

A Review on Virtual Reality Educational Tourism Modes in the Context of the Metaverse

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Abstract

The amount of research on educational tourism has increased in China in recent years, but there are few studies on educational tourism modes and the majority of the studies that are now conducted remain at the stage of theoretical design. Three aspects are the focus of the research on the VR educational tourism mode, namely application, strategy and practice mode. The metaverse is where VR educational tourism will eventually reach, but research on it is still in its infancy In China, and the pertinent studies primarily focus on the metaverse's growth trajectory. Foreign research on the metaverse, on the other hand, is more in-depth, concentrating on the nature, philosophical significance, and social influence of the metaverse. An in-depth investigation into the VR educational tourism mode, solving current issues, and extending research horizons will aid in advancing the innovation of the conventional educational tourism mode and the growth of high-quality education in China in line with the metaverse trend.

Keywords

Educational tourism; VR; Mode; Practice.

1. Introduction

Research and practice around educational tourism have drawn a lot of attention recently as a result of the advancement of VR and other metaverse technologies as well as China's reform of its basic education system. However, very little research has been done on the mode of educational tourism in China, and the majority of it is still at the stage of theoretical design. The existing research on the use of VR technology in educational tourism generally focuses on three aspects: exploiting and maintaining cultural resources, enhancing educational tourism curricula, and providing space for educational tourism. The tactics and usage patterns of VR technology in educational tourism have received little attention from researchers.

There hasn't been much research on study abroad programs in certain disciplines because the area of study abroad in Chinese academia started late and mostly focused on non-teaching fields. As a result, this essay primarily discusses two topics: the mode of educational tourism and the analysis of virtual reality educational tourism.

By reviewing the research on virtual reality educational tourism in the context of the metaverse, this paper aims to accomplish two goals: first, to draw Chinese scholars' attention to this issue and to lay the groundwork for improved research on Chinese virtual reality educational tourism by taking into account the issues and flaws in the research on Western virtual reality educational tourism; second, to draw on the research findings of Western virtual reality educational tourism. The Chinese virtual reality educational tourism mode is then improved

and refined to increase its innovativeness and scientific rigor, based on the research findings of the Western virtual reality educational tourism modes.

2. An Exploration on The Mode of Educational Tourism

Not much research has been done in China on modes of educational tourism, but it has received much attention in recent years. Theoretical research and practical applications have been carried out in universities and primary and secondary schools, resulting in a variety of modes suitable for teaching. The existing researches include Zhu Hongqiu's "three stages and four links" curriculum development and implementation mode of educational tourism practice education and "one centre and four ministries" curriculum organization and management mode of educational tourism practice education, with "centre" referring to the curriculum management service centre, and "four ministries" referring to the learning department, life department, behaviour department and activity department[1]. Some scholars have also developed software to apply mobile phone APPs to the practical education of educational tourism, focusing on building a mode for educational tourism based on geography[2]. It can be found that the research on the mode of practical education for educational tourism in China is mostly at the level of the theoretical design. This can be a good way to strengthen teachers' understanding of the theories and concepts related to the practical education of educational tourism.

By investigating the studies conducted abroad, it can be found that there are four main modes of travel practice: the forest based educational tourism mode, the experience mode, the cultural study mode, and the exchange learning mode. The forest based educational tourism mode takes the natural environment as an important teaching resource, advocates open education and values the effectiveness of the environment in nurturing people[3], and it is mainly carried out in Europe and the United States, Japan and Malaysia, etc.. The experience mode advocates contextual learning and practice in real life, emphasizing cross-cultural exchange to enhance cultural understanding, tolerance and communicative skills and broaden students' horizons[4]. It is not confined to higher education, with it gradually gaining importance at the basic education level. With a good social foundation, Asian countries have carried out a wide range of integrated research-based learning activities.

