

Is there a Relationship between the Usage of Active and Collaborative Learning Techniques and International Students' Study Anxiety?

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Abstract

This study was designed to explore the relationships between the international students' perception of professors' instructional practices (the usage of active and collaborative learning techniques in class) and the international students' study anxiety. The dominant goal of this research was to investigate whether the professors' usage of active and collaborative learning techniques in class while teaching reduces the study anxiety of international students. A convenience sample of international college students ($n = 85$) in Spring 2013 at a mid-sized public four-year institution in Texas participated. The researcher collected pertinent demographic data and used two modified versions of the Study Anxiety Questionnaire (SAQ) and the Active and Collaborative Engagement of Students Survey (ACES). The results demonstrated the existence of a weak inverse relationship between the international students' perception of the instructors' usage of active and collaborative learning techniques in class and the international students' study anxiety. This inverse weak relationship continued to exist when controlling for educational status, gender, nationality, and field of study. Since the results of this study showed that the international students' perception of the instructors' usage of active and collaborative learning techniques in class helped reduce their study anxiety, for future research it would be interesting to see whether there is a stronger or similar result would be seen among college students in general.

Keywords: *active and collaborative learning techniques, study anxiety, international student.*

Studies in the past decades have proven the positive impact of the use of active and collaborative learning techniques in class (Chickering & Gamson, 1987; Foyle, 1995; Hiltz, Coppola, Rotter, Toroff, & Benbunan-Fich, 2000; Hwang, Lui, & Tong, 2005; Yamarik, 2007; Yoder & Hochevar, 2005). University instructors applying active and collaborative learning techniques in class have reported higher scores among their students and claimed experiencing better results in their students' success and learning (Creasey, Jarvis, & Knapcik, 2009; Rodriguez, Delgado, & Colon, 2009). In studies on international students' performances in class and on their exams, the existence of study anxiety was reported (Bell, 2008; Vitasari, Abdul Wahab, Othman, & Awang, 2010a). Even though international students are experiencing more study opportunities in the United States (McLachlan & Justice, 2009), they are more anxious in their studies than American students (Bell, 2008). Moreover, Vitasari, Abdul Wahab, Othman,

Herawan, and Sinnadurai (2010b) stated that study anxiety negatively impact students' learning. The reports on the success in students' learning with the usage of active and collaborative learning techniques by the instructors and the existence of study anxiety among international students prompted the researcher to investigate whether the professors' usage of active and collaborative techniques in class reduces the level of study anxiety of international students.

Background of the Problem

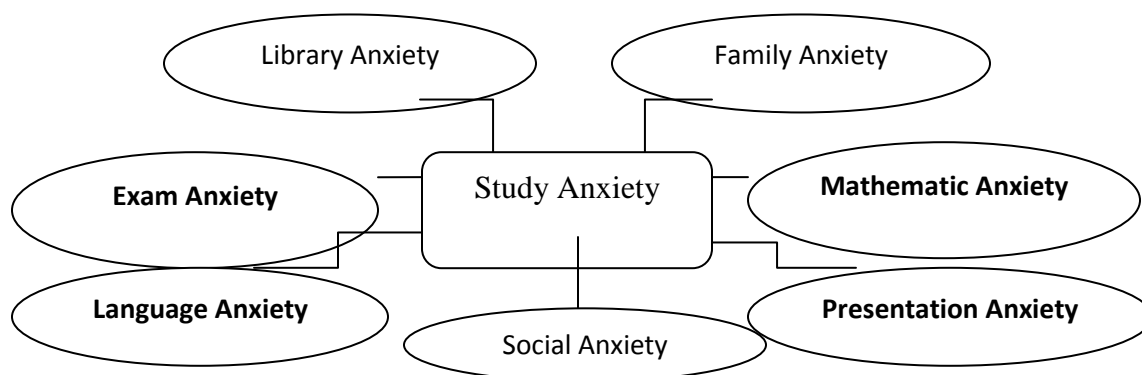
Many studies on college students and university instructors have supported the influence of active and collaborative techniques on students' learning (Chickering & Gamson, 1987; Hwang, Lui, & Tong, 2005; Yamarik, 2007), the existence of study anxiety among college students (Tobias, 1979, 1986; Vitasari et al., 2010a), and the impact of instructors in class (Casado & Dereshiwsky, 2004; Colon-Berlinger, 2010; Kim, 2009; Wichadee, 2010). According to Vitasari et al., 2010a) study anxiety not only impacts students' learning but also impacts their success in their studies. Applying learning techniques in class to lower study anxiety are also crucial and influential in positively affecting students' learning abilities (Casado & Dereshiwsky, 2004; Marcos-Llinas & Garau, 2009; Sparks & Ganschow, 2007).

Meyers and Jones (1993), noted that "active learning involves providing opportunities for students to meaningfully talk and listen, write, read, and reflect on the content, ideas, issues, and concerns of an academic subject" (p. 6). Colon-Berlinger (2010) reported that active learning techniques used by the instructor were influential and students stated that their class taught by using active learning techniques was inspiring and exciting. The results of this study showed higher learning outcomes among college students. Bowen (2012) stated that active learning and problem-solving can deepen students' perspectives. He added it can also "develop high-level processing" among students (p. 186). Yamarik (2007) also found that students taught in an active and collaborative environment where the instructor uses cooperative learning techniques in class, students achieved greater academic performances and received higher exam grades.

