Research on the 6C Teaching Model of Integrating Local Culture into Information Technology Teaching

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Abstract. In this study, the 6C model under the C-STEAM education concept is adjusted, and the application framework of the 6C teaching mode for classroom teaching is designed to cultivate the cultural literacy of middle school students. With the theme of "Shaanxi History Museum", the teaching case was designed to integrate Xi'an local culture with Word teaching, provide front-line teachers with a reference for the teaching process of integrating local culture into teaching, and verify that the use of the 6C model to integrate local culture into teaching can effectively improve students' cultural literacy.

Keywords: Local culture; 6C teaching mode; Information Technology Teaching.

1 Introduction

In recent years, the Ministry of Education has issued several documents that point out that it is necessary to integrate excellent traditional culture into primary and secondary school classrooms, promote the development of cultural education, and improve students' cultural literacy[[1]]. The C-STEAM education concept is guided by cultural inheritance, and the 6C teaching model can not only promote the improvement of students' cultural literacy but also promote the development of students' knowledge application ability and thinking. Constructing the application framework of the 6C teaching mode for classroom teaching provides a theoretical and practical reference for the integration of Chinese excellent traditional culture into information technology disciplines.

2 Feasibility analysis

2.1 Feasibility of integrating local culture into classroom teaching

The local cultural content is rich and colorful, broad and profound in form[[2]], and integrating it into teaching can not only enrich the teaching content, but also imperceptibly affect students, improve students' cultural literacy, and realize the educational value of culture. When teaching activities are carried out on the theme of local culture, students can take advantage of its vivid and intuitive characteristics to conduct field trips and learn about relevant historical knowledge, which is better than the teacher's oral teaching to students.

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2.2 Advantages of incorporating cultural resources into IT curricula

The discipline of information technology has the characteristics of strong comprehensiveness [[3]], and can fully mobilize students' interest in learning, with the continuous development of information technology, various emerging technologies can support all aspects of teaching in different aspects, such as integrating local culture into information technology teaching with the help of virtual reality technology, so that students can feel cultural resources immersively, to improve students' interest in learning, achieve subject teaching goals, and enhance students' cultural self-confidence.

3 Construction of 6C teaching mode that integrates Xi'an local culture into information technology teaching

3.1 6C teaching mode

The 6C teaching model is a teaching model proposed by Zhan Z.H. et al. for C-STEAM education based on the analysis of STEAM teaching models at home and abroad, which is goal-oriented and includes six links: cultural context perception, cultural connotation understanding, cultural characteristics exploration, cultural product creation, social connection, and summary, evaluation, and reflection [4-6]. It carries out project-based teaching for culture, focusing on the learning of cultural knowledge and the internal integration of multidisciplinary knowledge, and teaching away from the traditional classroom, but it will be limited by various factors such as time and environment in actual teaching, so it is adjusted based on the 6C teaching model to enhance its applicability in actual teaching.

3.2 Teaching Framework construction

This study is based on the 6C teaching model under the C-STEAM education concept, as shown in Figure 1. The teaching framework is oriented towards cultural inheritance and supported by information technology, including two objects: teacher-led and student-oriented; Five teaching links: situational awareness, inquiry learning, work creation, sharing and communication, evaluation, and reflection. Among them, inquiry learning is the core link of the teaching framework, and it forms repeated iterations with the work creation link and the sharing and communication link.

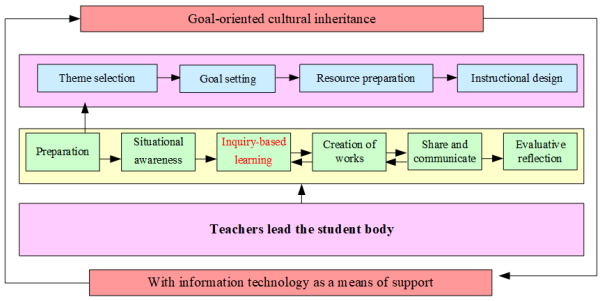

Fig. 1. 6C teaching mode for classroom teaching.

