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Undergraduate students' perspectives on digital competence and academic literacy in a Spanish University

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ABSTRACT

Recent studies show that students' digital competence is part of a process of academic literacy that requires the development of information and ICT literacies. This article attempts to analyse digital competence and the development of information and ICT literacies in relation to academic literacy practices which take place in the learning process in undergraduate studies. Data were collected through completion of self-report questionnaires asking about the writing and reading practices and the process of literacy development in university students. The survey was completed by a sample of 786 students in the School of Education. The data obtained were analysed using the techniques of principal components analysis and discriminant analysis. The results describe the ICT and information literacies in literacy practices of the participants, and their relation to the academic literacy process that takes place at university. The results have allowed us to assess the processes for the development of ICT and information literacies and their relationship to academic literacy. Our study indicates a wide gap between digital competence developed in informal learning contexts and its scarcity in university literacy practices (formal learning settings). In general, Spanish University academic practices do not incorporate ICT and information literacies processes as a part of students' academic literacy. Deficient ICT and informational literacies may lead to difficulties in the professional development of teachers.

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1. Introduction

In recent decades, the daily use of ICT has changed literacy practices in our society (Ala-Mutka et al., 2009; Gillen, 2014; Snyder, 2001), in general, and in undergraduate students, in particular (Barton, 2001; Crook, 2005). Digital media also display changes in reading and writing practices at university with new forms of communication (Satchwell & Ivanič, 2007). The use of digital media requires a new pedagogy (Cope & Kalantzis, 2009) in order to develop digital competence within academic literacy (Johnston & Webber, 2003; Lea & Jones, 2011).

Academic literacy (Lea & Street, 1998, 2006; Thesen & Cooper, 2014; Wingate, 2015) in a university setting (i.e. the concepts and strategies required to participate in an academic community) has been facing a new challenge in the last two decades (Gee, 2000; Lea & Jones, 2011; Merchant, Gillen, Marsh, & Davies, 2013; New London Group, 1996). The social and cultural changes that have taken place in the 1990's up to the present have led to a more diverse student population and therefore more diverse learning needs in the context of higher education (Goodfellow & Lea, 2013). The use of the internet in various private and professional fields has aroused great interest in the field of digital competence in educational programmes and the teaching and learning processes at university (Goodfellow, 2011; Lea, 2013; Säljö, 2010).

2. Theoretical framework

Communication in the current social context is dynamic and involves situated literacy events (Barton & Lee, 2013) in different domains such as at school, at home or between peers (Lillis, 2001). The various elements of the discourse such as the mode (linguistic, visual, gestural, spatial or auditory) or the genre (an email, a report etc.) play an important role in redefining a new communicative framework in a social context and, therefore, at university (Kress, 2003).

In our inquiry, we investigated the use of digital competence in a

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university setting and its relationship to the development of academic literacy. "Digital" refers to activities related to new information and communications media (Goodfellow, 2011). We define "competence" as the set of knowledge, skills and attitudes that are necessary for personal and professional development in different contexts. In this article, "digital competence" is understood as:

> (…) the set of knowledge, skills, attitudes, abilities, strategies, and awareness that are required when using ICT and digital media to perform tasks; solve problems; communicate; manage information; collaborate; create and share content; and build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively for work, leisure, participation, learning, socializing, consuming and empowerment (Ferrari, 2012, p. 30).

This concept of digital competence considers learning both in the academic domain, as part of institutional literacy practices in a university, and in the social domain where informal learning and hybrid vernacular literacies play an important role (Meyers, Erickson, & Small, 2013). Hybrid vernacular literacies are a result of the interaction between literacy practices that occur in different domains, which arise in daily life and beyond the cultural practices of institutions (Barton & Hamilton, 1998). Domains are settings, spaces and cultural beliefs where literacy events are practised (Pahl & Rowsell, 2012). In conclusion, digital competence develops in various domains (at home, among peers, in academic or professional settings) that interact with each other (Scribner & Cole, 1981) as Fig. 1 shows.

The social domains (home, peers and so on) develop several literacies, especially media and digital literacies. Media literacy is defined as the ability to understand, interpret, recreate and assess different media (Buckingham, 2007) and digital literacy is the technical ability to use the computer and internet (Ala-Mutka, 2011).