Anxiety is frequently seen in classes where students face problems throughout their learning process (Casado & Dereshiwsky, 2004; Kim, 2009; Marcos-Llinas & Garau, 2009; Sparks & Ganschow, 2007; Vitasari, et al., 2010a). Hartnett, Romcke and Yap (2004) revealed higher anxiety and lower general ability for international students performance in class compared with resident native Australian students in an accounting class. Interesting, there was no significant difference in the accounting performance of both groups of students. Poyrazli and Kavanaugh (2006) stated that Asian international students confronted higher anxiety levels than European international students. Likewise, the Asian international students produced lower scores of English language proficiency than the European international students.

Viasari, et al. (2010a) categorized the students' anxiety in class and coined it as "Study Anxiety." They claimed that study anxiety has two dimensions: physiological and cognitive anxiety. Moreover, they classified "Study Anxiety" into seven sources that are shown in Figure 1 below.

Figure 1
Study Anxiety Sources



Explanation of Study Anxiety Sources

1. Exam anxiety is caused when having an examination,
2. Language anxiety is caused by lack of language proficiency,
3. Mathematics anxiety is caused by responses in mathematical problem-solving,
4. Presentation anxiety is caused when giving a presentation and communicating with a group,
5. Social anxiety is caused by social life issues,
6. Library anxiety is related to library use,
7. Family anxiety is caused by family factors.

Since there exists a hidden learning-teaching challenge among faculty and students (Stevens, Emil, and Yamashita, 2009) and the main focus of this study is on the active and collaborative techniques used by instructors in class, only four of the seven study anxiety sources which are: Language Anxiety, Mathematics Anxiety, Presentation Anxiety, and Exam Anxiety were examined.

Sparks and Ganschow (2007) claimed that instructors must be aware of the students' anxiety in class, and create a calm learning environment which lessens the existing study anxiety among students. Sizoo, Jozkowskia, Malhotra, and Shapero (2008) emphasized that anxiety affects students' performances and makes them fall behind in class; therefore, instructors should help students overcome their stress. The study of Hartnett, Romcke and Yap (2004) revealed higher anxiety and lower general learning ability among international students. In addition, Asian international students confronted higher anxiety levels than European international students (Poyrazli & Kavanaugh, 2006). Therefore, for students, especially international students that confront language deficiency, study anxiety becomes a real phenomenon; the sources of anxiety and its control show the importance exploring the study anxiety among international students (Vitasari, et al., 2010b).

The main focus of this study is on the active and collaborative techniques used by instructors in class. Since there exists a hidden learning-teaching challenge among faculty and students (Stevens, Emil, and Yamashita, 2009), only four of the seven study anxiety sources were examined. These sources are: language anxiety, mathematics anxiety, presentation anxiety, and exam anxiety.

No research has investigated the relationship between the international students' perception of an instructors' usage of active learning techniques in class and study anxiety of international students studying in United States of America (USA). The related research focused on methods to reduce learners' anxiety, whether it is language anxiety, mathematics anxiety, presentation anxiety, or test anxiety (Devi & Feroz, 2008; Kesici & Erdogan, 2009; Kim, 2009; Vitasari, et al., 2010a). Therefore, the researcher explored to seek a relationship.

Statement of the Problem

Students' anxiety is a crucial factor which influences students' learning abilities (Casado & Dereshiwsy, 2004; Kim, 2009; Marcos-Llinas & Garau, 2009; Sparks & Ganschow, 2007). Vitasari, Abdul Wahab, Othman, & Awang (2010) reported that study anxiety is a very important aspect in students' learning and success. Moreover, instructors' teaching methods impact the students' learning in class (Casado & Dereshiwsy, 2004; Colon-Berlinger, 2010; Kim, 2009; Wichadee, 2010). The instructors usage of active and collaborative learning techniques in class lead to students' success (Chickering & Gamson, 1987; Kim, 2009).

Most of the research on anxiety seeks to reduce learners' anxiety, whether it is language anxiety, mathematics anxiety, presentation anxiety, or test anxiety (Devi & Feroz, 2008; Kesici & Erdogan, 2009; Kim, 2009; Sparks & Ganschow, 2007; Vitasari, et al., 2010a) but none have explored the relationship of the usage of active learning techniques by the professors and study anxiety of international students studying in United States of America (USA).

Statement of the Purpose

The purpose of this exploratory research was to investigate whether there is a relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and the level of study anxiety in international students.

Research Questions

In order to guide the analysis, five research questions were presented:

- R1. Is there a relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and the international students' study anxiety?
- R2. Is there a relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and the international students' study anxiety when controlling for educational status?

- R3. Is there a relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and international students' study anxiety when controlling for gender?
- R4. Is there a relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and international students' study anxiety when controlling for nationality?
- R5. Is there a relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and international students' study anxiety when controlling for field of study?

Review of the Literature

Considerable studies have been seen during the past decade on students' anxiety in college (Casado & Dereshiwsy, 2004; Kim, 2009; Marcos-Llinas & Garau, 2009; Sparks & Ganschow, 2007; (Vitasari, et al., 2010b). However, no research has investigated the international students' study anxiety in classes where active and collaborative learning techniques are used by the instructors. By studying the relationship between the professors' use of active and collaborative learning techniques and the international students' study anxiety, this study constitutes a step forward in this field of study regarding the importance for not only international students but all students to be exposed to active and collaborative learning, to decrease students' study anxiety.

This study focused on international students' perception, the instructors' usage of active and collaborative learning techniques, and the level of study anxiety in international students.

International Students in University Classes

McLachlan and Justice (2009) emphasized the increase of learning opportunities for international students in the past decade, leading to a change in the global setting of higher education. The Institute of International Education (2010) reported the raise in the number of international students in English speaking countries such as, the United States of America, the United Kingdom, Australia, and Canada to name a few. It is believed that by gaining experience in their college years and sharing it at work in their home countries, international students create a global understanding and work bond which could help develop positive relations between U.S. and their home countries (Nikias, 2008).

