On the Application Value of Virtual Reality Technology in Earth Science Work

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Abstract: In recent years, with the continuous improvement and optimization of the level of science and technology, Virtual Reality (VR) technology has been widely used in our society and has received great attention from the people. Generally speaking, as one of the new science and technology, this technology can realize the reasonable simulation and reconstruction of reality by means of information technology, which is of great significance and value to the optimization of audience’s sensory experience. In the process of geoscience research, with the unremitting efforts of researchers, VR technology is combined with geoscience research, thus laying a solid foundation and guarantee for the promotion and optimization of the comprehensive level of geoscience research in China. In this study, the researchers systematically analyzed and discussed the application value and specific application of VR technology in geoscience research work, aiming to lay a solid foundation and guarantee for the promotion and optimization of the comprehensive level of geoscience research work in China.

Keywords: Earth Science; Virtual Reality Technology; Application Value; Integration; Practical Significance

Research shows that in recent years, with the continuous improvement and optimization of science and technology, virtual reality technology has been widely used in social life and achieved good social repercussions. On this issue, a large number of studies show that in the process of earth science research, through the rational application of virtual reality technology, researchers can further realize the construction of earth science knowledge model, which has a good promotion significance for the development of research work[1]. Based on this, in order to further improve and optimize the comprehensive level of China’s geoscience research, relevant staff should effectively and reasonably analyze and consider virtual reality technology, so as to lay a good foundation and guarantee for improving and optimizing the quality of China’s geoscience research.

1. Overview of virtual reality technology

In general, as one of the new technical forms, virtual reality technology can effectively simulate the reality mainly through the rational application of network technology, so as to ensure that users can further realize the effective observation of relevant target objects and have a good impetus to the development of scientific research work[2]. Compared with the traditional technology mode, the virtual reality technology is characterized by the fact that through the application of related technologies, users can reproduce the target scene more realistically, which
has a good promotion value for the protection of users’ sensory experience. At the same time, in the application process, virtual reality technology can provide a good immersive experience for the experiencer, which is of great significance and value for improving and optimizing the intuitive feeling of the user.

2. The application value of virtual reality technology in earth science work

2.1 The realization of the establishment of research models

From the perspective of research work, through the rational application of virtual reality technology, researchers can effectively realize the establishment and improvement of the earth science knowledge model, so as to reshape the related research objects more comprehensively, which has good promotion significance and value for the further development and deepening of research work. On this issue, a large number of research practices show that based on the construction of research work model, researchers can effectively deepen the research content of earth science, and have a good role in promoting the development of follow-up research work. At the same time, in the research process, through the introduction of virtual reality technology, researchers can reasonably simulate relevant models according to different needs, which has good significance and value for improving and optimizing the comprehensive level of research work.

2.2 Providing guidance for urban planning

In urban planning, through the establishment of virtual reality model, researchers can better realize the effective display of urban planning content, thus making a reasonable analysis of the shortcomings in the planning process, which is very important for the orderly development of research work. At the same time, a large number of studies have pointed out that with the assistance of virtual reality technology, the level of urban planning has been significantly improved, and then the scientific nature of urban planning has been improved, which has laid a good foundation for the development of comprehensive quality of urban planning in China. In addition, in the process of urban planning, through the application of virtual reality technology, designers can better realize the rational expression of planning effect, which can promote the timely discovery and rational solution of related problems in planning and design.

2.3 Helping the public better understand the earth

For the audience, through the rational application of virtual reality technology, the audience can better realize the effective analysis and exploration of related content, which has positive significance and value for improving the comprehensive level of research work\(^3\). After a lot of analysis, the researchers said that in daily research work, through the rational application of virtual reality technology, the audience can better feel the superiority brought by virtual reality technology, so as to realize the intuitive understanding and mastery of earth science knowledge, which has a good promotion significance for the development of earth science knowledge in the public. At the same time, through the intervention of virtual reality technology, the audience can better feel the interest of geographical science knowledge, which has positive promotion value for the effective popularization of related knowledge.

3. The application of virtual reality technology in earth science work

3.1 The application in geographical science research

In the process of geographical science research, through the rational application of virtual reality technology, researchers can further realize the simulation of the geogeographical tectonic environment, thus effectively realizing the intuitive understanding and understanding of the geogeological tectonic environment, which is of great significance for the orderly development of subsequent research work\(^4\). At the same time, with the help of virtual reality technology, researchers can effectively analyze the geological content, thus promoting the development and implementation of urban construction planning, which is of great significance to the improvement of urban construction level.

3.2 Application in geophysical research

In the process of geophysical research, through the
rational application of virtual reality technology, researchers can effectively realize the systematic analysis and visual observation of relevant seismic data, and further realize the reasonable simulation and presentation of seismic wave seismic range and influence, which has good promotion value for the deepening of seismic research work. At the same time, through the application of virtual reality technology, researchers can systematically analyze and explain the stratigraphic structure, which is of great significance and value for the effective exploration of mineral deposits. At the same time, based on virtual reality technology, researchers can also effectively realize the three-dimensional visualization transformation of seismic resources, which is of positive significance for improving the prediction quality.

3.3 Application in atmospheric scientific research

In the process of atmospheric science research, through the application of virtual reality technology, researchers can use satellite technology to effectively realize the reconstruction of satellite cloud images, so as to deeply analyze and explore the global atmospheric flow, and lay a good foundation and guarantee for the development of atmospheric science research\(^\text{[5]}\). At the same time, in the aspect of dust research, through the application of virtual reality technology, researchers can deeply explore the meteorological diffusion and flow of dust, so as to realize the effective discovery and progress of dust research. In addition, the researchers said that with the reasonable assistance of relevant technologies, the researchers can better realize the full cognition of dust diffusion under different wind speeds and airflow conditions, which is of good promotion significance to the improvement of the comprehensive level of research work.

3.4 Application in marine scientific research

In the field of marine scientific research, through the rational application of related technologies, researchers can further realize the systematic analysis and exploration of tidal conditions and ocean currents, thus providing guarantee for the effective and in-depth marine research work\(^\text{[6]}\). Taking the Yellow Sea of China as an example, through the application of virtual reality technology, researchers can effectively analyze the current situation in the Yellow Sea, thus helping researchers to further realize effective guidance for marine pollution control, and playing a good role in promoting the development and effective deepening of marine protection. In addition, based on virtual reality technology, researchers can effectively explore the ocean currents reasonably, and it is of great significance for further deepening the research work, and is conducive to improving the research level.

3.5 Application in environmental science research

In the process of environmental management, through the rational application of virtual reality technology, researchers can effectively simulate the monitoring of environmental problems, so as to better realize the effective discovery and timely response of potential safety hazards in environmental problems, which is of great significance and value for the promotion and improvement of China’s environmental management and control level\(^\text{[7]}\). At the same time, researchers said that in the process of environmental science research, through the effective intervention of virtual reality technology, researchers can implement and simulate relevant environmental improvement strategies without destroying the real environment, thus providing a good guarantee for the promotion and optimization of relevant strategies.

4. Conclusion

From the development point of view, with the continuous improvement and optimization of social development level, virtual reality technology has gradually become one of the important components of our people’s social life. Based on this, in order to effectively improve and optimize the level of research work in earth science research, researchers should effectively analyze and effectively explore virtual reality technology, so as to reasonably promote the application of virtual technology in earth science research. To realize the effective combination and deepening of virtual reality technology and earth science research work, so as to provide powerful assistance for further deepening and effective improvement of earth science research work.

References