

# Analysis of AR Application for Traditional Culture Teaching

Shuang Ma

Shenyang Aerospace University, China

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**Abstract:** Music is the common language of the world, and also one of the important ways of cultural inheritance. Traditional Chinese instrument is the essence of Chinese culture and an important part of Chinese national culture. With the development of the society, the innovation and inheritance of folk music have become an important task of our generation. This learning platform integrates traditional Chinese instrument and AR technology into primary and secondary school classes, develops and innovates new modes of audio-visual teaching, provides teachers with new educational ideas, keeps students actively involved in class, mobilizes students' multiple intelligences, stimulates learning interest and enthusiasm so as to improve learning efficiency.

**Keywords:** Traditional Chinese Instrument; AR; Learning; Platform Construction.

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## 1. Introduction

Traditional Chinese instrument has a unique position in the Chinese national culture, which is one of the essences of the five thousand years of history and culture of the Chinese nation. Traditional Chinese instruments and traditional Chinese music can make the whole world learn more about the culture and history of the Chinese nation. Each traditional Chinese instrument has its own unique timbre and expression style. Inheritance is the continuation of the life of this cultural treasure, but the inheritance does not mean simply imitating the works of predecessors, but requires reasonable innovation and improvement on the basis of the needs of The Times and the current development of tradition, so that traditional Chinese music can better adapt to the appreciation needs of modern people.

Traditional Chinese instrument and music teaching cannot be opened to the whole society due to the restrictions of teachers, venues, technical equipment and other conditions, so that the goal of equal educational opportunities and educational effects cannot be realized. The visual autonomous platform based on AR is a new educational mode that effectively combines traditional teaching and multimedia teaching with modern information technology. Using AR technology, the interaction and independent learning in the teaching process are retained. At the same time, the platform can mobilize the enthusiasm of students, make the learning process lively and interesting, and achieve the best teaching effect. It can also reduce the experience cost of teaching experiment while retaining the real personal involvement of students' participation in practice and stimulate students' interest in learning.

## 2. Background of the Article

Traditional Chinese instrument is the precious wealth of the Chinese nation and also the root and soul of Chinese culture. Chinese traditional Musical Instruments as an important part of traditional culture, is artistic wisdom accumulated and precipitated by the people for thousands of years, beautiful notes recorded the various regions, various national thoughts and emotions of the masses, together into a myriad, kaleidoscope forms of music, deeply rooted in the traditional

culture, the continuation and development. For example, the king of Chinese string instruments - pipa, can not only show the beautiful and ethereal "Flowers Over the Spring Moonlight River", but can also play the magnificent and tragic "Ambush on All sides". In addition, with the diversified development of modern music styles, quite a number of composers adapted and absorbed Chinese minority folk music and characteristic styles in their creation, and chose various kinds of playing and fingering methods to enrich the expression of music. For example, in the music "Spring Silkworm", the introduction and theme segment drew on the style of Uyghur folk music and used a large number of overtones to imitate camel bells, so that the audience can immediately imagine a picture of a caravan of camels walking slowly in the desert. Another music also adapted from the Uyghur folk music named "Send me a Rose", it expresses the pursuit of love of young men and women with a cheerful and lively melody. With the deepening of cultural exchanges between China and the West, excellent western music has also deeply influenced the performance of traditional Musical Instruments. For example, the "Variation of The Song of The Moon", adapted from the folk music of the former Soviet Union, shows a light and bright artistic style. From the relevant policy documents, we can also learn that the inheritance and development of national instruments also conform to the requirements of The Times.

Foreign scholars use AR technology to conduct simulation teaching in situational design, teaching experiment and extracurricular research activities. A Professor proposed a new curriculum model based on "augmented reality". He believed that in the aspect of creating teaching situation, due to students' participation in learning activities, augmented reality technology can be used to simulate the learning situation to achieve the purpose of promoting learning. Using augmented reality technology can present the complex teaching content in front of students, shorten the distance between teachers and students, realize the interaction between teachers and students.

The visual autonomous platform based on AR is a new educational mode that effectively combines traditional teaching and multimedia teaching with modern information technology. Using AR technology can retain the interaction and independent learning in the teaching process to the

maximum extent, mobilize the enthusiasm of students, make the learning process lively and interesting, and achieve the best teaching effect. AR assisted teaching mode can also reduce the investment cost of teaching experiment while retaining the real feelings of students' participation in practice, which is an ideal teaching method in the cultivation of applied talents.

