Innovations

The Writing Performance of Calligraphy Education in Zaozhuang Under the Innovative Teaching Mode of Information Technology

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Abstract: *The rapid development of educational informationization has brought challenges to Chinese calligraphy education, but also brought a rare opportunity for development. The innovative teaching mode of information technology is a new teaching method. Through the "online and offline" teaching mode, it can not only effectively improve the teaching quality of teachers and students, but also effectively make up for the problem of insufficient space and time in traditional teaching, realize the goal of integration in class and extracurricular, and give students more opportunities for independent learning. This paper discusses the innovative teaching mode that integrates offline practice and online "APP" in calligraphy class, and explores its practical application from the aspects of teaching strategy and teaching evaluation. The author finds that students are more willing to accept the innovative teaching mode of information technology, and the innovative teaching mode can more effectively improve students' learning interest and learning quality, thus effectively improving teaching quality. This study applied the information innovation teaching mode to calligraphy classroom teaching, designed the specific teaching process, and proved its effectiveness through practice.*

Key words: *Information technology, innovative teaching, calligraphy education, writing performance*

1. Rationale

With the continuous popularization of computer technology and the continuous development of Internet technology, modern technological means have affected all aspects of people's lives. At the same time, more and more modern educational technologies have been applied to school teaching. For example, research based on CAI (Computer Aided Instruction) has been a hot spot in educational research and has a long history. Formed a relatively mature theoretical method. With the maturity of information technology, students can obtain more high-quality learning resources through the Internet, and both "teaching" and "learning" have caught up with the new trend of The Times. (Zhou 2018) In August 2011, the Ministry of Education issued the Opinions on Calligraphy Education in primary and secondary Schools,

requiring primary and secondary schools to pay attention to calligraphy education. And from the calligraphy class, calligraphy teaching two aspects of the specific requirements. The opinions also require that educational administrative departments at all levels should provide conditions for the implementation of calligraphy education in primary and secondary schools. In January 2013, the Ministry of Education issued the "Guidelines for Calligraphy Education in Primary and Secondary Schools", which officially incorporated calligraphy education into the teaching system of primary and secondary schools. It can be seen that the state attaches great importance to the calligraphy education of young people, which is enough to prove the importance of Chinese character writing; The advent of the information age also provides a new opportunity for the "teaching" and "learning" of calligraphy. (Gong 2005) As early as 2005, Gong Xufa explained the popularization trend of calligraphy in the digital age; Mi Wenzuo (2018), in the Development of Online Courses: A New Way Out for Current calligraphy Teaching in primary and secondary Schools, discussed that only with the help of new technologies can we find a new way to solve calligraphy education problems, so as to promote the healthy development of calligraphy education in primary and secondary schools. (Zhong, 2019) Analysis of Calligraphy Education and Teaching in the Multimedia Era discusses the role of modern information technology in calligraphy teaching in improving the quality of calligraphy teaching, enriching the teaching content and methods, and creating a good atmosphere for calligraphy learning; The development of information technology provides new thinking and path for the new method of calligraphy education, and also drives the reform of the new teaching mode.

This study explores the influence of innovative teaching mode of information technology on writing performance, which has important practical value and theoretical significance. In an intelligent learning environment, traditional teaching mode is not conducive to the development of students. The positioning criteria and value orientation of information technology curriculum advocate that students should actively participate in learning and exploration activities, and constantly summarize in the activities. Finally, it builds its own knowledge structure system, which conforms to the needs of the development of The Times, and provides a new way and reference for improving the teaching quality of calligraphy education.

2. Literature Review

2.1 Information Technology

The application of information technology in education and teaching has become an important topic studied by scholars in recent years. To a certain extent, the fundamental reform of school education is the reform of classroom teaching mode. The integration of information technology and education and teaching can effectively promote the reform of classroom teaching mode, make reasonable use of information technology resources, guide students to independent learning and promote students' development. Improving the quality of teaching . The information technology mentioned in education mainly refers to the sum of the technologies used to acquire,

