A CROSS-DISCIPLINARY, CROSS-COUNTRY STUDY OF FACULTY PERSPECTIVES ON INTERACTION IN ONLINE COURSES

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Summary

This paper discusses findings of a study on online interaction conducted in higher education institutions in three countries: Spain, United States of America, and Venezuela. Five disciplines (business, education, engineering, law, and nursing) were examined to determine how online instructors define interaction for their discipline, and design interaction to promote learning with web-based tools. This study also examined the types of online tools used, and which were considered most effective by discipline. A qualitative research design was selected. A purposeful sample of 24 experienced online faculty members from three countries in five diverse disciplines participated in in-depth face-to-face interviews. The findings indicate that across the five disciplines and across the higher education institutions in the three countries represented in the sample, faculty are defining online interaction from a group learning perspective, visioning a community of learners online, rather than from an individual learner's perspective. Additionally, the concept of learner-community interaction emerged as an important type of interaction in the education discipline. Another perspective of interaction that emerged was the conceptualization of media as a transactional method for promoting interaction. The paper concludes with suggestions for designing interaction in online courses.

Introduction

Understanding the nature and relationship of interaction and implications for distance education design continues to receive considerable research interest. Distance education practitioners may differ in their perspectives of interaction and the relative usefulness of interaction tools. While previous studies have examined types of interaction, this study contributes new insights by exploring online interaction by academic disciplines across higher education institutions in three countries.

The purpose of this paper is to discuss the findings of a study on online interaction conducted in higher education institutions in three countries: Spain, United States of America, and Venezuela. Five disciplines (business, education, engineering, law, and nursing) were examined to determine how online instructors define interaction for their discipline, and design interaction to promote learning with web-based tools. This study also examined the types of online tools used, and which were considered most effective by discipline. Discussion includes a comparison by country and discipline. The paper concludes with suggestions for designing interaction in online courses.

Method

A qualitative research design employing an interpretative, narrative perspective to examine relationships between multiple disciplines and countries was selected as the method. A purposeful sample of 24 experienced online faculty members (university teachers) from three countries (eight each from Spain, United States, and Venezuela) in five diverse disciplines were selected for in-depth interviews. By discipline, eight interviewees were from education, six from engineering, five from business, three from law, and two from nursing. Nursing faculty was interviewed only in the United States institution. Higher education institutions included one wholly online institution from Spain, Open University of Catalonia (OUC), one dual mode higher education institution from the United States, University of New Mexico (UNM), and four higher education institutions from Venezuela, referenced as Universities in Venezuela (UV). The initial set of interview questions were discussed and developed collaboratively in face-to-face meetings by researchers representing the three countries. The questions were subsequently and collaboratively revised using desk top videoconferencing and email messaging. The questions were validated by doctoral students in the United States. After the content validation process, the interview questions were translated into Catalan and Spanish by researchers in Spain and Venezuela and checked by a bi-lingual U.S. researcher. The researchers ensured the questions held the same meaning in three different languages: Catalan, English, and Spanish.

Data collection procedures entailed use of open-ended questions in face-to-face interviews. All interviews were tape recorded and transcribed for analysis. Interviews from Spain and the United States were analyzed and codified with Atlas.ti qualitative software, while interviews from Venezuela were analyzed manually.

The coding that emerged from the data in each country was shared between the three institutions and, through a collaborative, iterative, and ultimately condensing process, a master coding list was developed from which themes emerged. Concept mapping was used as a data analysis technique to facilitate comparison of data across the three countries and multiple disciplines. The analysis was discussed via face-to-face, desktop audio and video conferencing, and electronic messaging. Triangulation occurred in three ways: (1) data triangulation - by employing two types of data sources, the in-depth interviews with faculty and review of their online course designs; (2) investigator triangulation - by employing six researchers to analyze the data; and (3) theory triangulation – by employing multiple perspectives to interpret the data (Janesick (2003). Results obtained from these differing methods provided sufficient triangulation of data to ensure the trustworthiness and credibility of findings.

Findings

Interaction Defined

The findings indicate that across the five disciplines and across the higher education institutions in the three countries represented in the sample, faculty are defining online interaction from a group learning perspective, visioning a community of learners online, rather than from an individual learner's perspective. Even though they acknowledge learner-teacher, learner-learner, and learner-content interactions as defined by Moore in 1989 from an individual learner's perspective to be important, they are approaching the online environment as a group learning space, where group interaction is key, and where a learning community can create the social fabric of learning (Wenger McDermott, & Snyder, 2002, p. 28) A UV faculty member stated, "Interaction is all the activities that I plan to enhance student-student collaboration, in order to promote social construction of knowledge…I promote constructivist dialogue among students and between student-instructor. I like to play the mediator role in the online class." At OUC, a law faculty member pointed out that online interaction is more horizontal (between learners) rather than vertical (between instructors and learners) mainly due to the absence of hierarchy and psychological fear of direct intervention by a teacher. Use of group activity, consistent with instructional methodologies in many U.S. business schools, was identified at UNM as an important form of interaction. A faculty member stated, "I want to have group projects where students are required to interact with

each other to develop the group project. I have to think about how to do this, how the technology will support it…we use group projects heavily in our graduate program and in undergrad advanced classes."

