

Impact of Using Computer Applications in Education on Teaching-Learning Process

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Abstract: Today's educational policies are largely devoted to fostering the development and implementation of computer applications in education. This paper analyses the skills and competences needed for the knowledge-based society and reveals the role and impact of using computer applications to the teaching and learning processes. Also, the aim of this paper is to reveal the outcomes of a study conducted in order to determine the impact of using computer applications in teaching and learning Management and to propose new opportunities for the process improvement. The findings of this study related to the teachers' and students' perceptions about using computer applications for teaching and learning could open further researches on computer applications in education and their educational and economic implications.

Key words: computer applications, education, educational policy, teaching-learning Management, effects.

1. Introduction

Formal education, training and lifelong learning providers face nowadays a rapidly changing societal and economic environment. There is an increasing demand to find new ways to equip teachers, students and workers with the competences and skills they need for the knowledge-based society and economy. Large parts of the existing workforce need re-skilling to ensure employability due to rapid technological change and an increasingly service-oriented economy.

In this context, education implies today not only a singular, computational use of new technologies, but the promotion of engaged peer interactions with a shared computer activity. The interdependence of communicative interaction, new technologies, the development of computer applications, the design of computer-based tasks and focused activity for learners to become critical thinkers and creators of knowledge is a reality of the new educational model. [1]

Universities and other higher education institutions are highly involved into knowledge creation, diffusion and learning. University's competitive ability depends on institution opportunity to share, spread and adapt knowledge as well as it is created. Modern students will require regular updating of their knowledge, skills and competences. [2] Therefore, teachers should conscientiously redesign their courses and adopt new instructional methods and appropriate technologies to fully exploit the

benefits of web-based learning environments [3], and computer applications in education. Flexible and innovative teaching and learning based on computer applications will expand and will change the educational process. Within a knowledge-based society the educators and their organizations have a changing role, but, in the same time, they need to manage the processes associated with the creation of their knowledge assets and to benefit from the use of computer applications. In this respect, the skills and competences needed for the knowledge-based society and the impact of using computer applications to the teaching and learning processes are becoming important issues to analyse.

2. Competences for the knowledge-based society

Educational policies increasingly emphasise innovation and organisational change of educational institutions that are considered necessary to better align education and lifelong learning with the requirements of the knowledge society. However, new educational approaches are not easily found and their implementation will be difficult if they require considerable changes of current educational frameworks and practices. [4]

The main reason of the existence of the educational institutions is to help people to acquire the competences, knowledge and skills they need as

individuals in the political, economic, social and cultural life of a society.

The task of defining basic skills or key competences for the knowledge society has in recent years occupied many working groups at global, European and national levels. What has been achieved so far is a better definition of key competences that are considered to be of importance for successful participation in the knowledge society. Much less consolidated is the understanding of how such competences should preferably be developed in learning processes. Nowadays, the priority must be given to open educational practices that involve students in active, constructive engagement with content, tools and services in the learning process, and promote learners' self-management, creativity and working in teams. [4]

The term "competence" could be defined as a combination of knowledge, skills and attitudes appropriate to a particular situation [5]. There are eight domains of competences that are necessary for personal fulfilment and development throughout life, active citizenship and inclusion, and employability. The domains of competences are [5]:

- Communication in the mother tongue;
- Communication in a foreign language;
- Mathematical literacy and basic competences in science and technology;
- Digital competence;
- Learning-to-learn;
- Interpersonal and civic competences;
- Entrepreneurship;
- Cultural expression.

To acquire the competences and skills for personal and professional achievement in the knowledge-based society, the learner's autonomy, personal mastery and self-direction must be acknowledged and innovative approaches implemented that foster self-management, communication and team skills, and analytical, conceptual, creative and problem solving skills. However, there is a huge difference between identifying required competences and operationalising them for inclusion in the concrete practices of teaching and learning at different educational levels. [4]

In order to acquire the competences and skills needed within the knowledge-based society, educational institutions themselves must become "learning organisations" [6, 7]. They must develop and maintain an environment that favours innovation and change of established educational frameworks and practices. A key problem with becoming such "learning organisations" is the

internal organisation of most educational institutions. This follows a model of "professional bureaucracy" [8], in which an administrative and collegial apparatus ensures that the teachers can do their job, but does not require much collaboration between them. Collegiate democracy and consensus prevail, and established professionals have discretion to conduct their work as long as they do not violate established principles and practices. Yet, it is well known that professional bureaucracies become performance structures rather than structures for innovation. The development of solutions for needs never encountered before is a difficult process, and radical change is more likely to be resisted. Acquiring the competences and skills for the knowledge society will demand that educational practices give priority to learners' own explorative, constructive and communicative activities instead of a teacher-centred knowledge transfer model of education. [4]

Higher education should play a strong role in fostering social cohesion, reducing inequalities and raising the level of knowledge, skills and competences in society. Policy should therefore aim to maximise the potential of individuals in terms of their personal development and their contribution to a sustainable and democratic knowledge-based society. The student body entering, participating in and completing higher education at all levels should reflect the diversity of the populations. The students must be able to complete their studies without obstacles related to their social and economic background. Therefore the efforts to provide adequate services for students create more flexible learning pathways into and within higher education, and to widen participation at all levels on the basis of equal opportunity must continue.