process, store, transmit and use documents, pictures, sounds and images, and various kinds of information by using various hardware equipment, software tools and scientific methods such as computer, network, radio and television. The definition emphasizes the modernization and high-tech content of information technology; Information technology provides diversified support for education and teaching. For example, after introducing information technology into calligraphy teaching, teachers can make full use of the advantages of network resources to save time in preparing lessons. In the teaching of Chinese calligraphy, teachers' explanation and demonstration are very important links. In the traditional calligraphy class, the teacher's demonstration is limited by the limited conditions of the classroom, resulting in students not seeing clearly and the effect is poor. However, after the use of multimedia equipment and network resources, teachers can use videos on the network to implant them into their own courseware, or take videos of their own demonstrations and make them into micro-lessons or courseware for students to watch repeatedly, or play them at any time, which is convenient and fast and improves efficiency, so as to understand their preferences and students' actual situation. On this basis, appropriate teaching situations are created. For example, soothing music is played during students' independent writing exercises. Students are fascinated and immersed in it. Instead of the boredom of traditional classes, students' interest in brush calligraphy rises, stimulating students' interest in learning, which is the basis for promoting students' development and improving students' learning quality. When students' interest in learning is mobilized, they will actively participate in it, and their learning efficiency will be improved. At the same time, teachers can further understand the role of information technology in education and teaching, so as to promote the integration of information technology and education and teaching. (Xu Yuanbin 2022) The core literacy of information technology discipline is the comprehensive embodiment of the knowledge and skills, processes and methods, emotional attitudes and values gradually formed by students through information technology learning. According to OECD research, literacy refers to the cultivation of individuals, which means that individuals can mobilize resources to meet their own growth needs under specific circumstances. The integration of information technology and teaching just conforms to this characteristic, which lays a certain theoretical foundation for the teaching practice of specific information technology.

2.2 Innovative Teaching

In China, the first time that "innovation" and education were linked from the level of national decision-making was the report "Embracing the Knowledge Economy and Building a National Innovation System" submitted by the Chinese Academy of Sciences to the Central government at the end of 1997. (Cachia R, Ferrari A, Ala-Mutka K, et al.2010) pointed out in the European Union's "Creative Learning and Innovative Teaching" report that teaching innovation is to guide students to carry out creative learning and implement new methods, new tools and new content that are beneficial to learners and their creative potential. (Huang X H, Lee C K. 2015)

believes that teaching innovation means that teachers achieve predetermined teaching goals through novel teaching processes, which improves students' performance and enables them to have creative performance. In addition, they also believe that teachers' teaching innovation plays an important role in cultivating students' creativity. It emphasizes that teachers should infiltrate new ideas into all aspects of teaching, use new tools and methods in teaching, have an open attitude to each student's point of view, create space for students to explore, have good interaction with students, and connect teaching content with students' daily life. At present, the teaching connotation generally recognized by the educational circle is the understanding of the level of equal communication activities between teachers and students. Teaching is an activity aimed at "teaching" by teachers, so as to guide students to "learn". Teaching innovation is the process of interaction between teachers and students. In order to improve teaching quality and give full play to their own teacher quality, teachers implement changes in multiple aspects of teaching on the basis of following students' learning rules, so as to solve existing problems in teaching, achieve teaching goals and realize their own professional development.

2.3 Information Technology Innovation Teaching

On the teaching of information technology, scholars' understanding has highlighted the role of modern information technology on the basis of traditional teaching. Nan Guonong believes that information-based teaching is a bilateral activity carried out by teachers and students with the help of modern educational media, educational information resources and methods. (Zhang Yichun 2007) believes that information-based teaching is guided by modern teaching concepts and supported by information technology, and the teaching with modern teaching methods requires a series of information-based factors such as concept, organization, content, mode, technology, evaluation and environment. (Tang Li 2021) mentioned that the initial application of modern information technology in teaching is an innovation. Later, scholars believe that only the application of information technology understanding is superficial, teachers need to use information technology to improve teaching methods, improve teaching efficiency and quality, and give full play to the advantages of information technology. Now, we realize that we need to integrate information technology and education to understand, not to ignore the application of information technology in education, but also to pay attention to the knowledge, skills and attitudes of teachers in applying information technology.

2.4 Calligraphy Education

Calligraphy is a unique traditional art in China. Calligraphy refers to the method and rule of writing Chinese characters with a brush. The background of calligraphy art is traditional Chinese culture. The calligraphy discussed in this study mainly refers to brush calligraphy. (Ma 2023) said that calligraphy is a course of practicality and artistry, and calligraphy education can be divided into basic calligraphy education and specialized calligraphy education. The calligraphy

education mentioned in this paper refers to the calligraphy education in primary and secondary schools, which belongs to the basic calligraphy education, and is a process of transferring knowledge to students through teachers' teaching methods and classrooms.