Engineering tends to define interaction in terms of group or team activities. A OUC faculty member stated, "Through the activities we design, we create the need for interaction and debate. We have virtual laboratories where students participate a lot and interact with each other and help each other." Faculty also pointed out the importance of planning for and designing group interaction. According to a UV engineering faculty member, "The instructor needs to plan the interaction in order to avoid monologues…the discussion forums need to be planned and designed in order to promote social construction of knowledge, generate dissonances, and reach group consensus to solve any problem stated."

Additionally, the concept of learner-community interaction emerged as an important type of interaction in the education discipline. For example, one faculty member stated, "And then students can interact with experts outside very easily, teachers are interacting with other teachers, and my students are interacting with other people from China in another course." Interestingly, learner-community interaction was identified as a component of interaction by both engineering faculty members interviewed at UNM. "Students connect to construction industry…students post questions asynchronously to a discussion board in which the teacher and students interact with each other."

Another perspective of interaction that emerged was the conceptualization of media as a transactional method for promoting interaction. Media was the vehicle for promoting interaction, and interaction was shaped by the media used. . Business faculty defined interaction as the use of media, to promote dialogue, and questioning. An education faculty member said, "There is student-content interaction, student-teacher interaction, that's important, and then learner-learner interaction, and interaction with the interface; with the navigation of the technology." Using media and dialogue were commonly proffered as transactional methods in facilitating interaction by education faculty. Use of media is pervasive throughout definitions of interaction. Media was considered as enhancing interaction processes, primarily with regard to problem-solving strategies.

These findings from interview data across disciplines and countries suggest a significant shift in the definition of online interaction from an individual learners perspective as defined by Moore in 1989, to a learning community perspective, which supports the concept of a "community of inquiry" as discussed by Garrison, Anderson, and Archer (2003). It is noteworthy that interaction is also defined as a learner interacting with a larger community, which includes not only class members or peers, but individuals who can be brought into a class community through electronic media. This supports Bransford, Brown, and Cocking's "community-centered approach" to learning in their research on "How People

Learn" (2000). Media and technology are considered to play a critical role in promoting interaction in an online learning community. This definition of interaction from a group and learning community perspective reflects developments in computer-mediated communication, a medium, which for the first time brought about the ability for distance learners separated by geographical distance and time, to learn in a community (Carabajal, LaPointe, & Gunawardena, 2003). This definition of interaction from a learning community perspective also supports recent developments in social networking utilizing Web 2.0 technologies.

Generally, the education discipline appears more homogeneous across countries in terms of a shared understanding of interaction. Learner-teacher interaction was discussed to a greater extent, across countries, than in other disciplines. Nursing faculty at UNM define interaction primarily as learner-learner interaction and learner-interface interaction, with learner-teacher and learner-content interaction mentioned to a lesser degree. Law faculty define interaction as learner-learner and learner-teacher interactions. Less common definitions found among the countries' institutions included guiding students at UOC, and case studies and lectures at UNM.

Types of Interaction Designed

Faculty consistently stated that designing interaction is critical to the success of online courses. The benefits described included enhancements with regard to cognitive and social presence, experiential and situated learning, and sharing experiences and perspectives in the application of knowledge. Dialogue permeates disciplines and countries in promoting learning through interaction. While methodological differences are evident among disciplines, the common element throughout, and across countries, is the interpersonal aspect. Indeed, some instructors emphasized that well-designed online interaction actually provides students with a greater degree of confidentiality, autonomy, and a safer environment in which to build confidence and develop communication skills. This, in turn, provides greater contribution in discussion forums and group activities, increasing integrative learning opportunities.

Business faculty design projects and use questioning to promote learning. A number of identified but not unanimously implemented methods, across countries, included exercises, and collaborative activities. While not pervasive across countries, these methods are nonetheless consistent with the notion of group activities and interactions, which were broadly identified by business faculty in their interaction definitions.

In education, use of dialogue, projects, experiential methods, applying knowledge, asking questions, providing feedback, assessment, and use of media were common threads across countries as design features to promote learning. However, one faculty member at

OUC commented, “I don’t design interaction…my class plan is designed to observe the students’ participation with the aim to see if they understand the content.”

