CHAPTER III

METHODOLOGY

This chapter presents a detailed description of the designing and implementation procedures of the training program for faculty to improve their knowledge, willingness, attitudes and interaction towards students with LD. Based on the review of related literature, methodology for the present study was designed and is discussed as follows:

3.1. Statement of the problem
3.2. Objectives of the study
3.3. Hypotheses of the study
3.4. Operational definitions
3.5. Research design
3.6. Sampling selection procedure
3.7. Tools used for the study
3.8. Pilot study
3.9. Reliability and validity of tools
3.10. Training Procedure
3.11. Processing and analysis of the data

3.1. Statement of the Problem

In the UAE, there is a dearth for research in the field of LD in higher education. Since faculty members are the primary mentors of students having LD, the present study was undertaken to study the need and importance of training the faculty in improving their knowledge, willingness, attitude and interaction towards students having LD.
Thus the study will answer the following questions;

- Will the knowledge and psychological skill training improve the ability of faculty to mentor students having LD?
- Is it important to provide faculty with psychological skill training along with knowledge skill training?

3.2. Objectives of the Study

The objectives of the present study were as follows:

1. To understand and determine the influence of socio-demographic factors on the faculty knowledge, willingness, attitudes and interaction towards students having LD.

2. To determine the need and importance of a training program for faculty members on LD.

3. To arrive at a successful training module for faculty in higher education that focused on a) Knowledge of LD and b) Knowledge of LD along with training on psychological skills that can be replicated in other colleges.

4. To determine the impact of the two training programs on the two experimental groups A and B that focused on improving their knowledge, willingness, attitudes and interaction towards students with LD.

5. To highlight the importance of providing the faculty psychological skill training along with training on knowledge of LD by comparing the outcomes of the training program between the two experimental groups A and B.
3.3. Hypotheses of the Study

Based on the objectives of the study, the hypotheses were formulated in the directional manner in order to analyze the impact of the two training programs offered to the faculty to improve their knowledge and psychological skills towards students with LD.

The related researches were considered to match the objectives and hypotheses which were formulated for the study.

Previous investigations indicate that female faculty expresses more positive attitudes towards individuals with disabilities (Baggett, 1994; Sharoni & Vogel, 1998) and are more willing to provide accommodations (Bigaj, Shaw & McGuire, 1999; Leyser, Vogel, Wyland, Brulle, Sharoni and Vogel, 2003) than male faculty.

Faculty with more experience in teaching students with disabilities have more positive attitudes and are more comfortable allowing accommodations than are those with less experience (Fichten et al., 1988; Leyser et al., 2003; Satcher, 1992).

There is some evidence that instructors who do not have a doctorate degree are more willing to provide a number of teaching accommodations than their colleagues with a doctorate (Leyser et al., 2003; Vogel et al., 1999).

Aksamit et al. (1987) studied that gender, previous contact with students with LD, availability of information regarding students with LD, and years of job experience influences faculty attitudes towards students with LD.

Past research on faculty perceptions has identified several factors that are associated with perceptions, including faculty gender, rank and academic department or
Matthews, Anderson, and Skolnick (1987) and Nelson et al. (1990) assessed faculty’s willingness based on demographic variables such as gender, years of teaching experience, to provide and self-reported use of accommodations. Results indicated that, in general, faculty was willing to provide accommodations for students with LD. Therefore, the following hypotheses have been stated.

**Hypotheses on effect of socio demographic factors of faculty on LD.**

H (1) There will be a significant effect of the gender on the knowledge, willingness, attitudes and interaction of the faculty towards students having LD.

H (2) There will be a significant effect of age on the knowledge, willingness, attitudes and interaction of the faculty towards students having LD.

H (3) There will be a significant effect of academic rank on the knowledge, willingness, attitudes and interaction of the faculty towards students having LD.

H (4) There will be a significant effect of the teaching experience of faculty with students having LD on the knowledge, willingness, attitudes and interaction towards students having LD.

H (5) There will be a significant effect of the frequency of faculty’s contact with students having LD on the knowledge, willingness, attitudes and interaction towards students having LD.

The training program was designed to provide the faculty with awareness, skills, tools and motivation and to educate them to mentor students with LD. To have an understanding of the impact of the training program, it is essential to study the level of faculty knowledge and skills before both trainings were administered. Since the faculty for both experimental group A and experimental group B have been selected from various campuses having similar exposure to students having LD and no prior training was
provided by the colleges there would be no significant differences between their existing level of knowledge on LD.

It is thus hypothesized as

**Hypotheses on faculty knowledge, willingness, attitudes and interaction before training.**

**H (6)** There will be no significant effect between the experimental group A and experimental group B prior to the training on knowledge of LD.

**H (7)** There will be no significant effect between the experimental group A and experimental group B prior to training on willingness towards students with LD.

**H (8)** There will be no significant effect between the experimental group A and experimental group B prior to training on attitudes towards students with LD.

**H (9)** There will be no significant effect between the experimental group A and experimental group B prior to training in interaction towards students with LD.

