

Key words: Accessibility - User Behavior - User Experience - Innovation - Interaction - Usability.

Resumen: Esta presentación tiene como objetivo mostrar la influencia que la Metodología de Diseño de Materiales, desarrollada por Google, puede tener en la usabilidad y funcionalidades de un proyecto de Innovación Social. El proyecto en cuestión es una aplicación desarrollada para ayudar a las mujeres víctimas de violencia en la ciudad de Río de Janeiro, llamada *Mujeres Unidas*. La presentación de los resultados impacta directamente la visión de esta nueva Metodología y su difusión. Es notorio cómo su contenido puede enriquecer los productos digitales y ayudar en la interacción entre usuarios y pantallas.

Palabras clave: Accesibilidad - Comportamiento del usuario - Experiencia de usuario - Innovación - Interacción - Usabilidad.

(*) Vitória Basile Bacharelado em Comunicação Visual Design pela Universidade Federal do Rio de Janeiro. A instituição oferece uma didática multidisciplinar que me permitem ter uma visão mais humanizada exercendo minha profissão. Iniciei minha carreira profissional no Centro Cultural Justiça Federal desenvolvendo materiais gráficos e montando exposições. Após alguns anos, pude trabalhar na ADC Concursos, onde tive meu primeiro contato com o Marketing Digital, e pude descobrir essa nova paixão. Hoje trabalho na Sellbie como Assistente de UX, auxiliando em novas funcionalidades para sistemas de tecnologia de empresas de varejo. Exerço Freelances desde 2014, normalmente ligados as áreas de Social Media e Web.

Application Research on Teaching Model of Virtual Reality Technology

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Xin Hu (*)

Abstract: Since the beginning of the 21st century, the advancement of wireless communication technology has made the field of virtual reality applications more and more extensive, bringing new vitality to traditional education. This article studies how to use the advancement of VR technology to break through the original teaching mode, combine the teaching features of primary and middle schools with VR technology, and proposes to focus on the classroom in the digital ecosystem and create multiple learning modes to stimulate and improve student learning. The role of interest and effect explores the future development of VR teaching research.

Keywords: VR courses – interaction – immersion – participation – creation.

[Resúmenes en español y portugués y currículum en p. 375]

1. Background introduction

The traditional classroom teaching mode is a teacher-centered, book-centered and classroom-centered teaching mode. Such an education model often forms a situation where the teacher instills one-way and the students passively accept. Normally, when a teacher is giving a lecture, the information transmitted is in the form of text and pictures. But for some complicated situations, such as a tricky geometric problem, or the motion analysis of several celestial bodies, it is difficult to express clearly in words. This is inconsistent with the requirements of modern society for talent training. This model cannot bear the burden of training high-quality creative talents. Therefore, it is imperative to change the traditional teaching model and create an efficient classroom model that meets the requirements of the new curriculum reform. The three-dimensional rendering of VR can tell us the answer very simply. We can intuitively feel the parts

that the text can't express, and understand each detail of the problem more clearly. When we encounter similar problems in the future, we will naturally infer the answer. VR has become a standard tool in the field of education and will change the way students are taught in basic education and higher education.

2.VR course and features

Virtual reality (Virtual Reality, VR) represents all non-realistic virtual scenes. The application of it in the field of education indicates that the teaching and guidance will undergo a structural shift to immersive content. Provide innovative teaching skills training for teachers using VR education products, create an immersive learning environment for school subject teaching, provide free and flexible teaching methods, stimulate students'

curiosity, increase understanding of subject knowledge, and increase learning interest and learning effect.

Immersion, interaction, and participation of the three characteristics of VR technology make the teaching of teachers and the learning of students perfectly combined in the new digital ecosystem. Students experience and interact with objects in the virtual environment in a natural way.

3.VR course application

The most direct change of VR virtual reality into the classroom is to change the static textbook content into a 360° three-dimensional dynamic scene. The VR interactive classroom can meet the requirements of teaching contextualization and natural interactivity.

