CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter reviews previous research on library anxiety, as well as, academic library use problems that is related to this phenomenon. The purpose of this review is to link between the library anxiety theory and the main exploratory objective of the study. The chapter introduced the reader to a brief history of origin of the library anxiety, and symptoms that characterized library anxious users. The chapter also tracks the development of studies in the library anxiety area that discussed measures and components of this construct. The study also review studies that investigated variables related to library anxiety. As the current study is exploring the library anxiety phenomenon in Sudan, this chapter will review studies that explore library anxiety among different cultural groups.

Library anxiety has been defined as an unpleasant or uncomfortable emotion characterized by worry, confusion, tension and helplessness which occurs when a student is in the library setting. This emotion has cognitive, affective and behavioural ramification (Kuhlthau, 1991). Constance A Mellon (1988) in her article “Attitudes: the forgotten Dimension in Library instruction” noted, “As I spent more time with the college students I was attempting to instruct, I become increasingly aware of their discomfort in the library. What I originally perceived as a lack of interest and motivation began to seem more like phobia. Students would do anything to get out of the library. They would spend vast sums of money photocopying materials they hadn’t even read or would leave empty-handed when the information they wanted was on
microfilm. I designed and conducted a study that explored students’ feelings as they did research in an academic library for the first time”.

2.1 Library Anxiety: Origin of the Theory

Mellon (1986b) conducted a qualitative study intending to understand students’ perceptions towards the library research process. The study was a funded project aimed to integrate library instruction into a composition course, which is related to a faculty at one of southern American universities. Mellon (1986b) selected theoretical sample procedures, generally used in naturalistic inquiries, for her study. She stated “Theoretical sample procedures allow the researcher flexibility in choosing subjects based on the need of the study and in stopping the data collection when sufficient information is collected” (Mellon, 1986b).

Twenty English instructors participated in the study. They were assigned to collect students’ personal documents for two years period. Personal documents were in two forms, journals entries and essays. They asked their students to “keep search journals, diary-like entries that describe search process and their feelings about it, during the course of the semester”. The instructors also required their students, at the end of the semester, to write an in-class essay that answer the following questions:

(1) “What were your experiences using the library to find information for your research paper?
(2) How do you feel about the library and your ability to use it?
(3) Did these feelings changed over the course of the semester?
(4) How do you feel about using the library now?” (1986b)

Students’ journals and essays were collected by instructors for analysis. In this part of the study Mellon (1986a) depended on personal documents and personal writing to collect her qualitative data. Bogdan and Taylor (1975) (as quoted in Mellon, 1986a)
defined personal documents as “an individual’s descriptive, first personal account of the whole or part of his or her life or an individual’s reflection on a specific topic or event”. Mellon (1986a) indicated that categories of personal documents included "unstructured interview, autobiographies, diaries, and letters written either for the self or at the request of a researcher”. She also indicated that “Bogdan and Taylor’s (1975) description of personal documents marked resemblance to the initial stage of the writing process described by composition theorists” (1986a). Moffet (1968), as quoted in Mellon (1986a), described that in this first stage, which is sometimes called personal writing, the writer was not concern about the audience, style, or rules of grammar and spelling, which help him tap into a stream of consciousness, therefore reveals knowledge, interests, and conclusion about a topic.

Mellon (1986a) concluded that “free writing or journal writing can also provide a rich source of qualitative data on student’s perceptions of any activity or idea that the instructor may wish to explore”. To strengthen the data, the researcher conducted observations in places like reference desk, reference area, and classroom. She listened to students’ comments, observed their behaviours, and recorded data at the end of each observation period.

Mellon (1986a) noted that originally the purpose of collecting the data was to assist the researcher in finding “better ways to teach search strategies and tool use within the fifty minute session allotted” to her by the composition faculty. She added that instead of answering the question about problems they encountered with research, students expressed and revealed feelings of fears that hinder them from starting their research, or prevented them from staying long enough to master the search process.

Mellon (1986a) was applying a naturalistic inquiry known as grounded theory. She noted that the purpose of the data analysis was to discover themes that will help in
generating hypothesis or deep insight about how people see themselves. She added that “the primary purpose of this method of analyzing and presenting the data is to generate a unique and new theory grounded in the situation or event under study”. Mellon (1986b) applied grounded theory’s comparative method technique to analyze the data. She followed four steps of data analysis proposed by Glaser and Strauss (1967): “(1) Comparing incident applicable to each category, (2) Integrating categories and their properties, (3) delimiting the theory, and (4) writing the theory” (Mellon, 1986b)

The analysis revealed themes of fear which occur and reoccur in students’ journals or conversations. Mellon (1986a) found that 75 to 85 percent of the students describe their initial feelings in terms of fear such as scary, overpowering, lost, helpless, confused, fear of unknown. Some of students described their fears as “phobia.” This phobia caused them to describe library use in fear terms such as “nightmare.” These students faced such feeling in the beginning research for their papers.

Some students who discussed their fears talked about the feeling of being “lost.” Mellon (1986a) proposed four reasons for feeling lost in the library; firstly, the size of the library. She indicated that academic libraries are considerably larger than school and public libraries where those students have used, so this maybe why many students find the size of the library intimidating. The academic library, which Mellon’s (1986b) students wrote about, was a three storey building, one floor for reference, the other for periodicals and audio-visual materials, and the last floor for circulating collection. The respondents considered the library to be very large. Secondly, the students lack knowledge of where things are located. A number of students in Mellon’s study describe their confusion about the location of references and encyclopaedia, while others did not know whom to ask to get some help. Thirdly, they do not know how to begin the research process. Some students did not know where to begin looking for
information; or what steps to take first. Finally, some students were worried about what they are supposed to do in the library. One student stated that he did not understand the library system at all, while another described the library as an “overwhelming place to someone who doesn’t understand how to use it.” Mellon (1986a) stated that “descriptions such as these led to a formulation of a grounded theory that when confronted with the need to gather information in the library for their first research paper, many students become so anxious that they are unable to approach the problem logically or effectively”

Mellon’s study (1986a) raised an important question; “why didn’t students explain their lack of library skills to their professors?” In further analysis of the data and to answer this question, the study brought out the following situations which fall within the realm of student’s own affective make-up or self esteem.

a) “Students generally feel that their own library use skills are inadequate, while skills of other students are adequate”.

b) “The inadequacy is shameful and should be hidden”.

c) “The inadequacy would be revealed by asking questions”. (Mellon, 1986a)

Mellon (1986a) concluded that the students’ fears could be treated within an anxiety framework. She also found that symptoms that were identified in her research resemble symptoms of math anxiety and statistics anxiety; therefore she coined the new phenomenon as “library anxiety”.

2.2 Library Anxiety Symptoms

Onwuegbuzie, Jiao and Bostick (2004) stated that “library anxiety may arise from a lack of self confidence in conducting research, lack of prior exposure to academic libraries,
and the inability to see the relevance of libraries in one’s field of interest or career path”. The researchers noted that library anxiety symptoms can be in the form of emotional stress or physical discomfort that a student usually encounters when he is performing a library or library related task. Emotional feelings include apprehension, frustration, fear, phobia, negative self-defeating thoughts, uncertainty, helplessness, and mental disorganization. Physical discomfort can be in form of increase in heart rate, blood pressure, and respiration.

Onwuegbuzie, Jiao and Bostick (2004) noted that using the academic library is often a negative experience for high anxious students. Those students usually exhibited many symptoms when they are using the library. They refrained from asking help from the library staff, overlooked sign, misinterpreted direction, and quickly end their library search if they fail to find what they need. In addition those students lacked self confidence in their library skills and this caused feelings of shame and concealment.

2.3 Library Anxiety Measures

To measure library anxiety quantitatively, Bostick, (1992) “developed an instrument by using a variety of statistical procedures. She began with a master list of 294 statements developed with the advice of 10 experts, administering to students whose level ranged from undergraduate to graduate in a series of two pilot tests” (Anwar, Al-Kandari, & Al-Qallaf, 2004). She conducted an exploratory factor analysis which provided five factors that explained 51.8% of total variance of library anxiety construct. She referred to her instrument as Library Anxiety Scale (LAS) which consisted 43 statements grouped in 5 coherent factors (Bostick, 1992). She also found the “LAS to be an adequately valid and reliable measure of library anxiety. This was indicated by the Cronbach’s alpha for the instrument of 0.80, indicating adequate internal consistency. The Pearson product correlation of 0.74 for test-retest stability indicated adequate test
reliability” (Anwar, Al-Kandari, & Al-Qallaf, 2004). The Library Anxiety Scale (LAS) - a 43-item, 5-point Likert-format instrument grouped items under 5 components or antecedents of library anxiety, namely:

(1) Barriers with staff refer to students’ perception that librarians and other library staff are intimidating, unapproachable, and too busy to provide assistance in using the library. This factor explained 25.4% of the total variance of the library anxiety construct.

(2) Affective barriers refer to the feeling of students that their library skills are inadequate compared to other students. This factor explained 8.0% of total variance of the library anxiety construct.

(3) Comfort with the library refers to how safe, welcoming, and non-threatening students perceive the library to be. This factor explained 7.4% of the total variance of Bostick’s library anxiety construct.

(4) Knowledge of the library refers to how unfamiliar students feel they are with the library. This factor explained 6.1% of the total variance of Bostick’s library anxiety construct.

(5) Mechanical barriers refer to feelings which emerge as a result being unable to operate equipment in the library such as copy machines, computer printers, microfilm readers, and change machines (Jiao, Onwuegbuzie, & Lichtenstein, 1996). This factor explained 4.9% of the total variance of Bostick’s library anxiety construct.

Onwuegbuzie, Jiao and Bostick (2004) noted that Bostick’s (1992) study revealed that “library anxiety is a multidimensional construct, with Barrier with the staff explaining the largest variances in library anxiety scores” (25.4% of the variation of library anxiety construct) (Bostick, 1992)
Jerabek, Meyer and Kordinak (2001) investigated the construct validity of two instruments, Library Anxiety Scale and Computer Anxiety Index. They used the Institute for Personality and Ability Testing (IPAT) Anxiety Scale, an index for general anxiety, as a criterion measure of anxiety. Sample of the study contained 171 (65 men and 106 women) undergraduate students between the ages of 17 and 52 enrolled in introductory English, philosophy, or psychology classes at Houston State University. They were asked to complete four instruments: “a demographic/personal information questionnaire developed by Jerabek, Meyer and Kordinak (2001), the Library Anxiety Scale (LAS) developed by Bostick, (1992), the Computer Opinion Survey (Maurer & Simoson, 1984) which contains two instruments, one of which is the Computer Anxiety Index, a 26-item Likert-format scale developed to identify students with computer-related anxiety, and the IPAT Anxiety Scale (Krug, Scheier, & Cattell, 1976) is a 40-item scale that measures a general trait-like anxiety component (Total anxiety) and five principal factors of anxiety including the following: emotional inability, suspiciousness, guilt proneness, level of integration, and tension.

Factor analysis of the library anxiety scale revealed that the five factors of Library Anxiety Scale accounted for 41.22% of the total variance which is consistent, though lesser, with Bostick’s analysis in which her five factors scored 51.8% of the total variance. In addition, the study found that Lack of support factor which is related to Bostick’s (1992) Barrier with the staff factor, explained the largest variance (13.02% of the total variance of the library anxiety construct) (Jerabek, Meyer, & Kordinak, 2001).

The following are the factors derived from Bostick’s study:

1. Lack of Support Factor: Pertained to the participants’ perception of the people working in the library and their lack of support. This factor explained 13.02% of the total variances of Bostick’s library anxiety construct;
(2) Environment Factor: Includes items concerned primarily with comfort. This factor explained 8.74% of the total variances of Bostick’s library anxiety construct;

(3) Insecurity Factor: Includes items concerned with confidence in using the library. This factor explained 8.32% of the total variances of Bostick’s library anxiety construct;

(4) Technical /Procedural Frustration Factor: Involved items related to non-computer technology in the library. This factor explained 7.79% of the total variances of Bostick’s library anxiety construct; and

(5) Directions For Computer Use Factor: Deals with directions and library instructions. This factor explained 3.36% of the total variances of Bostick’s library anxiety construct. (Jerabek, Meyer, & Kordinak, 2001)

Another study that tested the construct validity of the LAS was conducted by Onwuegbuzie and Jiao (2002) as stated in Onwuegbuzie, Jiao and Bostick (2004). They applied a confirmatory factor analysis, using a sample of 489 college students, to test the five component of the Bostick’s (1992) library anxiety scale. The analysis confirmed the multidimensional structure of her scale (Onwuegbuzie, Jiao, & Bostick, 2004). Onwuegbuzie, Jiao and Bostick, (2004) stated that “with the exceptions of two items, all standardized regression coefficients in the model were larger than 0.5”. Moreover, the study “suggested that Bostick’s (1992) five-factor model provided an adequate fit to the data” (Onwuegbuzie, Jiao, & Bostick, 2004)

Jiao and Onwuegbuzie (2002) conducted a study to test the efficacy of Bostick’s (1992) LAS’s five components in predicting library anxiety. The study found that Barrier with the staff is the most prevalent factor as it explained 86% of the total variance in the
library anxiety scale, a result which is consistent with Bostick’s (1992) finding (Onwuegbuzie, Jiao, & Bostick, 2004).