Faculty members have positive and negative opinions about students having LD. A training program can potentially improve the positive views and reduce negative views. In fact, a multitude of studies have identified faculty attitudes as the key contributor to the success of students with disabilities (e.g., Askamit et al., 1987; Baggett, 1994; Fichten, 1988; Ibrahim & Herr, 1982; Katz, Hass, & Bailey, 1988; Matthews et al., 1987; Minner & Prater, 1984; Rao, 2004; Scott & Gregg, 2000; Vogel et al., 1999; Wolanin & Steele, 2004).

Research studies in the past have indicated that faculty is unlikely to have knowledge regarding disabilities and educational accommodations needed for students with disabilities (Eckes & Ochoa, 2005). Faculty report limited familiarity with disability laws, limited knowledge of campus support services and limited experience in teaching
students with disabilities (Baggett 1994; Leyser et al., 1998, 2003; Brown 2000; Vogel et al., 2006).

During the faculty / student interaction, many students have found that faculty lacks the education and background needed in order to truly understand their needs (Porter, Cormick, & Haynes, 2007).

Therefore the following hypotheses have been stated.

**Hypotheses on effect of the knowledge training on experimental group A**

**H (10)** There will be a significant effect of the training on the knowledge of LD in the experimental group A.

**H (11)** There will be a significant effect of the training on the willingness towards students with LD in the experimental group A.

**H (12)** There will be a significant effect of the training on the attitudes towards students with LD in the experimental group A.

**H (13)** There will be a significant effect of the training on the interaction towards students with LD in the experimental group A.

The training program will help faculty gain understanding of the knowledge of LD, understanding of support services, willingness to make accommodations, improve their attitudes, their perceived need for professional development and an overall improvement in their interaction.

Antonak and Larrivee (1995) described that long term changes in attitudes will occur only if faculty welcome and accept students having disabilities into their classrooms. Studies showed that faculty was generally less willing to make some accommodations, such as to allow exclusive extra credit, overlook spelling, incorrect punctuation and poor grammar, permit substitutions for required courses, provide copies
of lecture notes and give extra credit assignments (Leyser et al., 1998; Matthews et al., 1987; Nelson et al., 1990; Sweener et al., 2002).

Faculty attitude towards students with disabilities is one of the most important contributors to their success and yet little research has been done to look specifically at this phenomenon (Rao, 2004). Faculty are less comfortable in providing accommodations they perceive will lower course standards or give unfair advantage to some students, yet are willing to implement accommodations that are easy to provide and which require little extra time and facilitate the integration of students into the planned course activities (Burgsthaler 2003).

Thus to enrich the training module, developing a training program that focuses on psychological skill training and to study its impact, the following hypotheses have been stated.

**Hypotheses on effect of the knowledge and psychological skills training on experimental group B**

H (14) There will be a significant effect of the training on the knowledge of LD in the experimental group B.

H (15) There will be a significant effect of the training on the willingness towards students with LD in the experimental group B.

H (16) There will be a significant effect of the training on the attitudes towards students with LD in the experimental group B.

H (17) There will be a significant effect of the training on the interaction towards students with LD in the experimental group B.
In addition to the training on knowledge of LD, psychological skills training are essential to examine the impact of the training programs on the experimental groups A and B.

Simons (1997) noted that, to develop self-efficiency and confidence among faculty, it is important to provide targeted training in LD. Similarly, Postareff & Lindblom-Ylanne (2011) investigated the emotions and confidence within teaching in higher education and explored the role of emotions and confidence within six different teacher profiles. The results implied that the emotional aspect was evident in the pedagogical training of university teachers.

In a study conducted by Vasek (2005), willingness among faculty to provide classroom accommodations for students with disabilities was identified. Numerous researchers have identified that willingness of faculty is essential to change their attitudes towards students with learning difficulties.

Alliston (2010) in the study found statistically significant relationships between faculty and students regarding the importance of accommodations, willingness and disability characteristics.

Teaching is related to a variety of emotions, attitudes and behavior, but research is very scarce in the field of higher education on these aspects. Faculty attitudes and perceptions are influenced by the amount of information they learn about students with disabilities (Murray et al., 2009). Based on the previous studies the hypotheses are derived.
Hypotheses on effect of psychological skill training

H (18) The effect of psychological skill training on knowledge of faculty on LD will have a greater impact than knowledge of LD training only.

H (19) The effect of psychological skill training on willingness of faculty towards students having LD will have a greater impact than knowledge of LD training only.

H (20) The effect of psychological skill training on attitudes of faculty towards students having LD will have a greater impact than knowledge of LD training only.

H (21) The effect of psychological skill training on interaction of faculty towards students having LD will have greater impact than knowledge of LD training only.

3.4. Operational Definitions

Mentoring refers to the professional relationship in which an experienced person (the mentor-faculty) assists another (the mentee-student) in developing specific skills and knowledge that will enhance the mentee’s (student’s) professional and personal growth to succeed in his/her academic pursuits.

Learning disabilities (LD) refer to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities (NJCLD, 2005).

Students having LD refer to students who are affected by LD.

