Teaching presence and regulation in an electronic portfolio

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ABSTRACT

Teaching presence provides conceptual coherence to construct, operationalise and interpret the regulation of online learning environments. Electronic portfolios contribute to the regulatory process moving from an internalisation to an external regulation. The aim of this research is to analyse the relationship between the techno-pedagogical design of an electronic portfolio (Transfolio), the teaching presence focused on the use of the tool and the student regulation processes. This study analyses the online teaching–learning processes supported by Transfolio of two post-graduate courses by focusing on the techno-pedagogical support and on the regulation process. The nature of our research objectives leads us to use a mixed methodology based on a naturalistic observation, content analysis and comparative statistics. Results show that the teaching–learning process is characterised by the patterns of co-regulation and self-regulation. Also, results show the importance of the techno-pedagogical support provided by the teacher, not only in regard to the nature of this instructional support but also concerning how it is presented to the student and the importance that is attributed to it in the teaching–learning process, that is, what it is that assistance is offered in.

1. Introduction

Cognitive presence and teaching presence, together with social presence, form a theoretical model sufficiently supported nowadays in the field of online education (Anderson, Rourke, Garrison, & Archer, 2001; Garrison, 1991; Garrison, Anderson, & Archer, 2000, 2001; Garrison & Arbaugh, 2007; Juwah, 2006; Kanuka, Rourke, & Laflamme, 2007; Picciano, 2002; Rourke, Anderson, Garrison, & Archer, 2001). Teaching presence is the element that facilitates the establishment and development of a community of enquiry for educational purposes, while cognitive presence is the extent to which the participants in a community of enquiry are able to construct meaning through sustained communication. Social presence plays its part in this joint construction of knowledge insofar as it is defined as the ability of the participants of a community of enquiry to project themselves socially and emotionally as real people by means of communication. Garrison et al. (2000) coined the concept of teaching presence based on the concept of immediacy defined as non-verbal behaviours that reduce the physical or psychological distance between teachers and students. Subsequent research extended the concept of immediacy, to the verbal behaviours of the teacher and linked these verbal and non-verbal behaviours of the teacher with cognitive learning (Gorham, 1988; Sanders & Wiseman, 1990).

Recent studies have helped to expand the model in various aspects. Thus, some studies have laid greater importance on technology in the sense of not being simply a medium in which processes take place or through which the processes are delivered; instead, they treat technology as a presence, as it is important that students develop presence and interaction in online teaching–learning environments in spite of the limitations of some technological tools with regard to sustaining collaborative communication (Caspi & Blau, 2008). Viewing technology as a presence leads us to analyse technological tools as part of the teaching–learning process. Other studies have given further substance to the teaching presence analysis model established by Garrison et al. (2000, 2001) by including two additional levels of analysis (Coll, Engel, & Bustos, 2009). One level of structural analysis is based upon the use of the activity registries provided by technological environments, with the aim of obtaining a picture of what participants do and when they do it in the learning environment. The other level of analysis, complementary to the previous one, consists of an analysis of the content of the contributions made by participants (what they refer to and how they do so) in order to relate it to the management of the structure of social participation, of coursework and of the meaning that they deal with jointly.

The presence of a theoretical framework provides the conceptual coherence to construct, operationalise and interpret metacognition in an online collaborative enquiry. "*A community of inquiry*

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provides the framework for collaborative constructivist approaches that support and sustain discourse with the potential to contextualize metacognition in an online learning environment" (Akyol & Garrison, 2011). According to Akyol and Garrison (2011), most of the messages included one or more dimensions of metacognition. This is not surprising since they are interdependent. It is also important to note that monitoring of cognition and regulation of cognition were observed together sequentially in most of the messages.

1.1. Self-regulation, teaching presence and techno-pedagogical design

As a complement to the presence model, the regulation of student learning has been identified as a mechanism for the construction of knowledge in student-centred online learning models (Choi, Land, & Turgeon, 2005; Dinsmore, Alexander, & Loughlin, 2008). The analysis of teaching presence focus on metacognition has been centered on self-regulation processes (Akyol & Garrison, 2011; Hadwin, Järvelä, & Miller, 2011). Student self-regulation processes arise from an internalisation of the external regulation carried out by the teacher or classmates, i.e.: co-regulation (Alexander, 2008; Efklides, 2009; Hadwin, Wozney, & Pontin, 2005; Lizzio & Wilson, 2005; Schunk, 2008). *Co-regulation is the temporary coordination of self-regulation amongst self and others. Typically, co-regulation consists of emergent interactions that temporarily mediate regulatory work (strategies, monitoring, evaluation, goal setting and motivation). Emergent interactions give rise to internalisation of self-regulatory processes in the service of learning. Co-regulation is jointly negotiated, recognising that regulation experience arises throught interactions where each participant brings different kinds of self-regulatory challenges and expertise to the emergent regulation* (Hadwin et al., 2011). Thus, co-regulation is relevant in understanding the process of self-regulation within the context of the joint activity of the participants (Azevedo, 2005; Azevedo & Hadwin, 2005; Järvelä, Veermans, & Leinonen, 2008). Therefore, the progressive autonomy and self-regulation of learning must be analysed in teacher–student dialogue and in student–student dialogue, understanding that these have a bearing on the process of self-regulation itself. Analysing co-regulation in teacher–student dialogue and in student–student dialogue allows one to identify and to characterise the process of regulation itself. Techno-pedagogical design of the resource that sustains the teacher–student and student–student dialogue can potentially assist in this process of co-regulation (Hadwin et al., 2011; Winters, Greene, & Costich, 2008). Techno-pedagogical design offers support in the sense of providing help by means of the design itself. An example of the actual form of support offered by techno-pedagogical design is the electronic portfolio. This support takes the form of:

1. The use of the electronic portfolio and the presentation of evidence.
2. The process of furnishing evidence of a specific level of skill.
3. The need for reflection and justification.

Both the teacher and students must have the same performance norms and criteria with regard to the activities, but the mere fact of having these same performance norms and criteria does not in itself lead to the construction of knowledge. Techno-pedagogical support is necessary, but not sufficient, to bring about the management of shared meaning (Buraphadeja & Dawson, 2008; Dabbagh & Kitsantas, 2005; Juwah, 2006; Kaplan, 2008; Karasavvidis, Pieters, & Plomp, 2000). Therefore, the progressive autonomy and self-regulation of student learning for the construction of knowledge may be analysed based on the joint study of teacher–student dialogues and dialogues among students, and the support provided by the techno-pedagogical design (see Table 1).

1.2. Electronic portfolios

The most recent studies, in particular the analysis of the teaching–learning processes supported by e-portfolios, provide evidence of modest levels of cognitive achievement associated with scant self-regulation by the student (Barbera, 2008; Barbera, Aguado, Guardia, & Vall-llovera, 2009; Lajoie, 2008; Pea, 2004). Specifically, the e-portfolios have been used to maintain digital scaffolding. This investigation uses qualitative methodology to analyse the "effectiveness of scaffolding strategies" in a digital interactive context. There are various digital tools that support these processes, for example, Weblog-based e-portfolios (Chung, 2008), eFolio Minnesota (Cambridge, 2008), Informed Self-Directed Learning (Kicken, Brand-Gruwel, & Van Merrienboer, 2008) and PSL/E-portfolio (Chesney & Marcangelo, 2010). These electronic portfolios focus on learning within the context of a formal academic programme and concentrate on supporting currently enrolled students and teachers. Others, such as eFolio Minnesota, offer electronic portfolios for lifelong learning. E-portfolios are usually software that is relatively simple and easy to use. They are online spaces where the learner has opportunities to select and demonstrate evidence of learning. They usually have pre-established categories in which the users can insert their contributions, or they can create their own categories otherwise.

A consensus seems to be emerging in the literature that e-portfolios have at least the potential to support learning. In this respect, we highlight the PSL/E-portfolio, which "was to investigate the extent to which using a personal learning system (PLS) can facilitate formative and collaborative feedback to assist student learning" (Chesney & Marcangelo, 2010). The PSL/E-portfolio has brought about the emergence of shared writing and the value of formative feedback. Otherwise, one possible barrier to giving effective feedback is lack of time. Participants find it difficult to find the time to respond to their classmates, and the feedback to their fellow students consists of brief verbal answers (maximum 1000 words). Nevertheless, given that the e-portfolio "provides a fertile medium for enhancing learning through reflection, not only providing the opportunity for a broad range of study within the field but also embedding reflective processes and metacognition" (Chesney & Marcangelo, 2010), more research is needed. In this regard, Chesney and Marcangelo (2010) propose to investigate artefacts and mechanisms in greater depth to enrich the portfolio and increase participation. Progressive autonomy and self-regulation does not always occur (Gunawardena, Lowe, & Anderson, 1997); even when the technological design and the pedagogical design have been subjected to parallel and interconnected development, for strictly educational ends and with the aim of promoting the processes of regulation, the benefit reaped by students in the construction of knowledge is poor.

Kicken et al. (2008) note that, for analysing self-regulation and co-regulation, relevant research questions concern the optimal way of presenting performance levels and performance standards to students, approaches to modelling peer-assessment and characteristics of methods that help students reliably judge their own performance. Regarding the data provided to students, it needs to be examined which data are sufficient and necessary for students to make appropriate decisions and how these metadata should be presented. In the analysis of the optimal way of presenting information, electronic portfolios must be considered as techno-pedagogical support.

A more in-depth analysis of the optimal way of presenting information is necessary, such as regulation, potentially related to the actions of the teacher, the desired levels of learning and high student satisfaction levels. In short, it indicates a lack of detailed research aimed at establishing and characterising the relationship