Van Kampen (2004) highlighted the need to modify Bostick’s (1992) library anxiety scale, as a result of the change in the nature of information provision, he stated, “when the LAS was developed, scant information and few theories were available on the user’s feelings during the research process itself; the Internet was not yet widely used as a research tool, and database access was limited primarily to the physical confines of the library”. Kwon (2008) emphasized the limitations of LAS, which does “not adequately measure the current technology in the digital library”.

Van Kampen (2004) aimed to explore whether doctoral students, who were assumed to be experienced with the information search process and the use of the library, encounter library anxiety feelings, and whether this feelings change overtime. The researcher also aimed to investigate library anxiety and preference of online resources and influence of gender on the use of traditional or online resources. Van Kampen (2004) developed a new instrument based on the Bostick’s (1992) LAS. In the first stage of the study, the researcher administered questionnaire among 25 participants. The analysis of this study assisted Van Kampen (2004) in developing the Multidimensional Library Anxiety Scale (MLAS). In the second phase the researcher administered a revised questionnaire among 278 participants. The instrument was a “54-item Likert-type scale that assessed levels of library anxiety experienced by students enrolled in a doctoral degree-granting program at an urban southeastern university”. The intercorrelations for all fifty-three factors were sufficient to ensure internal consistency among the items (alpha coefficient $\alpha=0.88$). In addition, inter-correlations for each factor were sufficient to ensure internal consistency among the items within each factor.
Factor analysis of the Multidimensional Library Anxiety Scale (MLAS) showed that total explained variance accounted for was 43.39%. The components of the MLAS were examined for internal reliability and their alpha reliability coefficient were as follows:

(1) Comfort and confidence when using the library (0.86)
(2) Information Search Process and general Library Anxiety (0.87);
(3) Barriers concerning staff (0.73);
(4) Importance of understanding how to use the library (0.79);
(5) Comfort level with technology (0.73); and
(6) Comfort level while inside the library building (0.74)

Van Kampen (2004) concluded that the Multidimensional Library Anxiety Scale can be used to measure library anxiety among graduate students.

With the increase of international concern of library anxiety phenomenon, LAS’s suitability for different cultures was questioned. Similar to Van Kampen (2004), Anwar, Al-Kandari and Al-Qallaf (2004) emphasized the need to modify Bostick’s (1992) LAS. They noted that LAS was developed in one context culture which not necessarily suits other culture that is completely different. Thus, studies in variety culture and different educational setting are needed as to allow for more exploration of the phenomenon, and open the way for introducing new or modified LAS that will be able to suit different cultures.

Anwar, Al-Kandari and Al-Qallaf (2004) was the first study to use Bostick’s (1992) LAS among Arab countries. The study aimed to examine the suitability of LAS in a Kuwaiti university and to “propose a quantitative linear scale for the various levels of library anxiety”. In addition, the study intended to propose levels of library anxiety and investigate differences in students’ library anxiety level in relation to gender, school library use, language of instruction in the context studied.
Participants were 145 undergraduate biological Sciences students at Kuwait University. They were required to complete a modified version of the Bostick’s (1992) LAS. Considering the differences in the academic library environments in the United States and Kuwait was one of reasons for the modification. For example, questions related to Comfort with library, that describe feeling insecure inside the library, such as “there is too much crime in the library”, and “I feel physically safe inside the library”, were excluded because “safety was not a problem at Kuwait University” (Anwar, Al-Kandari, & Al-Qallaf, 2004). Another modification was related to items or machines that were not used in Kuwait University such as the statement about change machine was excluded. As a result of this, all three statements related to Mechanical barriers were excluded (Anwar, Al-Kandari, & Al-Qallaf, 2004). Bostick’s statement “a lot of the university is confusing to me” was also excluded because the researchers felt it was too broad. After these modifications, participants were required to complete the modified 34-item instrument (nine statements were excluded).

Factor analysis utilizing the Principal Component Analysis (PCA) method of extraction was conducted for the 34 statements. Factor analysis grouping resulted in 32 statements that were distributed among four factors. Those factors yielded reliability coefficient scores that were higher than 0.70. (Anwar, Al-Kandari, & Al-Qallaf, 2004). The following factors were the main source of library anxiety amongst the Kuwaiti students and they accounted for 47% of its variance:

(1) Staff Approachability: refers to anxiety caused by interaction between user and staff. This item scored reliability of Cronbach’s alph =0.9085.

(2) Feeling of Inadequacy: refers to anxiety caused by the user himself. This item scored reliability of Cronbach's alph =0. 7856.
(3) Library Constraint: refers to anxiety that stems from interaction of user with certain barriers in the library. This item scored reliability of Cronbach's alpha = 0.7809.

(4) Library Confidence: Involve the anxiety caused by pairwise interaction between each of these three domains; staff approachability, feeling of adequacy, and library constraint. This item scored reliability of Cronbach's alpha = 0.4106 (Anwar, Al-Kandari, & Al-Qallaf, 2004)

Anwar, Al-Kandari and Al-Qallaf (2004) proposed a quantitative linear scale for determining the level of library anxiety “in terms of no anxiety, low anxiety, mild anxiety, moderate anxiety, and severe anxiety”. They explained, “The proposed scale is based on the properties of the normal distribution. This technique can easily be applied in similar situations regardless of culture. Its application requires only the corresponding sample mean and sample standard deviation scores. These levels, once determined based on the data of a particular study, can be used to take appropriate remedial actions that can cover staff sensitivity training, improvement of various services, review of policies, and user education” (Anwar, Al-Kandari, & Al-Qallaf, 2004). They concluded that with the advancement of electronic and new resources and services, the current Bostick’s (1992) scale is not suitable for the “current profile of a variety of library situations” emphasizing that culture plays significant role in the library anxiety phenomenon.

Onwuegbuzie (1997a) conducted a study that examines the anxiety experienced by 81 graduate students from non-statistical disciplines, who wrote research proposals in an introductory research methodology course. The study aimed to investigate the relationship between anxieties related to the writing a research proposal namely; library
anxiety, composition anxiety, and statistic anxiety, and writing an effective research proposal. Onwuegbuzie (1997a) conducted a mixed method approach which involved both quantitative and qualitative techniques. The quantitative approach used 3 instruments to collect the data. Firstly, the Library Anxiety Scale (LAS) developed by Bostick (1992). This instrument has five subscales namely: Barrier with the staff, Affective barriers, Comfort with the library, Knowledge of the library and Mechanical barriers, as discussed earlier. Concerning the reliability of LAS for his study, Onwuegbuzie (1997a) stated, “the reliability of the subscales, as measured by coefficient alpha, ranged from .71 (“mechanical barriers”) to .88 (“barriers with staff”). Secondly, the Statistical Anxiety Rating Scale (STARS), which was developed by Cruise and Wilkins (1980), is “a 51-item, 5-point Likert-format instrument which assesses statistics anxiety in a wide variety of academic situations” Onwuegbuzie (1997a). This instrument has six subscales, namely,

“1- Worth of statistics: refers to a student’s perception of the relevance of statistics.

2- Interpretation anxiety refers to anxiety experienced when a student is faced with making a decision from or interpreting statistical data.

3- Test and class anxiety: refers to the anxiety involved when taking a statistics class or test.

4- Computational self-concept: refers to anxiety experienced when attempting to solve mathematical problems, as well as the student’s perception of her/his ability to do mathematics.

5- Fear of asking for help: refers to anxiety experienced when asking a fellow student or professor for help in understanding the material covered in class or any type of statistical data, such as an article or a printout; and
6-Fear of the statistics instructor: with the student’s perception of the statistics instructor.” (Onwuegbuzie, 1997a). In addition, the reliability of the CARS, as measured by coefficient alpha, was 0.82 (Onwuegbuzie, 1997a).

Thirdly, the Composition Anxiety Rating Scale (CARS), which was developed by Onwuegbuzie (1997a) himself, is a 26-item, 5-point Liker-format instrument which assesses anxiety experienced by students in preparing for and writing a research proposal. Larger score in this instrument suggest higher levels of composition anxiety (Onwuegbuzie, 1997a). The reliability of the CARS, as measured by coefficient alpha, was 0.82 (Onwuegbuzie, 1997a).

The quantitative approach aimed to investigate the association between these anxieties and scores attained on research proposal. In addition it aimed to investigate “which components of library anxiety, statistic anxiety and composition anxiety predicted a student's ability to undertake a research proposal” (Onwuegbuzie, 1997a)

The qualitative approach, aimed to explore themes related to underachievement in research courses. Students’ journal entries were recorded on regular bases and were analyzed. Reliability and validity were established through persistent observation; prolong engagement, and triangulation to the sample throughout the semester course.

The quantitative analysis revealed that all composition anxiety is negatively correlate with score attained on the research proposal (r= -0.33, p<0.001). Two components of Library anxiety were negatively correlated with score attained on research proposal namely Affective barriers (r= -0.35, p<0.001), and Knowledge of the library (r=-0.27, p<0.01). Similarly, two components of Statistical anxiety were negatively correlated with score attained on research proposal namely, Interpretation anxiety (r= -0.33, p<0.001), and Fear of asking for help (r= -0.27, p<0.01) (Onwuegbuzie, 1997a).
Utilizing multiple regression analysis technique, the study found that “the following variables which contributed significantly (F [12,68] = 4.58, p< 0.0001) to the prediction of proposal writing propensity: affective barriers (F [1,68]= 5.64, p <0.05), knowledge of the library (F [1,68] = 3.98, p< 0.05), Interpretation anxiety (F [ 1,683 = 5.94, p C .05), fear of asking for help (F [ 1,681 = 3.07, p <0.10), and composition anxiety (F [1,681] = 3.33, p <0.10. These variables combined to explain 35.9% of the total variance.”(Onwuegbuzie, 1997a). Onwuegbuzie (1997a) concluded that students who attained low score in their research proposal tended to experience higher levels of anxiety associated with factors namely, Affective barriers, Knowledge of the library, Fear of interpreting statistical anlysis, Fear of asking for help, and Fear of writing the research proposal. (Onwuegbuzie, 1997a)

The qualitative study found that students’ problems in writing research proposals often manifest themselves in the form of depression, frustration, contempt, anger, apprehension, nervousness, guilt, panic, stress and disgust (Onwuegbuzie, 1997a)

The qualitative analysis revealed 6 components for library anxiety:

(1) Interpersonal Anxiety is like Bostick’s (1992) Barrier with staff, refers to an increase in anxiety levels when a student contemplates or is in the process of seeking help from a librarian or other library staff.

(2) Perceived Library Competence is similar to Bostick’s (1992) Affective barriers, refers to an increase in levels of anxiety culminating in a student having a negative perception of her or his ability to utilize the library competently;

(3) Perceived comfort with the library is equivalent to Bostick’s (1992) Comfort with library;

(4) Location Anxiety is identical to Bostick’s (1992) Knowledge of the library;
(5) Mechanical Anxiety is identical to Bostick’s (1992) Mechanical barriers; and

(6) Resources anxiety refers to anxiety which stem from a student selecting an article or book from a library computer search that was not available at the library (Onwuegbuzie, 1997a).

Utilizing the constant comparative method, the study found that student's ability to write a research proposal is associated with his or her perceived comfort with the library and mechanical barriers (Onwuegbuzie, 1997a).

Furthermore, the study revealed that students who were anxious about asking help from library staff tended to score low in their research proposal.

The study also found that Resources anxiety, though emerged in the library anxiety literature for the first time, was one of the most prevalent components of library anxiety that affects students’ proposal writing.