In the 2011/12 academic year data, the number of international students at colleges and universities in the U.S. increased by 6% over the prior year (Open Doors, 2012). In the past ten years, the 2012 Open Doors reported, there are 31% more international students studying at United States colleges and universities compared to year 2002. Open Doors Report (2012) noted that University of Southern California is the top host university, California the top host state, New York City the top host city, and Business and Management followed by Engineering topped the fields of study in America.

Open Doors (2012) reported an increase in the number of students from Brazil, China, France, Indonesia, Iran, Mexico, Russia, Saudi Arabia, Spain, the United Kingdom, Venezuela, and Vietnam. The countries that data showed a declination were India (down 4%), South Korea, (1%), and Japan (6%). On the other hand, there was an increase in the number of international students in the top five host U.S. states: California, New York, Texas, Massachusetts, and Illinois.

Fisher (2010) stated that the existing political conflicts have resulted in students not traveling to the United States and the number of students abroad has declined (Altbach, 1985). This decline in admissions reached the highest after the event of September 11, 2001, however the decline stabilized by 2007 (H. R. No.110-73, 2007). Fischer (2010) reported that a renewed focus on attracting international students to U.S. colleges with more persistence and creativity could be a reason for the stabilization.

Male versus female. Ghafarian (1987) found that Iranian males accepted the American values and behaviors more than Iranian females. She found that Iranian females confronted more anxiety concerns than males. Ghafarian reported that this circumstance existed because “the men have been accustomed to freedom, self-determination, and exposure to the western world” (p.569). She claimed that the existing anxiety among females was caused by their prior experiences in life that was due to the lack of freedom in their own country.

Hsieh (2006) argued female Chinese students confront problems identifying themselves as students and learners in class. She added that in Chinese culture silence is valued and being assertive or expressive is not favored for females. Further, in a comparative study among male and female graduate students, Dao, Lee, and Chang (2007) found higher depression in female Taiwanese students compared to the male graduate students. Misra, Crist, and Burant (2003) reported female international students revealed higher reactions to stressors than male international students. Abeysekera (2008) found that females preferred to be silent and listen to lectures in a traditional format rather than participate in group case study exercises.

Undergraduate versus graduate students. Trice (2003) investigated the challenges of graduate students. One of the main problems she observed as a challenge for graduate international students was functioning in English. Achieving their goals and adjusting culturally were also other factors involved. Further, in a study on anxiety levels of graduate and undergraduate students, the results showed that graduate students experience greater levels of anxiety (Poyrazli & Kavanaugh, 2006). Chapell, Blanding, Silverstein, Takahashi, Newman, Gubi, & McCann (2005) compared undergraduate and graduate students' test anxiety and gender and found that female undergraduates had significantly higher test anxiety and higher GPAs than male undergraduates.

Learners' Anxiety in University Classes

Anxiety is quite frequently seen in classes where students face problems throughout their learning process (Casado & Dereshiwsky, 2004; Kim, 2009; Marcos-Llinas & Garau, 2009; Sparks & Ganschow, 2007). Sizoo, Jozkowskia, Malhotra, and Shapero (2008) claimed that anxiety affects students' performances and makes them fall behind in class. For students, study

anxiety becomes a real phenomenon; the sources of anxiety and its control reflect the importance.

Learners' language anxiety in class. According to Woodrow (2006), there is evidence that language learning anxiety differs from other forms of anxiety. For students, study anxiety becomes a real phenomenon; the sources of anxiety and its control reveal the importance of study anxiety (Vitasari, et al., 2010b). There are several studies on the level of anxiety among Foreign Language Learners (FLL), Second Language Learners (SLL) and Communicative Anxiety of Learners (CAL) (Bonifacci, Candria & Contento, 2007; Casado & Dereshiwsky, 2004; Marcos-Llinas & Garau, 2009). Aspects such as reading comprehension, writing, listening and speaking anxiety were noted among learners which varied in different groups (Kim, 2009).

Language learners' anxiety. Horwitz, Horwitz and Cope (1986) mentioned while learning to speak another language, second language learners and teachers felt that anxiety is a "major obstacle" which must be conquered (p.125). They identified the existence of language anxiety in foreign language learning and teaching and believed by reducing foreign language anxiety, students' experiences in foreign language learning would be positively shaped.

Foreign language learners' anxiety. MacIntyre and Gardner (1994) defined Foreign Language Anxiety (FLA) as "the feeling of tension and apprehension specifically associated with second language (L2) contexts, including speaking, listening, and learning" (p. 284). They claimed that "Whereas much of the research into the role of anxiety in language learning has used broad-based measures, a small number of empirical studies have examined the more specific, subtle effects of language anxiety" (p. 284). Horwitz et al. (1986) provided a definition of the anxiety specifically associated with language learning. Foreign language anxiety is "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (p.128). Foreign language anxiety goes deeper and included the impact anxiety has on language learning skills which have been divided into reading comprehension, writing, listening, and speaking (Kim, 2009; Rodriguez, Delgado & Colon, 2009).

Horwitz, Horwitz, and Cope (1986) found listening and speaking as the anxiety centers of foreign language learning. According to Kim (2009), anxiety was primarily caused by being negatively appraised and making errors in speech. Rodriguez, Delgado, and Colon (2009) claimed that students with anxious personalities experienced writing anxiety. They also reported the existence of writing anxiety among foreign language learners and first language communicative learners.