Many primary and secondary teachers consider computer-based activities as integral to and appropriate for the classroom practices of their students. Internet searches, word-processing and multimedia presentations are being adopted increasingly by teachers. The teacher's ability to design the types of activities that effectively apply collaborative inquiry to electronic learning tasks for deepening student knowledge remains crucial, whatever the subject area, student age or software choices. [1]

Learners growing up in the digital age are far more experienced and able to process information rapidly than were their predecessors. Therefore, they are bored if their capacities are not exploited and properly stimulated at school, in the process of

teaching and learning. This generation of learners is different than its ancestor, meaning that some main cognitive style changes have been observed [9]:

- Twitch speed versus conventional speed;
- Parallel processing versus linear processing;
- Graphics first versus text first;
- Random access versus step by step;
- Connected versus standalone;
- Active versus passive;
- Play versus work;
- Payoff versus patience;
- Fantasy versus reality;
- Technology as friend versus technology as enemy.

Recent educational research from a socio-cognitive perspective has validated students' collaborative engagement with new technologies and heightened understanding of influential factors shaping the effectiveness of peer interactions, learning contexts and computer interfaces for enhancing learning. [1] All these changes pose considerable challenges for the educators and business trainers who wish to promote literacy skills [9].

3. Impact of using computer applications on teaching and learning Management

The process of teaching and learning Management is a very complex one because the students need to develop different skills related to psychology, communication, critical thinking, economic and social thinking, decision making etc.

One significant pedagogical approach gaining credence through research and classroom practice is students' collaborative engagement with problem-solving, computer-based tasks for more effective learning. [1]

This study is the result of some years of personal experience in teaching Management for Romanian students and using computer applications in class in order to develop the skills that students need for their further activities in the knowledge-based society.

This study was conducted in order to reveal which is the impact of using computer applications within the teaching and learning processes. The impact of using computer applications in teaching and learning Management is important for the improvement of the process.

The methods used in this study were personal observation and questionnaire. One of the findings of this study is that the two methods used did not

always lead to the same conclusions, meaning that the students' perception and teacher' perception related to the use of computer applications is sometimes different. Therefore, the results of the two methods used have been correlated in order to determine the impact of using computer applications within both teaching and learning processes.

The study revealed that the use of computer applications within teaching and learning of Management could have positive effects, on one hand, and negative effects, on the other hand.

The main positive effects of using computer applications for teaching and learning Management, as they are perceived by the students and teachers, are the following:

- Using computer applications increases the students' motivation for learning Management;
- This method for teaching and learning Management catch the attention of the students and increase their interest for learning Management;
- Using computer applications lead to the development of students' skills;
- Using computer applications develops the students' process of thinking critically;
- Using computer applications creates the opportunity for students to be active in class, and not passive;
- Using computer applications creates the opportunity for students to solve different case studies, to change the variables in these case studies and to see the results of these changes;
- Using computer applications prepares the students for the knowledge-based society and economy which cannot be understood nowadays without computers in our day-to-day life;
- Using computer applications contributes to the students' engagement in the process of learning Management.

There are some characteristics of the computer applications that contribute to the engagement of the students in the process of learning. [9] Figure 1 reveals which are these characteristics and how could they contribute to the engagement of the students in the process of learning Management.

The use of computer applications in the process of teaching and learning Management is showing to the students some experiences where they acquire not only technological proficiency but also balance between their design abilities and depth of knowledge. Teachers should focus their efforts to ensure that students are given opportunities to work

collaboratively with electronic knowledge-creation tools in their learning process to enhance their learning. When students are encouraged to externalise their mental schemas and clearly communicate their understanding of the interconnectedness of ideas verbally and

graphically, then student-designers are effectively engaged in productive, reflective, creative technoliterate practices. [1]