Shoham and Mizrachi (2001) conducted a study in Israel. They investigated the library anxiety level of 664 Israeli B.Ed students at eight teachers colleges. They also investigated the relationships between library anxiety and some selected variables; age, gender, year of the study, native language, and computer usage. The instrument of their study was a survey based on the library anxiety scale (LAS) developed by Bostick (1992). They translated it into Hebrew and called it H-LAS. They modified it by excluding 8 statements as a result of cultural differences, thus H-LAS became a 35-Likert-type survey with 35 statements distributed among the following 7 factors, namely:

(1) Staff factor, which refers to the students’ attitudes towards the librarians and library staff and their perceived accessibility. This item scored reliability of Cronbach’s alph=0.75 ;
Knowledge Factor, which concerns how the students rate their own library expertise. This item scored reliability of Cronbach's alpha=0.77;

(3) Language Factor is the factor indicating the extent to which using English language searches and materials induces discomfort. This item scored reliability of Cronbach's alpha=0.76;

(4) Physical Comfort Factor measures how much the physical facility affects the students’ enjoyment of the library. This item scored reliability of Cronbach's alpha=0.60;

(5) Library Computer Comfort Factor deals with perceived reliability of library computer facilities and the quality of direction for using them. This item scored reliability of Cronbach's alpha=0.51;

(6) Library Policies/Hours factor assesses the students’ attitudes towards library regulations and operating hours. This item scored reliability of Cronbach's alpha=0.45; and

(7) Resources Factor involves the perceived availability of the desired material in the library collection. This item scored reliability of Cronbach's alpha=0.52 (Shoham & Mizrachi, 2001)

The study found the Language factor to be the most prevalent factor among other library anxiety factors, followed by Library Policies/Hours factor, Library computer comfort factor, Physical comfort factor, Staff factor, Knowledge factor, and Resources factor respectively. However, Onwuegbuzie, Jiao and Bostick (2004) indicated that Shoham and Mizrachi (2001) did not provide information about the portion of total variance those factors explained.

Shoham and Mizrachi (2001) concluded that “The over-all average for library anxiety of 2.51 is almost in the precise center of the scoring range. From this, one can assume
that although library anxiety is not an overwhelming phenomenon, it certainly does exist and should be recognized as a potential barrier to the scholastic achievement of the B.Ed students”.

Summary of all library anxiety measures is provided in Table 2.1.

Table 2.1: Summary of Library Anxiety Measures

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<td>(2) Affective Barriers</td>
<td>(2) Perceived Library Competence</td>
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<td>(3) Comfort with the library</td>
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<td>(3) Insecurity Factor</td>
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<td>(4) Knowledge of the library</td>
<td>(4) Location Anxiety</td>
<td>(4) Technical/Procedural Frustration</td>
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<td>(5) Mechanical barriers</td>
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<td>(5) Directions For Computer Use</td>
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<td>(1) Staff</td>
<td>(1) Comfort &amp; confidence when using the library</td>
<td>(1) Staff Approachability</td>
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<td>(2) Knowledge</td>
<td>(2) Information Search Process &amp; general Library Anxiety</td>
<td>(2) Feeling of Inadequacy</td>
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<td>(3) Language</td>
<td>(3) Barriers concerning staff;</td>
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<td>(4) Physical Comfort</td>
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2.4 Library Anxiety Components

Studies found that library anxiety construct is multi-dimensional as shown in the previous components through 5 main themes that will assist in understanding their concepts; (1) Anxiety associated with library environment, (2) Anxiety associated with difficulties in locating needed information, (3) Anxiety associated with library staff, (4) Anxiety associated with affective barriers, and (5) Anxiety associated with language.

2.4.1 Anxiety Associated with Library Environment

Research in library anxiety indicated that some aspects of library environment work as a source of anxiety among American college students. These aspects include anxiety emerging from size of the library, layout of floors, operating some machines or computer facilities inside the library, feeling uncomfortable inside the library, crimes in
the library, library location, library regulation or policies, searching or using materials in different languages, decor architecture, arrangement of furniture, noise level, theft of personal belongings, poor lighting and ventilation, poor temperature control, and airlessness.

Mellon (1986a) noted that students were overwhelmed by the large size of the academic library, which was large compared to their school libraries. They were confused about layout of floor and they did not know on which floor the sources they need are located. This caused them to feel anxious and lost, as one of the students explained “I relate my fear to the library…to its large size”, another student added “the largest library you’ve ever been in seemed like a small room compare to this”.

Bostick (1992) notified that some students became confused when some machines inside the library like, computer printers, change machine, and microfilm readers and photocopiers were out of order or difficult to operate. This included printers or change machines being out of order, or photocopier being out of paper. As they needed to use these machines, students became frustrated and anxious because this prevented them for getting their needed material or information. Bostick (1992) referred to this anxiety as “Mechanical barrier”.

Similarly, Onwuegbuzie (1997a) referred to “Mechanical anxiety”, as the “increase in anxiety levels when students are using, attempting to use, or contemplating using mechanical library equipment, including CD-ROM, computers, photocopy machines, and microfiche”. One of the students expressed his experience with using CD-ROM in the library,

“I went to the library to do a search for cholesterol in the elderly. This topic was hard to find any articles. I decided I wasn’t using the correct key words so I asked a librarian to
help me. We ended up having to use the word hypercholesterolemia instead of high cholesterol to find articles. ERIC sure is picky!” (Onwuegbuzie, 1997a).

Jiao and Onwuegbuzie (2001b) who investigated library anxiety among international students in the American universities found “Mechanical barrier” is the greatest source of library anxiety among those US-born students. Conducting “a series of dependent t-test, using the Bonferroni adjustment, revealed that mechanical barriers induced significantly higher level of library anxiety” than other factors ($t=6.0$, $p<0.0001$; effective size=1.84) (Jiao and Onwuegbuzie, 2001b)

Shoham and Mizrachi (2001) proposed the Computer comfort factor, which refers to the perceived reliability of computer facilities in the library and the quality of instruction for their use, as one of the dimensions of library anxiety among Israeli university students. This in some way, is related to Mechanical barriers, however it only concentrates on computer facilities.

Bostick (1992) indicated that anxiety can stem from feeling unsafe or uncomfortable inside the library. She noted that Comfort with the library refers to “how safe, secure, welcoming, and non-threatening students perceive the library to be” (Onwuegbuzie, Jiao, & Bostick, 2004). Onwuegbuzie, Jiao and Bostick (2004) indicated that students who do not feel comfort inside the library maintain high library anxiety level. This factor scored 7.4% of the total variation, following the Barrier with the staff (25.4%), and Affective barriers (8.0%)

Feeling unsafe is related to the fact that large libraries at the United States more often witness crimes against staff and users. Shuman (1999) discussed different types of crimes that occur in American libraries, including "homicide, rape, sexual assault,
aggravate assault, simple assault (against staff members or other patrons), robbery, larceny, burglary, grand theft, personal property theft, harassment of the staff, obscene phone calls, nuisance calls, indecent exposure, pickpockets, elevator crime, or crime committed by staff members”. This is also clear in some of the statements of the Library Anxiety Scale developed by Bostick (1992) such as “I feel physically safe in the library”, “I feel safe in the library” “The library is a safe place”, and “There is too much crime in the library”. Onwuegbuzie (1997a) proposed an identical factor namely, Perceived comfort with the library. One of the student in his study commented, “I hate going to the library. I feel so uncomfortable there”.

Onwuegbuzie (1997a) further found that location of the library causes dissatisfaction among some users as one of the participant described, “I’ll probably have to go to the other library. I hate going to that library. There is always construction and it’s not in the best neighborhood” (Onwuegbuzie, 1997a)

Shoham and Mizrachi (2001) introduced the factor Physical comfort which assessed the influence of physical facilities one students’ comfort and enjoyment with the library, however the relation was moderate, as it scored an average of 2.41, compared to the highest average 3.63 which was scored by the Language factor.

Shoham and Mizrachi (2001) notified that some students have negative attitudes towards library regulation, rules, and operating hours. Those students were aware of the importance of these regulations; however they considered the regulation applied in their academic library inconvenient. The researchers referred to this factor as “Policies/Hours factor”. This factor was the second most prevalent factor that contributed to feelings of library anxiety among Israeli undergraduate student, as it scored an average of 2.81,
following the Language Factor, which scored average of 3.63 (Shoham and Mizrachi, 2001).

In addition, Onwuegbuzie, Jiao and Bostick (2004) notified that library anxiety can be influenced by library decor architecture, and arrangement of furniture, noise of “cell phones ringing in the library”, theft of personal belongings, and poor lighting and ventilation.

Onwuegbuzie and Jiao (1998) who investigated the relationship between library anxiety and students’ learning style, which will be discussed later in this chapter, found no statistical significant correlation between library anxiety and noise level ($r=0.02$), light ($r=-0.07$), temperature ($r=0.03$), and design ($r=-0.03$).

Balanli, Ozturk, Vural and Kucukcan (2007) investigated the physical characteristics of 22 university libraries in Turkey and their effect on the library use of student and academic staff. The researchers indicated that insufficient library use was mainly related to difficulties in gaining access to the needed information, and insufficient library collection. It was also related to many physical characteristics including the lack of sufficient space, high noise level, poor temperature control, airlessness and odour and poor lighting quality. The researchers also indicated the existing spaces within the main library building did not meet the standards recommended by IFLA/UNESCO guidelines reported by Edwards (1990). Concerning the noise level, the researchers noted that it was above the standards of Turkish “Noise Control Regulation” (Resmi, 1986). The researchers added that there were two types of noise that affected library users, indoor noise and outdoor noise. Library users complained more about indoor noise (Balanli, Ozturk, Vural, & Kucukcan, 2007).
Balanli, Ozturk, Vural, and Kucukcan (2007) noted that poor temperature control affected library users as “30.98 percent of users complained about the temperature during the cold season, and 13.79 percent of them complained about the temperature during the hot season”. Also, the researchers indicated that more than half of respondents complained about airlessness inside the library. In addition, users were affected by “distinctive and heavy odor”.

Finally, the researchers found that “19.70 percent of users in the library building complained about the insufficient lighting quality” (Balanli, Ozturk, Vural, & Kucukcan, 2007).

Using open-ended interview and questionnaires among 210 academic library users, Simmonds and Andaleer (2001) studied the influence of service quality factors, resources, and user characteristics on academic library usage. They found that library usage is influenced by cleanliness and the visual appeal of the library. They noted that the “physical appearance of the library must be made appealing to bring users to the facilities”.

### 2.4.2 Anxiety Associated with Difficulties in Locating Information Needs

Studies in library anxiety revealed difficulties and lack of abilities to locate the information needed in the academic library is the most frustrating problem that increases the level of library anxiety. The difficulties in locating needed material are related to three main issues; (1) Inadequate library search skills, (2) Information search process, and (3) Shortage of library services.
2.4.2.1 Anxiety Associated with lack of Knowledge / Skills

Inadequate library skills were found to be one of the main sources of anxiety among students who use academic libraries. As mentioned earlier, Mellon (1986a) found that lack of knowledge of the location of resources, such as encyclopedias and reference works, not understanding how to use the library system were among the main causes of library anxiety. She further indicated that lack of familiarity leads to frustration and anxiety, and subsequently, further avoidance behaviour (Mellon, 1986a).

Bostick (1992) identified this as “Knowledge of the library”, while Onwuegbuzie (1997a) and Shoham and Mizrachi (2001) termed it as “Location anxiety” and “Knowledge factor” respectively.

Onwuegbuzie, Jiao and Bostick (2004) noted that “lack of information retrieval skills and library search strategies in dealing with the plethora of searching tools and resources is believed to be one of the sources of library anxiety among users”. They added that lack of information retrieval skills is related to number of factors such as “absence of previous library experience, ignorance of the capability and extent of the library information retrieval systems, and inadequate knowledge of the subject matter and the library research process”.

Andrews (1991) studied students’ library use problems. The critical incident technique (CIT) was used to collect data from 29 students from first, second, final, and postgraduate year, who were using Manchester Polytechnic academic library. The researcher indicated that “critical incident technique was first used by the US Army Air force in its Aviation Psychology Program to develop procedures to develop training of Aircrews. Since that, it has been used to establish training needs for staff appraisal and the improvement of job design to maximize performance. Despite its proven flexibility it has been rarely used in the library world. It has been employed only twice in British
libraries.” Andrews described that asking participants using interview or questionnaire is done to recount a specific event to illustrate a pre-selected behaviour which were called “critical incidents”. She further described “in CIT the questions used in data collection are merely prompts, for example, to describe a situation “when you had to ask for help”. A valuable aspect of the process of using broad prompts is that it allows the subject an almost free rein in choosing which incidents to describe.