### 3. Teaching theory: Multi-Modal Discourse Analysis Theory

Multi-modal discourse refers to a way in which human beings can communicate with the outside world through pictures, sounds and language, relying on various senses and other forms. The multi-modal discourse analysis theory was first proposed in the 1990s in the book *Reading Images: The Grammar of Visual Design* by Kress and Van Leeuwen. They explored the important role of marks in texts, and analyzed the phenomenon of transmitting information through pictures, sounds, and language. After that, the theory of multi-modal discourse analysis begins to be applied to the class teaching practice rather than just limited to the level of discourse analysis. In 1996, New London Group first put forward the pedagogy of "multiliteracies", and advocated the cultivation of students' multiliteracies ability. In 2000, Stain proposed the "multi-modal teaching method", believing that the communication, interaction and practice in the class are all forms of multi-modal learning. Multi-modal teaching method can be summarized as a teaching form in which teachers use language, image, action, sound and other symbolic resources combined to transfer knowledge, so as to stimulate students to acquire knowledge with their multiple senses. Compared with single-modal teaching forms, multi-modal teaching forms can make better use of the characteristics of multi-sensory cooperation to mobilize students' enthusiasm, improve their learning effect, and improve their comprehensive and diversified learning ability. Some studies have shown that the retention rate of learning memory using both senses at same time is much higher than that using a single sensory. From the test results of multi-modal influence, we can see that the learning efficiency only through a single sense is not very high, and the learning effect is even significantly reduced after a period of time. On the other hand, when multiple senses are mobilized at the same time, such as using audio and visual materials, the memory retention rate is about 88% after three hours of learning, and the memory retention rate is only slightly decreased after three days, at about 75%.

Many teaching strategies in multi-modal teaching can be realized through AR. Teaching mainly uses a variety of symbol resources created by AR platform to teach, which has a remarkable result. When using AR technology to assist teaching, teachers transmit teaching information through multisensory stimulation. The richer the forms of stimulation, the more likely it is to stimulate students' enthusiasm for learning and achieve targeted teaching effects. In the teaching of traditional Chinese instrument and music, teachers can add pictures, show live performance, give video and other ways to provide information in the construction of the platform for students to understand. The AR teaching platform integrating a variety of graphic information, it can fully mobilize students' various senses and strengthen their memory effect of the knowledge. Setting symbols and sound effects in the key and difficult points can also play an important role in

deepening students' impression of what they have learned. Task-based teaching and homework assignment relying on multimedia can fully improve students' practical application ability. Therefore, multi-modal theory has considerable guiding significance in the implementation of AR technology assisted teaching.

### 4. Construction of AR Technology-Assisted Teaching Platform

The platform design relies on the enterprise to design small programs to realize AR interaction. Through AI image recognition and OCR text recognition technology, all kinds of learning content are displayed and rich interactive content, audio and video resources are provided.



Figure 1. Platform usage display

In the process of students' independent learning, they can scan key pictures provided in the slide to obtain additional learning resources about traditional Chinese music. Use the knowledge resources of college students to enrich the children's cultural life, expand their vision. These actions will have a positive impact on their life attitude and other aspects of life, and at the same time play a certain significant role in guiding their outlook on life and values. It also enables students to acquire knowledge in the process of easy learning. The teaching platform will gradually permeate the importance and sense of responsibility of education into the consciousness of children and their parents, and further

influence the educational concept in the project area who uses the platform, so as to make it constantly update and progress. Let the children of the project areas feel the common mission of education is to make them become the outstanding talents needed by the society in the future, and this platform will may have more opportunity continue to pay attention to and promote the progress of China's education with greater energy.

The construction process of the platform is continuous. And now the platform continuously develops and builds the traditional Chinese culture learning resources, and effectively promotes the classes. The construction of the platform relies on college students 'volunteer teaching program, during holidays, it effectively advocating the spirit of volunteer and enhancing students' civic awareness, social responsibility and motivation for public welfare. Make full use of the publicity role of college student volunteers in school, call on the whole school students to join and unite. Inheriting splendid traditional Chinese culture can benefit more children.

This is also of great significance for promoting and deepening the construction of teachers in basic education. With access to the Internet, we can learn everything we want online. With the development of assisted learning platforms, we can continue to learn online and enjoy a variety of rich courses. Teachers should take the lead in lifelong learning. When more and more primary and secondary school teachers achieve professional growth and development through online classes, will strengthen teachers' partnership and learn each other's teaching methods. It has important and far-reaching significance for promoting and deepening the construction of basic education teachers.

The deepening and development of the assisted learning platform and the open content and mechanism of online teaching have actually created a new mode of co-construction and sharing of educational resources, which has important implications for the construction and innovative application of basic educational resources.

## 5. Conclusion

Based on the perspective of information, the teaching mode combining real class teaching and online classes. Integrate text teaching and music teaching, with complementary advantages, so that the teaching process can realize the

organic combination of "online" and "offline". It can also improve the teaching effect. AR interactive teaching, as an innovative teaching method integrating science and innovation, can help the multi-dimensional teaching of traditional Chinese culture and enhance students' interest in it. Students are not faced with monotonous musical scores, through AR technology, traditional culture is displayed through rich media content. Through the interaction with the model of 3D virtual instruments, students can better understand Chinese Musical Instruments and Chinese culture.

Language and culture are mutually influence. In the process of learning traditional Chinese music, students can feel the unique charm of traditional Chinese culture. Combining traditional culture with the teacher's explanation and integrating traditional Musical Instruments and AR technology into the class can not only innovate a new audio-visual teaching model, provide teachers with new ideas for education, but also establish an innovative teaching model with students as the centre. In addition, the model is close to life, and the active learning atmosphere can mobilize students' various senses, stimulate learners' strong interest and enthusiasm in learning Chinese culture, and improve learning efficiency. At the same time, learners constantly feel the charm of traditional Chinese culture in the process of music learning, and it also help to enhance the spread of excellent traditional Chinese culture.

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