In a study by Marcos-Llinas and Garau (2009), advanced foreign language learners with higher levels of anxiety exhibited higher grades in their foreign language courses. This result supported the argument of having language anxiety at some level was beneficial and there is a need of addition research on the traditional belief of the negativity of language anxiety in learning (Marcos-Llinas & Garau, 2009).

Second language learners' anxiety. Anxiety plays an important role in second language learning (Horwitz, 1986; Horwitz, Horwitz, & Cope, 1986; Horwitz & Young, 1991; MacIntyre & Gardner, 1991). Khan and Zafar (2010) claimed that "language anxiety is a prevalent

phenomenon in second language learning” (p.199). Woodrow (2006) found language anxiety in second language learners’ oral performance. Moreover, in another study Chang (2010) instigated a relationship in second language anxiety and students’ listening and reading skills. Casado and Dereshiwsky (2004) study focused on second language learning anxiety in different age groups. Cheng, Horwitz, and Schallert (1999) stated that second language writing anxiety also exists but it is considered “a language-skill-specific anxiety” (p. 417).

First language communicative anxiety of learners. Students in their native language classes experience anxiety (Bonifacci, Candria & Contento, 2007; King & Behnke, 2004). Burroughs, Marie, and McCroskey (2003) claimed the majority of studies on Communication Apprehension (also called communicative anxiety) showed high levels of communicative anxiety in first and second language of students. Additionally, Witt and Behnke (2006) reported the existence of students’ language anxiety among native speakers in their communication courses. Italian researchers, Bonifacci, Candria, and Contento (2007) analyzed the impact of writing and reading, which were considered literacy skills, on creating anxiety for students. Their findings showed no relationship between anxiety and reading skills.

Burroughs, Marie, and McCroskey (2003) studied the communication apprehension of US native speakers and Micronesian second language learners. Both groups were undergraduate students. The researchers found no difference among first language and second language learners’ communication apprehension. But both groups experienced “communication apprehension.

International students’ language anxiety. Skinner (2009) stated that learning the English-language and the different learning styles in other countries are some of the challenges of international students. International students arrive with their own strategies for studying which usually do not fit the existing culture and must be modified.

Poyrazli and Kavanaugh (2006) and Bell (2008) confirmed anxiety and strain among international students who lacked English proficiency and reported that international students were more anxious about their studies.

International students’ foreign language anxiety. Higher anxiety levels were reported among international (Hartnett, Römcke, & Yap, 2004; Sümer, Poyrzli, & Grahame, 2008). Humphries (2011) investigated the language anxiety of Chinese international students in an Australian university. She claimed creating a bond between the professor and student helps reduce international students’ language anxiety.

International students’ second language anxiety. Casado and Dereshiwsky (2004) compared two groups (American students studying Spanish as a second language and Spanish students studying English as a second language) of first year university students. Their findings contradicted their assumption that those who were exposed to the second language at an early age and were taught with a “well-articulated teaching strategy”, would have less anxiety (p.23). Casado and Dereshiwsky results showed higher levels of anxiety among the earlier exposed group to a second language.

Learners’ mathematics anxiety in class. Math anxiety is very real and occurs among thousands of people. Kesici and Erdogan (2009) claimed that “rehearsal and elaboration of

cognitive learning strategies, the subscales of self-regulated learning strategies, are significant predictors of mathematics anxiety” (p. 637). They believed math anxiety happens in the classroom due to the lack of consideration of different learning styles of students. Sizoo, Jozkowskia, Malhotra, & Shapero (2008) found that math-related material causes many students to become anxious.

Learners’ presentation anxiety in class. Devi and Feroz (2008) studied communication apprehension an anxiety seen in oral presentations. They argued that students with higher communicative competence showed less the anxiety in their performance. They found that students exhibited anxiety but it did not affect their grades.

Learners’ exam anxiety in class. Kesici and Erdogan (2009) found test anxiety as one of the most significant predictors for mathematics anxiety. They added instructors should avoid approaches and activities that may cause test anxiety in students. Tsai and Li (2012) reported the higher the test anxiety levels for the students were the lower their grade in the English reading proficiency test. Moreover, the findings of Rezazadeh and Tavakoli (2009) revealed three factors regarding study anxiety. First, female students had a higher level of test anxiety in contrast to male students. Second, there was a statistically significant negative correlation between test anxiety and academic achievement. And third, there was no meaningful relationship between test anxiety and years of study.

University Course Delivery

Kim (2009) believed introducing “communicative classroom activities” (p.154) would be very beneficial for students. She added that teachers should help lessen the existing anxiety among students. In addition, Ewald (2007) claimed criticism harms students and teachers should help students build self-confidence by appreciating their effort. Teachers should act as “facilitators” and support their students. Classes that had understandable teachers, Rodger, Murray, and Cummings (2007) reported higher learning achievement among students. Fredrickson and Losada (2005) found that teachers generated practical learning opportunities for students by increase their interest.

Moreover, Casado and Dereshiwsky (2004) found teachers using articulated teaching strategies would greatly reduce students’ levels of anxiety. Suwantarathip and Wichadee (2010) also suggested that “teachers need to pay more attention to students’ learning anxiety in EFL classes and should create a low stress, friendly and supportive learning environment” (p.56).

