

GENDER DIFFERENCES WITHIN PERCEPTIONS OF VIRTUAL COMMUNITIES

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Virtual communities are quickly becoming the standard mode of interaction in educational and professional contexts. However, the literature fails to accurately address the possibility of differences in the perceptions of these communities related to sex. Two-hundred and twenty-six students from a medium-sized university in the Mid-Atlantic United States completed 3 subscales developed to measure perceived attachment, friendship and connectivity. Analyses indicated men ($M = 6.2, SD = 2.6$) scored significantly higher than women ($M = 5.5, SD = 2.3$) in reference to perceived friendship. Additionally, men ($M = 3.8, SD = 2.1$) scored significantly higher than women ($M = 2.9, SD = 1.6$) in reference to perceived group attachment, while women ($M = 6.9, SD = 2.1$) slightly outscored men ($M = 6.3, SD = 2.1$) in reference to perceived connectivity.

After more than a decade of widespread Internet adoption, the true cognitive and communicative implications of the new medium are just beginning to emerge. One of the most prominent implications has been the rise of virtual communities. Early virtual communities were simple bulletin board (BBS) or multiple user domain (MUD) systems. Today, megacommunities such as Myspace and Facebook have revolutionized virtual life, especially for young adults. Horrigan, Rainie, and Fox (2001) explain that online communities have become “virtual third places for people because they are different places from home and work” (p. 3). Outside of informal situa-

tions, virtual communities are growing increasingly in professional and educational contexts. For example, Jones (2002) explains that “virtual study groups are commonplace. The Internet is allowing students ... to maintain a relationship with their academic environment from a distance” (p. 14). Equally, Bickford and Wright (2006) explain that these communities form “shared values, and agreement on goals. It has powerful qualities that shape learning. A community has the power to motivate its members to exceptional performance” (p. 4.2). The incredible growth of virtual communities has led to a corresponding rise in scholarly research.

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The Quarterly Review of Distance Education, Volume 8(3), 2007, pp. 269–273
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ISSN 1528-3518
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Researchers have explored numerous facets of the virtual experience—from the specific software that enables virtual interaction (Ellis, Gibbs, & Rein, 1991) to the nature of the relationships formed in virtual groups (Walther, Anderson, & Park, 1994; Wellman & Gulia, 1999). However, the possibility of perceptual differences related to sex is an underserved area in virtual community research. Few investigations have tackled whether men and women differ in their perceptions of virtual groups. In the present research report, three perceptual variables related to virtual communities are cultivated from the literature, and these variables are developed through the creation of several subscales.

RELEVANT LITERATURE

Although the notion of community is as old as humanity itself, the idea of a virtual community is quite recent. Within the computer lexicon, the term “virtual” generally refers to something that is an implied or abstract representation. Virtual communities differ from their face-to-face counterparts in several ways, but probably the most significant is that virtual community members rarely share the same physical space. Beginning in the latter quarter of the twentieth century, an interdisciplinary group of scholars devoted considerable energy to studying perceptions of virtual communities. This effort has yielded numerous definitions and conceptualizations that can be distilled into three parsimonious variables (the author reviewed the sizable literature pertaining to virtual communities, paying particular attention to the variables generally operationalized by the investigators).

First, the literature indicates that *perceived friendship* is a relevant aspect of virtual communities. For these authors, virtual groups generate close dyadic relationships that define their virtual community membership. Parks and Floyd’s (1995) seminal effort concluded that friendships or the creation of close personal relationships are a major motivational

factor for virtual community members. These findings have been reiterated in numerous studies over the past decade (see Carter, 2005; Rosson, 1999). Brown (2001) found that building trust was “a continuing effort that anchored a virtual friendship or even an acquaintance in the classroom community” (p. 29). Once this level of trust was reached, Ridings and Gefen (2004) explain, “Friendships in virtual communities can provide additional benefits beyond that of information exchange and social support. The feeling of being together and being a member of a group of friends comes with ... spending time together, companionship, socializing, and networking” (para. 16).

Perceived attachment also has been posited as another important cognitive variable for virtual community members (Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000; Wellman et al., 2003). Within the literature, numerous terms and phrases have been used to represent the emotional bond of virtual members with their community. Whittaker, Issacs, and O’Day (1997) explored these group emotional ties; the authors write that “members engage in repeated active participation and there are often intense interactions, strong emotional ties and shared activities” (p. 27). One of the outcomes of these strong emotional ties is *perceived connectivity*, meaning that Internet users come to rely upon continuous Internet access (Kubey, Lavin, & Barrows, 2001) to participate in virtual groups. Hiltz (1984) was one of the first researchers to observe that virtual communities can lead to a type of dependence that could be characterized as addiction. Scherer (1997) found that 13% of college students could be classified as connectivity dependent.

Although gender plays a role in a variety of computer-mediated interactions, its role in virtual communities is quite murky. This project stands on the premise that gender differences exist in the perceptions of virtual communities, meaning that researchers have identified that women pay more attention to perceived relational development online (Boneva, Kraut, &

Frohlich, 2001; McKenna, Green, & Gleason, 2002) than do men, and there is also some evidence that women grow more attached to online interactions than men. Thus, this project is guided by the hypotheses that women will score higher than men in reference to perceived friendship and group attachment, and this report inquires whether sex is an influential factor in reference to perceived connectivity.

METHOD AND RESULTS

To address these hypotheses and the research question, three subscales (two items each) were developed from 11 summative Likert items (anchors of 1 = *strongly disagree*, 5 = *strongly agree*) written to measure the perceptions of virtual community friendship, attachment, and perceived connectivity. Several levels of item reduction were applied to the initial 11 items.