Taking this into account, our research has focused on digital competence in higher education. Figure one shows the different literacies that make up digital competence, and the domains in which it is developed. Beetham, McGill, and Littlejohn (2009), Goodfellow (2011), and Newman (2008) have suggested that information and ICT literacies are the most representative of digital competence in the academic domain. Information literacy includes the ability to search for, select, analyse, organize and communicate information effectively, as defined by the American Library Association (1989) and by the Chartered Institute of Library and Information Professionals (CILIP, 2012), while ICT literacy includes the set of skills and knowledge related to the ICT industry (Beetham et al., 2009).

Digital competence can be reconceptualised regarding academic literacy in a university setting. The development of digital competence should not only focus on individual skills (Buckingham, 2008; Lankshear & Knobel, 2011), but also on the ability of the academic institution to integrate the individual into a cultural and social practice like the academic discourse community (Lea, 2013;

Maybin, 2000). This discourse community is composed of a group of people who recognize, interpret and produce common discourse and literacy practices (Barton, 1994; Hyland, 2009; Swales, 1990).

This academic discourse community is dissociated from informal and professional digital practices (Goodfellow, 2011; Meyers et al., 2013). It draws on the learning process of undergraduate students where academic practices interact with hybrid vernacular ones (Fairclough, 1992; Gregory & Williams, 2000; Ivanič et al., 2009; Maybin, 2007; Satchwell & Ivanič, 2007), and where multimodal reading and writing − with their different literacies (visual, verbal, etc.) − have the same relevance and interest (Kress & Van Leeuwen, 2001; Kress, 2010).

In the light of the characteristics of current academic literacy described above, we pose the following research questions related to the digital competence developed by undergraduate students, focusing on two bachelor degree programmes in one Spanish university:

a. What are the characteristics of digital competence of undergraduate students in one Spanish University?
b. What are the literacy practices of students and which practices do they use to develop digital competence at university?
c. Is digital competence integrated into academic writing and reading tasks?
d. Do the academic practices of undergraduate students incorporate ICT and information literacies developed in informal learning contexts?

3. Methodological framework

3.1. Sample

The convenience sample in our study was composed of students from the academic courses 2012/13 and 2013/14 of two undergraduate degree programmes. This form of sampling involves selecting the most readily available respondents, regardless of characteristics, until the sample size has been achieved (Dwyer et al., 2009; Özdemir, St. Louis, & Topbaş, 2011). All the students on both programmes were invited to participate in this study. In the case of the Degree in Early Childhood Education the sample consisted of 354 students out of a population of 480 students (sampling error of 2.67 for a confidence level of 95%) and in the case of the Degree in Primary Education, the sample was 432 students out of a population of 1200 (sampling error of 3.8 for a confidence level of 95%). 73.9% of the students were aged between 18 and 21. Most participants (68.5%) had attended high school, followed by 25.2% that had come from an upper-level certificate in Vocational Training and 2.9% from other university degrees or diplomas. 80.2% were not working and, of those who were, 10.2% were employed in education-related activities. Over 90% of the participants were female, reflective of Spanish Schools of Education where women represent the majority of students. According to the figures of the Instituto Nacional de Estadística (2016), in Spain 97.7% of teachers
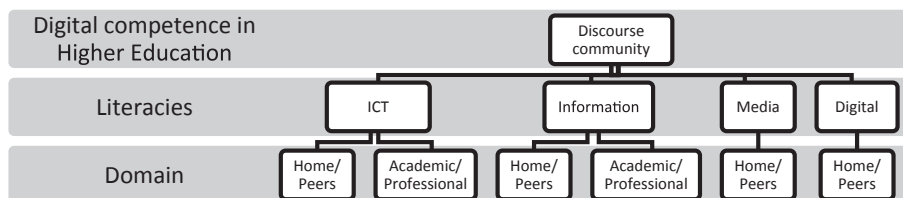

Fig. 1. Domains and literacies of discourse communities in Higher Education.
Source: Adaptation of Pourbaix (2000) and Ala-Mutka (2011).