Mr. Guo Moruo said in the inscription of "People's Education" magazine that to train primary and secondary school students to write good characters, it is not necessary for everyone to become a calligrapher, but always to write the characters in line with the specifications, relatively correct, clean, easy to recognize, and the current traditional calligraphy teaching due to teachers, Most primary and secondary schools are still unable to meet this requirement for reasons such as teaching methods and the popularity of calligraphy. Therefore, the research on innovative calligraphy education is particularly important. Especially with the advent of the information age, it also provides researchers with a lot of ideas and brings more specific methods for innovative calligraphy teaching, so as to gradually improve the many drawbacks existing in traditional calligraphy education.

3. Statement of the Problem

What is the writing performance of students in using the information-technology model?

4. Research Methods

This study will adopt purely quantitative methods, especially experimental study design. The test will be used to determine students' writing performance in both traditional and information technology modes. Difference analysis uses T-test to identify differences in students' writing performance when using traditional and IT models. In this study, 90 students from Class 1, Grade 3 and Class 2 of Mingyuan Experimental Primary School in Zaozhuang City were selected as the research objects, including 45 students from Class 1, Grade 3 and Class 2, Grade 3. The reason why they were selected was that they did not have any foundation of brush calligraphy in the past, and they were relatively easy to be used as the research objects of teaching achievements. Class 1 of Grade 3 uses traditional teaching methods, and Class 2 of Grade 3 uses information technology to innovate calligraphy teaching methods.

5. Data Analysis

Researchers use the test method as the main source of information, and the test topics and standards are quoted from the Standardization of the Assessment of Calligraphy Goals (Sun Run 2000) as the basis for judging and scoring. The test is divided into two parts, the first part is to conduct the main body test, that is, to test students' calligraphy creation according to the assessment requirements. The second part is to score the test results according to the scoring basis.

The specific content of the test is Du Fu's "Guanyu" in Tang Dynasty.

A surname

Du Fu

The late sun is beautiful, and the spring breeze is fragrant.

Mud melts flying swallows, sand warm sleeping mandarin ducks.

Secondly, since the specific use value of regular script is more important in school life, it is also the main style used by students, so the test style is the regular script commonly used by students. Data analysis uses the method of t test and t distribution theory to infer the probability of difference occurrence, so as to compare whether the difference between two averages is significant.

The following scores are designed by Sun Run (2000) according to the Standardization of Calligraphy Target Assessment and verified by relevant experts, and can be applied to the interpretation of traditional teaching mode and innovative information technology calligraphy teaching mode at the same time.

Table 1:

	score	Interpretation	Description
1	76——100	outstanding	Have at least three or four of the strokes, structure, stability, and composition, meet the requirements of standard writing, and be able to achieve certain creative writing ability.
2	51——75	Reach the standard	At least have a pen, structure, stability, chapter of two or both, basically meet the requirements of standard writing.
3	21——50	Not up to standard	Have a pen, structure, stability, one or both of them or both, but still belong to the master is not comprehensive enough to meet the requirements of standard writing.
4	0——20	poor	The writing basically does not have any of the characteristics of pen edge, structure, stability and composition.

After the two classes passed the implementation of the teaching plan for half a year, the scores of the two classes were tested as follows:

Table2

score	Interpretation	Grade Three, Class One, specific score	Class 1, Grade 3 (Number)	Grade Three, Class Two, specific score	Class Two, Grade Three (Number)
76——100	outstanding	88、92、76、82	4	90、92、78、95、88、92、93、89、77、90、88、79、77	13
51——75	Reach the standard	55、58、62、75、72、55、58、62、62、66、72、55、61、74、51	15	72、71、73、68、66、62、68、75、71、68、66、58、55、52、66、72、73、71、68、64、75、	21
21——50	Not up to standard	28、22、24、28、40、46、38、22、27、43、22、48、25、48、32	15	46、42、36、43、28、48	6
0——20	poor	16、18、9、20、8、16、19、16、16、14、20	11	18、16、12、8、20	5
			45 people		45 people

According to Table 2, the following results are obtained by using t detection mode:

Class and grade	Number of cases	Mean value	Standard deviation	Mean standard error
1	45	43.13	23.793	3.547
2	45	63.53	23.379	3.485

It can be seen from the above table that there is a big difference in the average score of the two classes. The average score of Class 1 is 43.13, and that of Class 2 is 63.53. The average score of Class 2 is significantly higher than that of Class 1. Before the implementation of differential teaching, the results of the two classes were similar, but after the implementation of information technology innovative teaching methods, the results of class 2 were better than that of class 1.