Faculty members are teachers and instructors who are employed at a college to educate young adults.
Post-Secondary / Higher Education refers to “the provision of a formal instructional program whose curriculum is designed primarily for students who are beyond the compulsory age of high school. This includes programs whose purpose is academic, vocational, and continuing professional educations, and excludes a vocational (leisure) and adult basis education programs (Brown, 2001).

Student support services refers to direct services provided to students experiencing problems that create barriers to learning. Services include counseling, instruction, academic accommodations, consultation, mentorship and individual assessment which are a vital aspect to student retention and success.

Accommodations are academic or physical provisions made in order to provide students who have LD with the same opportunities to complete tasks as students without LD. Accommodations are made on an individual basis according to the student's specific learning needs and vary from student to student.

Knowledge is a familiarity with LD, which can include facts, information, descriptions, or skills acquired through experience or education. It can refer to the theoretical or practical understanding of a subject which gives individuals the power to act responsibly and competently. Awareness involves the quest for expanding one’s own empathetic ability to produce positive results.

Willingness is the inclination or acting or ready to act gladly in a voluntarily and acceptable manner. It is the faculty members’ inclination to willingly provide accommodations and speak or write in support of a student having LD.
Attitudes refer to the affective, behavioral and cognitive perceptions of faculty towards students having LD in higher education. The academic success of students with LD will depend on the attitudes of faculty members.

Interaction is the mutual or reciprocal action or influence between the faculty member and the student. It is the process of talking, looking, sharing or engaging in any kind of action between the faculty and student where faculty is more comfortable with students having LD and have higher academic expectations.

Knowledge of LD training refers to the training focused on the knowledge of the faculty on LD and intended to enhance the knowledge and ability of the faculty to mentor students having LD.

Psychological skill training refers to the psychological training provided to faculty to improve their mental, emotional and behavioral skills such as positive attitudes, interaction and willingness towards students having LD. This training is aimed to enhance their ability to mentor students having LD in higher education.

3.5. Research Design

A research design is a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems. The plan is the complete scheme or program of the research (Kerlinger, 2001). The research is conducted with a conceptual structure. It constitutes the blue print for the collection, measurement and analysis of data (Kothari, 2004). The present study was conducted in two phases. While Phase -1 concentrated on the preparatory phase of the training program, Phase -2 comprised of the actual conduction of the program.
Phase 1 – Preparatory phase of training program

Phase 1 of the present study involved planning, preparation and design of the training program. This comprised the preparatory phase of study which formed the basis to identify the target group as faculty. The preparatory phase was followed by designing the training program which was carried out in the following stages as understanding the scenario, review previous literature, planning & designing the training program, materials required and finalization of the training program.

Phase 2 – Conduction of the training program

The present investigation adopted an experimental design, described as “pre-post experimental group design”, using the type technique (Johnson & Christensen, 2010). Through the use of the type technique the researcher manipulates the variable (training program) in a specific way in order to learn its impact on the outcome variable (experimental groups A and B).

Type technique of manipulating the independent variable is to vary the type of the condition or treatment administered. One type of treatment (training on knowledge of LD only) is administered to one group of faculty (experimental group A) and another type of treatment (both psychological skill training and knowledge of LD training) is administered to another group of faculty (experimental group B).

Hence, experimental group A is provided with training on knowledge of LD only and experimental group B is provided training on both knowledge of LD and psychological skills.
This research design investigates the impact of the different types of training on the knowledge, willingness, attitudes and interaction of the faculty towards students with LD.

Thus, the study highlights the need, outcomes and importance of the training program which was analyzed in detail in the conduction of the study.

3.6. Sample Selection Procedure

The sampling procedure adopted to select the faculty members for the present study was the Multistage Sampling Design. (Scheaffer, Mendenhall, & Ott, 1990).

Selection of the area of study

Selection of the area: The study was conducted in the UAE (United Arab Emirates). The UAE was selected for the study as students with LD are increasing in number due to which the faculty populations are encountered with many challenges. While the UAE government is very concerned about the academic success of the students
with LD, there is very limited research in the field focusing on special needs in general and LD in particular. Moreover, the researcher lives in the UAE, working in the student services area of the group of federal government colleges, which is a huge motivation to undertake study within the context of higher education.

**United Arab Emirates:** The UAE is a federation of seven emirates which comprises of Abu Dhabi, Ajman, Dubai, Ras al Khaimah, Sharjah, Fujairah and Umal Quwain. Situated on the Arabian Gulf, east of Saudi Arabia and north of Oman, the UAE has a long history of local tribal lifestyle and of later European influences. The country has dramatically emerged into the mainstream of modernism over the past 40 years. There is a large expatriate population living in the UAE. Four of the seven emirates of the UAE namely Abu Dhabi, Dubai, Al Ain and Sharjah have been selected for the present study.

First stage sampling included selection of colleges from the emirates of Abu Dhabi, Dubai, Al Ain and Sharjah using convenient sampling to increase the logistical ease, more since these emirates are strategically and centrally located compared to the smaller emirates.

