

Gender and Anxiety: A Comparison of Student Anxiety Levels in Face-to-Face and Video Conferencing Courses

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This research focuses on the role of gender in face-to-face instruction and video conferencing instruction on students' levels of anxiety. This is due, in part, to the fact that gender and anxiety levels of students enrolled in remote video conferencing learning environments has received little attention in either psychological or educational research. A difference in gender as it relates to education is an important focus of research. This is due to the increasing learning opportunities for female students (online in particular). Explored later, further research should investigate various demographics and delivery options for courses.

Keywords: Video Conferencing; Student Anxiety; Gender

Introduction

Current research has shown that affective responses in alternative learning environments are lacking (McKnight, 2010). Hove and Corcoran (2008) found that there is a limit to the investigation of students' affective responses in virtual learning environments, one of which is video conferencing. Video conferencing in educational settings is a method of instruction in which instructors and students interact, both visually and with audio in "real time", with the instructor and students at the originating campus and other remote campuses, allowing simulation of the face-to-face interaction of traditional education (Fillion et al., 1999). Yukselturk and Bulut, (2009) report that within the literature, gender based differences in education are an important focus for research, and have been for a while. Research was conducted to explore the comparative impact of a students' form of instruction (either face-to-face or video conferenced) on their levels of anxiety as it relates to their gender, one reason being that gender, as a demographic variable, has great practical importance (Schleicher, Van Iddenkinge, Morgeson, & Campion, 2010).

The present research attempts to provide an exploratory study on the impacts of demographics as determining factors for anxiety levels in educational settings. More specifically, initial study undertaken here investigates the demographic of gender in a live video-based course. Further research, which is fully explored later, could explore various demographics and delivery options for courses.

Review of the Literature

Recent studies have found that attending a college or university can be anxiety-producing during the first year (Bouteyre, Maurel, & Bernard, 2007; Mundia, 2010). This can be the result of numerous factors including poor time management, repeated failure, or public speaking (Head & Lindsey, 1983). Yukselturk and Bulut (2009) report that distance education has been a good option for female students, primarily because they

can balance more of the familial and educational, as well as vocational, areas of their lives. Since distance education is one of the more popular forums for educational advancement, Yukselturk and Bulut (2009) found that the male and female may be different in several ways due to the variety of life responsibilities they have.

Bekker and van Mens-Verhulst (2007) define gender as consisting of "the socio-cultural aspects of defining people's identity in relation to sex" (p. S179). These characteristics can be very different between same sex members, but can also be similar between those individuals of opposite sexes (Bekker & van Mens-Verhulst, 2007). Judge and Livingston (2008) state that gender is fundamental and has been explored within a plethora of disciplinary perspectives. In fact, gender is often one of the first variables considered when conducting a meta-analysis of a topic. Gender and anxiety research have been explored in a variety of areas, one being distance learning (Yukselturk, and Bulut, 2009). Martin (2010) recommends that to gain better representation on gender and discipline, study one specific discipline and explore gender within it.

Abdel-Khalek and Alansari (2004) state that "anxiety is one of the most fundamental of all constructs in psychology" (p. 649). Disorders within the anxiety-spectrum are the most pervasive class of mental disorders (Stein & Stein, 2008), with over 29% of the United States population having one or more diagnosable anxiety disorder at some point in their lives (Mineka & Zinbarg, 2006.)

Both physiological and psychological manifestations have also been explored, but it is limited in a video conferenced environment (McKnight, 2010). Anxiety research in education has been limited to computer-assisted teaching methods (DeBord, Arugente, & Muhlig, 2004), learning and computer anxiety (Barbeite and Weiss, 2003), emotions and achievement (Pekrun et al., 2006), academic anxiety (Levine, 2008) and the comparisons between online learning and face-to-face learning (Solimeno et al., 2007).

As for gender prevalence, Bekker and van Mens-Verhulst

(2007) report that anxiety is substantially higher in women than in men. Mundia (2010) indicates that there is an increase in the prevalence of anxiety in college students. In addition, anxiety was more prevalent in female students than male students.