3.3 The comparison between the two is shown in Table 1

Table 1. Comparison between the 6C teaching model and the classroom-oriented 6C teaching model.

6C teaching model	6C teaching mode for classroom teaching	Comparison between the two
Cultural contextual awareness	Contextual awareness	This session emphasizes the creation of cultural contexts for teaching.
Cultural connotation understanding	Inquiry-based learning sessions	This session emphasizes students' understanding of cultural knowledge. The former pays more attention to students' understanding and learning of cultural knowledge, while the latter emphasizes using culture as a material to expand teaching content and improve students' cultural literacy while learning subject knowledge.
Exploration of cultural characteristics		
Creation of cultural products	The creation of the work	This session emphasizes the externalization of knowledge. The former emphasizes the use of multidisciplinary knowledge to complete the creation of works; The latter uses cultural knowledge as the material to complete the creation of works based on subject knowledge and emphasizes the application of subject knowledge.
Contact Social Outreach	Sharing and networking sessions	This session emphasizes the sharing and exchange of works. The former pays more attention to the social benefits of C-STEAM education from school to society. The latter pays more attention to the sharing and communication between students and then improves and optimizes the work.
Summarize and evaluate reflections	Evaluation and reflection session	This link focuses on the summary, evaluation, and reflection of the whole teaching process.

4 A teaching case based on this teaching mode - making a Word collection "I am a cultural relics docent"

4.1 Teacher Preparation

1. Identification of cultural themes

Shaanxi History Museum, China's first large-scale modern national museum, is known as "the pearl of the ancient capital, the treasure house of China", take it as a cultural theme, learn relevant historical and cultural knowledge, and realize the dissemination of cultural knowledge.

2. Establish teaching objectives

(1) Learn about the Shaanxi History Museum; (2) Master the basic operation of Word documents; (3) to know cultural relics and be familiar with the cultural knowledge they contain; (4) Use Word documents to make explanatory essays for cultural relics.

3. Preparation of teaching resources

Multimedia resources; Portfolio; VR resources

4.2 Situational awareness

Teacher activities: Display the multimedia resources related to the "Shaanxi History Museum" to mobilize the enthusiasm of students; Display the cultural relics explanation portfolio, stimulate students' interest in learning, and lead to the learning content and learning tasks of this chapter - make a Word collection "I am a cultural relics docent", and provide different types of resources for students' reference.

Student activities: Students watch videos and image resources to perceive the cultural value of the Shaanxi History Museum; Clarify the learning tasks and form study groups.

Design intent: Multimedia resources related to the "Shaanxi History Museum" are displayed to stimulate students' interest in inquiry; Forming groups to develop students' spirit and ability to cooperate; Assign learning tasks and promote students' active learning in a task-driven manner.

4.3 Inquiry learning sessions

1. Learning Link:

Teacher activities: According to the content of this chapter, the class time and corresponding teaching content are reasonably arranged.

(1) Lesson 1: Collect and plan a collection of explanatory texts of cultural relics

Visit the Shaanxi History Museum with the help of VR mini-programs to determine the theme of the group's works; Learn to merge texts in Word; Plan and design the entire collection; Master the insertion of "separators" and count the number of words.

(2) Lesson 2: Give the work a unique style

Determine the style of the commentary collection based on the existing manuscripts; Select the appropriate font, header and footer, and column effects according to the determined style; Master the use of "Format Painter", the setting of "Header, Footer" and "Columns".

(3) Lesson 3: Produce an introduction to the frontispiece

Understand the basic norms for making frontispieces and plan the frontispiece of the explanatory anthology; Master the insertion of text boxes, adjust the format of text boxes, and use them to plan the layout of documents; Use images to retouch the background of your document.

(4) Lesson 4: Implementing Selective Reading – Table of Contents

Understand the composition of the catalog; Learn to use WordArt to make the title of the table of contents, and use the text box to design the layout of the table of contents; Master the application of "bullets and numbering".