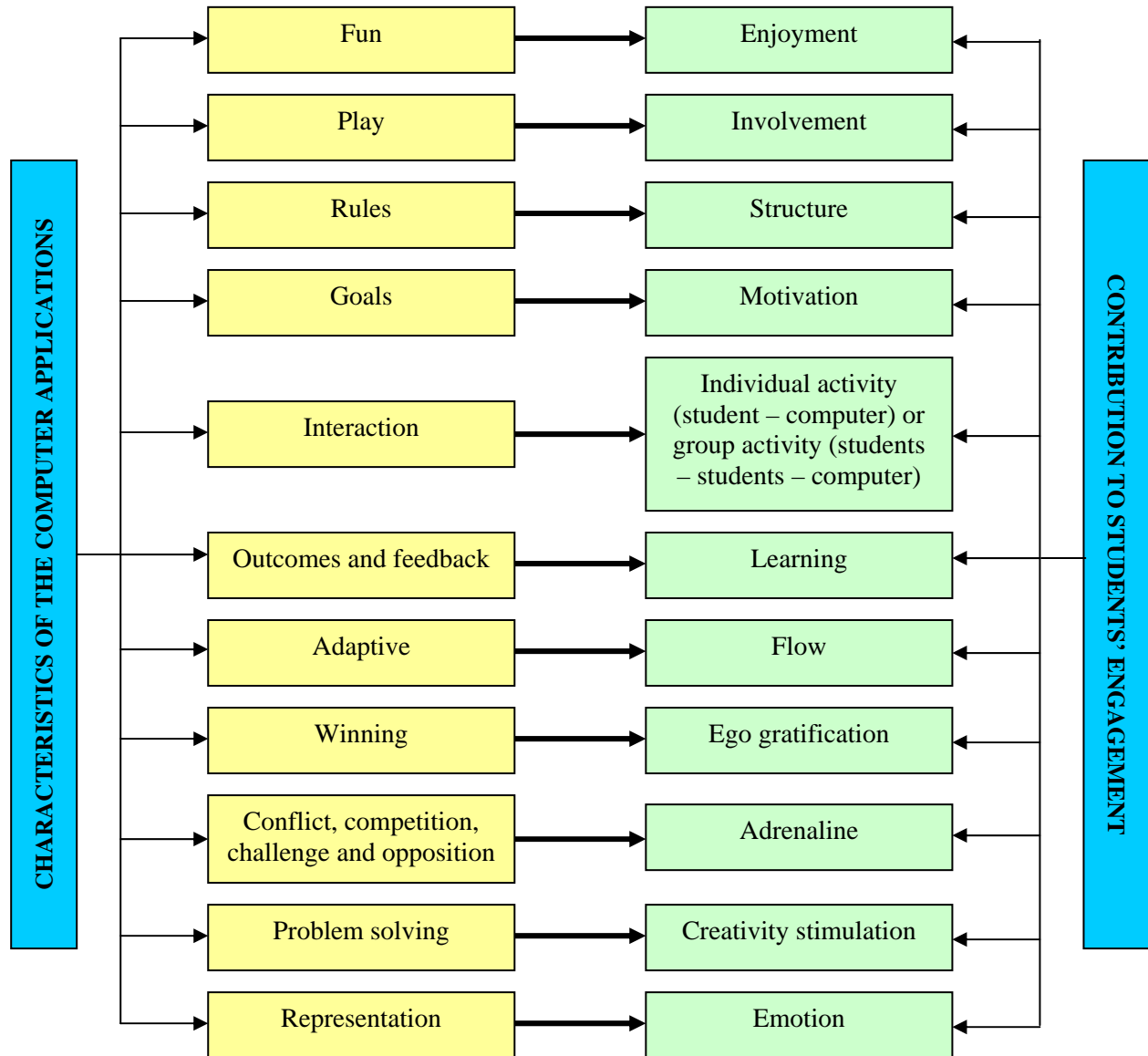


Fig. 1 Contribution of the computer applications' characteristics to students' engagement in the process of learning

The use of computer applications in teaching and learning Management could have also negative effects. The computer applications used might not work properly, or they might not work at all in some cases, or they might conduct to the wrong results in terms of logical thinking if they are in their first stages of development. In these situations the impact for the students learning process and for

the professors teaching process is negative. Both students and teacher could feel frustrated because they all had certain expectations (different or not) at the beginning of the lesson. Another negative effect of using computer applications in teaching and learning Management, as it resulted from this study is that sometimes the Romanian students are focused on learn how to use

the computer applications instead of how to interpret the results of these applications. Generally, in economic area, and especially in management area the important issue is to learn how to interpret the results of a computer application and to be capable to adopt rational decisions based on the results of that application. Therefore, in this area it becomes necessary that teachers to teach the students how to fully benefit from using computer applications in order to develop their ability to adopt assisted decisions based on the interpretation of the data resulted from computer applications.

4. Conclusion

The new competences and skills needed for the knowledge-based society demand the continuous change of educational practices. Learners growing up in the digital age are far more experienced and able to process information rapidly than were their predecessors. Therefore, teachers should give priority to learners' own explorative, constructive and communicative activities instead of a teacher-centred knowledge transfer model of education.

The study revealed that the use of computer applications within teaching and learning of Management could have positive effects, on one hand, and negative effects, on the other hand. Though using computer applications in education has shown educational benefits, changing traditional teaching and learning is yet a challenging process. Some progress is being made, but there is a need for more and advanced research aimed at improving and generalizing the positive effects of using computer applications in education and eliminating the negative effects of these practices. This could lead to better learning and teaching processes and also to the development of new and attractive methods for teaching and learning. Promoting good practices of using computer applications in the educational field could contribute to increasing the trust in these new methods.

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