In the selected four emirates there are totally eight colleges – a men’s and a women’s college in each of the emirate. Therefore a convenience sampling technique (Kothari, 2004) was followed to select a total of four colleges from four emirates for the present study. For easy administration of the study the faculty members were clustered to one of the colleges in each Emirate.

**Education System:** The education system of the UAE in comparison to other countries is relatively new. Recognizing the constant need for progress in education, the UAE has sought to implement and monitor high quality education standards by
undertaking new policies, programs and initiatives. The Government is committed to the welfare of its citizens where the education is free for the UAE nationals in all post-secondary education.

Selection of colleges: The study was conducted at the colleges located at Abu Dhabi, Dubai, Al Ain and Sharjah. These groups of colleges operate as a system of 17 separate campuses for male and female Emirati students. The headquarters for the colleges – Academic Central Services is based in Abu Dhabi where all regulations, policies, procedures and resolutions are executed. However, the colleges share a common mission and vision to foster success of students, and ensuring equal opportunities for students with special needs to successfully complete their educational pursuits. The four colleges (Abu Dhabi, Dubai, Al Ain and Sharjah) which were selected for the study comprised of over nine thousand students which covers over 50% of the total population in all the 17 colleges across the seven emirates.

Figure 6. Map of the UAE and location of campuses selected for the study.
Selection of faculty members

The prospective participants were the faculty members as they play a pivotal role in mentoring students. Though the respective colleges approached all the faculty members only those who were interested in undertaking the training program participated in the study. From a total of 889 faculty members working in the four colleges, 160 faculties undertook the training program. The faculty members in the colleges are expected to complete certain number of credits through professional developments sessions that will be accounted for their annual appraisals. At the onset of the academic year the faculty were asked to indicate their interest in professional development sessions of their choice.
by the professional development department (PDD). Based on the list that was collated by the PDD, training programs are offered for the faculty.

As part of PDD curriculum one such program was designed by the researcher as a refresher course offered for faculty based on their need for professional development. The training program was mandatory for all the faculty members who had indicated their interest and willingness. Based on the faculty’s interest and willingness to participate the training the groups were finalized.

The second stage of sampling used the self-selected or volunteer sampling (Cabral, 2008) in which the faculty members volunteered to attend the training program.

Table 1: Number of Faculty Members Selected from Different Colleges

<table>
<thead>
<tr>
<th>Emirate</th>
<th>Name of college</th>
<th>Student strength</th>
<th>Faculty population</th>
<th>Number of faculty participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dubai</td>
<td>Dubai colleges</td>
<td>2052</td>
<td>2281</td>
<td>276</td>
</tr>
<tr>
<td>Abu Dhabi</td>
<td>Abu Dhabi colleges</td>
<td>2606</td>
<td>2705</td>
<td>304</td>
</tr>
<tr>
<td>Al Ain</td>
<td>Al Ain colleges</td>
<td>745</td>
<td>2606</td>
<td>119</td>
</tr>
<tr>
<td>Sharjah</td>
<td>Sharjah colleges</td>
<td>820</td>
<td>2295</td>
<td>190</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6223</td>
<td>9887</td>
<td>889</td>
</tr>
</tbody>
</table>

The third stage of sampling included the allocation of faculty members from each of the colleges to the two experimental groups A and B for the implementation of training program using simple random sampling (Jamison, 2006).

Equal number of faculty from each of the colleges were randomly assigned to experimental group A and experimental group B, taking care that each group is represented by approximately equal number of female and male faculty. The researcher based the study on the full time faculty members of the colleges. Unless otherwise indicated, all results in this study are reported as a percentage of the 160 participants.
The two experimental groups of each college were subjected to the training program that spread over a period of 3 months. Prior to the training both groups were administered pre-tests in all the scales. After the training program both the groups were assessed on the same measures administered before the training program. The final post test scores were compared to observe significant differences, thereby evaluating the effectiveness of the training program.

Figure 9. *Faculty randomly assigned to experimental group A and experimental group B*

**Sample characteristics**

The exclusion and the inclusion criteria used for selection of the faculty members participating in the training program are presented in the Table 2

**Table 2 : Exclusion and Inclusion Criteria for Selection of the Faculty Members**

<table>
<thead>
<tr>
<th>Exclusion criteria</th>
<th>Inclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Graduate teaching assistants are not considered to be a faculty member.</td>
<td>• Age above 25 years</td>
</tr>
<tr>
<td>• Adjunct teachers are not considered as faculty members.</td>
<td>• Males and Females</td>
</tr>
<tr>
<td></td>
<td>• Willingness to attend the professional development training on LD</td>
</tr>
<tr>
<td></td>
<td>• Willingness to participate in the study</td>
</tr>
</tbody>
</table>
Schematic Representation of the Present Study

Phase 1 - Designing Professional Development.

Stage 1: Understanding the scenario.
Stage 2: Review previous literature.
Stage 3: Planning & Designing.
Stage 4: Material Requirement
Stage 5: Execution of the program.

United Arab Emirates.

Federal Colleges.

