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Utilization of Virtual Reality in Education of Employees in Slovakia

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Abstract

Information and communication technology (ICT) enriched learning in many ways and made the knowledge of the society accessible to everyone at any time and everywhere through the Internet. Learning represents a life-long ongoing activity that allows innovation of processes by establishing new ways of execution in organizations. By introducing dynamics and interactivity, education and acquisition of new knowledge became more attractive. Virtual reality (VR) enables dynamic forms of learning by creating artefacts in virtual environment with activities triggered by learner's interaction. This paper analyzes current state of VR applications in education of employees in various economy sectors in Slovak Republic based on conducted survey.

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Keywords: Virtual reality (VR); innovation in education; learning by doing;

1. Introduction

Information and communication technology (ICT) changed the known way of living beyond recognition. New discoveries and innovative approaches of processing enabled to invent new methods and procedures for executing various activities. It bolstered the productivity¹ and uncovered new opportunities.

By storing immense volumes of data, it allowed capturing and collecting knowledge of human society much faster than it was possible ever before. At the same time, through ubiquitous internet connectivity, flexible mobility and affordability provided by the omnipresent mobile wireless telecommunication networks, the content stored became accessible anytime everywhere through the Internet. Knowledge and know-how in diverse fields are spread over the world enhancing possibilities of education and enriching learning with new procedures, systems and activities. ICT

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has the potential to increase equitable access to quality learning that is essential for development of skills². The widespread ICT improves active participation³ of individuals by introducing dynamics and interactivity. The education became more attractive to learners through increased motivation stemming from reactive response and gaming influence during learning⁴. The highest interactivity provided by ICT denote virtual reality (VR) and augmented reality (AR) that are simulating the physical reality in virtual environment. Just like in the surrounding physical real world, individuals can interact with artifacts and train their skills and abilities. Learning in VR enables simulating of various situations that may be not attainable otherwise due to danger, high costs, etc. Such situations can be simulated multiple times and trainees can learn by doing. Furthermore, they can learn from their mistakes also by watching the record of their performance afterwards. This all without no additional risk to their health e.g. in cases of simulating natural catastrophes, emergency behavior and health issues.

VR allows training of individuals in new processes in business organizations where the availability of skills has become the key to achieving innovation⁵ and assurance of sustainable successful existence of business entities⁶. Virtual reality allows creating situations that are impossible or hard to simulate in real world and provide motivation for individuals to learn topics that would not be in their focus otherwise⁷ and developing their skills. The application and importance of VR for educational purposes is increasing also in business organizations to train their workers in environment that is close to real conditions present in their future workplace. However, some economy sectors may be more or less suitable for the implementation of VR in educational processes due various reasons e.g. continuously changing regulations in law system or accounting working with numbers. For other industries, VR has been becoming a substantial part of learning, e.g. flying trainings of pilots, simulating surgical interventions in chirurgery, remote control of robots or in production and assembling⁸. Thus, economy sectors like production, machinery, health or aerial transportation are suitable to apply VR in their education. Other sectors like financial or judicial sectors provide more e-learning or lecture based learning. The reasons seem to lie in the immense number of retrained individuals, the high speed of changing products with short product life cycles or continuously alternating legislative conditions. Thus, economy sectors as finance and legislation may represent fields that are less suitable for implementation of VR in educational processes.

This paper aims to analyze current state of practiced methods for educating employees with focus on utilizing VR in Slovak Republic. The research was conducted in form of a survey to create overview of used formal and informal learning methods as well as to identify perceived drawbacks and insufficiency of currently practiced methods that may be suitable for application of VR based learning.

This paper is organized as follows: Section 2 describes used methodology and sample of conducted research. Section 3 provides research findings overview describing currently applied learning methods in various industries based on survey results followed by a discussion in section 4. Conclusion summarizes research outcomes and outlines possible areas of future research.

2. Methodology and sample

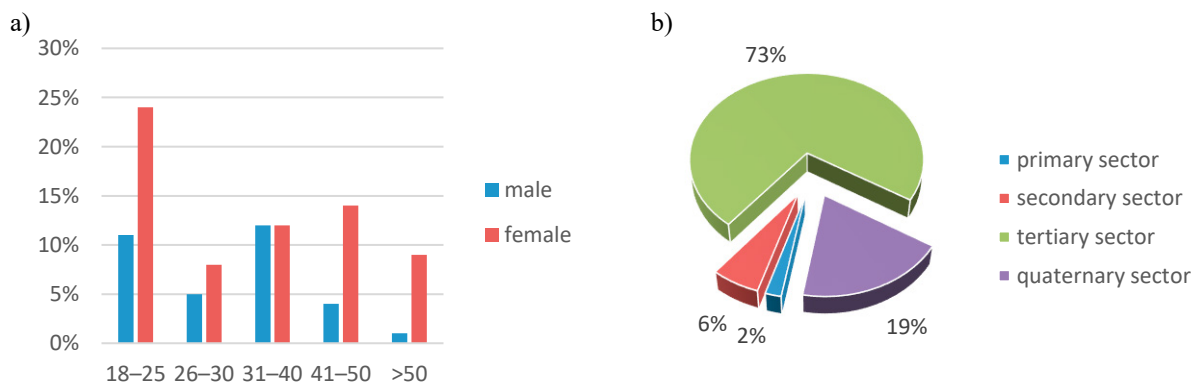


Fig. 1. (a) Sample by gender and age; (b) Sample by economy sectors.

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