Chapter 46
The Excellence of the Video Games: Past and Present

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ABSTRACT
This chapter presents a diachronic vision of the evolution of the main classical games in the computer followed by a look at computer-assisted teaching until the mid-nineties. Later, systems aimed at education in off-line and online support are analyzed simultaneously. Through this diachronic study, how many design features have endured until the present day can be seen.

INTRODUCTION
Playing is one of the most important activities of the human being, it is an experience of freedom and at the same time it teaches to manoeuvre inside the framework of some given rules. The human being plays because he/she is amused by it, it entertains us, it encourages us to tackle new challenges, such as daily learning.

The interactive systems and the communicability in the design open up many chances of research from the pedagogical point of view such as the human-computer interaction. In the communicability lies implicit the cognitive principle (textuality), with the perception (images and sounds). Both converge towards a biunivocal relationship named “edutainment”. That is, a term that derives from education + entertainment.

Edutainment is a way in which education from the point of view of the understanding of the information and the educational contents joins entertainment, under a prospect of collaboration. The cognitive sciences are also interested in learning and emotions (Beverly, 2000; Cipolla-Ficarra & Cipolla-Ficarra, 2009), especially such as the entertainment and surprise, which play an important role.

It is not in vain that the multimedia interactive systems aimed at entertainment must include in their dynamical and static means contents to foster
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The knowledge of the different sciences. That is why since the early multimedia interactive systems in off-line support in the 90s it has been intended to fulfil a set of secondary and main goals for the smallest users, such as:

- Activities related to reading ability: language understanding and assimilation of the main language difficulties.
- Stimuli for creativity: listen or composing music sounds, reading of tales, drawing, attention to the science world, etc.
- To boost the notions of mathematics: measure, count, calculate, recognition of the sets, etc.
- Develop the coordination of the hand and the eye.

In other terms, it is considered as edutainment that software that is used with didactic purposes but which contains elements from the cognitive model in the design belonging to the videogames. Through a series of strategies are developed cognitive skills which stimulate attention and motivation in environments recreated by the computer. In order for an educational game to fulfil the function of educating by entertaining it must respond to some of the main features which are next listed:

- The structure and the access to the information must stimulate the player, better if the goals to be reached are established.
- Keep the maximum of known elements by the potential users, especially in the construction of the interface metaphor.
- Variety of non-repetitive contents. That is, to foster the quality attribute of usability of information in the interactive systems, by resorting to the notion of perspective, for instance. There is also a reference to the attribute of richness in the dynamic and static means to foster the learning process in regard to the potential users. For instance, at the moment of looking up an interactive encyclopaedia a child can appreciate the animation and sound effects, whereas an adult, because of time reasons regards them as a kind of waste of time at the moment of accessing what he is searching.
- Use of world-renowned characters such as those stemming from literature, animation cinema in the computers, comic, etc. In the case of virtual characters created for a given interactive system, all of them should be extremely well-made, that is, with an elegant style and in agreement with the content.
- Include several games and didactic activities in relation to the potential user’s skills, without causing any frustration in the user.

Currently in many education centres in Southern Europe the reigning educational culture regards computer playing as harmful to the young users, especially in the first years in which they attend schools. Contrary to this, the studies made by Piaget, for instance, have demonstrated that the processes that guide the game and those which foster learning are similar (Piaget, 1993). In the behaviourist conception of people, reality is not a discovery, but rather a continuous construction of people. That is, it is based on the development of an asymmetrical model instead of a single model of a magisterial nature. Under this perspective playing is not a kind of escape of the materiality of the present, but rather a specific dimension (neither spatial nor temporal) of the behaviour that allows to rebuild reality. It is a space where to exercise for the pupils to live in society. That is why it is necessary that there is an intersection between the real world of the child and his activities outside school.
A Bio-Inspired, Distributed Control Approach to the Design of Autonomous Cooperative Behaviors in Multiple Mobile Robot Systems

Gen'ichi Yasuda (2019). *Advanced Methodologies and Technologies in Artificial Intelligence, Computer Simulation, and Human-Computer Interaction* (pp. 1058-1070).