Engineering faculty has a tendency toward designing more feedback and learner-learner interaction in their courses, relative to other disciplines examined. In the field of engineering, and consistent with learning theories, including the provisions of Bloom’s taxonomy, instructors are incorporating more of the affective domain skills in teaching learners to become professional engineers. Additionally, although not typically pervasive across countries, engineering faculty identified confidence building, helping each other, reflection, and creating dissonance as techniques to promote learning. Within the law schools examined, faculty primarily leverage collaborative activities to promote learning. Nursing faculty design activities to facilitate interaction, using both asynchronous and synchronous tools. Journals and discussion forums are used extensively. Chat was mentioned as an effective tool for infusing useful spontaneity. Students also construct mind maps which can be shared with other students in developing concepts.

Online Tools and Their Effectiveness in Promoting Interaction

To promote interaction in online classes, the common methods across disciplines and countries is the use of group activities, and group/forum discussions. Specific and extensively cited tools to facilitate these group-oriented activities include discussion forums, wikis, chat, auditory tools, e-mail, course material links, and blogs. Assessment tools and announcements were likewise mentioned, albeit to a lesser extent.

Across countries, business faculty commented on the use of group activities and discussion as primary methodologies to facilitate interaction. Subordinate vehicles to accomplish this included auditory tools, course material links, and chat. The use of media, dialogue, and announcements were mentioned, but less common across countries. Video lecture, e-exercises, and case studies were referenced at UNM, while encouraging students to publish, debate, and research were identified as effective interaction tools at OUC. Faculty at UV suggested problem-based learning initiatives as effective interaction methods.

Education faculty used a broader and more collaborative set of tools, including Web 2.0 for facilitating interaction in comparison to other disciplines. Use of wikis was the predominant vehicle for promoting interaction across countries, with auditory tools (primarily Skype) and blogs, but less broadly than wikis. A UNM faculty member designs an interactive and complex problem-solving course feature, necessitating considerable discussion, using both asynchronous and synchronous tools. Faculty at OUC favor group activities as effective tools, while use of concept maps and scenarios in a collaborative framework was emphasized at UV.

All engineering faculty members from UNM and UV identified e-mail as a tool in promoting interaction. In addition, one from each country cited course material links and assessment tools as interaction promoting tools. UNM faculty also included the use of podcasts as effective tools and cited use of a 'current issues forum exchange' as a popular source for student interaction. In addition to utilizing wikis, engineering faculty at OUC included small group dialogue, debating, and experiential learning as effective interaction tools, while the focus at UV was on creating real-world, applicable learning activities as effective interaction tools.

Law faculty emphasized use of media generally, and cited forums and wikis as primary tools. A faculty member from OUC added, "The Wiki is a good work tool…that has injected a lot of life into the classes." Internet videos, e-mail, chat, and blogs are used to a lesser degree.

Similarly, nursing faculty mentioned use of media as effective interaction tools, in addition to discussions and chat. Their definition of interaction was consistent with the business faculty. Asking questions and engaging in dialogue were likewise emphasized as important.

Implications for Practice

The 24 experienced faculty members interviewed in this study, offered suggestions for those beginning the process of designing interaction in distance learning courses, and acknowledged the labor-intensive process involved when compared with traditional face-to-face classes. Their suggestions are grouped by discipline and country for ready reference and comparison.

Business

- Active instructor participation at the outset is critical (UNM)
- Establish direct communication with each student as quickly as possible (UOC)
- Forum introductions are very effective (OUC)

Education

- Technology relative to designing interaction may seem overwhelming, therefore, seek help early from experienced faculty or distance learning support providers (UNM)
- Start planning for online courses up to one year in advance (UNM)
- Consideration relative to the online time-space differential should be factored into the interaction design (UOC).

- Develop an in-depth understanding of available online interaction tools. However, do not mistakenly view them as the panacea for an interaction-rich course (UOC)
- Design learning activities that promote interaction and active student participation within a socially constructed framework (UV)

Engineering

- Set clear expectations for students' interaction, including consistency throughout the duration of the course (OUC)
- Faculty must be flexible (UV)
- Keen facilitating and moderating skills will enhance interaction (UV)

Law

- Instructor motivation is essential (UOC)
- One should embrace a learner-centered approach (OUC)
- Focus on learning strategies to address learner interaction needs (UV)

Nursing

- Network closely with online faculty to share experiences and enhance problem-solving capacity (UNM)
- Social presence is critical for students (UNM)
- Be creative and flexible in designing differing interaction tools to reach the eclectic needs of learners, including one's commitment to technological adaptation and proficiency (UNM)