INTERACTIVE- CREATIVE TEACHING AND LEARNING USING EDUCATIONAL GAMES

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Abstract *Creativity is an essential element required by today's society, a knowledge society in which technology, that is in constant change, offers many possibilities for education in terms of teaching, learning and evaluation. The practice has shown that games have an important formative- educational role and interactive teaching strategies are recognized as effective ways to stimulate the creative potential of students. On the other hand, the teaching - active learning, in the learning context created by teacher, aims to develop thinking, stimulate creativity, develop interest in learning, the student taking an active role in education. Game-based learning doesn't exclude the traditional methods but with them allows students to obtain a positive learning experience leading to their increased motivation for learning.The current trend in the use of digital games has emerged recognizing their educational value especially when using custom games created directly by teachers. Teacher's creativity is manifest in the way they created the learning resources and how it chooses to expose them.*

Keywords

Active learning (learning by doing), interactive teaching strategies, educational games, virtual environment

1. Introduction

In any E.U. the investment in advanced education systems enabling access for all to education and training is a requirement of society, driven mainly by the need for labor with a certain level of competence. This level is required by the labor market.

In this respect there are Guideline 8 of the Europe 2020 Strategy which aims "developing a labor force better qualified, responsive to labor market needs and promoting lifelong learning" and orientation 9, which refers to "improve the quality and performance of systems education and training at all levels and increasing participation in tertiary or equivalent ".

Closely in line with the development of information and communication technology and the requirements of society in science education there are new guidelines. These aim interactiv-creative strategies applying that develop multiple intelligences by stimulating creative potential.

Interactive teaching strategies focus on the following elements:

- The goals of the training;
- Alternatives methodological of teaching - learning - evaluation;
- Making learning tasks based on the use of information transdisciplinary and multi-dimensional analysis of reality;
- Learning through discovery and problem solving;
- Construction of their own training interpretations due to the acquisition of new knowledge, skills and abilities, achieved by psychomotor and intellectual effort of the students for knowledge building;
- Use of alternative valuation methods.

Thus, the interactive teaching strategies take into account the active learning in which students learn from prior knowledge and acquire new knowledge thus acting on the information to turn it into new one personal.

The teacher has a special role because he uses these strategies to make it responsible the student. He becomes participant in the process of building meanings informational through problem solving, explorations, researches and applying what he had acquired in various new contexts.

2. Active learning

Meyers and Jones (1993) define active learning as a learning environment which "enables pupils / students to read, listen, speak, write and reflect on their own ways of knowing".

Thus, the student becomes "own initiator and organizer" of his learning experiences. He can reorganize and restructure continuously its knowledge.

On the other hand, the present studies in the literature show that learning is more effective when pupils or students are involved in the learning process. From this point of view it is promoted the idea of student-centered learning.

The teacher role in this case is to stimulate students to become able to develop customized learning projects,

to assume the responsibility of conducting learning gradually and acquiring the autonomy in their own training.

For the student to become an active participant in educational process, the teacher uses methods which promote active learning such as:

- Methods that facilitate understanding of concepts and ideas, harnessing their experience, skills of communication and networking, forming an active attitude: discussion, debate, role play etc.

- Methods that stimulate thinking and creativity, by searching, analyzing and developing solutions to problems: the case study, problem solving, didactic game, the exercise etc.

- Methods which promote teamwork and skills development and mutual cooperation: the project in small groups etc.

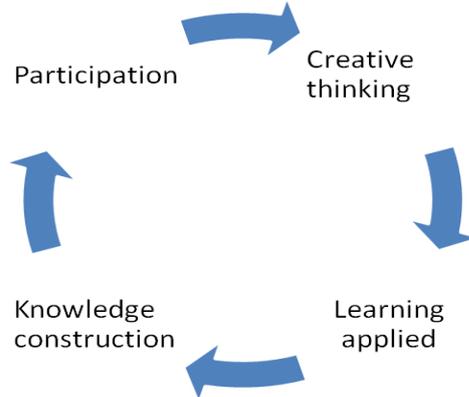Applying these methods to active learning is reflected in observable behaviors (Figure 1).

Figure 1. Specific behaviors of active learning

The interactivity in active learning is based on mutual relationships in which, the learner acts on information for turn it into new one personal and internalized.

The methods used by the teacher allow the student to re-construct meanings through exploration, problem solving and application of information obtained in new situations.

Interactive creative learning as a special form of learning focuses on learning through discovery based on their own effort, independent or guided; stimulating creative thinking and imagination.

Therefore, the strategies used in active learning are designed to increase awareness and empowering students in training and fostering critical thinking.

The main elements proving creativity (Figure 2) are considered by teachers in teaching-learning activation process.