First, 23 student coders from a public liberal arts university in the Mid-Atlantic States were provided with concept definitions (see Appendix) and rated each item on a 5-point Likert scale (anchors of 1 = *strongly favorable to the concept*, 5 = *strongly unfavorable to the concept*). One item had a low correlation with the summed score of all the items (less than .6) and was eliminated (privacy concerns prohibited the acquisition of electronic mail addresses, so nonprobability sampling was necessary). Second, a convenience sample of 138 respondents was taken from the same university population (23 men, 16.7%; 115 women, 83.3%; 1 Asian, .7%; 11 African American, 8%; 1 Pacific Islander, .7%; 117 Caucasian, 84.8%; 3 Biracial, 2.2%; 5 no response, 3.6%). Cronbach's alpha was used to develop the most parsimonious scales possible by identifying the two most stable items (pretest perceived friendship = .76; perceived group attachment = .86; perceived connectivity = .72).

After item reduction, a factor analysis sample ($n = 129$) was acquired to confirm only

three components in the dataset, and these components were composed of the appropriate items with no cross loading over .3 (30 men, 23.3%; 99 women, 76.7%; 1 American Indian, .85; 9 African American, 7%; 112 Caucasian, 86.8%; 5 Biracial, 3.9%; 2 no response, 1.6%), with a cumulative variance explaining these factors of more than 75%. A specified three-factor principal components analysis with Varimax rotation indicated that the items converged upon the expected factors. The rotated solution showed that items 3 and 4 (in appendix) for perceived group attachment were closely associated with the first factor (.94 and .93, respectively). Items 1 and 2 were associated with the second factor (.90 and .93 respectively), while items 5 and 6 were related to the third factor (.89 and .84 respectively). The eigenvalues of 2.2, 1.6, and 1.2 respective to these three factors demonstrate that the considerable amount of variance (85%) was explained within the equation. This notion was reinforced by the scree plot which showed considerable distance between any other factors.

To assess the hypotheses and research question, a balanced sample of 226 respondents (115 men, 50.8%; 111 women, 49.2%) was acquired from the same university population (2 American Indian, .9%; 2 Asian, .9%; 13 African American, 5.8%; 197 Caucasian, 87.2%; 6 Biracial, 2.7%; 6 no response, 2.7%). Internal consistency was comparable to pretesting (perceived friendship = .83; perceived group attachment = .86; perceived connectivity = .71). An analysis of variance indicated men ($M = 6.2$, $SD = 2.6$) scored significantly higher than women ($M = 5.5$, $SD = 2.3$) in reference to perceived friendship ($F = 4.7$, $p < .05$, $\eta^2 = .021$). In addition, men ($M = 3.8$, $SD = 2.1$) scored significantly higher than women ($M = 2.9$, $SD = 1.6$) in reference to perceived group attachment ($F = 11.4$, $p < .01$, $\eta^2 = .04$), while women ($M = 6.9$, $SD = 2.1$) slightly outscored men ($M = 6.3$, $SD = 2.1$) in reference to perceived connectivity ($F = 4.1$, $p < 0.5$, $\eta^2 = .01$).

DISCUSSION

Virtual communities are an increasingly popular and relevant part of daily interaction, thus an exploration into the perceptions of these groups is a very salient topic. However, the results presented here must be interpreted with caution due to the use of a convenience sample, necessitated because of university privacy regulations, which always increases potential errors in statistical reasoning. Importantly, the data contradict the original hypotheses; the literature indicates that women should be more sensitive to perceived friendship and group attachment than men, but the results showed men being more sensitive. Also, the data indicated that women were slightly more sensitive to connectivity dependence than men.

An explanation for these findings may come from the nature of membership and the types of groups that men and women typically join. Horrigan et al. (2001) explain that men are drawn to online groups involving sports, while women appear to join groups relating to health and well-being. It is possible that this rationale for joining virtual groups influences the nature of friendship, attachment, and perceived connectivity. Ridings and Gefen (2004) note that intense friendships are a more likely outcome in sports-related virtual groups because it is a “freely chosen interest” (para. 29), whereas with health groups, individuals join because of involuntary circumstances. This tendency could explain the differences in both perceived friendship and attachment observed in the present study.

This raises important implications for future researchers in numerous contexts, but especially virtual education. As Trentin (2002) explains, “Learning is inseparably intertwined with membership in a community.... As we change our learning, our identity—our relationship to the group—changes” (p. 59). Particularly, the results point to the nature of virtual group membership as being influential in community participation. In other words, most learners, but especially women, should be able to choose freely their virtual commu-

nity membership; otherwise, there may be negative consequences in terms of community participation and interaction. Accordingly, future researchers must ascertain how this notion of community membership may influence learning outcomes.

APPENDIX

Virtual Community Scale

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Virtual Community

Virtual community refers to an interactive network of individuals that communicate, collaborate, and exchange content through online networks (i.e., Internet). A virtual community is composed of perceived friendships, perceived attachment, and perceived connectivity to the virtual world.

Virtual Friendships

Virtual friendships are those close personal relationships that exist only over virtual networks (i.e., Internet, Web, etc.).

Virtual Group Attachment

Virtual group attachment refers to the perceived feeling of belonging between an individual and a virtual group (i.e., Facebook.com, Myspace.com).

Virtual Connectivity

Virtual connectivity refers to the degree to which an individual relies on continuous physical access (i.e. dialup or broadband) to one’s virtual groups and friendships.

Virtual Friendships Items

1. I am friends with people online that I rarely meet face to face.
2. I have online friends that I mostly talk to online.

Virtual Group Attachment Items

3. I belong to online groups that have a specific task to be accomplished.

4. I feel a sense of attachment to my online groups because we have work to do.

Virtual Connectivity

5. The first thing I do when I get online is check to see what other people are also online.
6. I want to be online when all of my friends/acquaintances are online.

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