Towards the refinement of forum and asynchronous online discussion in educational contexts worldwide: Trends and investigative approaches within a dominant research paradigm

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Michael Loncar [a,b], Neil E. Barrett [a,c], Gi-Zen Liu [a,*]

[a] Foreign Languages and Literature Department, National Cheng Kung University, 1, University Road, Tainan City 701, Taiwan, ROC
[b] English Department, National Pingtung University of Education, 4-18, Ming-Sheng Road, Pingtung City, 90003, Taiwan, ROC
[c] English Language Center, Southern Taiwan University of Science and Technology, N Building No. 1, Nan-Tai Street, Yungkang Dist., Tainan City 710, Taiwan, ROC

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ABSTRACT

The growth of asynchronous online discussion (AOD) in primary, secondary, undergraduate, and post-graduate contexts and courses has resulted in a growing body of literature that provides valuable insights into the issues surrounding the use of online writing, online discussion, and distance and blended learning in formal education worldwide. This phenomenological critical literature review provides an overview of research focused on forum use and AOD published from 2008 to 2012. Papers were chosen based on a selection process suggested by Wu et al. (2012), where nine of the most influential e-learning education and educational review journals were searched according to year, 2008–2012, and the following keywords: forum, threaded discussion, and threaded chat. Three teachers/educational re-searchers, each with at least five years of experience using forum and AOD in university contexts, further filtered the corpus through following a detailed inclusion/exclusion procedure, which resulted in a refined corpus of 43 journal papers. Quantitative analyses of results reveal most AOD research in educational contexts from 2008 to 2012 was carried out through or on Learning Management Systems (LMS) platforms in university settings, within computer and education classes, with blended learning dominating distance learning contexts. Most research settings were based in Asia and Europe, while the three countries with the most AOD publications were Singapore, Taiwan, and the U.S. In addition, the journals dominating the field were *Computers & Education*, followed by *Journal of Computer Assisted Learning*, and *Australasian Journal of Educational Technology*. The refined corpus was also analysed qualitatively via phenomenological method (Smith, Flowers, & Larkin, 2009), in order to identify and contextualize meaningful statements and themes. Discussion focuses on the existence of a dominant research paradigm that we divide into four investigative impulses and discuss: argumentative, comparative, relational, and analytical. Specific representative examples of each investigative impulse are thoroughly discussed and critiqued, and as a result, should be of significant value to all stakeholders, including researchers, instructors, and students, involved in forum and AOD use in educational contexts globally.

1. Introduction

As technology has advanced, so has the rise of instructional-based technology (IBT). Advances in technology and tools, such as computer-mediated communication (CMC), Learning Management Systems (LMS), Course Management Systems (CMS), and E-platforms, as well as the widespread reach of the internet due to advances in connectivity and coverage, have led to a profound paradigm shift: the emergence of

* Corresponding author. Tel.: +886 952 179024; fax: +886 6 2387730.
E-mail addresses: violaptw@yahoo.com (M. Loncar), baoneer@gmail.com (N.E. Barrett), gizen@mail.ncku.edu.tw (G.-Z. Liu).

distance and blended learning environments (Liu, 2011; Mayadas, Bourne, & Bacsich, 2009). In both distance and blended learning environments, students are asked to discuss and interact with peers and with course materials. Teachers, from primary school to university, are increasingly aware of the affordances of online forums to promote interaction and complex thinking that is not always effective in traditional face-to-face learning situations (Chen & Wang, 2009). Asynchronous online discussion (AOD) not only extends knowledge construction from the classroom but also provides students with the time and space to work with, explore, and critically discuss topics by interacting and building interactive online communities (Gao, Zhang, & Franklin, 2013). This fact has led to the development of subfields such as Computer Supported Collaborative Learning (CSCL) (Hewitt, 2005), where deeper knowledge construction and social interaction occur in tandem to promote effective learning (Chen & Wang, 2009). Forums are often used in a format commonly referred to as threaded forums. In a threaded forum, the user has a choice to reply to an existing topic or start a new topic for discussion, as all the posts in a forum thread are presented in chronological order (Gao et al., 2013).

The growth of forum and AOD use in primary to university courses has resulted in a growing body of literature that provides valuable insights into the issues surrounding forum and AOD in formal education. Andresen (2009), in a literature review of asynchronous online forums from 1999 to 2007, found that the literature began by investigating forum as a writing tool, but has matured to focus on several themes including the following: Student interaction in the forum (Hewitt, 2005), the role of the instructor (Guldberg & Pilkington, 2007), complex issues arising in the assessment of forums (Yang, Richardson, French, & Lehman, 2011) and the efficacy of instructional material (Lee, 2008; Liu, Liu, & Hwang, 2011).