Although VR teaching has many benefits, it is currently not applicable to all disciplines. For very abstract concepts, it is more difficult to express in VR. Because VR has a very strong sense of immersion, for example, in the application of biology teaching, we can enter the interior of the cell through VR and see the structure of DNA, which is very vivid. In the teaching application of astronomy and geography, it tells us the form of the universe, the composition of the Milky Way, the appearance of the earth, etc. through text and pictures. Many times we need to have full imagination. However, using VR teaching, students can more intuitively observe the universe, the Milky Way, the earth, the topography, etc., and establish a more intuitive experience, so as to more vivid and profound learning related knowledge, and also increase the interest of learning. In engineering disciplines such as physics and biochemistry, applying VR teaching to change planes to dynamics and theories to practice is more conducive to students' understanding of related physical concepts and understanding of the operating principles.

4.VR course digital ecosystem

The three-dimensional virtual teaching environment developed with virtual technology can create a realistic learning environment. Through visual and auditory sensory stimulation, students can be immersed in the environment and simulate learning with virtual characters in virtual situations. Learners interact and participate in real time in a three-dimensional learning environment. The VR teaching digital ecosystem is interactive, immersive, and creative.

Using the interactive smart tablet as the core device, combined with other related peripheral products, enhances the teaching display effect, enriches the teaching display methods, allows students to participate in the classroom, and truly realize the interactive classroom. The classroom is no longer a one-way knowledge transfer from teachers, but a two-way interactive feedback between teachers and students. With the interactive smart tablet, the teacher can display the multimedia courseware

content and explain on the blackboard at the same time; you can use the mobile teaching terminal to remotely control the smart tablet, upload the student work photos to the smart tablet and comment; you can use the video booth to send the student test papers and homework Pass to the interactive smart tablet for explanation; the teacher can also score student behavior, initiate activities such as check-in, single-choice questions, multiple-choice questions, replies, and lotteries. Students participate in a timely manner through the feedback device to make the classroom more efficient. Teachers can understand the status of all students in the VR classroom in real time on the teacher's side, control the teaching process in a unified manner, and understand the students' listening status and interactive answers at any time.

5.Discussion

The VR teaching model has broken the traditional one-way teaching model. The use of VR technology will inevitably bring about subversive changes in classroom teaching methods. For teachers, how to use VR to lead students' attention, grasp the classroom rhythm and improve classroom efficiency still needs further experience. accumulation. VR teaching can combine various methods such as situational learning, collaborative learning, game learning, and online education to effectively solve many educational problems that could not be solved before, help stimulate students' interest in active learning, and make education truly entertaining

The application of VR technology is to strengthen the teaching effect and improve the teaching efficiency, but it is only a means to achieve our teaching purpose. With the advancement of technology, the VR teaching mode will combine a variety of interactive teaching tools to achieve two-way efficient interactive teaching.

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Resumen: Desde principios del siglo XXI, el avance de la tecnología de comunicación inalámbrica ha hecho que el campo de las aplicaciones de realidad virtual sea cada vez más amplio, aportando una nueva vitalidad a la educación tradicional. Este artículo estudia cómo utilizar el avance de la tecnología de RV para romper con el modo de enseñanza original, combinar las características de enseñanza de las escuelas primarias y medias con la tecnología de RV, y propone centrarse en el aula en el ecosistema digital y crear múltiples modos de aprendizaje para estimular y mejorar el aprendizaje de los alumnos. El papel del interés y el efecto explora el desarrollo futuro de la investigación de la enseñanza de la RV.

Palabras clave: Cursos de RV - interacción - inmersión - participación - creación.

Resumo: Desde o início do século XXI, o avanço da tecnologia de comunicação sem fio tornou o campo das aplicações da realidade virtual cada vez mais extenso, trazendo uma nova vitalidade à educação tradicional. Este artigo estuda como usar o avanço da tecnologia VR para romper o modo de ensino original, combinar as características de ensino das escolas primárias e médias com a tecnologia VR, e propõe focar na sala de aula no ecossistema digital e criar múltiplos modos de aprendizagem para estimular e melhorar o aprendizado dos alunos. O papel de interesse e efeito explora o desenvolvimento futuro da pesquisa didática da RV.

Palavras chave: Cursos de RV - interação - imersão - participação - criação.

(* **Xin Hu:** 2001: Jilin Art Institute in China (Bachelor of Arts). 2010: Tsinghua University in China (Master of Arts) MFA. 2018~now: PhD, Department of Smart Experience Design, TED, Kookmin University, Korea- 2001-2003: Law Press, art editor- 2003~2016: Director, Design Department, Beijing Tiandi Cultural Development Center- 2016~2017: Director of Zhongtang Technology Co., Ltd. Interests: service design, museum research, VR teaching system