The literature review reveals that the current research on educational tourism is mainly conducted from theoretical and practical perspectives. The theoretical aspect mainly studies the connotation, base construction, product development and curricularization of educational tourism; the practical level sorts out a specific educational tourism case into a paper, or conducts a brief analysis and summary. Therefore, on the basis of the research on the integration of VR technology and practical education for educational tourism, this study summarizes and lists the Internet technologies that are applicable to the field of practical education for research trips based on the general background of a high-quality education system, and constructs an operational and universal integration mode.

3. Research on Virtual Reality Educational Tourism

A synthesis of the research literature reveals that research on VR technology and educational tourism focuses on three main aspects: applications, strategies and practice modes.

3.1. Research on the application of VR technology in educational tourism

Based on the existing problems in field research and the advantages of VR technology, the existing researches have advanced from multiple aspects, and put forward three application approaches: providing the choice space for educational tourism by using VR technology,

enriching the presentation form of research courses by applying VR technology, and effectively utilizing and protecting cultural resources by applying VR technology.

Firstly, VR technology can be applied to provide a space of choice for educational tourism. Existing research is based on the advantages of VR technology with the support of VR panoramic technology, so that people can be placed in a virtual situation and experience the environment or interactive activities in other places. Students can use VR panoramic mode to independently choose the content of their excursions in their educational tourism and conduct it on the cloud[5].

Secondly, by presenting the cultural resources in the form of stories, which makes the scenario reproduced, the curriculum of virtual red educational tourism which uses VR technology allows primary and secondary school students to immerse themselves in the whole process of historical events, deepen the memory of history, to achieve the multi-dimensional presentation form of "first-hand experience plus real communication"[6], which is in line with the characteristics of primary and secondary school students, and can enhance students' interest in the course of red educational tourism, thus improving the effectiveness of educational tourism.

Finally, some scholars believe that many of the cultural resources on which educational tourism is based have been tragically destroyed and are on the verge of disappearing through time and the uncivilized behavior of visitors. As the contradiction between the use of cultural resources and their preservation continues to intensify, VR technology provides an effective solution[7].

3.2. Research on the strategies for VR technology in educational tourism

The number of existing studies on strategies for VR educational tourism is not large, but they have all achieved a combination of theory and practice. For example, build a holistic structure by turning the whole into a piecemeal one, establish the path of educational tourism by linking elements to specific ones, and extend the tension of knowledge by focusing on the core. There are also more specific and practical ones such as teachers using panoramic filming equipment to complete the image data collection of the study scene according to the planned route and selected practice points; then, by applying Justeasy, WEB VR and other software, they complete the post-patching, processing and optimization of panoramic data, and add interactive information based on teaching content for the resources, add hotspots and voice interpretation functions to achieve the selection of panoramic and non-linear jumping and panoramic interactive. Finally, the application mode of VR panoramic resources in educational tourism activities is discussed.

3.3. Research on the practice mode of VR technology in educational tourism

There are many modes in the application of VR in research practice, which can be either the virtual research practice mode in the true sense or the research practice mode combined with field trips. In summary, there are roughly three types: VR virtual research practice mode, VR panorama research practice mode, and VR+ field research practice mode. VR virtual research practice mode builds a realistic virtual environment through three-dimensional modelling technology, so that students can immerse themselves in a variety of scenes which are abstract, complex, and difficult to experience before, intuitively feel all kinds of knowledge. VR panoramic research practice mode conducts real VR shooting of the research practice destination, and uses computers to reproduce the three-dimensional scenic environment, making students feel as if they are in the research destination thousands of miles away to carry out research[8]. VR+ field research practice mode combines VR technology with the research practice scenic spot. According to the characteristics of the field scenic spot, corresponding VR video content is produced as a supplement to the research scenic spot to further enrich the educational significance and enable students to get a more perfect and rich experience.