**Convenient Sampling**

Phase 2 - Selection of Colleges

- Dubai - 40
- Abu Dhabi - 55
- Al Ain - 25
- Sharjah - 40

**Self Selected Sampling**

Selection of Sample (n=160) faculty for study

**Random Sampling**

Experimental group - A

80 Faculty Knowledge of LD training only

Pre Test (Before training in LD)  Post Test (After training in LD)

Experimental group - B

80 Faculty Knowledge of LD & Psychological skill training

Pre Test (Before training in LD)  Post Test (After LD and Psychological training)

Figure 10. Schematic representation of the sample distribution and process of research conducted.
3.7. **Tools used for the study**

The *Questionnaire* method was adopted to collect data to determine the effect of the training program on the faculty. The sample was a learned group and from different nationalities and hence the instruction was in English. The measures were administered before and after the training. The Questionnaire comprised of four sections namely 1) Demographic details 2) Faculty survey on learning disability survey 3) Survey instrument of teacher attitudes towards disability and 4) The Interaction of disabled persons Scale. The details of the surveys have been presented in Table 3.

**Demographic Details**

This part of the questionnaire included questions relating to the gender, age, academic rank and frequency of contact with students having LD. The background information of the respondents was considered essential for the purpose of studying the impact of socio-demographic factors. The respondents’ names were not included in the demographic details as the information was held confidential and anonymous.
Table 3: *Tools Administered on Experimental Groups A and B before and after Training*

<table>
<thead>
<tr>
<th>S. No</th>
<th>Tools</th>
<th>Subscales</th>
<th>Variables studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Faculty survey on learning disability</td>
<td>a) Definition and characteristics.</td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) Willingness to advocate.</td>
<td>b) Knowledge of services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d) Knowledge of services.</td>
<td>c) Professional development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e) Need for professional development.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Survey instrument of teacher attitudes towards disability</td>
<td>General beliefs</td>
<td>Attitudes</td>
</tr>
<tr>
<td></td>
<td>Mohammed Al Zyoudi, AbdelAziz Al Sartwai and Hamzeh Dodin (2011)</td>
<td>a) Availability of resources</td>
<td>a) General beliefs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Teacher preparation</td>
<td>b) Availability of resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c) Teacher Preparation</td>
</tr>
<tr>
<td>3.</td>
<td>Interaction of Disabled Persons Scale (IDP)</td>
<td>(a) Coping and succumbing.</td>
<td>Interaction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(c) Vulnerability.</td>
<td>(b) Perceived level of information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(d) Fear of contracting disability.</td>
<td>(c) Vulnerability.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(e) Discomfort in social interaction.</td>
<td>(d) Fear of contracting disability.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(e) Discomfort in social interaction.</td>
</tr>
</tbody>
</table>
**Description of tools**

(i)  ***Faculty survey on learning disability***

This tool was developed by Murray, Flannery and Wren (2008)

The tool, the (Productive Learning University Strategies) PLUS survey (Murray et al., 2008) was adapted and revised as necessary and used to measure the knowledge and willingness of the faculty towards students with LD. This tool was renamed by the researcher as “Faculty survey on learning disability”.

While all items were retained from the original tool, the first two questions on disability laws were normed to suit the UAE population. The tool contains 34 items related to knowledge and willingness about LD and college supports. Responses to the survey items are based on a six-point scale:

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree, and 6 = Don’t know.

The tool consisted of two domains namely knowledge of LD and willingness towards students with LD.

The researcher has categorized three subscales under the knowledge domain namely definition and characteristics of LD containing 10 items, knowledge of services containing four items and need for professional development containing seven items.

The willingness domain consisted of two subscales namely willingness to provide accommodations containing 10 items and willingness to advocate for students with LD containing three items.

The direction of statements is reversed for three questions that measured knowledge and three questions that measured willingness. The tool yields score values ranging from 34 to 204 points, with higher scores indicating greater knowledge and willingness.
(ii) **Survey instrument of teacher attitudes towards disability**

This tool consisting of 20 items was developed by Zyoudi, Sartwai and Dodin (2011), based on previous studies (McHton & McCary, 2007; Mastropieri, Scruggs, Greatz, Norland, Gardizi & McDuffie, 2005; Shippen, Crites, Houchins, Ramsey, & Simon, 2005; Kearn & Shevline, 2006).

The tool was used to measure the faculty attitudes towards LD. The tool comprised of three subscales namely, general beliefs, availability of resources and teacher preparation.

The instrument adopted a 5-point Likert-type scale ranging from 1(strongly agree) to 5 (strongly disagree) with the mid-point 3 (undecided). The scale yields score values ranging from 20 to 100 points, with higher scores indicating more favorable attitudes.

The instrument examined the following three dimensions:

- **General beliefs**: This dimension was assessed by eight items, with scores having the potential to range from 8-40.
- **Availability of resources**: This dimension was assessed by seven items with scores potentially ranging from 7-35.
- **Teacher Preparation**: This dimension was assessed by five items, with scores ranging from 5-25.

The direction of statements is reversed for eleven items.