Thus, the use of methods, techniques and procedures which seeks to engage students in the learning process have aimed at developing thinking, stimulating creativity, developing their interest in learning, meaning

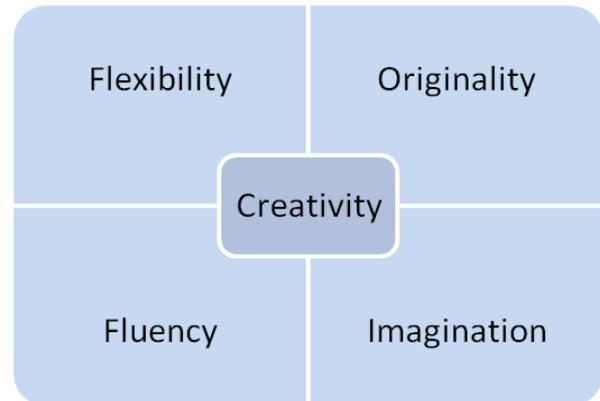their training as active participants in the educational process.

Figure 2. The main elements of creativity

On the other hand, the preschoolers learn by playing, they are in the position to quickly find solutions and make decisions to solve problems.

Use of computer keeps actively the child's attention throughout learning activity, which makes it to be an efficient mean of training.

E-learning method provides convenient and efficient access to the latest information and knowledge, being a modern and efficient method of teaching-learning-assessment of knowledge and continuing training.

3. Creativity and interactivity by educational game

The game is the preferred method by children in the learning process. Children learn by playing.

From the teacher's point of view, the game emphasizes the formative role of teaching activities: practicing of thinking operations (analysis, synthesis, comparison, classification, ordering, abstraction, generalization, and concretization); developing the spirit of initiative, independence, but also of team.

The structure of the game teaching refers to:

- Didactic purpose;
- Teaching task;
- Game elements;
- Lesson content;
- The teaching material;
- Game rules.

The stages of the teaching game are:

- Introduction of game;
- Announcement of title game and presentation;
- Explaining and demonstrating the rules of the game;
- Establishment of regulations;
- Enforcement explanatory game (with some of the pupils);
- Trial game enforcement (all class);
- Game execution by children;

- Increasing the difficulty of the game, introducing new variants;
- End of the game, behavior group or individual assessment.

Although the game is a form of children specific activity, it has proven useful in higher education. The gaming method is included in the methods of simulation / action based on fiction.

Thus, students by trial-and-error receive immediate information and use them to correct wrong assumptions in a risk-free environment.

This feature is aligned educational requirements, taking into account that most educational methods require the teacher to ensure students' response (feedback) to their actions.

Video games are ideal environments to promote „learning by doing", transforming the student in the leader of own learning experiences.

In this sense, digital games can provide meaningful learning experiences simulating scenarios with a high degree of interactivity that we normally find only in the real world where the real problems are found.

In practice it is found a number of types of games, including:

- Action games-promote the planning of resources, spatial skills (orientation, mental maps) and depending on the settings allow the simulation of virtual environments such as historical or professional. This type of game usually shows a conflict that must be resolved by the player;
- Role play - in which the player assumes the role of one or more characters in a virtual environment. Skills developed using such a game are related to strategic thinking and problem solving. Furthermore, the cooperation and resources management are promoted because the player usually depends on a group of characters. On the other hand, role play includes a scoring system that evaluates the performance of the player;
- Adventure game - requires solving problems and puzzles integrated into a narrative structure in order to advance into a story. This game encourages the exploration and skills for problem solving and promotes networking between different concepts.
- Strategy game - it forces the player to plan their use of resources and confront an enemy by following a set of rules already established. Thus it encourages short and medium-term planning, as well as understanding a complex set of rules. Depending on the realism of the environment in which action takes place, it can be used in educational contexts to recreate historical events.
- Simulations - games simulating real processes, events or environments using a simplified model. These games allow the player to modify the virtual environment and perceive the results of its actions in

that environment. This type of games reach a higher educational value in fields simulated;

- Fight and Sports - considered by some as belonging to the class action. Despite the commercial success, these games have an educational value limited.

The games have multiple educational meanings stimulating intelligence (logic, spatial, verbal, musical, etc.), social interrelating and the access to news.

The puzzle use also helps to establish a challenge by the type: problem - solution - effect, which helps both the entertainment and the knowledge transfer (e.g. adventure game).

On the other hand, the games improve certain skills, enhance knowledge in a friendly environment and in terms of teaching can be considered useful tools in teaching and student assessment (e.g. the role play).

However the use of games in the educational context is controversial because of the relationship with violence, for example the case of action games or fighting games and sports.

4. Conclusions

Learning interactive-creative is based on learning through research - discovery, learning through personal effort (independent or guided) and thinking and creative imagination, so his target concerning the training human personality is firmly rooted to educational requirements of today's society, a society of knowledge.

On the other hand, the use of educational games in teaching enables students to increase their motivation for learning, improving skills, problem solving skills and learning new strategies in a conductive environment to promote active learning.

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