In order to test whether there are differences between the two teaching methods, t test is carried out below. As can be seen from the following table, the P-value of the homogeneity test of variance is 0.327, and the null hypothesis of homogeneity of variance cannot be rejected. Therefore, we should look at the data of the first row assuming equal variance. At this time, the P-value is significantly less than 0.05, rejecting the null hypothesis that there is no significant difference between the scores of the two classes. That is, the teaching quality of information technology innovative teaching mode is obviously better than that of traditional calligraphy class.

	F	P	t	Degree of freedom	P（Double tail）
Assumed equal variance	0.971	0.327	-4.103	88	0.000
Equivariance is not assumed			-4.103	87.973	0.000

6. Conclusions and Suggestions
6.1 Optimize the teaching strategy and improve the teaching effect
(A) The use of information technology to improve students' interest in learning

Primary and secondary school students are often lively and cheerful, so they should get rid of the boring and monotonous atmosphere in the traditional classroom. In the teaching process, teachers should be good at using information technology to stimulate students' interest in calligraphy, and use modern information technology, text, image and video in the teaching of Chinese calligraphy, so that students can have a new learning experience, such as: We used multimedia to play short calligraphy stories in the form of animation, and learned about the stories of ancient calligrapher in the process of watching the animation. At the same time, we also learned how to write basic strokes in the video. In addition, we played soothing music while

students were writing to create a good writing atmosphere, so that we could firmly grasp the students' attention in class. Make students feel the charm of calligraphy more intuitively and vividly. Create a suitable learning environment and atmosphere for students to improve their interest in learning, so as to effectively improve the teaching effect of calligraphy class.

(B) Improving students' calligraphy skills with the help of information technology

In order to meet the current teaching needs, first of all, calligraphy teachers should have the ability to collect, organize, download, store, edit and send materials, and also be skilled in editing text, images, audio and video, and proficient in PPT, Xiwo, QQ, wechat, Dingdou and other common tools, which is the basis for teaching by means of information technology. Teachers should be good at using multimedia for distance teaching, using modern information technology to teach, display, interact with students, evaluate and motivate and other basic operations, and use network resources to solve problems encountered in teaching. For example, establish a wechat group after class calligraphy class, and send some animations and short videos related to calligraphy learning to the group from time to time. Teachers' demonstration videos and excellent calligraphy posts, etc., establish a service mechanism for students after class. Students can upload calligraphy homework independently in the group, and teachers can give timely guidance in the group; Secondly, students are required to download the APP "Palm Tablet", browse the posts of famous artists in the past dynasties in the "Palm Tablet" every day, and complete the challenge of punch in the post, and give rewards to the platform that completes the challenge for 14 consecutive days. In this study, Class 2, Grade 3, uses the information technology innovation course, and the students of Class 2 are required to complete the challenge of copying the Qin Li Tablet written by Yan Zhenqing in the Tang Dynasty. Challenge for 14 days, and then take a rest for a week to join the challenge again, and send the copying homework to the wechat group to be guided by the teacher and repeated, which significantly improves the calligraphy skills. Secondly, there are many learning sections in the "Palm Tablet" for students to watch and learn after class, including the demonstration video of famous artists, quality courses, calligraphy dictionary, famous tablet and so on. Students are required to browse independently every week. Back in class, I explained to the students what I had learned on the platform this week, which effectively cultivated the students' independent learning ability.

6.2 Use teaching evaluation to improve teaching quality

It is necessary to make good use of evaluation to supervise teaching effect and improve teaching quality, communicate with students more, understand students' ideas, adjust teaching strategies in time, and hold calligraphy exhibitions for students from time to time, hang the works in the hallway of the classroom, and listen to feedback from passing students or teachers on the works, so as to make timely adjustments.

In a word, calligraphy education is not accomplished overnight, it is a long and difficult work. Teachers should be good at skillfully using modern information technology in calligraphy teaching, so that students have a strong interest in calligraphy, so that students can learn, enjoy learning, fun, and then guide them to practice repeatedly, so as to improve their calligraphy level, so as to improve their comprehensive quality.

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