Chapter 12
Using 3D Virtual Reality Technology in Cyber Ethics Education:
How Can We Really Evaluate and Change Students' Attitudes?

Toshiki Matsuda
Tokyo Institute of Technology, Japan

Hiroshi Nakayama
Tokyo Denki University, Japan

Kazue Tamada
Edogawa University, Japan

EXECUTIVE SUMMARY

In this chapter, the authors introduce the e-learning material that they developed using Three-Dimensional Virtual Reality (3D-VR) technology in cyber ethics education. They propose a new instructional method that teaches students to use three types of knowledge in their analyses of moral judgment problems: knowledge of ethical codes, ICT, and rational judgment. They also verify that this method is more effective than the conventional method. In addition, the authors developed e-learning material that provides students with analytical problems and feedback according to their ability to understand ethical codes. Reality and authenticity are key to learning for every student. To inculcate a sense of seriousness toward the problems in e-learning material, the authors devised various dialog methods and built an effective instructional design model, such as the three-way interaction model.

INTRODUCTION

Cyber Ethics Education in Japan and USA

Currently, many countries highlight the necessity of informatics education. For example, the Programme for International Student Assessment (PISA) investigation of the Organisation for Economic Co-Operation and Development (2009) assesses students' ability to utilize Information and Communication Technology (ICT) in problem solving. Moreover, the Partnership for 21st Century Skills (2009), in participation with the US Department of Education, promotes information, media, and technology skills that students should master in order to succeed in work and life in the 21st century.

As part of the process of change this implies, it is important that students be taught how to ensure their own safety and that of others when they utilize ICT systems. In Japan, this sort of education is called "information moral education," defined by the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) as "education to cultivate the basic ways of thinking and attitude to perform adequate judgments in an information-oriented society" (Minister of Education, Science, Sports, and Culture, 2000). To expedite this skill, MEXT and associated institutions have conducted many projects that aim to develop and supply instructional materials and curricula (Center for Educational Computing, 2000; National Center for Teachers' Development, 2005; Japan Association for Promotion of Educational Technology, 2007). However, because they are still mostly committed to a method of education that explains various examples students may encounter when using ICT and instills many rules in the form of "Take care not to..." or "Don't...," they do not give priority to teaching this "way of thinking."

In other countries, similar forms of education are referred to as "information ethics/safety education" or "cyber ethics/safety education" (Tavani, 1999). This education is generally conducted as part of "digital citizenship" education (International Society for Technology in Education, 2007), including "making students thoroughly observe contracts," "making students discuss how to cope with ethical dilemmas after searching for problems related to information ethics/safety on the Internet," and "introducing many cases" (United Nations Educational, Scientific, and Cultural Organization, 1994; American Association of School Librarians and the Association for Educational Communications and Technology, 1998). Ribble and Bailey (2007) argue that the key concerns of digital citizenship can be classified into nine topics: digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital law, digital rights and responsibilities, digital health and wellness, and digital security (self-protection). Moreover, Ribble and Bailey

19 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/using-virtual-reality-technology-cyber/74414

Related Content

Fuzzy Methods in Data Mining
Eyke Hüllermeier (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 907-912).*
www.irma-international.org/chapter/fuzzy-methods-data-mining/10928

Physical Data Warehousing Design
Ladjel Bellatrecheand Mukesh Mohania (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1546-1551).*
www.irma-international.org/chapter/physical-data-warehousing-design/11025

Biological Image Analysis via Matrix Approximation
Jieping Ye, Ravi Janardanand Sudhir Kumar (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 166-170).*
www.irma-international.org/chapter/biological-image-analysis-via-matrix/10815

Outlier Detection Techniques for Data Mining
Fabrizio Angiulli (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1483-1488).*
www.irma-international.org/chapter/outlier-detection-techniques-data-mining/11016

"I Would Like Other People to See His Stories Because He Was Woke!": Literacies Across Difference in the Digital Dialogue Project
Julie Rustand Sarah Alford Ballard (2020). *Participatory Literacy Practices for P-12 Classrooms in the Digital Age (pp. 115-138).*
www.irma-international.org/chapter/i-would-like-other-people-to-see-his-stories-because-he-was-woke/237417