(iii) **The interaction of disabled persons scale (IDP)**

The Interaction of Disabled Person’s Scale, an Australian instrument was developed by Gething and Wheeler (1992) was used to measure the level of interaction towards persons with disability.
This tool consisted of five subscales namely discomfort in social interaction, coping and succumbing, perceived level of information, vulnerability and fear of contracting the disability.

The respondent indicates his or her level of agreement with each of the 20 items on the tool by using a six-point rating scale. Ratings in the positive direction range from “Agree very much”, “Agree” and “Agree slightly” whilst negative ratings range between “Disagree very much”, “Disagree” and “Disagree slightly”. There is no mid or neutral point on the tool. The majority of statements are phrased so that an agreement response indicates relative discomfort in social interaction. The direction of statements is reversed for three items for which agreement indicates a lower level of discomfort.

The 20 items in the IDP scale were grouped into six subscales. The subscale was discomfort in social interactions which consisted of six items pertaining to personal behavior and how people react when meeting someone with a disability. The second subscale was coping / succumbing which contained three items pertaining to how well a person reacts when meeting an individual with a disability. The third subscale was perceived level of information measuring three items relating to information about disabilities. The fourth subscale was vulnerability and measured three items relating to individuals’ vulnerability. The last two factors were not named by Gething, but they were defined by two items which failed to load on any other factor (Forlin et al., 1999).

Hence for the purpose of this research, the unnamed factors were named as fear of contracting disability by the researcher in the present study. While determining the results of this instrument, the lower the score on the instrument, the more positive the attitude of the subject (Fichten, Cutler, & Schipper 2005).

Permission was obtained from the authors to use the above tools and modify the statements as necessary.
3.8. Pilot Study

In order to test the logistics and to determine whether the current investigation is realistic and workable, a pilot study prior to main investigation provides the skills needed for conducting tests. The pilot study enabled easy and convenient elicitation of information from the representative sample.

As a part of the pilot study, training on knowledge of LD was provided by the researcher to a cluster of 22 faculty members, 12 females and 10 males from two colleges. It was a one day training session that focused on knowledge, legislation, identification of LD, teaching strategies, campus resources and accommodations.

Survey tools were administered on the 22 respondents to study the impact of the training program. Out of a total of 22 faculty members 18 responded to the instruments administered.

The subjects were matched on age and gender. The essential features, like time taken to complete selected questionnaires, comprehending the language of the items, and possible difficulties in ambiguity were observed. Necessary changes were implemented with respect to a few items in the survey to make them relevant and thus increase validity.

The data of this study reflected in further modifications to meet the requirements of the participants, based on their feedback and suggestions on the survey.

3.9. Reliability and Validity

When a questionnaire has been designed, it is important to check for its reliability. The aim of testing is to ensure that the questions which are measured produce a reliable and valid measurement. Reliability means the consistency or repeatability of the measure.
The reliability of the tools used for the study was checked using Cronbach’s alpha coefficients (Kerlinger, 2001). It proves whether repeating the test/ questionnaire under the same conditions produces the same results. Table 4 shows that the reliability scores of the tools ranged between 0.79 - 0.86 which prove to be highly reliable.

The tools were also reviewed by experts for face validity and a good level of agreement existed among the raters on the relevance of the scales.

Table 4 : Reliability Coefficients of the Selected Scales

<table>
<thead>
<tr>
<th>Tools</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Survey on Learning Disability</td>
<td>0.79 - 0.80</td>
</tr>
<tr>
<td>The Interaction of Disabled Persons Scale</td>
<td>0.74 - 0.86</td>
</tr>
<tr>
<td>Teachers Attitudes towards Disability</td>
<td>0.86</td>
</tr>
</tbody>
</table>

Validity of the tools

The construct validity (Carmines & Zeller, 1979) was used to check the validity of the tools used for the study. The review of related studies used to substantiate the hypotheses was used to check the validity of the constructs (variables) used for the study. The validity was found to be highly significant as the testing of the hypotheses proved to be in line with the constructs used by the previous researches.
3.10. Training Procedure

Figure 11. Flowchart of the training procedure.
Training program

Phase 1 – Designing the training program

Stages in designing the training program

1. Understanding the scenario
2. Review of previous literature
3. Planning and designing the training program
4. Preparation of material
5. Finalization of the training program

Understanding the Scenario: Firstly, in order to rationalize the execution of the training program it was very essential to have an understanding of the background of the educational system in the UAE with respect to the students in post-secondary education.

As a country, the UAE continues to undergo a dramatic period of change in the education system. The private and the public school systems have the mediums of instruction as Arabic and in English. Thus, when the UAE national students enter post-
secondary education with Arabic as their primary language and English as second language, they have difficulties meeting the academic demands of post-secondary education where the medium of instruction is English.

Students coming from schools where the primary language of instruction is Arabic, struggle and have trouble in adapting to English as the medium of instruction in higher education. To the extent that sometimes it is very difficult to distinguish between a second language learner and a student who has a LD. Thus it is all the more important that the faculty members are trained to correctly identify, appropriately mentor and support the students in higher education with respect to LD.

