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An Unusual Educational Game: Learning to Communicate?

Kevin Wong and Shri Rai
School of Information Technology
Murdoch University
South St, Murdoch
Western Australia 6150

Abstract

The popularity of educational games is partly due to the exponential growth of computer games industry. However, the purpose of educational games is different from that of entertainment games. It is always a challenge for researchers and designers in the relevant discipline to design a more effective educational game. The growth of educational games is significant especially in academic research domain, however to design an educational game with a special purpose in mind is even more challenging. In this paper, we present a prototype educational game for teaching sign language. This prototype educational game allows the player to learn and practice the Australian Sign Language (Auslan) in an enjoyable way.

Keywords

Educational games, edutainment, sign language, Auslan.

1. Introduction

Educational computer games and various forms of edutainment have gained much attention in the discipline of learning and teaching. There are a large number of gamers who are in the learning or schooling age group. It is therefore sensible to design games that can complement or enhance learning methods currently used. This has led to the attention from developers and communities to educational games. Educational games have gained much attention as an alternative to traditional learning experiences [1]. In the past, educators have tried to keep computer games out of the classroom as much as possible. However, there is an increasing trend towards the use of educational games to enhance the learning experience of a learner.

Most of the time, the term edutainment is used to describe digital educational games. In fact, edutainment has a different and broader definition. It is not limited to just educational games. The term edutainment can be defined in several ways. The Hutchison Encyclopedia, for example, defines edutainment as multimedia-related applications, used to describe computer software that is both educational and entertaining. The American Heritage Dictionary defines edutainment as "*the act of learning through a medium that both educates and entertains.*" According to Buckingham and Scanlon [2], edutainment is "*a hybrid genre that relies heavily on visual material, on narrative or game-like formats computer games-education-implications for game developers, and on more informal, less didactic styles of address.*"

The various media heavily used in edutainment include: television programs; publications; video games; films; music; multimedia; websites and computer software. Computer games have attracted much attention over the years. In edutainment, entertainment is the media and education is the content. The development of edutainment environment is also intended to implement technological innovations in education [3].

It is well known that learning is enhanced if the learner has actual interest and emotional involvement with the content. A Role Playing Game (RPG) can elicit both interest and emotional involvement from players when players become immersed in the game. We believe that a RPG is a good vehicle for delivering educational content. This purpose of this paper is exploring an unusual educational game prototype.

2. EDUCATIONAL GAMES

The question of “What makes a good educational game?” is constantly asked by game designers, content developers, curriculum designers, teachers, trainers or educators, parents, and learners or students. However, this is a difficult question to answer. It will be a more challenging question if the educational games are designed to teach non-traditional skills, like the one discussed in this paper. What we are intending here is to propose suggestions on how to design an educational game that looks like an entertainment game which is learner-centric rather than designer or educator-centric. Through the game play, the players are being taught how to communicate with deaf people using a sign language (in this paper we use Auslan). This will encourage learning as learners can manage their own learning progress as well as having fun because there is no overt learning content being pushed as the learning happens “incidentally” as part of the game play.

If it is well designed, an exciting game should be able to contribute to achieving educational objectives [4]. There are many projects and studies investigating some of the learning opportunities that may be offered by digital educational games. Most of the investigations try to link what learners learn at school with the educational games, and how the use of these educational games outside school might reinforce learning and encourage learners to continue the development of their skills outside the classroom. It is not unusual for teachers to use television programs and films as examples to reinforce learning and to support discussion. With the popularity of games amongst the young, it can have as much relevance as television programs or films for the younger generations.

With the progress of technologies, there are many researchers who have recently been investigating the best methodology of using technology for education. Traditional teaching tools such as transparency slides and “PowerPoint” may be obsolete in the future. Thus, the trend for using e-learning and educational games is increasing for educators who have been practicing classroom teaching. Teachers can use more interactive educational games while teaching, and, thus the role of teaching will become facilitating for the learners to learn and interact with the educational games used in class. Learners can enjoy more interactive classroom activities. At the same time, the teachers can

monitor and analyze the performance of each individual learner in real time. Nevertheless, researchers continue to look into the potential of using game based approaches to create adaptive learning environments for engaging learners and increasing their motivation to learn.

