Student-generated online videos to develop cross-curricular and curricular competencies in Nursing Studies

Juanan Pereira [a,*,1], Leyre Echeazarra [b,1], Silvia Sanz-Santamaría [a], Julián Gutiérrez [a]

[a] Department of Computer Languages and Systems, University of the Basque Country (UPV/EHU), San Sebastián, Spain
[b] Department of Nursing Studies, University of the Basque Country (UPV/EHU), San Sebastián, Spain

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ABSTRACT

In response to the necessity of implementing innovative strategies and new teaching methodologies for the design of University degrees curricula according to the new educational model put forward by the European Space of Higher Education, we launched a pilot project in the Department of Nursing Studies of a university of the north of Spain based on the use of three technological tools (Power point, OpenMeetings and Babelium). Nursing students ($n = 29$) were asked to create video recorded oral presentations about different techniques of diagnosis in medical imaging that were peer-, self- and teacher assessed. Self-report questionnaires were used to assess the effectiveness of the experiment and Kappa statistic analysis was used to determine the suitability of the assessment method. The results of the study showed that working with self and peer recorded videos proves to be a better didactic method to develop both cross-curricular competencies (intrapersonal, interpersonal and instrumental) and curricular specific competencies (in this case, knowledge about different techniques of diagnosis in medical imaging) than traditional methodologies. The data also suggest that there is an acceptable correspondence between self-, peer- and hetero-assessment.

1. Introduction

After over a decade since the Bologna Declaration marked a turning point for universities and knowledge-based society, higher education in Europe has taken a common path laid down by the project of the European Space of Higher Education. It is a path towards developing a model of higher education with the use of the European Credit Transfer System (ECTS) and with the intention of creating a higher education focused on learning and channelled towards the acquisition of professional competencies (Granero, Fernández, & Aguilera, 2010). The intention is to change the philosophy of studying through attaching more importance to the ability of dealing with learning tools rather than to sheer knowledge acquisition (Magalhães, 2010). There have been modifications to the role of teachers and students as well as to the teaching methodology and knowledge assessment, all made with the focus on the learning process rather than on the mere transfer of facts and information. Students need to acquire practical competencies and

abilities to learn independently, make decisions and express ethical commitments.

According to many authors (Boyatzis, Cowen, & Kolb, 1995; Drury & Taylor, 1999; Taylor & Drury, 1995, 1996), the most effective way to ensure that students acquire practical competencies and generic skills is to integrate the teaching of those skills into course curricula, in a holistic approach to teach disciplinary knowledge and generic skills. Due to this assumption, these generic skills are usually known as cross-curricular competencies (Peschar, 2004; Trier & Peschar, 1995).

Video is a rich and powerful medium being used in e-learning that can present information in an attractive and consistent manner that engages students. Zhang, Zhou, Briggs, and Nunamaker (2006) suggest that students using interactive video in their learning environments (video that allows proactive and random access to its content) achieved significantly better learning performance and a higher level of learner satisfaction than those in other settings.

The use of online video for examination of instrumental and interpersonal competencies in health-sciences is not new. Humphris and Kaney (2000) and Hulsman, Mollema, Hoos, De Haes, and Donnison-Speijer (2004) reported the development and benefits of a structured video exam for assessment of communication skills in a medical course context. Furthermore, video-recording and online peer-assessment activities have been found to benefit students

* Corresponding author. Address: Escuela Universitaria de Ingeniería Técnica Industrial de Bilbao, UPV/EHU, Paseo Rafael Moreno, Pichichi, 3, 48013 Bilbao, Spain. Tel.: +34 678 658 733.
    E-mail address: juanan.pereira@ehu.es (J. Pereira).
[1] These authors contributed equally to this work.

who struggle to attend face to face lectures (McConville & Lane, 2006). They adopt deeper approaches to learning because they feel less inhibited than if they had to participate in role play sessions in front of a large class (Freeman & Capper, 1999; Olaniran, Savage, & Sorenson, 1996).

However, as Kay (2012) recognizes in his thoroughly review of the use of online videos in education, there is a lack of modern research about how generic skills can be positively developed through the creation and peer-assessment of online videos.

This paper describes a practical project which was carried out at university level in the north of Spain – Department of Nursing Studies – in order to evaluate generic skills, in particular a subset of interpersonal competencies (cooperation, teamwork and others' criticism, intrapersonal competencies (capacity for autonomous learning, attitude towards new learning tools, awareness of their learning process and self-criticism), and instrumental competencies (ability of dealing with new technologies, aptitude for oral and written communication and creativity) through the creation and self- and peer-assessment of online videos.