**Review of previous literature:** It was important to review past literature before designing a training program that can be used to train faculty to deal with students having LD. It is found that very little or no research has been done related to LD particularly in higher education in the UAE.

Emad (2002) examined the educators’ attitudes in Jordan towards persons with disabilities and found that they were more accepting of students with LD and least accepting of students with mental retardation. However, in general had a negative attitude towards including students with disabilities in the regular education classroom.

Rima (2011) in a study found that the prevalence of features consistent with dyslexia is 17.6% among female Emirati university students, that they experience these difficulties in both English and in Arabic, and that they tend to choose courses that are more job oriented.

Nisreen (2012) in her study indicated that the participating teachers agreed in principle with the goals of inclusion. However they were generally unsatisfied about the
current practices of inclusion in their schools. While research so far has focused around, special needs education, early intervention, assessment of dyslexia, visual impairment in higher education, inclusion and mainstreaming etc, the concept of providing support to students with LD is relatively new and there is very limited research on importance of faculty mentoring students with LD. Research has been very sparse on the importance of training the faculty in dealing with students having LD in higher education.

**Planning and designing the training program:** Stage three involved planning and designing the training program. The training program was designed keeping in mind the important aspects that faculty need to learn in dealing with students having LD. An agenda was tentatively drafted to run the program. Training on knowledge of LD covered topics like, legislations, knowledge on LD, the types of LD, how to identify LD in classrooms, campus resources, the procedures that the faculty need to follow in providing accommodation, teaching strategies, accommodations and various support services and latest research.

The training on psychological skills focused mainly on faculty interaction, empathy, comfort, willingness, positive attitudes, understanding, coping, general beliefs and preparation necessary for teaching a regular classroom having students with LD.

While several research studies have highlighted the need to train faculty on their knowledge of LD and the corresponding improvement in their attitudes towards these students, there is very little research that highlights the importance of training the faculty on psychological skills such as attitudes, general beliefs, interaction, willingness and improving their overall attitude towards students with LD, that can substantially improve the mentoring relationship and help students having LD succeed academically in higher education.
Dimensions of training program

Endorsing the evidence that the training program should encompass knowledge on LD, willingness to provide support accommodations, attitudes and interaction the present study stressed the significance of four spheres:

Table 5: Dimensions of the Training Program

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Willingness</th>
<th>Attitudes</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislations and Service Coordination</td>
<td>To provide accommodations</td>
<td>General beliefs and attitudes</td>
<td>Empathy building</td>
</tr>
<tr>
<td>LD and types</td>
<td>To advocate for students with LD.</td>
<td>Positive attitudes and importance of positive attitudes</td>
<td>Coping / Succumbing</td>
</tr>
<tr>
<td>Characteristics and identifying LD.</td>
<td></td>
<td>Building positive attitudes</td>
<td>Vulnerability</td>
</tr>
<tr>
<td>Teaching strategies</td>
<td>To undertake training and teacher preparation</td>
<td></td>
<td>Fear of disability</td>
</tr>
<tr>
<td>Professional development training</td>
<td>Knowledge of services and resources</td>
<td>Feeling comfortable with students having LD</td>
<td></td>
</tr>
</tbody>
</table>

Figure 13. Dimensions of the training program.
Preparation of materials: With the understanding and deep research on LD and need for training faculty to mentor students, the researcher prepared course material, flow charts, checklists that faculty can administer, resources, handouts, case studies, videos and exercises for the training program.

The training program was developed using already existing training modules that were developed and successfully implemented to train faculty in higher education. Faculty training module developed by Murray (2011) and training program for faculty developed by Pollock and Wayne (2009) were reviewed for the present study and further customized to meet the needs of the faculty population who serve students in higher education in the UAE.

Finalization of the training program: Based on the extensive review and research on developing an appropriate training program, phase one evolved with the finalization of the following:

- Dimensions of training program: knowledge, willingness, attitudes and interaction of faculty.
- The Course Materials: handouts, checklists, videos, case studies, flow charts, exercises
- The blue print of the training program
- The duration of the program
- Proposal to the colleges for execution of study
### Table 6: Blue Print of the Training Program

<table>
<thead>
<tr>
<th>DAY – 1</th>
<th>Knowledge of LD</th>
<th>1) Introduction to LD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>a) Sample definitions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Types of LD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Legislations, knowledge of procedures and service coordination.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) How to identify LD?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Characteristics of LD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5) Knowledge of resources.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6) Teaching strategies.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 hours</td>
</tr>
<tr>
<td>DAY-2</td>
<td>Knowledge of LD</td>
<td>1) Willingness to provide accommodations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Willingness to undertake training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Willingness to advocate for students with LD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Faculty preparedness.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5) Checklists:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. Handwriting evaluation scale.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Vanderbilt ADHD Diagnostic Teacher Rating Scale (ADTRS).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Dyslexia checklist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d. Scotopic sensitivity checklist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>e. Challenging behavior checklist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 hours</td>
</tr>
<tr>
<td>Day -3</td>
<td>Psychological skill training</td>
<td>1) General beliefs and attitudes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Importance of positive attitudes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Building positive attitudes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Feeling comfortable with students having LD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 hours</td>
</tr>
<tr>
<td>DAY -4</td>
<td>Psychological skill training</td>
<td>1) Building empathy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Vulnerability or Fear of disability.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Perceived level of information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) Coping.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5) Conclusion.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 hours</td>
</tr>
</tbody>
</table>
Phase -2 - Conduction of program