However, with the advancement of technology and the increased expectation of the games, learners today may not be satisfied with what was created before. Educators would also like to see educational games that can be personalized and perform difficulty level adjustment automatically to suit different learners' needs. This will also facilitate self-learning at their own pace and reinforce areas that they are weak in. Although the particular game we discuss here is aimed at teaching a non-traditional skill, most of the features discussed in education games will be incorporated in the game.

3. Auslan Educational Game

Many learning materials for teaching Auslan in the form of edutainment can be found in the market. However, there is no attempt to use interactive computer games as a form of edutainment in teaching Auslan.

The prototype is based on a role-playing computer game that uses both English and Auslan. The game is about the adventures of five characters who are on a space mission, but learning to use Auslan as a communication medium is an integral part of their (the player's who take on the characters' roles) game play experience.

Generally most of the video games today can be accessed in different spoken languages, but they are not accessible in visual languages, such as sign languages. This is the objective and uniqueness of this educational game, where the aim is to also let the game player pick up the sign language through fun. Most of the interactions in the game are visual and with sign language, therefore, deaf persons can also enjoy the game.

This game is based upon the concept that a game can be designed for use as a leisure game and as a learning tool. It can be enjoyed purely for its entertainment factor without any obvious learning objective, or as a learning tool that has an entertainment factor to make the educational aspects more appealing.

The aim of this project is to embed sign language in the video game which can be modified to suit different sign languages around the world. We have made a start with Auslan for use in the video game. The potential to expand to other sign languages is possible. Currently, there are estimated to be 100 sign languages in the world, 25 of which are officially recognised internationally.

This educational game is targeted at those who want to learn sign language and have fun at the same time. There are many people who have this desire to learn basic sign language but have not yet found the motivation to enroll in classes. The age range is diverse, but we are specifically focusing on

teenagers as some Australian schools have introduced Auslan into their special program. Another target would be family members as well as relatives and friends of deaf people. In Australia, there is currently no known 3D interactive video game released that incorporates sign language. The intention is not to teach everything about a particular sign language but only those parts which are needed to have a simple dialog with a deaf person.

The main advantage of the game and learning sign language is that one learns a visual language and gains a better understanding of how deaf people generally communicate in the world. One also develops a cognitive understanding that sign languages are not universal, and different hand shapes and movements create different meanings in different sign languages.

The setting of the game focuses on a group of explorers that have been sucked into a “wormhole” and have crash-landed on a foreign planet. The group faces obstacles as their enemies try to destroy them and the explorers must obtain the help of the local village people to assist them to achieve their goals. There is the added complexity that the villagers in many situations dare not speak and only communicate through sign language. The player learns to comprehend the sign language to move along each step in achieving each objective. See Figure 1 for an example of using sign language as the communication media in the game.



Figure 1: Examples of sign language communication in the game.

Each game player is presented with their own personalized Personal Digital Assistance (PDA). This PDA provides the map of the game world, the status of health and energy, and some help functions. The PDA also acts as a dictionary for the game players to learn the sign language. See Figure 2 for an example of the prototype of the dictionary. To assist the learning progress, the game is designed into different levels. The levels are broken up into learning stages: Level 1 - Numbers (learn sign in numbers), Level 2 - Colours (learn sign in colours), Level 3 - Alphabet (learn sign in alphabet), and Level 4 - Simple Words (learn sign for some objects). The game design is such that any level, the only sign skills needed at that level as well as the levels below are sufficient to survive. Being a game, the player may choose not to use any sign language and survive, however the chances of survival are lower.



Figure 2: The screen capture of the virtual PDA.

Conclusion

Educational games are starting to gain an important place in the computer games industry. However, the purpose of educational games is different from that of entertainment games. It is always a challenge for researchers and designers in the relevant discipline to design a more effective educational game. It is also challenging to design an education game which can be entertaining and educational at the same time.. In this paper, we presented a prototype educational game for teaching sign language. This prototype educational game allows the player to learn and practice the Australian Sign Language (Auslan) in an enjoyable way.

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