The analysis of data revealed problems with the computer catalogue. One of the students did not use the computer catalogue because he had not used them before and felt nervous of them. A number of students did not fully understand the computer catalogue operations and expressed problems with the complexity of library catalogue itself. They could not understand its organization, lacked control and lost track of what they were doing, therefore could not find their books. The study found that those students exhibit signs of library anxiety.

A group of incidents related to feeling of anxiety among those students, while using the library, were found to be similar to those appeared in Mellon’s library anxiety research. Andrew’s (1991) stated “A large percentage of students described their initial response in terms of lost, fearful or anxious”. One student in Andrew’s study stated “the first time I came in I felt threatened”. Another student stated “I thought obviously everybody else understood the induction talk, why didn’t I, what am I doing here… these youngsters can understand it, they’re all busy with their fingers tapping away, what’s wrong with me?”

Similar to Andrew’s research (1991), Sulivan-Windle (1993) conducted a qualitative research at the Kelvin Grove campus library of Queensland University of Technology, Australia to discover which aspects within the library prevent students from using it effectively and which aspects help. Participants were 46 first year Bachelor of
Education students in their second semester and 16 postgraduate Teacher-Librarianship students in their final year. The 46 Education students were approached in their tutorial session for sociology of Education subject. A total of 36 students volunteered to respond to Critical Incident Technique prompts with written discourse, while 10 volunteered to respond by taking photographs to illustrate their incidents, followed by written discourse explaining their photographs. The 16 Teacher-Librarianship students were approached during their three-day study school and responded to the prompts with written discourse. The Critical Incident Technique and photography were used to discover what the students experience while using the library and how do they interpret their experiences. The study revealed perceptions of students about three elements in the process of effective use of the academic library; the library itself; library staff; and students. The study found that difficulties in accessing the collection was among the main problems of students’ library uses. She indicated that gaining access to the library collection was reported many times as a cause of frustration for these students and this finding was similar to Mellon’s result. Sulivan-Windle (1993) also found evidence of library anxiety among those students, as one of them stated, “My heart sank. [I felt] hot and cold!!! I had no previous knowledge of a library reference section so I felt quite overwhelmed by it all”. This finding is related to antecedent of library anxiety “comfort with the library”.

Gross and Latham (2007) conducted a research to investigate the relationship between information literacy skill level, self-estimate of skills and library anxiety. They indicated that previous studies of library anxiety research did investigated relation between skills level and number of library classes attended and frequency of library use (Jiao & Onwuegbuzie, 1997, Jiao & Onwuegbuzie, 1998, and Onwuegbuzie & Jiao, 2004), but none of these studies has directly measured whether students’ information literacy skills is correlated with their library anxiety.
The study involved 51 participants who were incoming freshmen who represented either the top 25% or bottom 25% of their class based on high school GPA and ACT (American College Testing), which is a standardized test for high school achievement. They were asked to complete the Information Literacy Test (ILT) which is a computerized test developed by James Madison University (James Madison University, n.d.) and the Library Anxiety Scale (LAS) developed by Bostick (1992). Their study found no association between information literacy skill and library anxiety scores (only a slight negative relationship between information literacy scores and scores on the LAS ($r = -0.18$, $p=0.21$). However, “a significant negative correlation between information literacy scores and the subscale “knowledge of the library” ($r = -0.37$, $p=0.01$) indicates that as information literacy scores rise, anxiety scores related to a lack of knowledge of the library fall” (Gross & Latham, 2007).

2.4.2.2 Anxiety Associated with Information Search Process (ISP)

Mellon (1986a) proposed two sources of library anxiety that are related to the information process; (1) confusion about how to begin the library search, and (2) how to proceed with the search process. Onwuegbuzie, Jiao and Bostick (2004) quoted of one of Mellon’s (1986a) students who said:

“Oh! Now I have to begin my research paper and what am I to do? Although I have been using the University’s library for a little more than one semester, I’m still frightened each time I push those wide class doors to open. (P.162)”

Kuhlthau (1999) has indicated that people using libraries and information systems to investigate a problem often face difficulties in the early phase of information seeking. She studied extensively user’s process of information seeking. She developed a model for the information search process. She early noticed the students’ searching problem
when she was a school secondary librarian. Students were sharing common pattern behaviour when using the library for their first few days of their research. Kuhlthau stated: “They were confused and disoriented, often expressing annoyance at the assignment, the library, and themselves. I have come to understand that this point, when librarians frequently first encountered students and other library users as well, is the most difficult stage of the search process. Rather than a steady increase in confidence from the beginning of a search to the conclusion, as might be expected, a dip in confidence is commonly experienced once an individual has initiated a search and begins to encounter conflicting and inconsistent information. A person “in the dip” is increasingly uncertain and confused until a focus is formed to provide a path for seeking meaning and criteria for judging relevance”. Keefer (1993) indicated that Kuhlthau’s model was based on qualitative research that studied the cognitive processes, feelings, and attitudes of students while they are working to complete their research papers. Keefer further stated “Kuhlthau examined students’ log books to gauge their thoughts, feelings, actions, strategies, and mood”. McMackin and Siegel (2004) indicated that Kuhlthau (1988) has identified six distinct cognitive stages, which students go through as they do research for their assignments, papers, or projects: task initiation; topic selection; pre-focus exploration; focus formulation; information collection; and search closure and presentation. They further stated “in addition to studying the cognitive stages in the ISP (information search process), Kuhlthau (1991) also explored affective stages. Kuhlthau (2004) explained both the cognitive and affective stages process as follows.

1-Initiation. In this stage a person first become aware of a lack of knowledge or understanding to accomplish an assignment, feeling of uncertainty and apprehension are common. At this point, the task is merely to recognize a need for information. Thoughts are vague and ambiguous centring in the general problem or area of uncertainty.
2- **Selection.** This is the second stage when the task is to identify and select the general area or topic to be investigated. Feelings of uncertainty often give way to a brief sense of optimism after selection has been made and there is a readiness to begin the search. Thoughts center on weighing prospective topics against the criteria of personal interest, assignment requirements, information available and time allotted. The outcome of each choice is predicted and the topic judged to have the greatest potential for success is selected. When for any reason, selection is delayed or postponed, feeling of anxiety are likely to intensify until a choice is made. Actions often involve seeking background information in the general area of concern.

3- **Exploration.** This is often the most difficult stage for users and the most misunderstood by intermediaries. Feelings of confusion, uncertainty and doubt frequently increase during this time. The task is to investigate information on the general topic in order to extend personal understanding. Thoughts center on becoming oriented and sufficiently informed about the topic to form a focus or a personal point of view. At this stage an ability to express precisely what information is needed makes communication awkward between the user and the system. Actions involve locating information relevant to the general topic, reading to become informed and relating new information to what is already known.

4- **Focus formulation.** This stage is the turning point of the process when feelings of uncertainty diminish and confidence begins to increase. The task is to form a focus from the information encountered in exploration. Thoughts become more clearly defined as a focused perspective of the topic is formed.

5- **Information collection:** when interaction between the user and the system functions most effectively and efficiently. At this point, the task is to gather information pertinent to the focused topic. Users have a clearer sense of direction and can specify the need for
particular information. Confidence continues to increase as uncertainty subsides with interest in the project deepening.

6- **Search closure and presentation:** when the task is to complete the search and to accomplish the assignment. A sense of relief is common, with satisfaction if the search has gone well or disappointment if it has not. Thoughts center on culminating the search with a personalized understanding of selected aspects of the topic under study. (Kuhlthau, 2004)

Keefer (1993) indicated that in the first three stages of Kuhlthau’s (1991) model, students experienced more feelings of apprehension, anxiety, and even fear. However, when they focus on specific topics, they showed more positive mood. Not all students experienced decrease in their original anxiety. Some students could not reach the focus stage and they continued to be negative all the way through their assignments. Keefer (1993) also noted that in the library setting, freshman or older students were often confronted with other overwhelming problems that increase their anxiety about assignments such as not knowing details of call numbers, stacks, rows, aisles, signs, maps, periodicals sections, computer systems, abstracts and indexes, microfilms, and microfiches. Keefer noticed that as a result of mental and cognitive stress, some students, while attempting to find books, may overlook signs, misinterpret maps or direction, and fail to look in obvious places. Kohrman (2004) stated that Keefer (1993) referred to this as the “hungry rat syndrome.” A hungry rat often misses the correct and previously known turns because the drive and need for the food (information) at the end of the maze (library research process) cause it to become confused, anxious, or rattled. She added that Keefer (1993) described that some of those students would ask for help when they fail to find what they needed and they would experience anxiety again if they
did not master all the details of the library system even at the end of the search process when uncertainty and anxiety would have been considerably decreased.

Carlisle (2004) noted that negative effects of library anxiety included the “inability to approach library-related tasks in a logical and effective manner; search avoidance, and lack of persistence and focus in searching for information or resources”.

Van Kampen (2002) explored the library anxiety among doctoral students and its relation to the information search process. The study aimed to find out whether doctoral students, who are assumed to be experienced in the information search process and the use of the library, encounter library anxiety, and if this is the case, at which phase of the information search process do they encounter higher library anxiety. In addition, the study intended to explore the relation between library anxiety and preference of using online resources, the effect of gender on use of traditional or online library resources, and the effect of availability of items in any format on its use. As the study involved the use of online resource and the relation between library anxiety and information search process, Van Kampen (2002) developed a new instrument, as discussed earlier, based on the Library Anxiety Scale LAS, which was developed by Bostick (1992).

Van Kampen (2002) referred to his instrument as Multidimensional Library Anxiety Scale. This scale included an item that determines whether there is a correlation between the Information Search Process and library anxiety and the item was labelled “The Information Search Process and general library anxiety”. The study found that doctoral student exhibited library anxiety, which increase to its highest level during the first stage (initiation), which involved seeking background information and the third stage (formulation and collection), which involved focusing. This finding confirms
Kuhlthau’s (1991) model of Information search process. Van Kampen (2004a) described the stages as follows.

“(1). Students in the early stages of the dissertation process, who have not yet determined a topic and narrowed it down, appeared to be least confident and most anxious.

(2). Those at the intermediate/proposal stage, who were collecting information for the literature review, began to feel more confident.

(3). At the third stage, when students completed their library research and writing, their anxiety levels fell.

(4). At the final stage, when they had completed all writing and were preparing to defend the dissertation, their confidence fell and anxiety rose again”.

Referring to the effect of library anxiety on the information search process, Mellon (1986a) concluded that “when confronted with the need to gather the information in the library many students become so anxious that they are unable to approach the problem logically and effectively”. This conclusion was not only related to information search process but also related to what is known as critical thinking. Glaser (1941), as stated in Kwon, Onwuegbuzie and Alexander (2007), defined critical thinking as the “attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one’s experiences”. “An ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit” (Facione, 1990).
Kwon (2008) examined the dynamic association between critical thinking and library anxiety among undergraduates in the relation to their information search process. Applying a quantitative approach followed by a qualitative critical incident technique, Kwon (2008) explored the nature of the association between dispositions critical thinking and library anxiety among 137 undergraduate students at a Southeastern University in USA. In the quantitative part, participants were firstly required to complete two standardized survey instruments the California Critical Thinking Disposition Inventory (CCTDI) which measures the disposition of a person to use critical thinking when approaching a task, and the Library Anxiety Scale (LAS) developed by Bostick (1992). In the qualitative study, students were required to write a 500-1000 word essay that describe (1) their past incidents of library use, (2) their feelings and thoughts during the whole assignment process, and (3) their feelings about using the library resources for writing a research paper (Kwon, 2008).