Classes taught using active and collaborative techniques. Studies have shown that active learners learn best (Spikell, 1993). Kim (2009) reported that teaching management strategies could control the learner’s anxiety. Therefore, introducing “communicative classroom activities” by the instructor would be beneficial for students in reducing their anxiety levels (Kim, 2009, p.154). On the other hand, Casado and Dereshiwsky (2004) found early learners who were taught with a well-articulated teaching strategy experienced higher levels of apprehension. Wallace (1989) claimed that active learning techniques "enrich and enhance learning in any classroom because they motivate student participation and help eliminate harmful

stress" (p. 41). Suwantarathip and Wichadee (2010) reported cooperative learning approach of the instructors in class reduced foreign language anxiety of freshman students in their study on Thailand students at Bangkok University. Additionally, active learning techniques were influential and deepened students' perspectives (Bowen, 2012; Colon-Berlingeri, 2010; Nelson, 2010). Karmas (2011) also confirmed the impact of active learning techniques on students' learning.

Classes taught traditionally in a lecturing format. Nelson (2010) stated that there is no problem with lecturing; the problem is how to present a lecture in class. In contrast, Bowen (2012) claimed, lectures and PowerPoint presentations are no longer working in the 21st century. There is no challenge for students in a class that is presented in a lecture format. King and Behnke (2004) reported an increase in anxiety among students who participated in classes where the instructor gave lengthy lectures. In Yoder and Hochevar (2005) study, the use of active learning techniques in class had a positive impact among students' performances. Abeysekera (2008) compared Asian and Australian female/male students' preference in class format and resulted in that international female students favored the traditional lecture mode in comparison to male students. The overall result was that Asian female students preferred to be silent.

Methodology

Research Design

This was a non-experimental, co-relational study that investigated the relationships between professors' instructional practices, as measured by a modified version of the ACES Survey and international students' study anxiety, as measured by a modified version of the SAQ, at one mid-sized university in Southeast Texas. A convenience sample ($n = 85$) of international college students ($N = 589$) during the Spring 2013 semester was used in this study.

The SAQ (Vitasari, et al., 2010a) and ACES Survey (Matthews, Pourciau, & Farrow, 2011) were modified and combined to measure the study anxiety of international students and the perception they have when professors teach a class using active and collaborative learning in class.

The final instrument used for data collection included 10 items that measured various demographic characteristics of the participants, as well as modified versions of the SAQ and ACES Survey. The demographic items consisted of multiple choice and open-ended questions that asked about educational status, gender, nationality, and field of study. The responses for each of these variables were recoded and combined prior to analysis to reflect continents of origin and the colleges/schools at the participating university. The questions from the modified versions of the SAQ and ACES Survey were measured on a five-point Likert scale.

In the data collection process, the researcher first obtained permission to use the modified SAQ (Vitasari, et al., 2010a) and the ACES Survey (Matthews, Pourciau, and Farrow, 2011) for this study. Next, permission to conduct the study was requested from and granted by the university's Institutional Review Board (IRB). An electronic copy of the Demographic form, followed by the modified Study Anxiety Questionnaire (SAQ) and the modified Active and

Collaborative Engagement of Students Survey (ACES), found in Appendix A, were created and hosted internet survey site, OrgSync.com™. The International Office at the participating university help to distribute an email to all international students ($N = 589$) for the Spring 2013 semester to participate in the study. The email contained a request for participation to all international students along with an electronic link to the survey. Contact information of the researcher was provided to ensure the participants of the authenticity of the study and to increase trust between the international students and the researcher. There was no time limitation for the students to respond to the items, and weekly reminders were sent out until 85 students had responded. Initially the respond of the international students was low, but the researcher reached the desired number with the follow-up reminders. All data were collected by the online survey system and the data was extracted from OrgSync.com™ and imported into the Statistical Package for the Social Sciences (SPSS) for analysis. A total of 85 students completed the instrument, which represented a response rate of 14.4%.

Missing values, outliers, and normality of distributions were evaluated for the variables of interest. Descriptive statistics were used to describe the demographic characteristics of the sample, and a Pearson Product-Moment correlation and partial correlations were conducted to test the relationships between the variables of interest. Pearson Product-Moment correlation was calculated among variables (i.e., demographic variables, study anxiety, active and collaborative techniques). Partial correlations were conducted to test the relationships between the variables of interest.

Findings

Evaluation and Transformation of Data

Prior to analysis, the data were evaluated for missing values and potential violations of assumptions associated with the analyses conducted in this study. Normality was assessed through histograms and measures of skewness and kurtosis. Linearity was assessed with a scatterplot. There were no missing values for any of the respondents, and the observations for the variables were normally distributed and linear.

Findings for Research Question 1. In research question one, the relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and the international students' study anxiety was tested using the Pearson Product-Moment correlation. Total scores from the modified SAQ and ACES Survey were the variables used in the analysis. The results of the analysis suggested that there was a weak negative correlation between the international students' Study Anxiety ($M = 53.4$, $SD = 16.2$) and perceived learning through the usage of Active and Collaborative techniques of the instructor in class ($M = 49.2$, $SD = 12$), which was statistically significant ($r_{ab.c(83)} = -.261$, $p = .02$).

Findings for Research Question 2. Research question two explored the relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in

class and the international students' study anxiety when controlling for educational status as measured by the instrument. Educational status was considered as a potential confounding variable because it was hypothesized that younger students (e.g. freshman and sophomore students) might experience higher levels of anxiety due to attending college for the first time in a country other than their country of origin. A partial correlation, with education status as the control variable, was conducted using the total scores for the SAQ ($M = 53.4, SD = 16.2$) and ACES Survey ($M = 49.2, SD = 12$) as the variables of interest. Analysis revealed that there was a weak inverse correlation, which was statistically significant, when controlling for education status, ($r_{ab.c(83)} = -.182, p = .50$).