(5) Lesson 5: Make a cover

Understand the basic information elements contained in the cover and the cover production

process; Master related operations such as "filling the background for AutoShape", "Combining graphics", "Changing the order of object stacking" and so on; Complete the cover.

Student activities: Learn about different cultural relics and understand the stories behind them; Combined with the learning resources provided by the teacher, students will be proficient in the relevant operations of Word documents.

Design intent: With the help of VR, students are familiar with cultural knowledge and deepen their understanding and interest in culture; Teachers provide resources for students to learn independently, which contributes to the development of students' self-directed learning ability.

2. Exploration Session:

Teacher activities: Assign research tasks, and guide students to use various methods and information technology means to collect relevant cultural resources.

Student activities: The group is divided and cooperated, and relevant cultural materials are collected by means of interviews, field research, and online inquiries according to the needs of the group's work.

Design intent: Students' independent collection of resources is conducive to the cultivation of students' information awareness. Group division of labor and field research to cultivate students' spirit of cooperation and inquiry.

4.4 The creation of works

Teacher activities: Guide students to clarify the theme of the group work and complete the creation of the work; Students will provide appropriate assistance and summarize problems when they encounter problems in the process of creating their works.

Student activities: Determine the theme of the group's work, form a design plan, and the group will divide labor reasonably to complete the creation of the work. Classify and organize existing materials and plan portfolios; Adjust the design scheme based on the problems encountered in the creative process, supplement the relevant knowledge, optimize the work, iterate repeatedly, and finally complete the creation of the work.

Design intent: Through the creation of works, on the one hand, students can deepen their understanding of cultural knowledge, internalize culture as a part of their own knowledge and cultural heritage, and on the other hand, apply the knowledge they have learned to practice, so as to realize the output of knowledge, the expression of emotions, and the inheritance and publicity of culture.

4.5 Sharing sessions

Teacher activities: Teachers carry out "cultural relics introduction meetings" to display and comment on students' works; Multimedia platforms such as WeChat public accounts are used to promote students' works.

Student activities: The results will be displayed in the group, and the work will be explained by the commentator, and the other groups will comment and analyze, and the works will be optimized again with reference to the comments.

Design intent: Through the display and exchange of students' works, they can deeply perceive the charm of traditional culture and achieve the internalization of cultural knowledge and emotions. With the help of multimedia platforms, students' works are displayed to achieve the promotion and inheritance of cultural knowledge.

4.6 Evaluation and Reflection Session

Teacher activities: Guide students to sort out what they have learned as a whole; The process evaluation of students' learning from multiple dimensions such as learning attitude and knowledge application was carried out, and the final work of students and the proficiency of Word document operation were summarized. Reflect on the teaching process, optimize and improve the teaching design, include students' works, and enrich teaching resources.

Student activities: Review what you have learned, reflect on the problems encountered in the learning process, and build a personal knowledge graph; Complete individual self-assessment and group peer assessment.

Design intention: "Evaluation" is used to promote reflection, and multi-subject and multi-dimensional evaluation methods are used to evaluate the learning situation more comprehensively, at the same time, the teaching process can be improved and the teaching efficiency can be improved.

5 Summary of practice based on teaching examples

After practice, through the analysis of students' pre-and post-test data, it was found that students' understanding of local culture was significantly improved, and students' cultural literacy was significantly improved. At the same time, students' enthusiasm in the classroom is also significantly enhanced compared with traditional teaching methods. It can be seen that the classroom-oriented 6C teaching model has a positive role in the integration of local culture and information technology teaching.

6 Conclusions

The 6C model for classroom teaching not only focuses on students' learning and application of subject knowledge but also integrates local culture into the classroom teaching of information technology, effectively improving students' cultural literacy. The teaching framework provides corresponding teaching design ideas for the integration of local excellent culture into information technology classrooms and provides a reference for the follow-up research on cultural education in primary and secondary schools and the teaching implementation of front-line teachers.

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