Accepted Manuscript

An Examination of Interactions in a Three-Dimensional Virtual World

Rabia M. Yilmaz, Ozlem Baydas, Turkan Karakus, Yuksel Goktas

PII: S0360-1315(15)00130-X

DOI: 10.1016/j.compedu.2015.06.002

Reference: CAE 2860

To appear in: *Computers & Education*

Received Date: 10 December 2014

Revised Date: 4 June 2015

Accepted Date: 8 June 2015

Please cite this article as: Yilmaz R.M., Baydas O., Karakus T. & Goktas Y., An Examination of Interactions in a Three-Dimensional Virtual World, *Computers & Education* (2015), doi: 10.1016/j.compedu.2015.06.002.

An Examination of Interactions in a Three-Dimensional Virtual World

Rabia M. YILMAZ[a]*, Ozlem BAYDAS[b], Turkan KARAKUS[a], Yuksel GOKTAS[a]

[a]Department of Computer Education & Instructional Technology
Ataturk University, 25240, Erzurum, Turkey
E-mail: rkufrevi@atauni.edu.tr; rabia.kufrevi@gmail.com;
ozlembaydas@hotmail.com; turkan.karakus@gmail.com; yuksel.goktas@hotmail.com

[b]Department of Computer Education & Instructional Technology
Giresun University, 28000, Giresun, Turkey
E-mail: ozlembaydas@hotmail.com

*Corresponding Author**.** E-mail: rkufrevi@atauni.edu.tr; rabia.kufrevi@gmail.com;
Phone: 90-442 231 40 47

Abstract

Three-dimensional (3D) virtual worlds hold the users' attention by providing rich interaction in an environment similar to the real world. User engagement duration is known to increase in environments with intense interaction. However, information in the literature about whether gender, experience, or spatial ability affects interaction in these environments is limited. In this study, these three factors are compared to users' depth of interaction in a 3D virtual world. In addition, the relationships between engagement duration, spatial ability, and depth of interaction are examined to investigate whether the first two factors can predict the third. Findings showed that users' depth of interaction was not influenced by gender, but experience and spatial ability did affect interaction. A strong relationship was determined between depth of interaction and engagement duration, and a moderate relationship was found between depth of interaction and spatial ability. Findings indicated that, when designing 3D environments, it is important to consider which kind of activities provide more interaction, in what extend spatial abilities has an effect on interaction and to prepare activities that will increase engagement duration, and to devise strategies to enhance depth of interaction.

Keywords: Interactive learning environments; media in education; virtual reality.