Using a series of independent sample t-tests at the .05 significance level, the analysis of the surveys revealed a negative association between library anxiety and critical thinking disposition (α < .05), meaning that students with high score in library anxiety tend to exhibit weak critical thinking towards the library task they faced. This result was consistent with the Kwon, Onwuegbuzie and Alexander’s (2007) study that found that weak dispositions toward critical thinking are associated with high levels of library anxiety. The qualitative study, which aimed to strengthen the negative association between library anxiety and critical thinking, revealed that library anxiety negatively affects students’ critical thinking. It hinders those students from using critical thinking during the information search process, as one of the students, whose critical thinking score was weak commented:
“When I first started my research, I felt like I was lost in a sea. I didn’t know where to start…. For a few minutes I felt like my thinking abilities were gone.” (Kwon, 2008)

Kwon (2008) added that, though their critical thinking depositional was hampered by library anxiety feeling, some students tend to initiate positive critical thinking which helped them to reinstate their affected critical thinking, as seen in the following statement:

“When I first walked in [to] the library I was intimidated. It was a little bigger than what I was used to. Once I took a couple of deep breaths I realized that it was still a library and I have been using them since elementary school. When I finally calmed my nerves, I had no problem finding the information that I was looking for. … I knew I could find plenty of resource material to research.” (Kwon, 2008). This finding indicates that positive critical thinking can reduce the negative effect of library anxiety and therefore enhance the use of critical thinking in the information search process.

Not all students were able to negate the negative feelings as some were weak in critical thinking score, gave up, as one of the student noted:

“When I first chose the story, I was confident that I could write a satisfactory essay. … After three exhausting days of worrying and pretending my search was going well, I gave up… I had no good notes to refer to when I sat down to write the essay…The resulting work was poor” (Kwon, 2008).

The qualitative analysis also found that students’ critical thinking abilities and skills could positively change overtime as a result of increase in library use, which in turn increases “self-confidence and thinking abilities” (Kwon, 2008).
Kwon (2008) further introduced a model that described the interaction between library anxiety and critical thinking as follows:

1. Stage 1-2: in this stage students normally feel library anxiety (similar to Kuhlthau’s (1993) model of Information search process);
2. Stage 2-3: Library anxiety hampers critical thinking skills and abilities;
3. Stage 4: Students initiate positive critical thinking disposition to overcome the problems and carry out the library task;
4. Stage 5: The positive critical thinking deposition initiated in the stage 4 help to reinstate the affected critical thinking;
5. Stage 6: Decrease of library anxiety; and
6. Stage 7: Accomplish the library task and get the needed information (Kwon, 2008).

The researcher noted that, “While the first four stages appeared in a distinctive sequence in the students’ reports, the fifth and sixth stages appeared to occur almost simultaneously.” (Kwon, 2008). She also noted “that most students expressed uneasy feelings with the initiation of library task and this phenomenon confirmed Mellon’s two-decade-old study, who found that most college freshmen suffered from library anxiety. This feeling is felt by today’s new generation of students who are supposed to be “technologically savvy and proficient, to perform their library task” (Kwon, 2008). Realizing the important role of self confidence in reinstating critical thinking, Kwon (2008) concluded that critical thinking teaching should utilize new methods and techniques that improve students’ self-confidence about their “own reasoning processes and cognitive abilities” . In addition, the researcher called for creating library environment that encourages value of learning and intellectual curiosity.
Kwon’s (2008) research provided for practical implementations to the recommendation suggested by Onwuegbuzie, Jiao, and Bostick (2004) who felt that more research was needed to find ways to help students modify their behaviours when experiencing library anxiety to help them feel comfortable and accomplish what they have come to the library for. They further suggested that users should be taught the concept, structure, role, and organization of information as well as critical thinking and problem-solving skills (Onwuegbuzie, Jiao, & Bostick, 2004).

2.4.2.3 Anxiety Associated with Shortage in Library Services

Literature on library anxiety identified a number of items that are related to shortage in services provided by the academic library, as sources of anxiety feelings among student users. This shortage includes lack of provision of needed resources, limited number of computers, limited number of copies of much used materials, lack of quality in information provided in the computer catalog, poor re-shelving of used resources, hidden or missing books, and shortage in information about library facilities and resources.

Onwuegbuzie (1997a) and Shoham and Mizrachi (2001) referred to anxiety which stem from lack of needed resources as “Resources anxiety” and “Resources factor” respectively. Onwuegbuzie (1997a) found that factor “Resource anxiety” is one of the most prevalent factors of library anxiety factors that contribute to underachievement in writing research proposal (Onwuegbuzie, 1997a). He noted, “not having the needed resources can lead to frustration, which, in turn, can elevate anxiety levels, as illustrated by the following statement:

“Even though I found many articles about alcohol, I am so frustrated and disappointed about insufficient sources in our library because so many articles which I need are not
available in our library. (p.18)” (Onwuegbuzie, Jiao, & Bostick, 2004). Another student said:

“Today, I waited around 15 minutes for a computer to become available two were out of order. I had some specific key words I wanted to try in the medical journals, Many abstracts that were called-up were in journals not ‘owned’ by the library” (Onwuegbuzie, 1997a).

Unlike Onwuegbuzie (1997a), Shoham and Mizrachi (2001) found that “Resources factor” is not significantly related to library anxiety among Israeli undergraduate students.

Balanli, Ozturk, Vural and Kucukcan (2007) investigated the physical characteristics of 22 university libraries in Turkey. The study found that the main reasons for insufficient use of the main library building were the inadequate collection and difficulties in gaining access to resources.

Onwuegbuzie (1997a) reported that some students were stressed because of insufficient number of computers in the library, as one student expressed,

“Drove to school early, so I could go to the library. Had to wait for a computer, finally got to use one. Just as I get in the system, the system crashes.” (Onwuegbuzie, 1997a)

Andrews (1991), who studied students’ library use problems, noted that limited number of copies of resources may cause problem between students who are taking the same courses. This sort of problems increased when lecturers do not use the “short loan” option. Other students complained about the quality of the information provided by the computer catalogue. For example some students found a book under author and not under author and title; some could not find a book although they knew it was in stock.
Another problems related to quality of information was that the library system was perceived as being not self-explanatory and that more instructions were needed to help students in their search.

Other problems were related to locating books on the shelves. This was one of the most frustrating problems since many students believed that the most important role of the library was to provide books. One student found the book in the computer record but failed to find it on the shelf. This was because the book was not re-shelved or either hidden or missing. Andrews (1991) and Sullivan-Windle (1993) revealed that lack of re-shelving, missing, and hidden books were among the reasons that prevent students from locating their needed material in the academic library. In addition, some students had problems because there was not enough information about the library facilities and resources (Andrews, 1991; Sullivan-Windle, 1993). Sullivan-Windle (1993) noted that students related their library use problems to the lack of needed services; and poor delivery of existing services.

2.4.3 Anxiety Associated with Library Staff

Studies have shown that one of the important factors that contribute to students’ feelings of anxiety is the library staff factor. The literature indicated that university students are facing barriers to approach library staff and get benefit from their assistance. Literature on library anxiety revealed that students’ myth about the role of library staff confuse them, as they become hesitant about asking for help. Mellon (1986b) indicated that students who felt that their own library skills were inadequate, compared to their peer, tended to feel so shy because of this, as one students said, “I tend to feel like I am the only one in the university that doesn’t know where to look for things in the library”,

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another added “I can’t believe I don’t know anything about this” (Mellon, 1986b). When those students needed help, they avoided seeking answers from librarians because they felt that their questions will be too simple to the librarian, whom they observed to be busy doing other tasks. As one student said, “I was scared to ask questions”, another added “I didn’t want to bother anyone” (Mellon, 1986b). Another reason for not seeking librarians’ help is the perception that their inadequacy, which they think is shameful, will be revealed when they ask questions, as the above student added, “I also didn’t want them to think I am stupid” (Mellon, 1986b). This in turn, increases their library anxiety.

Bostick (1992) found that anxiety stem from students’ perception that library staff are intimidating, unapproachable, too busy, with more important things to help them, and not available when their assistance is needed. She named this factor “Barrier with the staff”. This factor was the most prevalent factor among other factors as it explained the highest percentage (25.4%) of total variation of library anxiety construct (Onwuegbuzie, Jiao, & Bostick, 2004).

Similarly, Onwuegbuzie (1997a), and Shoham and Mizrachi (2001) referred to it as “Interpersonal anxiety”, and “Staff factor”, respectively. Onwuegbuzie (1997a) stated that students “appeared to be afraid of asking questions which may be deemed stupid or which may disturb the librarian”, as seen in the following statement:

“Although I found a few articles using ERIC, I thought I could get more from MEDLIN. But I could not figure out how to use the MEDLIN system and I did not want to disturb the librarians by asking them how to use what is probably simple software, so I left the library frustrated” (Onwuegbuzie, 1997a).
Onwuegbuzie (1997a) further found that “Interpersonal anxiety” is associated with low score attained in research writing, meaning that all students who scored low achievement in their research proposal writing were having higher library anxiety level, compared to low anxious students who scored high on achievement in their proposal. This indicates that library staff factor affect academic aspect of some students.

### 2.4.4 Anxiety Associated with Affective Barriers

Literature on library anxiety have verified that many anxiety experienced by students are related to inner affective barriers, such as myth and negative perceptions about the library, the staff, and themselves.

Onwuegbuzie, Jiao, and Bostick (2004) indicated that there are many myths surrounding the academic libraries that assisted in increasing students’ library anxiety level. An example of this myth is the perception held by some university students, especially international students, that academic library is primarily used for study rather than conducting a library search or other library-based tasks. Onwuegbuzie, Jiao, and Bostick (2004) further noted that international students who perceive the academic libraries to play minimal role in their academic success are “likely to be overwhelmed and intimidated by the scope of information available and the resources by which they can obtain this information”. As a result using the academic library can cause anxiety among those students at least in their early years of study.

The second myth is related to undergraduates’ perceptions that advanced undergraduate students and graduate students need the academic library more than them because those graduates are assigned more complex tasks (Onwuegbuzie, Jiao, & Bostick, 2004).
Other false perceptions include students’ beliefs that librarians are unapproachable, unavailable, so knowledgeable and helpful, but are too busy doing other tasks that are more important than answering their questions.

The most influential perceptions that strongly contribute to students’ library anxiety are perceptions students held about themselves. Mellon (1986a) found that students encounter anxiety, shyness and library staff avoidance, because they felt that their own library skills are inadequate compared to other students, and they did not want to ask questions that make them look stupid or revealed their ignorant.

Mech and Brook (1995) found negative significant but weak relation between library anxiety level and (1) students’ assessment of their library skills (r=-0.22) and (2) their confidence on their ability to use the library (r=-0.37). Students with higher level of library anxiety tended to have low self-assessment of his own library skill, and low confidence in his ability to use the library.

Bostick (1992) proposed a factor named “Affective barriers”, which stemmed from students’ feeling of incompetence in their library skills. Similarly, Onwuegbuzie (1997a) introduced the factor “Perceived library competence” which refers to an increase in anxiety levels resulting from a student having negative perception of her/his ability to utilize the library effectively (Onwuegbuzie, 1997a). This can be clear from the following quotes:

“I feel so overwhelmed in the library because I never know what I am doing or where to begin” (Onwuegbuzie, 1997a)

Another perception which was found to be related to library anxiety is self-perception. Jiao and Onwuegbuzie (1999a) conducted a study to investigate whether there was significant relation between self-perception and library anxiety. Participants of the study
were 148 students enrolled in several sections of a graduate-level research methodology course at a small mid-southern university in the USA. Participants were required to complete the Library Anxiety Scale (LAS), developed by Bostick (1992), and the Self-Perception Profile for College Students (SPPCS). The Self-Perception Profile for College Students (SPPCS) is a 54-item scale, comprising 13 subscales (Neemann and Harter, 1986). The researcher choose seven subscales that were related to the study namely, “(1) perceived creativity; (2) perceived intellectual ability; (3) perceived scholastic competence; (4) perceived job competence; (5) perceived appearance; (6) perceived social acceptance; and (7) perceived self-worth” (Jiao & Onwuegbuzie, 1999a).

The study revealed a significant relationship between library anxiety and self-perception. Furthermore, the study found that graduate students with the lowest levels of perceived scholastic competence is associated with high level of library anxiety specifically Affective barriers (r= -0.31, p<0.001) and Comfort with library factor (r=-0.14, p<0.05).

Graduate students with the lowest levels of perceived Intellectual ability is associated with high level of library anxiety specifically Affective barriers (r= -0.31, p<0.001) and Comfort with the library factor (r=-0.11, p<0.05).

Graduate students with the lowest levels of perceived creativity is associated with high level of library anxiety specifically Affective barriers (r= -0.27, p<0.05) and Comfort with the library factor (r=-0.12, p<0.05)

Graduate students with the lowest levels of perceived social acceptance is associated with high level of library anxiety specifically Affective barriers (r= -0.15, p<0.05) and Comfort with the library factor (r=-0.08, p<0.05)
Graduate students with the lowest levels of perceived self worth is associated with high level of library anxiety specifically Affective barriers (r= -0.07, p<0.05) and Comfort with library factor (r=-0.01, p<0.05). (Jiao & Onwuegbuzie, 1999a).

