Chapter 27
Designing Serious Games for People with Dual Diagnosis: Learning Disabilities and Sensory Impairments

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ABSTRACT
This chapter is concerned with the potential of serious games as effective and engaging learning resources for people with learning and sensory disabilities. This is considered, followed by detailing of a suitable design methodology and its application, description of a range of types of games that have been successfully developed for this target group, and an explication of accessibility guidelines. Future development in this area is discussed, and it is concluded that there is great potential in the wide range of possible areas of research into, and development of, serious games for supporting people with learning and sensory disabilities, which would contribute greatly to their inclusion in society.

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INTRODUCTION

This chapter deals with the participation of people with disabilities in the design of serious games and their potential as effective and engaging educational tools for this target audience. Aspects of developmental and cognitive psychological theories are reviewed and it is suggested that serious games are valuable educational media for people with learning disabilities and sensory impairments. These theoretical aspects are complemented by practical perspectives via a discussion of the outcomes of two current European projects to design serious games to develop employment related skills in people with both learning disabilities and sensory impairments (deafness). Finally, a set of design guidelines is presented for this target audience that synthesise heuristics from a variety of sources including existing guidelines and past related projects.

THE POTENTIAL OF SERIOUS GAMES IN SPECIAL EDUCATION

In the UK around 25 people in every thousand have mild or moderate intellectual disabilities and about four or five per thousand have severe intellectual disabilities (Department of Health, 2001). Many have additional impairments in the form of difficulties with mobility or fine motor control and additional sensory impairments. For the most disabled of these help will always be needed with almost every aspect of daily living, yet even those who are more able will still need a degree of support to achieve the things the rest of society takes for granted. According to the 2001 Department of Health White Paper, people with intellectual disabilities are amongst the most socially excluded and vulnerable groups in Britain, and this is unlikely to differ in other countries. Very few have jobs, live in their own homes or have real choice over who cares for them. Today, the majority no longer live in institutions but in the family home and, although their individual needs will differ, there is an expectation that they will achieve greater independence and greater inclusion in society (Department of Health, 2001). The intention of current policy is to enable them to have as much choice and control as possible over their lives, be involved in their communities and to make a valued contribution to the world at work.

However, in order to achieve these aims, their education needs to equip them with appropriate skills. The Tomlinson Report (Tomlinson, 1997) highlighted the need to provide courses which taught independent living and communication skills and this need has been reiterated by others (National Development Group for the Mentally Handicapped, 1977). For people with intellectual disabilities, computer based learning has a huge contribution to make. According to Hawkridge & Vincent (1992), it enables pupils to take charge of their own learning. Pupils with intellectual disabilities will find stimulation through ‘enjoyable repetition’ and a gradual increase in level of challenge: “Words like ‘handicapped’ and ‘disabled’ imply dependence and powerlessness: with computers, learners can be less dependent and more capable.” (Hawkridge & Vincent 1992, p. 25). Blamires (1999) argues that enabling technology provides access to educational opportunities and life experiences, and facilitates engagement with knowledge and people: “Speech, pictures, words, and animation can be combined in interactive ways to structure concepts to suit the level of understanding of learners and their interests.” (p. 1). Thus it facilitates alternative methods of supplying information which may help this group of people grasp more complex concepts. This is of particular importance for learners who may have a poor grasp of language and its abundance of visual opportunities makes it particularly suitable for those with little or no hearing.

Interactive software encourages active involvement in learning and gives the user the experience of control over the learning process (Pantelidis,