Gender Differences in Online Courses

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INTRODUCTION

The effects of gender on learning outcomes of online courses depend upon general attitudes toward computers and computer usage, and particular perceptions of the online communication medium. The role of gender on use and attitudes toward computers has been studied thoroughly (Dyck & Smither, 1994; Gattiker & Hlavka, 1992; Whitely, 1997). There is also theoretical and empirical evidence suggesting that men and women conceptualize and use an online communication medium differently (Gefen & Straub, 1997; Herring, 1996). However, despite this body of work, the empirical evidence on the effects of these differences on learning perception and student achievement is mixed or inconclusive.

In a recent review of the literature on gender effects in online courses, Hiltz and Shea (2005) conclude that some studies document advantages for women because they participated more than men and/or achieved greater success in online courses (Moskal & Dziuban, 2001; Ory, Bullock, & Burnasa, 1997), while other studies found no significant differences by gender (Arbaugh, 2000a; Bourne, McMaster, Rieger, & Campbell, 1997). Empirical research based on multi-course samples also reports inconsistent findings regarding the effects of gender on learning outcomes. For example, while Arbaugh (2005) found a negative relationship between women and perceived learning in graduate level online courses, Fredericksen, Pickett, Pelz, Swan, and Shea (2000) found small but significant differences indicating that women perceived higher levels of learning in online courses when compared to men. In contrast, in a comparison among face-to-face, pure online, and hybrid courses, Benbunan-Fich and Hiltz (2002) report that women obtained higher grades regardless of the mode in which the course was delivered, but that learning perception was not affected by gender.

Since women and men differ in their preferred communication patterns, we believe that gender differences would emerge when we analyze online courses in terms of such patterns. Moreover, in order to understand such effects, researchers should take into account the instructional design of the courses in terms of how information is delivered through the medium and whether the students learn in isolation or in the context of collaborative exercises. The combination of the communication patterns that define the structure of online courses along with the gender-based preferences for these patterns will show whether there are gender differences in online courses and whether these differences affect learning outcomes.

This article offers a new perspective to examine the effects of gender on outcomes of online learning. We begin by briefly reviewing the literature in technology-mediated learning environments and previous gender studies and developing gender-related hypotheses for this study. Then, we describe the research methods and the sample. The data comes from post-course surveys of more than 500 students enrolled in forty MBA courses entirely delivered online. We follow with the presentation of the results and their discussion and present the future trends and conclusions in the last sections.

BACKGROUND

There are several research streams in online education, ranging from theoretical or conceptual models to prescribe how to use of technology in online courses (Benbunan-Fich, 2002; Leidner & Jarvenpaa, 1995) to empirical studies testing the effectiveness

of different synchronous and asynchronous online learning environments (Alavi, Wheeler, & Valacich, 1995; Hiltz, 1994). As online course delivery has gained increased acceptance, the research focus has shifted from the comparison of online vs. traditional courses to contrasting pure online environments.

The key to draw meaningful distinctions among courses entirely delivered online is found in the combination of the instructional method and the learning model. Depending on the instructional method, there are at least two different ways to deliver content in an online environment: objectivism and constructivism. The direct-way or objectivist approach consists of delivering content in the form of lectures notes, or textual material that students assimilate independently. In contrast, the constructivist approach consists of providing access to multiple sources of information and/or databases where the students can construct their own knowledge.

With respect to learning models, there are also two different ways to promote student learning in online courses based on the expectations and requirements of participation. Students can learn the material on their own, working individually, or by working in groups. The combination of these approaches defines four types of learning environments: objectivist-individual, objectivist-group, constructivist-individual and constructivist-group. Each of these is characterized by fundamentally different communication patterns, which are expected to play a significant role in determining whether there will be gender-based differences in learning in the electronic classroom.

Previous studies of differences in communication patterns between men and women have found that men tend to communicate on the basis of social hierarchy and competition, whereas women tend to be more network-oriented and collaborative (Kilbourne & Weeks, 1997; Tannen, 1995). These findings on gender differences have been extended to electronic communication. Men communicate online in a competitive mode, either elevating their own status or lowering that of others, while women see cyberspace as a means to develop increased collaboration and support networks for learning and communication of the entire group (Brunner, 1991; Canada and Bruscha, 1991; Herring, 1996).

In a study about uses and perceptions of e-mail in the workplace, Gefen and Straub (1997) report that women perceived e-mail to have a higher social presence and to be more useful than men did, while men found e-mail to be easier to use. Women seek to build a cooperative context and use e-mail for context-building exchanges, whereas men focus more on the content of the messages.

The perceptions of computer conferencing facilities are consistent with those of e-mail. Men are more likely to consider computer conferencing as a place to send and receive information while women perceive it as a forum to pose questions and achieve consensus of understanding (Tannen, 1995). This suggests that men would find electronic communication easier to use for information dissemination, but more difficult to use for interaction with their peers (students or co-workers). Since men focus more on the content of the message, and prefer to use an electronic medium for information dissemination, courses based on the objectivist teaching model should favor men (Brunner, 1991). Thus,

H1: Men will achieve better learning outcomes than women in objectivist courses.

Unlike men, women prefer to use an electronic medium for consensus building and exchanges with peers. Another aspect of electronic communication that favors women is that the medium lets everyone speak equally, instead of one person dominating a conversation, which is more consistent with female discourse patterns (Strauss, 1996; Tannen, 1995). Moreover, the electronic medium also encourages women to express their ideas more openly and freely and provides more opportunity to think about their responses than traditional forums (Selfe & Meyer, 1991). Given these differences in how the genders perceive and use the medium (Gefen & Straub, 1997; Herring, 1996), an Internet-based course designed in a collaborative format should favor women. Therefore,

H2: Women will achieve better learning outcomes than men in collaborative online courses.

This study is focused on the relation between gender and particular teaching/learning models, as formulated in these two hypotheses. Many other

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