Findings for Research Question 3. Research question three explored the relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and international students' study anxiety when controlling for gender. A partial correlation, with gender as the control variable, was conducted using the total scores for the SAQ ($M = 53.4, SD = 16.2$) and ACES Survey ($M = 49.2, SD = 12$) as the variables of interest. Analysis revealed that there was a weak inverse correlation, which was statistically significant, when controlling for gender, ($r_{ab.c(83)} = -.209, p = .03$).

Findings for Research Question 4. Research question four investigated the relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and international students' study anxiety when controlling for nationality. Nationality was considered as a potential confounding variable. In this study, it was hypothesized that national characteristics related to language and behavior might influence levels of anxiety, especially for those students whose continent of origin were least influenced by Western ideologies or were exceptionally different from the cultural worldviews of the United States or Texas. A partial correlation, with continent of origin as the control variable, was conducted using the total scores for the SAQ ($M = 53.4, SD = 16.2$) and ACES Survey ($M = 49.2, SD = 12$) as the variables of interest. Analysis revealed that there was a weak inverse correlation, which was statistically significant, when controlling for education status, ($r_{ab.c(83)} = -.214, p = .026$).

Findings for Research Question 5. Research question five explored the relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and international students' study anxiety when controlling for the field of study. Field of study was considered as a potential confounding variable because it was hypothesized that some fields of study were more intense than others due to the inclusion of multiple specialized courses and/or the competitiveness within the field. As such, some students might experience higher levels of anxiety due to their program of study. A partial correlation, with field of study as the control variable, was conducted using the total scores for the SAQ ($M = 53.4, SD = 16.2$) and ACES Survey ($M = 49.2, SD = 12$) as the variables of interest. Analysis revealed that there was a

weak inverse correlation, which was statistically significant, when controlling for field of study, ($r_{ab.c}(83) = -.216, p = .024$).

Conclusions

Previous studies on anxiety have shown the existence of study anxiety among students (Kim, 2009; Marcos-Llinas & Garau, 2009; Sparks & Ganschow, 2007; Vitasari et al., 2010a), other studies on teaching techniques and strategies have suggested the influence of active and collaborative techniques in learning (Bonwell & Eison, 1991; Nilson, 2010; Sutherland & Bonwell, 1996). The results of this study therefore support a conclusion that using active learning techniques, instructors can help international students reduce their study anxiety.

The findings from this study have theoretical and pedagogical significance. Theoretically, this study adds a component to the existing literature in study anxiety and active and collaborative learning techniques. The practical application is also noticeable. The result of this study and having the knowledge about the effectiveness of the active and collaborative learning techniques among international students and how it helps reduce their study anxiety assists professors to better lead their classes by applying these learning techniques in class. They must try to meet the affective needs of their college students which also cause study anxiety (Vitasari, et al., 2010a).

Moreover, colleges should budget and provide programs to educate faculty about international student needs. They should also develop programs for international students to better understand the transition to college life and how to reduce the stress in their early months of entrance (Poyrazli & Lopez, 2007). One way is exchange experiences of the junior and senior students in social gatherings with the freshman and sophomore students in schools.

Since there is a hidden teaching/learning challenge among faculty and students (Stevens, Emil, & Yamashita, 2009) this study could encourage colleges to provide faculty development workshops for faculty to participate. They should find ways to motivate faculty members to attend these workshops to gain knowledge and experience in how to use new active and collaborative learning and teaching techniques in their classroom settings. There should be centers that arrange conferences and encourage faculty to participate in faculty development workshops and seminars related to the success of active and collaborative techniques in class. These workshops should inspire faculty to adopt and implement these techniques in class even if they are large.

Overall, the study found a small inverse relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and the international students' study anxiety a relationship that continued to exist when controlling for educational status, gender, nationality, and field of study. Correlation analysis leads to the conclusion that a small statistically significant relationship exists between study anxiety and active and collaborative learning techniques.

Discussion

This study which focused on international students' perception of the instructors' usage of active and collaborative learning techniques, and the level of study anxiety in international students revealed that there is a relationship between a students' study anxiety and the use of the professors' active and collaborative learning techniques in class. This weak inverse relationship remained consistent when the researcher controlled for educational status, gender, nationality, and field of study.

Although the effect of perceived active learning and collaboration techniques (as measured by the ACES Survey) for question one which asked whether there was a relationship between the students' perception of an instructors' usage of active and collaborative learning techniques in class and the international students' study anxiety was weak, the findings supported the research hypothesis that the more active and collaborative techniques used by professors, the lower students tended to score in the SAQ. In other words, the more international students were engaged by their professors in active and collaborative activities, the less stress they reported to have in class.

The second question of whether a relationship exist between the students' perception of an instructors' usage of active and collaborative learning techniques in class and the international students' study anxiety when controlling for educational status was inversely weak. The results showed the longer number of years international students studied in college, seniors (longer years) in comparison to freshman (shorter years), the less study anxiety international students experienced in class. Seniors reported less stress in classes that active and collaborative learning techniques were used by professors than freshman.

The third question regarding gender showed that the control variable had some effect on the strength of relationship between the two variables, the findings support the research hypothesis that that the more active and collaborative techniques used by professors, the lower students tended to score in the modified SAQ. In other words, students' stress was lower the more they were engaged by their professors in active and collaborative learning activities, even after controlling for the potential influence of one's gender.

Although the inclusion of the fourth question regarding nationality as the control variable had some effect on the strength of relationship between the two variables, the findings support the research hypothesis that that the more active and collaborative techniques used by professors, the lower students tended to score in the modified SAQ. In other words, students' stress was lower the more they were engaged by their professors in active and collaborative learning activities, even after controlling for the potential influence of nationality.