This study aims to enrich the existing body of literature, while augmenting the understanding of the benefits in generic skills development, by exposing our practical experience of nursing students using open source tools to record and peer assess online videos.

The following sections provide details on how the research was conducted as well as what the chief conclusions were and what lessons were drawn. Section 2 revises the literature related to the project. Section 3 presents the main objectives and research questions, and outlines participants' profiles, materials and applied procedures. Section 4 shows the students' opinions on didactic benefits of the research as well as a brief analysis of data accumulated through peer-assessment, self-assessment and the assessment provided by the teacher. Section 5 discusses some of the quantitative and qualitative data presented earlier and proposes possible reasons to explain the mentioned results. Lastly, in Section 6, we summarize the main conclusions of the project and outline some recommendations for future research.

2. Related work

2.1. Video in the classroom context

Online video recordings of lectures or subject related material for teaching and learning has been used before. Kay (2012) provides a comprehensive review of research literature about how online video files impact on teaching and students' learning outcomes. Kay highlights in his findings positive affective, cognitive and behavioral students' attitudes toward the use of online video recordings (video podcasts). Yet, the literature also warns about some challenges experienced when using online videos in the classroom context, mainly related to technical issues (big file sizes, download times, significant technical knowledge required to download and use online video material) and in some cases, the sheer preference for off-line classical lectures.

Most academic papers are focused on the use of passively viewing of online video recordings. Previous applications of video materials in specialized courses in engineering, medicine, pharmacy and chemistry produced good results. For instance, in their work Romanov and Nevgi (2007) used short videos to help medicine students to understand various matters explained in class. As a result, students displayed better academic performance. Similarly, Kamin, O'Sullivan, Deterding, and Younger (2003) shows that after having attended video virtual classes within the rotation program in several pediatric centers, 3rd year medicine students display greater critical-thinking skills. Cox (2011) incorporates elements of digital

learning (health-related videos) into PowerPoint presentations within the courses in biochemistry and organic chemistry. He does it with a view to improving the quality of academic resources available outside the classroom and to enhancing students' positive attitudes and commitment towards learning new ideas and concepts. Other research by Wang, Mattick, and Dunne (2010) shows how they record a part of their lessons and make them available online so that the students can watch them in advance and in the process internalize the concepts taught in class more effectively.

On the other hand, research shows that viewing online video material alone is not enough to guarantee deep and meaningful learning. Supported by the constructivist theory those academics view learning "as a formation of abstract concepts in the mind to represent reality" (Zhang et al., 2006). They posit that learning occurs when a learner constructs internal representations for his or her unique version of knowledge (Tsay, Morgan, & Quick, 2000), so if learning is to occur, students should be provided with activities that ask them to play active and creative roles during knowledge construction, which means that it is not enough to merely broadcast online videos to students. It is necessary to design learning activities using videos that provide students a sense of control over what they are doing, in a way that challenges them to interiorize the subject related knowledge so they are able to communicate and explain it to their peers and non-technical people using plain terms and their creativity skills.

However, there are not many papers suggesting the benefits on skill development associated with the creation of online video material. Alpay and Gulati (2010) and Armstrong, Tucker, and Massad (2009) reported that students felt they improved with respect to analytic, communication, cooperation, creativity, and technology skills. Correspondingly to our research, McCormack and Ross (2010) carried out a collaborative project in order to integrate video materials into practical activities. Their students search the web, compile information and create collaborative videos to increase their conceptual understanding of the subject (bacterial transformation). As Kay (2012) asserts, there is a lack of research on this promising area.

2.2. Generic skills development in Nursing Studies using videos

According to the European Commission funded Tuning research project (González & Wagenaar, 2003), interpersonal skills are seen as central to some high education subject areas such as Business Studies, Nursing and Education. In nursing, particularly, interpersonal communication abilities are fundamental, and communication aspects are key skills for the profession.

The same project notes that although students are already in possession of many interpersonal skills when they start higher education given the importance of interpersonal abilities for those fields, those competencies should be substantially improved. For doing so, students may be aware of the fact that they have much to learn in this field, and for that aim, educators should encourage students to do a self-critical evaluation of their existing knowledge and to find out whether what they believe they say (what they try to communicate) is effectively understood by others.

On the other hand, computing and technological revolution in information and communication has been inducing changes in all contexts including the field of healthcare science. Indeed, the development of Information and Communication Technologies (ICTs) has significantly influenced the everyday work of a nurse by potentially facilitating and enriching the communication between a patient and the medical personnel.

Technological innovation aimed at enhancing long-distance patient care requires of a nurse to exhibit effective communication skills as much as technological competencies. Therefore, acquiring