

Chapter 4

Learning with Video Games

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ABSTRACT

Playing video games stimulates affective, cognitive, and communicational processes, thus facilitating the emergence of knowledge. In order to support this idea, this chapter first historically contextualizes the evolution of educational video games and provides some basic classification of genres. Then it identifies the major theoretical currents that may inspire teachers and designers to develop learning scenarios adapted to educational video games. It also describes some interesting examples of the educational usage of video games by the general public and of video games specifically created for a particular pedagogical context. Several arguments are presented to stimulate discussions around motivation, evaluation, and learning aspects of educational video games usage and design. With the intention of supporting an approach that responds to user needs, some models identifying user profiles are also described. Finally, this chapter presents general design specifications for successful development of educational video games projects.

INTRODUCTION

This chapter is part of a research and design methodology about Educational Video Game Design. This method is intended to assist artists and designers in the complex process of educational video game design. It is for professionals working in the areas of culture, education, science,

art, communication, research and experimentation but also for people who would like to grasp the overall concept behind Educational Video Game Design. The methodology is comprised of four capsules describing the potential of educational video games while presenting the theoretical and practical concepts necessary for the understanding and practice of multimedia design. The capsules are accompanied by examples of educational games to try out, a glossary to expand understand-

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ing of the subject and a list of websites dealing with educational game design issues.

CAPSULE 1: THE MULTIMEDIA FIELD

Multimedia applications come in many forms and meet a variety of user needs. This capsule defines the concept of interactive multimedia and describes the major types and end users of its applications. It also defines the multimedia application development process, including work functions, the designer/writer role and software and hardware aspects useful for the design, production and dissemination of multimedia projects.

CAPSULE 2: NARRATIVE AND HYPERMEDIA

The practice of hypermedia design implements new ways of playing, communicating and learning. Interactors are at the centre of a dynamic system in which they become active participants working with the elements of a narrative space. This capsule is meant to make designers/writers aware of some aspects of cinematographic language that may be used in multimedia writing projects. It also defines hypermedia characteristics, the forms they can take and the different operating procedures via which users can interact with hypermedia content.

CAPSULE 3: LEARNING THROUGH VIDEO GAMES

The practice of video games promotes some affective, cognitive and communicational processes that pave the way for the emergence of knowledge. First, this capsule puts the changing trends in educational video games in historic perspective. Then it identifies the major theoretical currents that may inspire teachers and designers to develop

learning scenarios adapted to educational video games. Last, this capsule describes an emerging area of research concentrated on learning via already-existing video games used by the general public and video games specifically created with particular pedagogical contexts in mind.

CAPSULE 4: EDUCATIONAL VIDEO GAME DESIGN MODEL

Out of the complexity of forms, methods, techniques and procedures emerges a model designed to simplify the work of multimedia design. This capsule describes a systemic model that brings the purpose of an educational video game design project together with all the information, interface and interactivity components needed. It also presents the indispensable elements that must be part of multimedia design specifications.

The methodology and examples can be found at: <http://www.clikmedia.ca/CM/>

Brief History of Educational Games

Educational video games are inscribed in the historical continuity of a long tradition associated with the dissemination of pedagogical games. From the doll to the toy soldier, the puzzle to the role play, the presence of these artifacts indicates educational situations apparently far removed from the school context. Often the conveyors of sociocultural stereotypes, these games and toys reflect evolving techniques and mentalities; they illustrate the growing impact of scholarly knowledge on recreational learning activities.

First Mass Recreational Productions

The progress associated with the appearance of the printing press led to a sixteenth century abundance of card games dealing with the divinatory arts (e.g., astrology and tarot), lottery and [art de mémoire]. The iconography associated with

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