The field of study as a control variable also had some effect on the strength of relationship between the two variables. The results support the research hypothesis that the more active and collaborative techniques used by professors, the lower students tended to score in the modified SAQ. In other words, students' stress was lower the more they were engaged by their professors in active and collaborative learning activities, even after controlling for the potential influence of one's field of study.

Even though the result of this study showed a weak inversed correlation, it supports Kim (2009) study that awareness of student anxiety was crucial for an instructor and suggested introducing “communicative classroom activities” (p.154) that would be very beneficial for students. This study supports findings by Casado and Dereshiwsky (2004) who reported that teachers using articulated teaching strategies greatly reduced students’ levels of anxiety. They recommended that instructors use active and collaborative learning techniques and related teaching strategies in class to create a more peaceful surrounding for learners. As shown in this study , instructor play a vital role in the students’ learning process; therefore, colleges and universities should find ways to support and reward faculty in their teaching role.

Gardner and Belland (2012) suggested that professors better create courses that implement multiple active learning strategies which in its turn might potentially improve the students’ learning. Alutu (2006) also argued that “An effective instructor should be very concerned with major stages in the learning process and adopt pragmatic strategies to impact it to the learners while teaching (p. 45)”. The results of this study may encourage professors to seek for better active and collaborative learning techniques that work in their class and provide the results that both the student and professor is looking for , that is “learning”.

Since the results of this study showed that the international students perception of the instructors’ usage of active and collaborative learning techniques in class helped reduce their study anxiety, for future research it would be interesting to see whether there a stronger or similar result would be seen among college students in general.

Limitations and Future Research

The limitations of the study were as noted:

1. The study was exploratory and correlational. Thus, no causal conclusions could be made.
2. The study was limited to students who attended classes in which active learning techniques were practiced.
3. The study was limited to university students. The results could not be generalized to students in primary/secondary education.
4. The participants were from different gender, age, ethnicity and race, with different cultural backgrounds.
5. The questionnaire and survey was distributed by campus email therefore students that do not use campus email did not complete the survey instrument.
6. The lack of previous research on the topic limited the amount of background information.
7. How Study Anxiety and Active and Collaborative Learning Techniques were measured.

As for future research a study can be conducted comparing the study anxiety of the seven anxiety sources of Vitasari, et al. (2010a) among the international and native students in college. Native students can be considered as those students who were born, raised, and studied in US all

there life before entering college. These students could be compared with international students on their study anxiety levels in an active and collaborative learning based environment in class.

Another recommendation for future exploration includes a qualitative investigation. The interviewees' responses might lead to the strengths and weaknesses or even the effectiveness of certain active and collaborative learning techniques in class. Class observation is another option for a qualitative study. The researcher might reach to answers of an existing learning problem or obtain a deeper understanding of the learning process and study anxiety of the students by interviewing international students in a qualitative study.

Following students from the freshman year through graduation would be a great research sample and an interesting longitudinal study with innovative outcomes. A further recommendation is to provide more appropriate measures of Study Anxiety and Active & Collaborative learning techniques in International students by including Language Anxiety as a controlling variable. This Language Anxiety variable could be compared among native students and international students as well.

A replication of this study with a more representative sample would help researchers identify trends among subscales including gender, education status, nationality, and field of study (college). Larger samples from several colleges will result in a good comparison.

Finally, to create an instrument that better examines the needs of international students or students in general which can also measure the students' study anxiety in an active and collaborative learning environment.

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Appendix A

Survey on International Students

Dear Students,

Below are questions for you to answer. Please read the questions carefully and answer or check your best choice.

The questions are divided into three categories:

Demographic Information, Study Anxiety Questionnaire, and Active and Collaborative Engagement of Students Survey

Demographic Information

1. What is your country of origin?
2. What is your age?
3. What is your major?
4. On average, how many hours a week do you spend doing academic work (studying, reading, writing, doing lab work, analyzing data, and other academic activities)?
5. How long have you been in your current program?
6. You are: Male Female
7. In which degree program are you currently enrolled?
 Freshman Sophomore Junior Senior Masters Doctorate
8. What stage of your degree program are you in now?
 I am taking courses I have finished all coursework requirements. I am preparing for comprehensive exams and other requirements to meet additional requirements before dissertation
 I passed my written and oral comprehensive exams and am writing my doctoral dissertation.
9. Do you have any other academic degree from your current university?
 Yes No
10. While you were taking courses in the current program, how often have you worked harder than you expected to meet a course instructor's standards and expectations?
 Never Often Always

Study Anxiety Questionnaire

This questionnaire means to identify study anxiety sources. Please fill the questionnaire base on your feelings, experiences, and thoughts regarding anxiety during your study process. For each question choose one of the following alternatives. Please answer the questions as truthfully as possible.

