8 of the total population. Additionally, over 60% of minor internet users believe that the internet is an important tool for learning and understanding the world (Yang, 2020). The amount of time that minor students spend participating in online classroom learning is increasing each year, making this industry a focus of society. According to the WJS, e-commerce research center, by 2021, the overall economic scale of China's online classes may have reached 322 billion, surpassing many popular industries such as artificial intelligence, cloud computing, and internet medicine.

Therefore, from a political and economic perspective, online classrooms represent a unique and established educational model that is increasingly supported by both the market and the government. This has further enhanced the value of this study to a certain extent.

K12 online classroom under the framework of effective teaching
The discussion of K12 online classrooms cannot avoid the core idea of quality education in China, which is inseparable from effective teaching theory.

Since 1998, the Ministry of Education of China has been attempting to shift from exam-oriented education to education for quality. Exam-oriented education refers to a focus on improving test scores, whereas quality education aims to provide a comprehensive education that develops students' abilities beyond test-taking. According to Chazhidian (2022), schools prioritise teachers' 'indoctrination' and the improvement of students' scores at all costs, while neglecting their development in other areas. This approach to education may have been suitable for the needs of China between 1978 and 1994, when the country required a large number of professionals from various fields. However, it also had a significant negative impact on students. Since 1998, various sectors in China have been striving to transition towards 'education for quality', prioritizing the development of students' innovative and practical spirit, as well as their moral, intellectual, physical, and aesthetic growth (Wang & Yan, 2019). The school's teaching objectives are centred around providing quality education to students. Since the introduction of relevant theories of effective teaching in China, education experts have found that these theories are highly consistent with China's 'education for quality' philosophy. Effective teaching can help Chinese schools achieve the goal of quality education (Lu, 2009).

As a result, the theory and principles of effective teaching have been integrated into China's educational practice.

This is why many educational research studies in China adopt effective teaching theory. Firstly, it aligns with China's national conditions as a developing country that is still immature and relatively backward in many aspects. Secondly, it aligns with the mainstream educational ideology in China, which priorities quality education.

Therefore, it is crucial to implement effective teaching in the online class environment to achieve quality education, which refers to the comprehensive improvement of students' abilities in all aspects (Long, 2013). This will assist students in achieving the learning objectives outlined in the 'New Curriculum Reform', which includes knowledge and skills, processes and methods, as well as emotional and value-based learning, under the guidance of their teachers.

Additionally, it will promote consistency and coherence between online and face-to-face teaching, and ensure students' normal development despite external changes.

Given the rich content and broad scope of effective teaching theory, it can serve as both a guide for teachers' professional development and a standard for evaluating teaching quality. Therefore, researchers studying online K12 classrooms in China should not disregard the importance of effective teaching theory and its impact on teaching practices.

Borich's effective teaching theory (2021) is one of the main framework theories in the current field. It unifies all the contents under this framework for discussion. The advantage of this theory is that proposed five behaviors (Lesson Clarity, Instructional Variety, Task Orientation, Student Engagement, and Opportunities for Success) as criteria to help judge whether classroom teaching is effective teaching. At the same time, it also provides a clear direction for teachers to achieve effective teaching.