To initiate the process of research at the Colleges, an approval was obtained from the Manager–Special Needs Services, to undertake the research in the field. Subsequently, a research proposal along with approval from the Department Head had to be submitted to the Research Accreditation Committee. Upon receiving the necessary ethical clearance to conduct the study, a pilot study was initially carried out on 22 faculty members belonging to two colleges. It was a one day training session that focused on knowledge, legislation, identification of LD, teaching strategies, campus resources and accommodations.

The data of the pilot study reflected in further modifications to meet the requirements of the participants, based on their feedback and suggestions on the survey.

An email with the overview of the training was then sent from the Special Needs Department to the Professional Development (PD) Coordinators and Counselors of the respective colleges regarding training for faculty on LD. After coordinating with the respective college departments, the PD coordinators and counselors responded with the dates and names of faculty members interested in attending the training with tentative dates to run the program. The session dates were assigned by the colleges to conduct the training.
From the list of faculty who were interested in attending the training, the faculty were randomly assigned to two training groups namely experimental group A and experimental group B.

**Training program for the experimental group A**

Experimental group A was provided the following training program;

- **Day 1 and 2:** Training on knowledge of LD.
- **End of Month 1:** Email support comprising of copies of the legislations – Federal Law of UAE 29/2006, special needs policy, checklists on LD, flowcharts explaining LD was sent to the participants.
- **End of Month 2:** Email support comprising of hand book on accommodations, case studies, videos and instructional strategies was sent to the participants.
- **End of Month 3:** Email support comprising of handbook on LD, training manual, relevant reference material and resources was shared with the participants and surveys were administered to measure the effects of the training program.

**Training program for the experimental group B**

Experimental group B was provided the following training program;

- **Day 1 and 2:** Training on knowledge of LD.
- **Day 3 and 4:** Psychological skills training.
- **End of Month 1:** Email support comprising of copies of the legislations – Federal Law of UAE 29/2006, special needs policy, checklists on LD, flowcharts explaining LD was sent to the participants.
- **End of Month 2:** Email support comprising of hand book on accommodations, case studies, videos and instructional strategies was sent to the participants.
End of Month 3: Email support comprising of handbook on LD, training manual, relevant reference material and resources was shared with the participants and surveys were administered to measure the effects of the training program.

The faculty group selected for the training program was given a preliminary orientation about the program which involved getting introduced and meeting with the researcher. The main objective here was to create familiarity and rapport building with the faculty and involving them in the training. The participants were given handouts of the blueprint of the program. The researcher administered the surveys before the training program started in a hard-copy format to each potential respondent individually.

This study involved administration of a battery of pencil and paper instruments. The surveys took 25 -30 minutes of the participants’ time totally and were returned to the researcher thus collecting the data at a single point of time.

To understand the influence of socio-demographic factors of faculty on knowledge, willingness, attitudes and interaction towards students having LD, the first section of the survey contained questions to record the demographic information of the faculty.

As all the first sessions were face to face it was easy for the researcher to explain the purpose of the training and the research. Since all participants were interested in the training, all 160 surveys were filled and returned prior to the training. The training was executed simultaneously in the different campuses from September 2012 until February 2013. Finally, after all the training was imparted the surveys were again administered to gather the impact of the training on the participants. All surveys were completed and submitted to the researcher. The returned surveys were entered into an SPSS database. The reliability of the data entry process was evaluated by the researcher, who compared
hard-copy responses to data in the SPSS data field for 20 randomly selected cases. This process indicated that 100% of the data points in the SPSS data field matched the hard-copy surveys.

Observations of the Researcher:

Since the participants willingly signed up for the training they showed keen interest when the blueprint of the program was discussed and were co-operative in completing all the surveys administered.

3.11. Processing and Analysis of Data

The data obtained through the questionnaire were coded, classified and tabulated for further statistical analysis. A scoring method was developed and the scores were used for analyzing the data. Descriptive and inferential statistics was computed. Descriptive statistical analysis was used to present the general details and responses through percentages. Using the appropriate tests, the mean differences, analysis of variance and the general linear models were computed.

The following tests were computed to test the hypothesis formulated.

Independent sample ‘t’ test was carried out to compare the scores of faculty who have been provided with Knowledge of LD training and faculty who have been provided with both Knowledge of LD training and Psychological Skill Training.

Paired sample ‘t’ test was carried out to study the knowledge, willingness, attitudes and interaction of faculty before and after the intervention program.

One way analysis of variance (ANOVA) was computed to analyze the difference between the groups in the socio demographic factors.