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Analysis of the use of ICT through music interactive games as educational strategy

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Abstract

Information and communication technologies have been quickly introduced in all professional and leisure environments. Nonetheless, this process has been slower in educational spheres. ICT contribute and will contribute even further to the renewal of teaching by bringing innovation and creativity. For this reason, we have conducted an investigation in order to ascertain whether through a methodology based on the use of new technologies (ICT) musical knowledge and consequently academic performance of a group of students from 3rd year can be improved. To achieve this goal, two groups of students were selected: one was experimental, who received encouragement (22 learners) and the other group that was controlled (24 students), who worked in Music classroom in a traditional way. The results show that musical learning through the use of ICT improved in 100% of the parameters analysed. For this reason, it is concluded that it is essential that teachers must seek new teaching methods and strategies to achieve a greater effectiveness of their action as a teacher, and these techniques should be undoubtedly closely linked with the introduction of ICT in the classroom.

1. Introduction

New technologies are being introduced rapidly in all professional, recreational and gradually also in educational settings. ICT contribute and will contribute even further to the renewal of teaching by bringing in innovation and creativity (Hernández, Pennesi, Sobrino & Vázquez, 2011), two aspects that are certainly necessary, as the current teaching-learning process begins to turn into a monotonous routine sometimes, and therefore some fresh air comes in handy in order to get adapted to the new social and learning demands that schools require nowadays. The impact

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caused by ICT in education and training is unprecedented and it requires new skills and competencies that affect both educators and trainers, and, to a greater extent, students (Adell & Castañeda, 2010; Attwell & Hughes, 2010). This implies that we must introduce the cyber and virtual world in the education and training of our school, so teachers should not ignore this point of approach that we could have towards them.

Indeed, the Society of Knowledge and Information requires a transformation in the teaching-learning processes. Professional experts are required to address the respective fields of knowledge from the perspective of an open and flexible curriculum, aimed at the relevant student learning (Pavon, 2013). Knowledge and teaching-learning process undergoes constant redefinition; it is something dynamic that keeps being rebuilt, transformed; it is the "liquid knowledge" (Area, 2011) of our technological society. Thus, the information and communications technology (ICT), are revealed to be as beneficial for changing traditional learning environments into more diversified and interactive learning environments, where one can build knowledge through active and collaborative learning techniques that promote teacher-student and student-student interaction. A proper use of these technological tools in the classroom allows the creation of new educational models and educational management. In this sense, ICTs shape the environment for the development of innovative and relevant projects that take place at different levels of education scenario. This is the "emerging pedagogy" that Adell and Castaneda (2012) speak of.

However, many teachers fear the introduction of computers in the classroom, claiming that they will lose communication with students, which is already pretty reduced. However, the personal communication that can be generated with the interactive use of media and new technologies, offers us a marvellous opportunity to act on the complexity of learning as a living process, not only intellectually, but deeply affected by emotional and motivational issues such as study habits, previous knowledge, learning styles, expectations and special interests (López-Chao, Lopez-Chao & Mato-Vazquez, 2014).

Now if the educational framework has been slow to react to the strong impact of technological advances (Lopez-Pena, Lopez-Chao & Lopez-Chao, 2015), this delay is most evident in the field of music education, area characterized by the lack of mobilisation and the use of old-fashioned teaching methods. Indeed, although far from academic environments (Romero, 2004), technologies also started to be introduced in the musical environments; but in the current context of music education, the introduction of ICT cannot stay out of the classroom, because as Giráldez says (2005:137) "the possibilities of "digital learning" in the field of music education are immense, and when it is implemented correctly, it forms a highly dynamic and participatory learning environment". Therefore, we agree with the author (Giráldez, 2007) and the statement that in the field of music, mediated by technology, music education should not be excluded and there must be a "meeting point" in the classroom.

This work arises from the need we find to approach to students from 3rd Compulsory Secondary Education (ESO), teenagers, most of them forced to stay in school against their will, and generally more interested in computers, than they are in studies. This is one of the educational levels where we find it more difficult to properly develop the teaching task, because the attitude of students is of rejection of school activities in many cases because they see no practical use. This attitude is exacerbated in some areas, such as Music, as it is one of the least well-considered subjects, because until recently it was taught by unqualified personnel, and received the treatment of an "easy course", and therefore once they have to make even a little effort to pass it, it results in an abandonment (Chao-Fernandez, Mato-Vazquez & Lopez-Pena, 2015).

Thus, taking into account that the concerns of adolescents with these characteristics are closely related to the use of information technology, new technologies, Internet, etc., we thought that a good way to approach them and the contents of the area of Music could be through a musical educational game, designed by one of the authors for its use on a computer, and which has won an Award for Educational Innovation (Chao-Fernandez & López-Pena, 2007), through which, in a playful way, students get a closer look at an unknown and new world while it serves them to approach the fundamental musical content of that educational level. To check the results of its use, we conducted a study as described below.

2. Aim

The main aim of this research is to find out whether through a different, innovative methodology, based on the use of ICT, combined with an educational game, students improve their knowledge and therefore their school grades.