We believe that since the development of online chat tools, as well as academic institutions adoption of Course Management Systems (CMS) and Learning Management Systems (LMS) are recent phenomena (Liu, 2008; Liu, 2011; Liu & Chen, 2007), there should be powerful changes in the aforementioned themes reflected in the literature and that it is important to identify the latest findings in order to offer the major stakeholders, such as future researchers, course designers, instructors, and students, insights into the current and future directions of this field. The purpose of this paper is to gather, analyse, and synthesize data in order to isolate and critically reflect upon these findings. Furthermore, we hope to address how the literature is responding to the changes in classroom and educational practice involving online discussion.

In addition, this study hopes to provide an overview of the research contexts (including country, region, level of education, and discipline), platforms, and tools being used for forum-based discussion. The papers were selected based on a selection process by Wu et al. (2012), where nine of the most influential indexed e-learning education and educational review journals were searched according to the following key words: forum, threaded discussion, and threaded chat. Following this, the researchers employed a phenomenological review method in order to document and better understand the research concerning forum use and AOD in education contexts in general, and to identify and discuss meaningful statements, salient themes, and key trends and relationships.

2. Literature review

Asynchronous online discussion is an online computer-mediated communication (CMC) system that allows students to read and participate in online discussions at their own pace, i.e., when they feel they are ready to contribute, making the discussion 'asynchronous' in nature (Thomas, 2013). A discussion forum is a tool used in a web-based learning environment for learners to construct, collaborate and engage with knowledge asynchronously or synchronously. It often consists of facilitative questions or examples of real-life situations with which learners interact (Topcu & Ubuz, 2008). Gerosa, Filippo, Pimentel, Fuks, and Lucena's (2010) define educational forum as "an asynchronous textual communication tool, largely used to delve deeper into a course subject" (p. 528). Many studies into online forum discussions have been framed under the theory of social constructivism, and this type of learning is referred to as computer-supported collaborative learning (CSCL) (So, 2009). Studies into CSCL focus on how instructional material and software mediates social interaction through technology. Within CSCL studies, the focus has been split between instructional materials, software used to mediate learning (So, 2009), and how learners interact in asynchronous discussions (Yang et al. 2011).

Four previous literature reviews investigated themes in online forum discussions. Hammond (2005) reviewed 62 papers published between 2000 and 2004 looking at teaching and learning assumptions and curriculum design. The majority of papers were based on studies in higher education institutions. He noted that there was a broad consensus towards social constructivism, or a commitment from course designers and instructors to encourage interaction. Many studies reported students' perceptions towards the benefits of forum collaboration, but there was no consistent way to categorize or measure these perceptions. It was also reported that the papers in his corpus identified curriculum design and instructor support as crucial for learner engagement, and the software or design model as less important. Interestingly, interaction was often reported in terms of frequency, not in terms of quality of interaction; as a result, it may have overlooked deep learning gains.

Gao et al. (2013) synthesized the literature in terms of what they called "Asynchronous Learning Environments" and how these environments influence learning. A previous paper by Gao, Wang, and Sun (2009) developed the Productive Online Discussion Model (PODM) that contained the following discussion environments: constrained environments, visualized environments, anchored environments, and combined environments. They searched six refereed educational technology journals between 2000 and 2011. This was narrowed down to 13 papers that fit their four learning environments. While they stressed it was not a comprehensive review, by having fixed themes they may have missed changes in the field. Nevertheless, their study does provide valuable insights into these learning environments and more importantly, explores the possibility of alternative environments and tools for threaded discussions.

In Andresen's (2009) review, he finds and discusses key research areas that include (1) the makings of a successful asynchronous discussion, which center on (a) the role of the instructor and (b) attempts to achieving deeper/high learning; (2) a movement for more accurate assessment of asynchronous discussion forums; and (3) the limitations of asynchronous teaching. Although Andersen's (2009) study does distill a number of key issues and studies, his review offers few specifics on the larger picture of research, offering little quantitative evidence of the scope of the field.

Thomas (2013) carried out a literature review into asynchronous online discussion (AOD) used specifically in health care education. She reviewed fourteen studies that met her specific quality criteria. The main aim of the review was to explore and identify the different types of online asynchronous discussion and their impact on learning. Although the results of the studies were positive, the author questioned the robustness of the evidence as many of the studies showed only small increases and several lacked control measures. For example some of