11.1. I feel depressed after taking an exam.

Never Almost Never Rare Fairly Often Very Often

12.2. I lose my concentration during exams.

Never Almost Never Rare Fairly Often Very Often

13.3. I feel tense while studying for exams.

Never Almost Never Rare Fairly Often Very Often

14.4. I am too anxious to understand the exam questions.

Never Almost Never Rare Fairly Often Very Often

15.5. I feel my heart beating very fast during important exams.

Never Almost Never Rare Fairly Often Very Often

16.6. I experience anxiety when I take surprise tests.

Never Almost Never Rare Fairly Often Very Often

17.7. I feel anxiety while attending my classes.

Never Almost Never Rare Fairly Often Very Often

18.8. I feel anxiety when speaking in class.

Never Almost Never Rare Fairly Often Very Often

19.9. I feel nervous when my instructor interrupts to correct my speaking.

Never Almost Never Rare Fairly Often Very Often

20.10. I feel anxious because of lack of confidence in class.

Never Almost Never Rare Fairly Often Very Often

21.11. I feel anxiety when the subject of the class is difficult for me.

Never Almost Never Rare Fairly Often Very Often

22.12. I study hard but am not successful in class.

Never Almost Never Rare Fairly Often Very Often

23.13. I always write down everything during class.

Never Almost Never Rare Fairly Often Very Often

24.14. I feel anxious when I do not understand the class subject.

Never Almost Never Rare Fairly Often Very Often

25.15. I feel anxiety because math is a difficult subject for me.**26.16. I have lost interest in my major.**

Never Almost Never Rare Fairly Often Very Often

27.17. I have problems facing my peers.

Never Almost Never Rare Fairly Often Very Often

28.18. I feel homesick while a student on this campus.

Never Almost Never Rare Fairly Often Very Often

29.19. I find that the campus environment is uncomfortable to study.

Never Almost Never Rare Fairly Often Very Often

30.20. I feel racial discrimination while a student in class.

Never Almost Never Rare Fairly Often Very Often

31.21. I face many difficulties in studying when there are too many classmates.

Never Almost Never Rare Fairly Often Very Often

32.22. I feel that insufficient family income affects my academic performance.

Never Almost Never Rare Fairly Often Very Often

33.23. I find that my childhood experiences make me feel anxious.

Never Almost Never Rare Fairly Often Very Often

34.24. I feel anxious when my parents are disappointed with my academic performance.

Never Almost Never Rare Fairly Often Very Often

35.25. I often feel anxious when giving class presentations.

Never Almost Never Rare Fairly Often Very Often

36.26. I feel a lack of confidence during my presentations.

Never Almost Never Rare Fairly Often Very Often

37.27. I feel that my heart is beating very fast during presentations.

- Never Almost Never Rare Fairly Often Very Often
38.28. I find that class presentations have low contributions to my studying.
- Never Almost Never Rare Fairly Often Very Often
39.29. I feel anxious during exams due to lack of preparation.
- Never Almost Never Rare Fairly Often Very Often

ACES (Active and Collaborative Engagement of Students) Survey

This survey has been designed to document the teaching and learning activities used at this University. Do not assume that all activities will be encountered in all courses. Check the answer that most closely represents your experience.

HOW OFTEN HAVE YOU PARTICIPATED IN THE FOLLOWING ACTIVITIES?

40.1. Listened to long lecture

- Never Almost Never Rare Fairly Often Very Often

41.2. Asked a question in class

- Never Almost Never Rare Fairly Often Very Often

42.3. Marked or annotated my text or readings

- Never Almost Never Rare Fairly Often Very Often

43.4. Reviewed prior notes/material before attending class

- Never Almost Never Rare Fairly Often Very Often

44.5. Wrote a paper alone

- Never Almost Never Rare Fairly Often Very Often

45.6. Read assigned materials prior to class

- Never Almost Never Rare Fairly Often Very Often

46.7. Memorized material

- Never Almost Never Rare Fairly Often Very Often

47.8. Studied alone for tests

- Never Almost Never Rare Fairly Often Very Often

48.9. Participated in a group study

- Never Almost Never Rare Fairly Often Very Often

49.10. Worked problems alone

- Never Almost Never Rare Fairly Often Very Often

50.11. Reflected on reading assignments

- Never Almost Never Rare Fairly Often Very Often

51.12. Set personal goals for success in course

- Never Almost Never Rare Fairly Often Very Often

52.13. Wrote a paper with a group

Never Almost Never Rare Fairly Often Very Often

53.14. Evaluated my own work

Never Almost Never Rare Fairly Often Very Often

54.15. Took a True/False, Matching or Multiple Choice Test

Never Almost Never Rare Fairly Often Very Often

55.16. Took a Short Answer or Essay Test

Never Almost Never Rare Fairly Often Very Often

56.17. Asked a more successful student in class for help

Never Almost Never Rare Fairly Often Very Often

57.18. Asked to rewrite a paper or retake a test

Never Almost Never Rare Fairly Often Very Often

58.19. Used computer technology, computer applications to complete assignments

Never Almost Never Rare Fairly Often Very Often

59.20. Got a tutor

Never Almost Never Rare Fairly Often Very Often

60.21. Completed a solo project

Never Almost Never Rare Fairly Often Very Often

61.22. Participated in a class discussion

Never Almost Never Rare Fairly Often Very Often

62.23. Participated in class debate

Never Almost Never Rare Fairly Often Very Often

63.24. Evaluated a peer's work

Never Almost Never Rare Fairly Often Very Often

64.25. Delivered oral presentations

Never Almost Never Rare Fairly Often Very Often

65.26. Participated in group projects

Never Almost Never Rare Fairly Often Very Often

66.27. Provided electronic feedback in class (ex. iClickers)

Never Almost Never Rare Fairly Often Very Often

67.28. Studied with a group for tests

Never Almost Never Rare Fairly Often Very Often

68.29. Posted comments to a class-related message board

Never Almost Never Rare Fairly Often Very Often

69.30. Discussed ideas with others outside of class

Never Almost Never Rare Fairly Often Very Often

70.31. Took part in field trip of field experience

Never Almost Never Rare Fairly Often Very Often

71.32. Met with instructor outside of class time

Never Almost Never Rare Fairly Often Very Often

72.33. Worked on simulated problem or case study

Never Almost Never Rare Fairly Often Very Often

73.34. Journalled or blogged about a current class

Never Almost Never Rare Fairly Often Very Often

74.35. Taught a concept to another student or class

Never Almost Never Rare Fairly Often Very Often