Procedures

The sample was drawn from a larger population of students enrolled in a community college. Upon registration, students had the opportunity to enroll in a variety of courses, one being called "Interactive Video Course". As more face-to-face courses were available than distance learning courses, there was unequal groups. This, however, is neither uncommon nor atypical, according to Halsne and Gotta's (2002) study of traditional versus online instruction. Their sample for study consisted of twice as many traditional students than online students.

The educational institution's distance education option was called an "interactive video course." The courses offered in this format and the traditional face-to-face format included Introduction to Psychology, Speech, English, History and Sociology. This "class subject" was included in the analyses as an independent variable to see if it had any impact on anxiety experienced. The demographics of the participants were as follows: ages 18-50, men and women, of all socioeconomic backgrounds. The exclusion criteria included those not enrolled in the video conferencing course for the above courses during a single 15-week term. Additional exclusion criteria included students who did not speak the English language fluently. There were no disability exclusion criteria for this research.

Distance education courses at this college had a maximum of 20 enrollees per 15-week term in each class, but had to have at least 10 students enrolled in order for the course to be held. Students could have enrolled at the main campus or at the remote campus. Using five courses provided the researcher with approximately 100 students to which the instruments were administered. Students who choose to enroll in Introduction to Psychology, Speech, English, History and Sociology video conferencing courses decided upon registration which campus they preferred to receive instruction from, the main campus (face-to-face) or the remote campus. Factors that influenced the students' choices of location in the past included convenience, the length of travel time it took to and from the college locations, financial issues due to travel, residential addresses of students. Therefore, the researcher did not assign participants to groups; the students themselves (along with assistance from their academic advisor) decided the location from which to take the class.

Method

A quasi-experimental design was used due the fact that students were not randomly assigned and there were unequal groups. Data was collected through two quantitative measures, at one time. The first measure was through the state scale of the State-Trait Anxiety Inventory, created by Spielberger (1983). The STAI measures the psychological manifestations of anxiety. Andor et al. (2008) reports that one psychological manifestation of anxiety is a difficulty in controlling worry, while Spielberger (1983) believes manifestations can also include a feelings of fear, tension and apprehension.

The second measure was the Beck Anxiety Inventory, created by Beck et al. (1988). The BAI measures the physical

manifestations of anxiety. These can include an increase in heart rate, sweating, shortness of breath and trembling (Larson et al., 2007). The class subject being taught, age and gender was also be recorded, to be analyzed as an independent variable, as it may have had some impact on anxiety levels. Students were administered the BAI and the STAI during a class period toward the end of the 15-week term.

Data

The data that was analyzed included the numerical components provided by the STAI and the BAI, as well as the class subject being taught. For the scores on the STAI-S (or state scale), there is an increase in response to physical danger and psychological stress and decrease as a result of some relaxation techniques (Spielberger, 1983). The STAI consists of separate self-report scales that measure state and trait anxiety. The STAI items contain twenty statements of how people generally feel. Spielberger (1983) reports that the state anxiety scale can vary from a minimum of 20 to a maximum of 80, with those reporting higher scores exhibiting more self-reported symptoms of anxiety. Participants are asked to read the statements, and then circle the number to the right of the statement to indicate how they feel at the current moment. Choices included 1 = *not at all*; 2 = *somewhat*; 3 = *moderately so*; and 4 = *very much so*. This instrument consists of twenty statements that evaluate those feelings.

The BAI, according to Beck et al. (1988) reports that the items are summed to obtain the total score ranging from 0-63. Wetherell and Arean (1997) report that scores of 16 or higher suggest moderate to severe levels of anxiety, which means that the higher the score on the BAI, the greater number of symptoms of anxiety experienced by the person. This is a self-report measure that examines the physical sensations associated with anxiety, such as abdominal discomfort, numbness, difficulty breathing, and sweating. The BAI consists of 21 anxiety symptoms, with participants being asked to indicate the extent to which they were bothered by each item during the past week, and including the current day (Creamer, et al., 1995). Participants rate their severity of anxious symptoms over the past week on a 4-point scale ranging from 0 (*not at all*) to 3 (*severely-I could barely stand it*). Beck et al. (1988) reports that the items are summed to obtain the total score ranging from 0-63.