Jiao & Onwuegbuzie (1999a) concluded that the above results indicated that library anxiety is an academic related phenomenon.

### 2.4.5 Anxiety Associated with Language Barriers

Shoham and Mizrachi (2001) noted that “Language factor involves the discomfort and anxiety resulted from students, who are not native English speakers, searching for or using English language materials. This factor contributes to library anxiety among Israeli undergraduates. The researchers noted that their study was the first to investigate the effects of English language resources anxiety, which is a very important aspect in studying library anxiety among non-native English speakers, on non-American universities (Shoham & Mizrachi, 2001)

Anwar, Al-Kandari and Al-Qallaf (2004) who conducted their study in Kuwait, found that students who’s native language is not English, and who are weak in it exhibit higher library anxiety in an English-oriented library environment.

Jiao and Onwuegbuzie, (1997) found that students who did not speak English as their native language are more library anxious than English native speakers.

The summary of components and sources of library anxiety and variables discussed in this section and the library anxiety measures section is provided in Table 2.2.
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2.5. Negative Effects of Library Anxiety

2.5.1 Library Avoidance Behaviours

Studies in library anxiety implied that anxiety feelings combined with lack of library skills, and reluctance to ask for librarians’ help may lead to library avoidance behaviours among university students.

Avoidance in general is defined as “any response that prevents the occurrence of previously established aversive stimulus” (Robin & Foster, 1989). Veale and Neziroglu (2010) stated that “Escape and avoidance behaviours refer to a way of responding to situations or activities that trigger aversive imagery or beliefs or as a way of avoiding the experience of aversive thoughts, images, or emotions. It may include direct suppression of emotion (e.g., use of substances) or thought suppression”. Mosby's Dental Dictionary referred to this response as “a conscious or unconscious defense mechanism by which a person tries to escape from unpleasant situations or feelings, such as anxiety and pain”.

Researchers noted that avoidance behaviour is associated with anxiety as Kase and Vitale (2006) noted that avoidance behaviours is one of the behaviours seen with anxiety and stress. They added that these behaviours include escaping from anxiety-provoking- situation early or avoiding it altogether. In more clarification of this relation, Leventhal and Martell (2006) stated that “Central to both depression and anxiety is a process referred to as avoidance. Avoidance is defined as a behavior that is maintained by the consequence of its occurrence. Take a simple example of a person who dislikes his colleague. When he overhears other talking positively about this colleague he finds himself stirred up. By walking away he feels better, less upset. His increased blood pressure, feelings of anger, hurt, anxiety-laden impulses to criticize his colleague all are
reduced by walking away. This is an example of avoidance behavior; by leaving the situation that was giving rise to his distress, he felt better”. They concluded that “Avoidance behavior is readily learned quite common, and a powerful feature that can account for a great deal of dysfunctional human behaviors (Leventhal & Martell, 2006).

Van Kampen (2004) has concluded that “avoidance of the library is a common and tacitly accepted by students and faculty”. She further added “Faculty and students.. avoid information overload by either avoiding the library or, once in the library, spending little time in the information search and giving up quickly” (Miller, Rudd and Rudd, 1986, p.319 as found in Hannah and Harris, 1999, p.83)” (Van Kampen, 2004)

Onwuegbuzie (1997a) stated that “library anxiety has been found to be responsible for search-avoidance behaviours”. Onwuegbuzie, Jiao, and Bostick (2004) indicated that high level of library anxiety may hinder graduate from utilizing the library and accordingly prevent them from finishing their dissertation. Some of these students may develop library anxiety behaviours toward the library. Onwuegbuzie, Jiao, and Bostick, (2004) also indicated that high anxious students use the library the least. They further described “compared to their low anxious counterparts, high-anxious students often lack confidence in their ability to effectively utilize the library in general and to conduct library searches in particular. These perceptions, whether accurate or inaccurate, typically culminate in shame, concealment, and subsequent avoidance behaviours”. The researcher added that although students with high library anxiety tend to avoid using the library, it may, in turn, lead them not to improve their library skills, which results in increasing their library anxiety level.

Lack of familiarity with the library known as “knowledge with library” contributes to frustration among library users, which, in turn, may lead to further avoidance behaviours (Onwuegbuzie, Jiao, & Bostick, 2004).
The researchers also indicated that mechanical barriers such as limited number of photocopiers lead to anxiety and subsequently to “future avoidance behaviours” (Onwuegbuzie, Jiao, & Bostick, 2004). Mellon (1986a) indicated that students develop avoidance behaviours towards staff because they do not want to reveal their inadequacy.

Although previous studies have considered the effect of library anxiety on developing avoidance behaviours among university student users, no study have studied this relation. In her review of library anxiety research, Carlisle (2004) stated that “Although no causal relationships have been identified, library anxiety has been linked to counter-productive behaviours… library avoidance”

### 2.5.2 Students Academic Success

Onwuegbuzie, Jiao and Bostick (2004) and Jiao and Onwuegbuzie (1999a) concluded that “library anxiety is related to perceived scholastic competence and perceived intellectual ability provides incremental evidence that library anxiety is an academic-related phenomenon”. The researcher indicated that library anxiety affects students’ use of the library, which, in turn, affects academic task that required in-depth search in the library like writing a research proposal. Onwuegbuzie (1997a) indicated that writing a research proposal involves extensive review of the literature. In addition, the proposal should reflect that the researcher have deep awareness of the empirical and current knowledge of the problem under study. To produce such proposal, students need to utilize the academic library comprehensively. However, with library anxiety attacks, students find difficulties in obtaining the needed information and as a result they produce poor research proposals. Onwuegbuzie (1997a) was the first study to investigate the relationship between library anxiety and academic success especially in “Research Proposal Writing (RPW). The study revealed a significant relation between low scores in the research proposals high score in library anxiety in association with
perceived library competence and lack of knowledge of the library as discussed in the library anxiety measures section earlier.

Continuing their effort to explore the negative effects of library anxiety on academic achievement, Onwuegbuzie and Jiao (1998) investigated the relationship between library anxiety and learning styles among graduate students. The researchers defined learning style as “manners in which individuals typically acquire, retain, and retrieve information (Felder & Henriques, 1995). Learning styles are overall patterns and characteristics which provide direction to learning, (Cornett, 1983).

Two instruments were distributed among 203 graduate students who attended graduate-level research methodology course; the Library Anxiety Scale (LAS) and Productivity Environmental Preference Survey (PEPS). Onwuegbuzie and Jiao (1998) stated, “The PEPS was developed through a content and factor analysis. It is a comprehensive approach to the identification of how adults prefer to function, to learn, to concentrate, and to perform during educational or work activities with respect to the following components: (1) environment (i.e., sound, temperature, light, and design); (2) emotionality (e.g., motivation, responsibility, persistence, and the need for either structure or flexibility); (3) sociological preferences (i.e., learning alone or with peers); and (4) physical needs (e.g., perceptual preference(s), time of day, intake, and mobility.” (Onwuegbuzie & Jiao, 1998).

The study found that library anxiety correlate significantly with the following learning style variables: persistence (r=-0.19, p<0.01), responsibility (r=-0.19, p<0.01), structure (r=-0.19, p<0.01), visual (r=0.14, p<0.05), tactile (r=-0.16, p<0.05), kinesthetic (r=-0.17, p<0.05), and mobility (r=0.14, p<0.05). Variables that did not correlate significantly with library anxiety included noise level (r=0.02), light (r=-0.07), temperature (r=0.03), design (r=-0.03), motivation (r=-0.06) peer-orientation (r=0.13), authority-orientation
(r=-0.04), auditory (r=-0.08), intake (r=0.09), and time of the day (r=-0.02). (Onwuegbuzie & Jiao, 1998)

Utilizing a multiple regression analysis technique to determine the relationship between library anxiety and learning style, the study found that the following variables related to learning style “contributed significantly ($F_{[9,1931]} = 4.41, p < 0.0001$) to the prediction of library anxiety self-motivation, persistence, structure, peer-orientation preference, visual preference, tactile preference, kinesthetic preference, time of day, and mobility” (Onwuegbuzie & Jiao, 1998). The study concluded that students with the highest levels of library anxiety tended to be those who like structure, who are self-motivated, who lack persistence, and who are peer-oriented learners. In addition, they tend to prefer to receive information via the visual mode, but not via either tactile or kinesthetic modes. Learning style is an important aspect, and by understanding its potential role in increasing levels of library anxiety among graduate students, librarians can plan to meet students’ needs, and help in developing their library skills (Onwuegbuzie & Jiao, 1998).

Moreover, Jiao and Onwuegbuzie (2001a) conducted a study to explore relationships between library anxiety specific study habits. Participants of the study were 133 graduate students in the field of education at an American university. These individuals were administered the study habits inventory (SHI) and the library anxiety scale (LAS). Jiao and Onwuegbuzie (2001a) found a statistically significant relationship between scores from the full SHI scale and library anxiety, ($r = -0.27$, $p < 0.01$). They concluded that “Students with the highest levels of library anxiety were more likely than those with the lowest levels of anxiety to:

- not to recopy their lecture notes as soon as possible after class;
- not to seek help from their instructor when they had difficulty with their work;
• not to tape-record lectures instead of taking notes;
• to consume plenty of coffee and other caffeine-based drinks in order to stay awake;
• not to break large amounts of information onto small clusters that can be studied separately;
• to rely on rote memorization;
• not to complete assigned readings before their instructor discussed them in class; and
• not to utilize advance organizers before reading a chapter of a textbook.”

In further studies of library anxiety and its effect on academic performance, Onwuegbuzie and Jiao (2000) explored the relationship between academic procrastination and library anxiety among a sample of 135 graduate students. The researcher indicated that approximately 95 percent of college students and 60 percent of graduate students procrastinate their academic task such as studying for examinations, writing their term paper, and doing their weekly assignments. They added “Academic procrastination stems primarily from fear of failure and task aversiveness” (Onwuegbuzie & Jiao, 2000). Two instrument were distribute among the sample of the study, the Library Anxiety Scale (LAS), and the Procrastination Assessment Scale-Student (PASS). The PASS scale has two sections. The first section lists six academic tasks involving writing a term paper, studying for examinations, keeping up with weekly reading assignments, performing administrative tasks, attending meetings, and performing academic tasks in general. The second section asks students to think of the last time they procrastinated on writing a term paper.

The analysis revealed that overall, academic procrastination was significantly positively related to the following dimensions of library anxiety: affective barriers
(r=0.24), comfort with the library (r=0.25), and mechanical barriers (r=0.24) (Onwuegbuzie & Jiao, 2000). In addition, “academic procrastination resulting from both fear of failure and task aversiveness was related significantly to barriers with staff, affective barriers, comfort with the library, and knowledge of the library” (Onwuegbuzie & Jiao, 2000). The researchers noted that despite the strong relationship between library anxiety and procrastination, it was not clear whether library anxiety leads to academic procrastination or academic procrastination causes library anxiety. The researchers concluded that “Individuals who experience increases in levels of library anxiety are more likely to postpone using the library and performing library tasks” (Onwuegbuzie & Jiao, 2000).

2.6. Library Anxiety and selected Independent Variables

Further exploration of the library anxiety phenomenon results in a number of investigations related to anxiety feelings inside the library. Table 2.3 provides a summary of some important variables discussed in the literature.

Jacobson (1991) studied gender attitudes toward using computers in libraries, and examined sex differences in computer anxiety, library anxiety, and using computers for library research anxiety. Jacobson’s study indicated that males experience significantly higher library anxiety than females, and females having significantly higher computer anxiety and using computers for library research anxiety.

Bostick (1992) found that no significant differences between males and females in there library anxiety scores. She found that students with more than 50 years are more anxious than younger students (Onwuegbuzie, Jiao & Bostick, 2004) and also found that graduate students exhibit higher library anxiety than undergraduate.
Brown, Weingart, Johnson, and Dance (2004) also found that females exhibit higher library anxiety level compared to male students. This finding was consistent with the finding of Shoham & Mizrachi (2001).