4. Research on the Metaverse

4.1. Domestic research

Regarding the metaverse, existing domestic researches hold different views, mostly from the perspectives of technical features and social applications, economy and finance, Internet, and philosophy. From the perspective of the Internet, Shen Yang believed that the metaverse is a three-dimensional next-generation Internet, whose interactive interface is mainly realized through technologies such as AR (augmented reality), VR (virtual reality) and brain-computer interface[9]. Zhang Jichun and other scholars analyzed the development trend of the metaverse in depth, pointing out that the metaverse is a virtual world that is mapped and interacted with the real world by using technological means to link and create, and is a digital living space with a new social system. They further proposed that the metaverse is a deep integration of the virtual world and the real world, a deep integration of digital technology and real industry, and a deep integration of artificial intelligence and human wisdom[10], providing a theoretical basis for this study to investigate the trend of metaverse to carry out VR educational tourism modes.

4.2. Foreign research

The foreign influence on the metaverse is a little more in-depth, mainly in terms of the nature of the metaverse, its philosophical connotations, and social implications. The founder of Facebook (later renamed "Meta"), Mark Zuckerberg, explains the "metaverse" as follows: "You can think about the metaverse as an embodied internet – where instead of just viewing content – you are in it. You feel like you're staying with other people and getting a different experience. This is something you can't experience in 2D flat apps or web pages, such as dancing or various fitness programs." [11]. According to Ruizhi Cheng and others, the metaverse is the next generation of the internet, where users of XR devices can access and participate in its various social activities, freely create their own content through 3D modelling, and transact by using NFTs through a decentralised blockchain. Physical objects can be presented as digital twins in a metaverse and used with artificial intelligence-assisted VR devices[12]. John David N. Dionisio et al. argued that a metaverse is an integrated network that transfers from a set of separate virtual worlds to a 3D virtual world: it combines immersive realism, the universality of access and identity, interoperability and scalability[13].

From the point of view of Chinese and foreign scholars, domestic research tends to study the connotation and influence of the metaverse, focusing on the "human" factor and interpreting the metaverse in terms of its impact on the productive life of human society; while foreign research tends to study the technical realization of the metaverse and its technical characteristics, interpreting it in terms of its applicability. The complementarity of Chinese and Western thinking is then reflected. The view that the metaverse is a new form of the Internet appears more frequently in the reviews, and it is generally agreed that the metaverse has both positive and negative implications. At the same time, existing research has already addressed the use of VR technology in various fields in the context of the metaverse trend. The survey team seized on this gap in existing research to propose innovative ideas to examine the relationship between VR technology and educational tourism from the new perspective of the metaverse, making the findings more innovative, scientific and persuasive.

5. Review of the Literature

On the whole, although China's research on educational tourism started late, it has developed rapidly in recent years and is in the exploratory stage of vigorous development. With the proposal of China's goal of "fostering virtue" and the introduction of the document on promoting educational tourism in 2013, more and more scholars have begun to focus on educational tourism and have made certain achievements both theoretically and practically.

Experience has also been gained in organizing practical exploration of educational tourism in some secondary schools. A comprehensive study of the literature reveals that research on VR technology and educational tourism has focused on three main aspects: applications, strategies and practice modes.

Based on the existing problems in field research and the advantages of VR technology, the research on the application of VR technology in educational tourism has advanced from multiple aspects. They put forward three application approaches: providing the choice space for educational tourism by using VR technology, enriching the presentation form of research courses by applying VR technology, and effectively utilizing and protecting cultural resources by applying VR technology. Firstly, based on the advantages of VR technology with the support of VR panoramic technology, the existing research allows people to be placed in a virtual situation and experience the environment or interactive activities in other places[5]. Secondly, the curriculum of virtual red educational tourism which uses VR technology presents the cultural resources in the form of stories, which makes the scenario reproduced, so that primary and secondary school students can immerse themselves in the whole process of historical events, to achieve the multi-dimensional presentation form of "first-hand experience plus real communication"[6], which can improve the effectiveness of educational tourism. Finally, some scholars believe that many of the cultural resources on which educational tourism are based have been tragically destroyed and are on the verge of disappearing. As the contradiction between the use of cultural resources and their preservation continues to intensify, VR technology provides an effective solution[7].