The researcher in the main campus classroom collected data while the proctor collected the data in the remote campus location. Participants were assigned a number before the administration of the instruments and the participant number was the only identifying information on the instruments. Once instruments were collected, the researcher and the proctor placed the instruments in a large manila envelope and sealed it. The researcher then drove to the remote campus and collected the video conferencing participants' data after the completion of the BAI and STAI.

Results

The demographics of the participants included 41% ($n = 54$) males and 59% ($n = 78$) females, for a total of 132 participants. Participants ranged in ages from 18 years old to 66 years old. There were 10 participants who did not report their age. Twenty-seven percent (27%) of those reporting age were 18 years old,

while 20% were 19 years old. The average age of respondents was 23 ($M = 23.36$, $SD = 8.53$). The ages represented in the sample ranged from 18 to 66. The largest percentage of student participants was 18 years old, or 27%, with 19 year olds ranking 20%. There were ten student participants, or 8%, who did not wish to report their age.

The overall mean STAI score for participants was 40.25, with a standard deviation of 12.047. The mean BAI score for those same participants was 10.22, with a standard deviation of 10.05. More specifically, the STAI and BAI scores by gender are presented as **Table 1**.

One-hundred and thirty-two participants reported their class subject, gender, STAI-S and BAI scores, as well as the type of instruction. There were ten students who did not report their age.

The sample was analyzed by gender. Of the total 132 participants, there were 54 males and 78 females. There were a greater number of female students enrolled, or 59%. **Table 2** presents participant gender.

Participants were categorized by class subject, which included Psychology, Speech Communication, English, History, and Sociology. Class subject was reported in numerical order: 1-Psychology; 2-Speech Communication; 3-English; 4-History; 5-Sociology. There were a total of 132 students that participated in the research. The largest numbers of participants were enrolled in the Speech Communication course, or 32, which is 24%. The smallest numbers of participants enrolled were in the History course, or 17, which is 13%. Of the 132 students that participated in the research, 72 were enrolled in the face-to-face instruction course or 54.5%, and 60 or 45.5%, were enrolled in the videoconferenced instruction course.

Discussion

Distance learning education has paved the way for today's alternative educational instruction formats. However, gender could be considered a variable for which there are score differences (Saad & Sacket, 2002). In Yukeselturk and Bulut's (2009) research, they found many variables that did not differ between genders, such as motivational beliefs and self-regulated learning variables. They did, pointedly, find that females test higher than males in anxiety-producing situations, as did Bekker and van Mens-Verhulst (2007).

For the STAI, or psychological manifestations of anxiety, the groups are fairly comparable in terms of average anxiety quo-

tients. However, the BAI, which measures physical manifestations of anxiety, indicates that females do experience higher physical anxiety in video-based courses than males. Thus, the setting does impact some of the primary manifestations of anxiety.

However, the present research proves inconclusive as to the role of gender in video-based courses. While there appears to be some basis for further research and discussion, there is no statistical significance that identifies gender as a determining factor or consideration related to video courses.

Recommendations

Yukeselturk and Bulut (2009) do not recommended treating genders differently in instruction. Some recommendations may have to be explored about the different behaviors contributed by the genders in order to further expansion of anxiety and gender research in alternative learning environments.

The present study indicates that while gender, as well as other demographic variables, are relevant considerations in the design of distance courses (in particular, live video), there is no clearly defined linkage as to the exact effects of gender in distance education. Specific recommendations from the study include:

- 1) BAI, or physical manifestations of anxiety, must be explored further in educational settings. BAI should be measured relative to gender in other distance education formats, such as online delivery, hybrid courses, etc.
- 2) BAI should also be used to measure physical manifestations of anxiety relative to gender in traditional classroom settings, to establish benchmarks for comparison among delivery methods.
- 3) Finally, BAI and STAI measurements should be collected in studies where other demographic variables, such as income, age, and others can be used as a variable. This will help to further explain the role of anxiety in educational settings.

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Table 1.
Anxiety scores by gender.

	Gender	N	Mean
STAI Score	Male	54	39.48
	Female	78	40.78
BAI Score	Male	54	8.35
	Female	78	11.51

Table 2.
Participant gender.

	Frequency	Percent
Male	54	40.9
Female	78	59.1
Total	132	100.0

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