

Chapter 22

Serious Games in Speech Therapy

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ABSTRACT

Technological development will shed new light upon teaching methodologies, and psychologists, pedagogical experts, and computer experts will have to closely collaborate in order to produce a ready-made tool to be used in the future teaching practice. The educational system intensively uses ICT devices and programs, as their use can change the perspective on the educational policy. In Romania, the psychopedagogical studies and experiments contributed to the improvement of the therapeutic progress of the persons with special educational needs. This chapter aims to analyze the way in which serious games can be used in education and see how they can become useful tools in speech therapy. The conclusion of this chapter is that, like many other computer applications, serious games can be tools that complement, often with remarkable results, the therapy.

INTRODUCTION

The educational system is one of the areas that benefit intensively from computer technologies. These new technologies change the perspective on educational practice. Informatics is clearly the future in the field of education, which leads to redefining the role of the teacher in the education context. The teacher is no longer the sole source of information; his/ her mission is to facilitate

the learning process by selecting and presenting information as diversified as possible, promoting also the most efficient ways for students to process this information.

A series of studies conducted in the country and abroad show that the use of computer techniques lead to a new psychological and pedagogical situation as a result of the special environment created, catching attention by means of screen light intensity, coding the audio-visual message as substitutes of reality. Modern computer techniques dispose of perception methods that are superior to

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traditional teaching techniques, since they contain richer and better selected data, information, phenomena, objects etc., which can be reproduced in their natural environment and dynamics.

Recent technologies and devices, allowing for the acquisition, detection, tracking and recognition of motion, gestures, speech or touch, are getting more and more available for children of all ages, starting with the very young ones. Interface design represents a considerable challenge and extra requirements must also be taken into consideration in children-oriented interfaces (Danubianu, M, Tobolcea, I., & Pentiuc, St., Gh., 2010). Their aim is to develop motor and psychological skills, various types of intelligence, encourage discovery, sharing and working in a collaborative manner, as well as target specific educational tasks.

Educational challenges include the discovery and development of the appropriate educational applications that can take full advantage of the sensory-based interface, finding out the importance of such interfaces in the learning process. Intelligent sensing technologies (touch and gesture, video, audio, haptic) within the same interface in order to identify and track the children's intentions, become a major ready-made tool for classroom knowledge acquisition, and future teachers have to be well aware of the advantages as well as challenges these new devices present.

We are currently witnessing major changes in education by shifting the educational objectives and actions from the traditional methods, towards formulae supported by new media and computer technologies. The instructors are concerned with introducing and using computer technology in optimal conditions, since the computer now acts as a mediator between teacher and pupil, somehow uncrowning the teacher in the sender-medium-receiver trio (Rosenberg, M.J., 2001). The use of various technologies in the learning process depends on the pupil's learning style, the teacher's knowledge, creativity and imagination and the understanding of factors that are likely to influence the learning process, not to mention a

very good understanding of the curriculum, the methodology and final educational objective.

There is a new trend in the design and use of computer games, making a transition from presenting violent worlds, towards aims such as instructing young people to become good citizens, creating new business models, training military staff or intervention patterns for surgeons. Such games are called *serious games*; they are software and hardware developments, using the principles and technologies used for designing computer games. These games are part of a real-like scenario, which contributes to developing the young people's knowledge and skills, allowing them to understand how other people react to their actions. Similarly to many other computer-based tools, serious games can become a useful instrument in the learning process. They cannot substitute, however, the instructor, since direct contact instructor-subject is extremely important in learning, which is not possible in the case of computer games.

A GENERAL ANALYSIS OF THE LEARNING PROCESS

The efficiency of the educational psychologist is closely related to the possibility to use all possible forms of interaction in the context of education through computer technologies, to the use of multimedia and communication means involved. In designing and using computer techniques in the treatment of various disabilities, not only the specificity of the disorder, but also the subjects' peculiarities of speech, age and personality, the level of mental processes and language development, representation specificities, the sense of observation, generalization and abstractization possibilities, the children's ability to perceive and interpret visual and auditory stimuli (Braeges, JL, Houde, RA, 1982) should also be taken into consideration. If in the development and use computer techniques such features are ignored, there may be

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