At the same time, effective teaching theory has similar values and characteristics with a series of Chinese educational thoughts. For example, the education of China has been trying to make a change from "exam oriented education" to "education for quality" (Ministry of education of China, 1998), emphasizing the cultivation of students' innovative and practical spirit, so as to make students develop morally, intellectually, physically, and aesthetically. This means that the effective teaching theory is an educational theory that highly conforms to China's national conditions and is very suitable for application in China. There are not only a large number of teachers in China who know the effective teaching theory of Borich, but also a lot of research on it every year. For example, Huang (2014) believes that the effective teaching theory of Borich is the key to the study of effective teaching. According to Borich's effective teaching theory, he analyzed the current situation of Chinese literature teaching in middle school, and put forward a series of suggestions and improvement methods. Many types of research on the effective teaching theory of Borich in China are like this to verify the application effect of the theory in a single discipline. Similar to this situation is the study of Xu (2018), who uses Borich's effective teaching theory (five behaviors) to analyze the teaching of mathematics in middle school and puts forward a series of strategies to improve the teaching effect. Some studies focus on the application of Borich's theory not to a single discipline, but to a segment, such as the entire vocational school stage. A study by Du (2014), based on Borich's five effective teaching behaviors, analyzes the characteristics of students in higher vocational colleges and the relevant factors affecting effective teaching, and develops effective teaching strategies suitable for teachers in higher vocational colleges. The advantage of this study lies in two: first, it is no longer limited to a single discipline, but the effective teaching theory is used to study the commonness between disciplines. Second, he uses the five key behaviors of effective teaching of Borich as a framework for analysis. To some extent, these two advantages support the feasibility of my research, that is, using Borich's theory as a theoretical framework to conduct a holistic study, integrating the relevant theories of all variables. These findings are important support for this study to use Borich's effective teaching theory to do interdisciplinary online classroom research.

Some experts thought that in the online class environment, it is very important to implement effective teaching to finally realize quality education, that is, the comprehensive improvement of students' abilities in all aspects (Long, 2013). This research links online classroom, effective teaching and quality education in China. It provides practical value and significance for the implementation of effective teaching theory in online classroom in china, which provides sufficient support for this study. Some past studies have demonstrated the

applicability of various effective teaching theories in online classroom, and built a model of effective teaching theories in online classroom (Nie & Jiang, 2014). All these prove that effective teaching theory and online classroom can be highly integrated, and it is very appropriate to use this theory to conduct research in online classroom.

At the same time, some researchers have proved the relationship between effective teaching, respectively with teaching motivation & the diversity of teaching methods. For example, Zhang (2018) investigated the teaching motivation of a large number of English teachers based on effective teaching theory and designed countermeasures to solve problems. Zhong (2019) analyzed the significance of diversified teaching methods to promote effective teaching. These briefs prove that effective teaching is closely related to teachers' motivation and diversity of teaching methods, and has certain research value.

However, it is a pity that no research has adopted effective teaching theory to combine the online classroom, teaching motivation and diversity of teaching methods to form a theoretical framework and solve relevant problems. The previous studies, such as the above, were relatively decentralized and did not involve online classes or the three variables at the same time. Therefore, researcher uses effective teaching theories by Borich (2021) to conduct the formation of the entire theoretical framework, to explore the current situation of teachers' teaching motivation and the diversity of teaching methods, and establish the theoretical framework of them. Borich's effective teaching theory is a directional and instructive theoretical framework.

In addition, in online classrooms, teaching motivation and diversity of teaching methods are crucial factors that directly impact students' learning effectiveness and experience.

(1) Teaching motivation

Motivation is generally defined as the reason why individuals or animals initiate, continue or terminate a particular behaviour at a given time (Kazdin, 2000). Teaching motivation refers to an internal drive that can encourage teachers to complete teaching tasks, improve teaching quality and foster students' internal motivation (Lv, 2016). Research on the work enthusiasm and sense of responsibility of primary and secondary school teachers suggests that high levels of these qualities require teachers to possess strong and lasting internal motivation for teaching (Lin, 1996). As previously mentioned, motivation is closely linked to behaviour, therefore, teaching motivation greatly influences teaching behaviour. Zhang (2012) conducted research that identified a strong relationship between primary school teachers' work motivation, creative teaching efficacy, and creative teaching behaviour. Improving teachers' motivation can enhance their teaching effectiveness, which in turn can positively impact students' learning outcomes. Therefore, teaching motivation is a crucial factor in classroom instruction.

Research into teaching motivation in online K-12 classrooms in China is not only a demand of the teaching profession and educational research circles, but also a requirement of the government.