Mech and Brook (1995) explored the relationship between library anxiety and number of independent variables including gender, year of the study, and frequency of library use. They found that first and second year students exhibited higher level of library anxiety compared to senior students. The researchers found no significant differences, in the scores of library anxiety, between male students and female students. In addition, no association was found between frequency of library use and library anxiety.

Jiao, Onwuegbuzie and Lichtenstein (1996) investigated the characteristics of high-anxious college students, and factors which predict library anxiety. Participants were 493 university students who were administered the library anxiety scale LAS developed by Bostick (1992), and the demographic information form developed by the researchers to record relevant demographic information. Variables included in the study were: gender, number of library instruction courses undertaken, age, native language, year of study, academic achievement (grade point average), semester course load, number of course credit hours, computer usage experience, study habits, employment status, distance lived from nearest academic library, frequency of library visits, and reasons for visiting the library.

The study found that Library anxiety correlated significantly with age (r=-0.16, p<0.001), native language (r=-0.10, p<0.05), year of study (r=-0.15, p<0.001), number of library courses undertaken (r=-0.14, p<0.01), employment status(r=-0.12, p<0.05), frequency of library visits (r=-0.21, p<0.001), and use of the online/computer index (r=-0.10, p<0.05).
The set-wise regression revealed that only eight variables contributed significantly \( F(12, 471) = 5.22, p < 0.0001 \) to the prediction of library anxiety namely; age, gender, year of study, native language, grade point average, employment status, frequency of library visits, and reasons for visiting the library. Researchers concluded that students with the highest level of library anxiety tended to be young, first or second year, male, those who did not speak English language as their native language, who had high levels of academic achievement, who were engaged in either part-time or full-time employment, and who infrequently visited the library. In addition, the researchers indicated that when library-anxious students visited the library, they tended to visit it for the following reasons:

a. to use the online/computer index,
b. to return a book,
c. to conduct a library search for a thesis/dissertation,
d. to obtain a book or article for an assignment, and
e. to study for a class project.

The researchers suggested that the inverse relation between age and library anxiety might reflect the library experience since age was found to have significant relationship with both frequency of visits to the library and library instruction course undertaken.

Jiao and Onwuegbuzie (1997) conducted a quantitative study to investigate factors that predict library anxiety among 493 university students. The researchers used two instruments, Library Anxiety Scale (LAS), which measures level of library anxiety and Demographic Information Form (DIF), which contains demographic factors such as “gender, age, native language, year of the study, academic achievement, semester course load, number of course credit hours, number of library instruction untaken, computer usage experience, study habit, employment status, distance of place of stay
from nearest academic library, frequency of library visits, and reason for visiting the library”. Applying the multiple regression analysis, the study found that age, gender, native language, grade point average, employment status, frequency of library visits, and reasons for library visits significantly predict library anxiety (\( F (12, 147)=51, p <0.0001 \)). Jiao and Onwuegbuzie (1997) indicated that the model that describe the relation between these factor suggest that “students with highest level of library anxiety tended to be young, first or second year, male, those who did not speak English as their native language, who have high level of academic achievement, who was engaged in either part-time or full-time employment, and who infrequently visited the library.

Jiao and Onwuegbuzie (1997) also found that students who use the computerized indexes and online facilities tended to have the highest level of library anxiety. They indicated that unless effective intervention is applied, anxiety may continue to be worse in libraries with more automated environment. Mizrachi and Shoham (2004) pointed out that although Jiao and Onwuegbuzie (1997) found that students who use the computerized indexes and online facilities have the highest level of library anxiety, they did not relate this library anxiety to computer anxiety or measure it as a factor.

Jiao and Onwuegbuzie (1997) found male scored higher level of anxiety associated with “Barriers with staff”; “Comfort with the library”; “Knowledge of the library”; and “Mechanical barriers”. Frequency of visits to academic library was found to be related to four antecedents; “Barriers with staff”; “Affective barriers” “Comfort with the library”; and “Knowledge of the library”, and suggested that students whom these antecedents increase their library anxiety tended to visit the library infrequently. The researchers pointed out that it was possible that avoidance behaviour might have increased anxiety level, and in turn led to further library avoidance.
Jiao and Onwuegbuzie’s (1997) study found that students whose native language is not English have reported higher level of anxiety. They discussed that these students have significantly greater problem in using the library than do English-speaking students and that these difficulties may stem from cultural and language barriers, which lead to lack of understanding of the arrangement of the periodicals, classification schemes, and indexes.

A finding, related to library instruction, was that students who have taken library skills courses tended to report less affective barriers and felt more comfortable with and knowledgeable about the library.

The researchers further indicated that reasons for utilizing the academic library appeared to have effects on level of library anxiety. For example students who use the library to study for a class project appears to score lower level of anxiety stemming from barriers with staff, affective barriers, and knowledge of the library, whereas students who use the library to search and to obtain information for a thesis or dissertation tended to score higher anxiety stemming from barriers with staff, comfort with the library, and mechanical barriers. Students who utilize the library to read newspapers were found to have higher level of anxiety stemming from barriers with the staff. The researcher suggested that “either (1) these students have had negative experiences with staff while they were reading newspapers or perhaps there is a perception that librarians, for whatever reason, do not appreciate them reading newspaper, or (2) these students spend most or all of their time reading newspapers, tend to have little direct contact with library staff, which increase the students’ anxiety levels”. The finding that students who use the library for social reasons experienced higher anxiety level associated with knowledge of the library since they spend little time getting familiar with the library (Jiao & Onwuegbuzie, 1997)
The other variables that did not score significant correlations with library anxiety included semester course load, number of course credit hours, computer usage experience, study habits, number of library instruction course undertaken, and distance between home and nearest academic library,

Shoham and Mizrachi (2001) studied the relation between the components of the library anxiety instrument namely, (1) Staff factor, (2) Knowledge factor, (3) Language factor, (4) Physical comfort factor, (5) Library computer comfort factor, (6) Library policies/hours, and (7) Resources factor, and the independent factors, including age, gender, native language, year of study, and computer usage variables. They found relationship between library anxiety and gender showing female students scored higher library anxiety on the staff, language, and resources factors than did male students. The researcher claimed that this was the first study to arrive at this result. It may be that Israeli men were less intimidated by the predominately female library staff at their colleges than were American men. In addition, the study found no significant differences in the knowledge and library computer comfort factors which suggested that computerization of libraries was not an important aspect of women’s anxiety.

Concerning age as a variable, Shoham and Mizrachi (2001) found that younger students (18-24 years) were more library anxious than older students (25+ years) in the Knowledge, Language, Policies/Hours, and Resources factors. Also, younger students showed more anxiety about computerization of libraries and about their perceived lack of library expertise.

Studying native language as a variable, Shoham and Mizrachi (2001) also found that “Arabic speakers reported higher levels of library anxiety pertaining to English language factor than did Hebrew speakers, despite the fact that the language of instruction at the institution under study was Hebrew. However, these authors noted that
Arabic students reported lower level of library anxiety pertaining to the knowledge factor than did Hebrew students” (Onwuegbuzie, Jiao, & Bostick, 2004)

Investigating the year of study as a variable, Shoham and Mizrachi (2001) found that “first-year students show the greatest anxiety with significant decreases in each subsequent year”. This was in relation to staff and knowledge factors. The study also investigated the relationship between library anxiety and seven types and applications of computer usage namely; home usage; work usage; word process; spread sheet; games; Internet, programming language, and found that library anxiety decreased with more computer usage.

Anwar, Al-Kandari and Al-Qallaf’s (2004) study found that male students were more anxious than female in the relation to the Staff approachability factor. They proposed that this situation have arisen because 80% of the library staff were females, The researchers suggested that it is likely because of Kuwait culture, in which “Kuwaiti men will feel hesitant to approach a female for assistance whereas a female will feel more comfortable to ask a female for help”.

Mizrachi and Shoham (2004) investigated the relationship between computer attitudes to library anxiety, computer experience, gender, native language, and age among 664 Israeli B.Ed students in eight different teachers’ colleges throughout Israel. They stated “Jiao and Onwuegbuzie (1997, 1998) found students who used computer indexes and online facilities tended to have the highest levels of library anxiety. The authors did not, however, relate library anxiety to computer anxiety or measure it as a factor”. Mizrachi and Shoham’s (2004) use two instrument in their study; firstly, the Hebrew version of Library anxiety scale developed by the researchers themselves (Shoham & Mizrachi, 2001), which consists of 7 factors namely; Staff, Knowledge, Language, Physical comfort, Library policies/hours, Library computer comfort, and Resources. Secondly,
“the Hebrew translation of Loyd and Gressard’s Computer Attitude Scale (CAS), which consists of 30-Likert-type items that present statements of attitudes toward computers and the use of computers. Three main types of attitudes are represented: anxiety or fear of computers; liking of computers or enjoying working with computers; and, confidence in the ability to use or learn about computers” (Loyd & Gressard, 1984; Mizrachi & Shoham, 2004). The study found a positive correlation between anxiety or fear of computer and all library anxiety factors; Staff \((r=0.22, \ p<0.01)\), Knowledge \((r=0.47, \ p<0.01)\), Language \((r=0.29, \ p<0.01)\), Physical comfort \((r=0.11, \ p<0.05)\), Library policies/hours \((r=0.18, \ p<0.01)\), Library computer comfort \((r=0.22, \ p<0.01)\), and Resources \((r=0.19, \ p<0.01)\).

The study also found a positive correlation between liking of computer and enjoyment and all library anxiety factors; Staff \((r=0.22, \ p<0.01)\), Knowledge \((r=0.29, \ p<0.01)\), Language \((r=0.29, \ p<0.01)\), Physical comfort \((r=0.09, \ p<0.05)\), Library policies/hours \((r=0.15, \ p<0.01)\), Library computer comfort \((r=0.14, \ p<0.01)\), and Resources \((r=0.12, \ p<0.01)\).

In addition, the study found a positive correlation between confidence in the ability to use or learn about computer and all library anxiety factors; Staff \((r=0.36, \ p<0.01)\), Knowledge \((r=0.35, \ p<0.01)\), Language \((r=0.28, \ p<0.01)\), Physical comfort \((r=0.08, \ p<0.05)\), Library policies/hours \((r=0.18, \ p<0.01)\), Library computer comfort \((r=0.18, \ p<0.01)\), and Resources \((r=0.12, \ p<0.11)\).

This indicates that the computerization of academic libraries and the rising demand for student computer literacy cause a barrier to library use among those students who suffer from computer anxiety. It can be assumed that positive computer attitudes help decrease library anxiety among the students.
Jiao and Onwuegbuzie (2004) indicated that until recently studies on library anxiety has only been related to the library setting. They argue that the technological advancement on products and services of academic libraries, the abilities of students to conduct more sophisticated library searches from the comfort of their homes, have raised a need to expand the construct of library anxiety in the new library and information environment and to incorporate other variable into its definition. Jiao and Onwuegbuzie (2004) suggested that negative computer attitudes may affect students’ interests in learning how to use the library resources, they stated “although many students continue to experience high levels of library anxiety, it is likely that the new technologies in the library have led to them experiencing other forms of negative affective states that maybe, in part, a function of their attitudes towards computers”. They added “in particular, it is likely that library anxiety experienced by students is in part, a function of their attitudes towards computers”. They conducted the study to investigate whether student’s computer attitudes predict levels of library anxiety. The participants were 94 African American graduate students enrolled in an American college of Education at a historically Black college and university. They were administered two scales; the Computer Attitude Scale (CAS) and the Library Anxiety Scale (LAS). The CAS, which was developed by Loyd and Gressard (1984) consists of four scales: (1) anxiety and fear of computers; (2) confidence in the ability to use computers; (3) liking or enjoying working with computers; and (4) computer usefulness. A canonical correlation analysis revealed strong multivariate relationship between library anxiety and computer attitudes. “Specifically, computer liking and computer usefulness were related simultaneously to the five dimensions of library anxiety: barriers with the staff, affective barriers, comfort with the library, knowledge of the library, and mechanical barriers. Computer anxiety and computer confidence served as suppressor variables. Thus computer attitudes predict levels of library anxiety”. These results supported and
are consistent with those of Mizrachi and Shoham, (2004). Finally the researchers encouraged future investigations to find out “whether library anxiety places a person more at risk for experiencing poor computer attitudes, or whether the converse is true”.