The number of existing studies on strategies for VR educational tourism is not large, but they have all achieved a combination of theory and practice. For example, build a holistic structure by turning the whole into a piecemeal one, establish the path of educational tourism by linking elements to specific ones, and extend the tension of knowledge by focusing on the core. There are also more specific and practical ones such as teachers using panoramic filming equipment to complete the image data collection of the study scene according to the planned route and selected practice points; then, by applying Justeasy, WEB VR and other software, they complete the post-patching, processing and optimisation of panoramic data, and add interactive information based on teaching content for the resources, add hotspots and voice interpretation functions to achieve the selection of panoramic and non-linear jumping and panoramic interactive. Finally, the application mode of VR panoramic resources in educational tourism activities is discussed.

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But whether it is educational tourism or its application in teaching, there are always a number of contradictions that need to be resolved at the beginning of the development: Firstly, domestic academic research on educational tourism started relatively late and is mostly focused on non-

pedagogical areas, with not much research exploring educational tourism in the teaching of specific subjects. Secondly, the traditional educational tourism mode relies too much on tours and has high demands on time and space as well as human and material resources, making it impossible to conduct a large number and scale of educational tourism in the era of the new epidemic. Finally, the technical development of educational tourism has not kept pace with the times, but still, it follows a more traditional and old-fashioned approach without combining cutting-edge technology for innovation, which fails to meet the requirements of a high-quality education system and still requires further summary and in-depth research on the basis of previous studies.

As a new research field that enhances the comprehensive quality of individuals and practices the cultivation of people, domestic research on educational tourism has a tendency to develop from the popularization of concepts to the diversification of research fields and the development of research thinking from singularity to synthesis. In response to the problems that exist in current research on educational tourism, there is a need to continually broaden the research field and improve the basic theoretical system of educational tourism, such as the follow-up and deepening research on the policies of educational tourism, research on the construction of the curriculum of educational tourism, research on the professionalism of teachers guiding educational tourism, and research on the education of patriotic values in educational tourism. At the same time, research on educational tourism also requires the adoption of interdisciplinary research perspectives, theories and methods, integrating theories from multiple disciplines such as sociology, geography, tourism, education and information technology in the "Internet+" era to conduct rigorous empirical analyses of the phenomena that occur in educational tourism. Finally, scholars must also select high-quality cases based on the results of existing theoretical and practical explorations, summarize successful experiences in a timely manner, refine the development and implementation modes of educational tourism courses, and form research results that promote both theoretical construction and practical reference. In short, the vast research space and the grand background system of the metaverse require scholars to continue to explore educational tourism in greater depth with a broader research horizon and solid academic skills.

6. Concluding Remarks

Educational tourism's practical instruction is extremely important for promoting the revision of the national basic education curriculum. There are numerous areas that need improvement and refinement in the current research on the practical education provided by educational tourism, which is still in its infancy.

According to theory, enhancing research on the practical education provided by study abroad programs can support China's educational system's transition from an examination-based system to one that emphasizes quality education. From the perspective of school administration, the growth of practical education on educational tourism promotes the creation of unique school-based curricula in schools across the globe, taking into account the local context, encouraging the creation and use of curriculum resources, and also facilitating the innovation of school administration philosophy. Virtual reality (VR), the metaverse era's primary technology, offers a great number of opportunities for research on how to best utilize the educational tourism approach.

It is expected that future research on the educational tourism mode in the context of the metaverse will be more systematic, and as the VR educational tourism mode system continues to advance, related research will transform from being dispersed to being specialized and comprehensive. Practically speaking, China has proposed new standards for developing a high-

quality education system, and it is crucial to conduct educational tourism-related research and practice in order to support the growth of quality education.

The advancement of VR technology is also helpful in creating a new framework for practical education for educational tourism, as well as in further examining and researching a variety of topics like government, education, teachers, and students, as well as deeply comprehending the educational tourism conducted all across China. It will contribute to the further improvement and development of the VR educational tourism mode and offer novel suggestions and tactics for the use of educational tourism practical education.

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