Teaching motivation is a significant concern for teachers in online classrooms. This lack of physical interaction can lead to related problems that have troubled many teachers.

The separation of teachers and students in physical space is a natural and prominent disadvantage of online learning. To address this, it is important to maintain clear and concise communication with students through the online platform. Online teaching can create challenges for teachers, as they may not have full visibility of their students and therefore

struggle to maintain control of the classroom and monitor progress effectively. According to Li and Zhu's (2020) study on teachers' psychological states, online teaching can also lead to significant psychological pressure. Additionally, Xu (2021) found that many K12 school teachers lack enthusiasm for online teaching. In this case, it is crucial to thoroughly investigate teachers' teaching motivation, identify and address any issues, and establish a robust theoretical framework that aligns with China's K12 education.

Within educational research, teaching motivation has long been a significant area of study, but few have delved into it. The number of studies in this field is limited, and research on the teaching motivation of K12 educators in China is scarce. This indicates a significant research gap.

Improving teachers' motivation and enthusiasm has always been a key policy in educational reform for national governments.

According to the Chinese Ministry of Education (2021), it is important to fully stimulate teachers' creativity and enthusiasm, as well as to care for their physical and mental health, in order to overcome burnout and maintain their motivation. This allows them to dedicate more time and energy to teaching and research, and encourages their professional development, motivation, and enthusiasm for education. This demonstrates the government's commitment to valuing and prioritizing teachers' teaching motivation, which is a crucial topic that has long been of concern to teachers, educational circles, and the government.

(2) Diversity of teaching methods

Various experts and researchers have provided definitions of teaching methods from different perspectives, including Babanski (1986), Shen (1991), and Zhu (1989).

Despite their differing viewpoints, they all agree that a teaching method is a specific approach or technique used to achieve a particular teaching objective in the classroom, whether through interactive or individual means.

Teachers do not rely on a single teaching method, but rather use a combination of multiple methods and strategies to promote students' development (Zeid, Assadi, & Murad, 2017).

The implementation of diverse teaching methods is necessary for teachers to achieve this goal (Robert & Bulloug, 2012). Numerous studies have confirmed the effectiveness of diverse teaching methods in promoting students' learning. Chen et al (2021) built a model that combined many kinds of advantageous teaching methods, including case study, experiment study, scientific research discussion, and so on. In the end, they widely verified the effect of this teaching model. They found that it could not only stimulate students' interest in the study and scientific research but also effectively guide them to change their bad habits of indulging in online games and skipping classes, which would actively promote the cultivation of comprehensive and creative talents.

The diversity of teaching methods holds significant value, particularly in China's K12 stage. Similar to the value placed on teaching motivation, teaching methods are highly regarded across all walks of life. However, it is regrettable that there is a lack of research on the diversity of teaching methods in K12 online classrooms in China, as well as on teaching motivation. Therefore, further related research is necessary.

The use of diverse teaching methods refers to the flexible application of various teaching techniques by educators, based on teaching objectives, content, and the actual situation of students. These methods include teaching, discussion, discovery, demonstration, practice, visitation, and self-directed learning, all of which aim to enhance the effectiveness and quality

of teaching. Teaching motivation is the ability of a teacher to create favourable learning situations that stimulate students' interest, thirst for knowledge, exploratory spirit, and innovative ability, promoting active and in-depth learning.

The diversity of teaching methods and the impact of teaching motivation in online classrooms are apparent.

In general, online classrooms offer greater flexibility and openness compared to traditional classrooms, but also face more uncertainty and challenges, such as the instability of the online environment, student dispersion, and reduced interaction between teachers and students. Therefore, teachers should use a variety of teaching methods, optimize situational creation work, and diversify situational teaching activities to create a happy and relaxed learning environment for students. Additionally, online classrooms offer teachers more opportunities to innovate and improve their teaching methods. Teachers can utilize online resources and technology to design personalized and differentiated teaching plans, enhancing the relevance and effectiveness of their teaching. Additionally, teaching motivation and the use of diverse teaching methods can also aid in cultivating students' self-learning abilities and overall quality. Online classrooms offer students the opportunity to expand their knowledge, exercise critical thinking skills, improve information literacy, and develop initiative and responsibility in their learning.