Reviewing library anxiety in relation to the use of library resources and attitudes toward computer technologies, Collins and Veal (2004) clarified that a relationship exists between students’ levels of library anxiety and their attitudes toward utilizing library resources and computer related technologies. They noted that studies conducted on undergraduate and graduate levels indicated that the complexity of accessing multiple electronic databases to obtain information related to college coursework increased students’ library anxiety levels and has an impact on the quality of graduate student performance in courses requiring research skills. They used a survey methodology to assess off-campus adult learners’ perceptions regarding the use of the library and the Internet. Two instruments were used; the Library Anxiety Scale (LAS) (Bostick, 1992), and the Attitude Towards Educational Use of the Internet (ATEUI); a quantitative measure of students’ attitudes toward educational use of the Internet (Duggan, Hess, Morgan, Kim, & Wilson, 2001).

The study found that adult learners had the highest degree of library anxiety associated with affective barriers ($M = 2.38, \text{SD} = 0.68$), followed by mechanical barriers ($M = 2.36, \text{SD} = 0.89$), comfort with the library ($M = 2.19, \text{SD} = 0.56$), and barriers with staff ($M = 2.12, \text{SD} = 0.68$) whereas the lowest level of library anxiety was associated with knowledge of the library ($M = 2.09, \text{SD} = 0.65$) (Collins & Veal, 2004). Utilizing a multiple regression analysis technique, the study found that two factors of the library anxiety scale; Knowledge of the library and Affective barriers, contributed statistically significantly $F(2,140) = 6.77, p < .001$ to the prediction of attitudes toward educational use of the Internet (Collins & Veal, 2004).
The study concluded that off-campus adult learners’ perceptions of their information retrieval skills impacted their anxiety levels while utilizing library and Internet resources.

2.7. Library Anxiety and Library Instruction

Studies in library anxiety have emphasized the important role of library instruction in reducing library anxiety. They discussed different issues that can enhance library instruction as a method of reducing library anxiety such as acknowledging the library anxiety, incorporating information about library anxiety in instruction session, increasing librarian user interaction, incorporating library instruction in the academic curriculum, involving faculty member, teaching search strategies, incorporating cognitive and affective aspects of the information search process into library instruction, and using of critical thinking and problem solving techniques.

Mellon (1986b) had designed a library instruction session based on her findings about students’ anxiety feelings. As she continued her observation, she stated that “acknowledging the library and its legitimacy and then providing successful experiences to counteract anxiety is the most effective method of treatment”. In the 50-minute session, which was incorporated in the composition faculty, she noticed that a considerable reduction of library anxiety occurs as a result of increased interaction between librarian and user, adding that she discovered how important it was from the students’ standpoint of view. Therefore, she redesigned the session and maximized this interaction. She also realized that providing information about library anxiety and assuring students that it is a common and reasonable contribution in decreasing library anxiety. She further notified that all this was applied in line with teaching search strategies and tools of library use. Mellon’s (1986b) study was very important in
providing an understanding and reflection of reality from the user’s point of view in the areas of library anxiety and library instruction.

Similar to Mellon (1986b), Cleveland (2001) found in her experimental study that first-year students who attended 30-40 minute bibliographic instruction conducted by library staff reported statistically significantly lower levels of library anxiety than did a control group of their peers, who did not participate in either bibliographic instruction or complete a computer-based tutorial. In addition, significant differences between groups, were found in two factors of Bostick’s (1992) Library anxiety scale; Barriers with the staff, and Affective barriers.

Brown, Weingart, Johnson, and Dance (2004) conducted an experimental pre-test and post-test study that aim to test the impact of library orientation session on library anxiety among 1,027 freshmen students who were enrolled in the “Connections First-Year Experience” program at Utah State University. The experimental and control group were administered a modified Bostick’s Library Anxiety Scale to measure the level of library anxiety before and after introductory library orientation sessions. The reduction in library anxiety level of students who receive the library orientation session (experimental group) was higher than the reduction in anxiety level of those who did not attend the session (control group). The finding indicated that library instruction can reduce library anxiety and it will be more effective if it was introduced to university students in their first year.

Some studies questioned the role of traditional library instruction in reducing library anxiety, such as Jiao, Onwuegbuzie and Lichtenstein (1996) who found that library instruction courses were unsuccessful in reducing students’ library anxiety level. However, Jiao and Onwuegbuzie (1997) found that students who attended library skill courses have less Affective barriers (feeling inadequate in library skills) and feel more
comfortable (Comfort with the library) and knowledgeable (Knowledge with the library) about the library. The researchers suggested that library skills courses are moderately effective in disseminating important information and developing competencies in library usage, and it also assisted in developing student’s affective skills.

Zahner (1993) emphasized the role of teaching cognitive strategies instruction in reducing library anxiety, compared to the traditional instruction. She noted that these strategies “emphasize the research process rather than focusing on the use of specific information resources”. She added that “the instruction was designed to integrate development of all the domains of learning: cognitive skills of problem-solving, psychomotor skills for navigating in specific information environments, metacognitive skills for self-monitoring, and affective skills for self-motivation”. Her study found that students who participated in cognitive strategies instruction witnessed significant decrease in their library anxiety level compared to other students who received traditional instruction.

Realizing the association between library anxiety and students’ perceptions and assessments of their library skills, Mech and Brook (1995) called for “early intervention strategy” to reduce feelings of anxiety especially among first and second year student. They suggested that these strategies introduced students to the “realities of the dynamic multi-stage search process” (Kuhlthau, 1991, and Zahner, 1993) and to assure them that feeling anxious during the research process is common.

Onwuegbuzie, Jiao, and Bostick (2004) suggested that in order to provide effective instruction that develops users’ skills and reduces their library anxiety, users should be taught concept, structure, role, organization and evaluation of the information and critical thinking. However, this should be provided in a way that “allows users to build
on their existing knowledge, skills, and affective levels. Table 2.3 summarizes the relationships between library anxiety and various independent variables.

Table 2.3: Studies which Studies the Relationship Between Library Anxiety and Various Independent Variables

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Significant Differences in Library Anxiety Level</th>
<th>No Significant/ Or Weak relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
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<tr>
<td>Male / more anxious</td>
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<td></td>
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<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
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<tr>
<td>Young / more anxious</td>
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<td></td>
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<tr>
<td>Bostick (1992)</td>
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<td></td>
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<tr>
<td><strong>Year of the Study</strong></td>
<td></td>
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<tr>
<td>Juniors &amp; Seniors are more anxious</td>
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<td></td>
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<tr>
<td><strong>Frequency of library use</strong></td>
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<tr>
<td>Frequent use/ more anxious</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jiao, Onwuegbuzie, &amp; Lichtenstein (1996); Jiao &amp; Onwuegbuzie (1997)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Native Language</strong></td>
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<tr>
<td>English Native/ more anxious</td>
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<tr>
<td>Jiao, Onwuegbuzie, &amp; Lichtenstein (1996); Jiao &amp; Onwuegbuzie (1997)</td>
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<td></td>
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<tr>
<td><strong>Grade Point Average</strong></td>
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<tr>
<td>High GPA/ more anxious</td>
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<tr>
<td>Jiao, Onwuegbuzie, &amp; Lichtenstein (1996); Jiao &amp; Onwuegbuzie (1997)</td>
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<tr>
<td><strong>Employment Status</strong></td>
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<tr>
<td>No Employment/ More Anxious</td>
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</tr>
<tr>
<td>Jiao, Onwuegbuzie, &amp; Lichtenstein (1996); Jiao &amp; Onwuegbuzie (1997)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Library Instruction Courses</strong></td>
<td></td>
<td></td>
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<tr>
<td>Increase Library Anxiety</td>
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<tr>
<td><strong>Attitude Toward Educational Use Of Internet</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Positive Attitude /more anxious</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collins and Veal (2004)</td>
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</tbody>
</table>
2.8. Library Anxiety among Different Cultural Groups

Jiao and Onwuegbuzie (1999b) studied library anxiety among international students in the United States, who faced language barriers and were exposed to different educational system. They have to deal with academic libraries that differ from academic libraries in their mother countries. Academic libraries in developing countries tend to be smaller with lesser current books and references. In addition, many of those libraries provide little or no bibliographic instruction to their users (Koehler & Swanson, 1988). Consequently many international students lacked sufficient information skills. Jiao and Onwuegbuzie (1999b) stated these factors alongside language and cultural difficulties (Bilal, 1989), language barriers (Wayman, 1984), technology difficulties (Koehler & Swanson, 1988, and Liu, 1993), and unfamiliarity with the classification schemes such as Dewey Decimal and library of Congress (Ormondroyd, 1989), can make using these libraries an overwhelming experience. Jiao and Onwuegbuzie (1997) found that non-native English-speaking student reported higher level of library anxiety, although they visited the library more frequently than do native English speakers. Jiao and Onwuegbuzie’s (1999b) study was conducted to determine which of the components of Bostick’s library anxiety scale (Affective barriers, Barriers with staff, Comfort with the library, Knowledge of the library, and Mechanical barriers) is the greatest source of library anxiety among international students. The library anxiety scale (LAS) was administered to one hundred and twenty five students from a variety of disciplines at Northeastern University. Analysis of the library anxiety scale revealed that Mechanical barriers was the greatest source of anxiety, followed by affective barriers, comfort with the library, barriers with the staff, and knowledge of the library. The researchers observed that library technology appeared to be the greatest source of library anxiety among international students.
Jiao, Onwuegbuzie and Bostick (2004) was the first to investigate the relation between racial differences and library anxiety. They explored the relation between two groups of graduate students; African American and Caucasian American. Bostick’s (1992) Library Anxiety Scale (LAS) was distributed among 135 Caucasian-American and 45 African-American graduate students. Utilizing a series of independent samples t-test, using the Bonferroni adjustment method, the study found that Caucasian-American graduate students reported statistically significantly higher levels of library anxiety associated with Barriers with staff (Cohen’s $d = 0.74$), Affective barriers (Cohen’s $d = 0.88$), and Comfort with the library (Cohen’s $d = 0.40$), than their African American counterpart. The study indicated that race is a factor that can predict library anxiety, which suggested that library anxiety has a cultural context.

The same researchers Jiao, Onwuegbuzie and Bostick (2006) replicated the study. Bostick’s (1992) Library Anxiety Scale (LAS) was distributed among 155 Caucasian-American and 25 African-American graduate students. The researchers stated that “an independent t-test was conducted to compare the aggregate z-scores between the Caucasian-American and African-American students. This test revealed that the African-American students ($M = -1.01, SD = 7.74$) had statistically significantly ($t = 1.67, p < .01$) lower z-scores than did the Caucasian-American students ($M = 0.16, SD = 3.94$)” (Jiao, Onwuegbuzie & Bostick, 2006). This result is similar to the findings of Jiao, Onwuegbuzie and Bostick (2004). However the study found no statistical difference between the groups with regards to levels of library anxiety associated with Barriers with staff, Affective Barriers, and Mechanical barriers, which disconfirmed the findings of Onwuegbuzie and Bostick (2004).

The researchers concluded that “the current finding provides incremental validity to the inference that (a) race is an environmental antecedent of library anxiety among graduate
students; and (b) library anxiety has a racial context” (Jiao, Onwuegbuzie & Bostick, 2006)

Regional differences in library anxiety have been noticed through the use of library anxiety scale in Kuwait, and Israel (there are a number of studies that used LAS in Korea, China and Taiwan but these were published in Korean, and Chinese language respectively). Anwar, Al-Kandari and Al-Qallaf (2004), as discussed earlier notified that the scale may not be suitable for Kuwaiti undergraduate student as a result of cultural differences. For example, the lack of safety and crimes in American academic libraries caused library anxiety. However, this situation did not apply among students Kuwait academic libraries, which are safe and secure. Because of these differences the researchers needed to modify the LAS, indicating that a similar action was undertaken in Israel where Shoham and Mizrachi (2001) have “translated the scale into Hebrew and reduced the statements from 43 to 35 to reflect the cultural environment” (Anwar, Al-Kandari & Al-Qallaf, 2004).

2.9 Summary

The current study provides a conceptual and informative review of the literature on library anxiety phenomenon. Considering the exploratory nature, and objectives of the current study, this chapter discussed the roots of the library anxiety theory which was based on Mellon’s (1986a) milestone work that provided knowledge about the reality from user’s prospective. The chapter also identified quantitative efforts, which was led by Bostick (1992), to identify components of this multi-dimensional construct and to measure its level in order to identify and understand at-risk users. Thus, negative effects of this phenomenon on students’ library use and their academic performance were provided, along with different variables that were found to be associated with students’ anxiety feelings inside the academic library.