In summary, effective teaching in online classrooms requires consideration of teaching motivation and diversity of teaching methods.

Teachers should select and apply appropriate methods based on specific situations and student characteristics, stimulate and maintain student motivation, and improve teaching quality and effectiveness. To achieve this, it is important to maintain a formal and objective tone, use precise language, and ensure grammatical correctness. Additionally, a clear and logical structure with causal connections between statements is necessary. Avoiding biased language and adhering to conventional structure and formatting guidelines is also crucial.

Conclusion

The conclusion section of the article summarizes the main findings and conclusions of the study, as well as the limitations and shortcomings of the research. The article believes that the diversity of teaching motivation and teaching methods is an important factor affecting the effectiveness of K12 online classroom in China, and is also a necessary condition for achieving quality education and effective teaching. The article proposes some research suggestions and prospects, including:

● Strengthen the cultivation and stimulation of teaching motivation for teachers, enhance their teaching enthusiasm and sense of responsibility, and promote their professional development and self-improvement. At the same time, strengthening research in the field of teaching motivation is beneficial for us to understand many related issues.

● Enriching and innovating the diversity of teaching methods, utilizing the advantages of network technology, designing and implementing teaching strategies and activities suitable for online teaching, stimulating students' interest and participation in learning, and cultivating their innovative and practical abilities. Strengthening relevant research in the field of teaching is also necessary and urgent.

● Strengthen research and evaluation of online classroom, establish and improve quality standards and monitoring mechanisms for online classroom, promptly provide feedback

and improve the problems and shortcomings of online classroom, and enhance the level and effectiveness of online classroom.

● Promote the integration and coordination of online classroom and face-to-face education, form a hybrid teaching model, fully leverage the advantages and characteristics of various teaching methods, achieve consistency and coherence in teaching, and ensure the normal development and comprehensive growth of students.

Contributions and Implications

This study focuses on Online Classroom and Effective Teaching in China K12 Education, with the following contributions and Implications:

Firstly, this study provides strong support for the innovation and transformation of K12 education. With the rapid development of technology, online classrooms have become one of the key means to promote modernization of education. Through in-depth analysis of the application of online classrooms in the K12 stage, we have provided decision-makers with a more comprehensive understanding and scientific basis for formulating future education policies. This will help promote the development of K12 education towards greater flexibility, innovation, and intelligence.

Secondly, this study provides useful guidance and inspiration for educators. By exploring the relationship between online classrooms and effective teaching, we have delved into the opportunities and challenges in the education process. In this information age, educators need to adapt to the trend of online teaching and be adept at using modern technological means to improve teaching effectiveness. The research findings will provide some suggestions for educators to better utilize online education tools and design more creative and targeted teaching plans.

In addition, this study also focused on the needs of students and parents. By analyzing the characteristics of online classrooms, we have better understood the needs and challenges of students in the digital learning environment. In teaching practice, we can better meet the personalized learning needs of students and improve their learning enthusiasm. At the same time, understanding parents' attitudes and expectations towards online education can help establish closer cooperation between schools and families.

More importantly, the diversity of teaching methods and the importance of teaching motivation are analyzed in this study, which play a crucial role in solving a series of problems in online classrooms.

Overall, this study provides theoretical support and practical guidance for the future development of K12 education by delving into the relationship between online classrooms and effective teaching. By gaining a deeper understanding of online education, we can better respond to the challenges facing education today, promote the education system to better adapt to the trend of technological development, and cultivate a new generation of innovative and competitive talents.

Conflict of Interests

In this research, we have no economic relations with other people and external organizations. We don't received the funding from any organizations.

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