CHAPTER - 3

METHODOLOGY

The goals of the present chapter are to clarify:

1) The Design of the study
2) Tools used
3) Sample selection
4) Scoring
5) Procedure
6) Statistical analysis

3.1 EXPERIMENTAL DESIGN

In this study 2x2x4x3, 4 factor mixed design has been used with repeated measure on 4th factor.

It consisted of 2 levels of gender (boys and girls), 2 groups (intervention and control group), 4 levels of intervention, 3 levels of repeated measure on trials (pre-post and follow up).

3.2 TOOLS USED

Career thoughts inventory (CTI) (Appendix 1a)

Sampson et al., (1996) prepared the CTI to measure dysfunctional thinking related to assumptions, attitudes, behavior, beliefs, feelings, plans or strategies related to career choice, that inhibits effective career decision-making. The 48 items CTI total score measures a global factor of dysfunctional thinking pertaining to career problem solving and decision-making. Three subscales measure decision making confusion (dmc), commitment anxiety (ca) and external conflict (ec). Decision-making confusion (14 items) refers to the “inability to initiate or sustain decision-making as a result of disabling emotions and /or a lack of understanding about decision-
The commitment Anxiety (10 items) scale reflects the “inability to make a commitment to a specific career choice, accompanied by generalized anxiety about the outcome of decision-making. The anxiety perpetuates indecision. The external conflict (5 items) scale reflects the “inability to balance the importance of one's own self-perceptions with the importance of input from significant others, resulting in a reluctance to assume responsibility for decision-making” (Sampson et al., p. 28). All factors negatively impact career decision making. Respondents select one of four items responses ranging from 0 (strongly disagree) to 3 (strongly agree). Examples of items are “No field of study or occupation interests me” (dmc), “I can't be satisfied unless I can find the perfect occupation for me” (ca) and “I need to choose a field of study or occupation that will please the important people in my life” (ec).

It is a well designed, theoretically based reliable and valid measure. The internal consistency (alpha) coefficients for the CTI total score ranged from 0.97 to 0.93 for adult and student norm groups. Alpha coefficients for the construct scales ranged from 90-94 (dmc), 79-91 (ca) and 74-81 (ec) for the across norm groups (Sampson et al., 1996). Convergent validity of the CTI was determined against many vocational, Career Decision Scale, career Decision profile and Revised NEO personality Inventory; Principal component analysis supports the three CTI sub-factors.

**Hindi version of Costello achievement motivation scale (Appendix 1b)**

The Hindi version of achievement motivation scale constructed by Costello, adapted by Mishra and Srivastava (1990) has been used to measure the achievement motivation of university students. The scale has proved to have good psychometric properties, which are comparable to those reported by Costello (1967). The correlation found between both versions was 0.88, significant at 0.01 level, suggests that Hindi version of AMS (achievement motivation scale) is an
adequate parallel form of original test. The test-retest and split half reliability co-efficient were found 0.80 and 0.82 respectively. Factorial validity which also provides clue to construct validity was determined by two factors. First factor refer to motivational dispositions of individuals who want to do a job well. Second factor refer to the need of the individual to be a success. The validity has been observed for University students, executives and professors.

**Life satisfaction scale (Appendix 1c)**

Developed by Alam and Srivastava (1971) consists of 60 items related to six areas viz. Health, Personal, Economic, Marital, Social and job. The responses are to be given in Yes/No form. Yes responses indicate the satisfaction. There is no time limit yet it takes about 20 minutes to complete the questionnaire.

875 adult males and females drawn from rural and urban areas of Azamgarh comprised the representative sample over which the scale was standardized. Persons were selected to the sample keeping in view different characteristics e.g. educational level, intelligence, socio-economic status, and personality characteristics. The range of age was between 18 to 40 years.

Test retest reliability was computed after a lapse of 6 weeks. The obtained quotient was .84.

The validity of the scale was obtained by correlating it with Saxena’s Adjustment inventory and Srivastava’s Adjustment inventory. The quotient obtained was .74 and .82 respectively. Further the scale has faced validity as all the items are closely related to the covered areas. The items were judged by the experts. Thus the scale beyond doubt possesses content validity.

**General self-efficacy scale-Hindi (Appendix 1d)**

The Hindi version of self-efficacy scale (Sud, 2002), was originally developed in German language by Jerusalem and Schwarzer (1981).
The generalized self-efficacy scale is a ten item scale, which has been translated into English by Mary Wegner from the original German version by Schwarzer and Jerusalem (in Schwarzer, 1992). It assesses the strength of an individual's belief in his/her own ability to respond to novel or difficult situations and to deal with associated obstacles or setbacks. It is a four point rating scale ranging from Not at all true with score 1 to Exactly true which scores 4.

This is a self-administered scale which normally takes two or three minutes to complete. Respondents are required to indicate the extent to which each statement applies to them.

The scale is standardized in a sample of 398 undergraduates (217 females and 181 males). The Hindi generalized self-Efficacy scale has a minimum score of 10 to a maximum score of 40. An item analysis was carried out by correlating responses to each item with the total score. The coefficient of internal consistency, estimated by Cronbach's alpha was determined to be .77 for females, .72 for males and .75 for the total sample. This scale has been translated in 25 countries (Dona, Schalz, Sud and Schwarzer, 2002) that yield internal consistency between alpha .75 to .91. Its reliability ranges from .47 to .63 for male and female subjects respectively.

**Self esteem Inventory (Appendix 1e)**

The self-esteem inventory (Coopersmith, 1975) consisting of 25 items to be scored in terms of being "LIKE ME" or "UNLIKE ME" was used to measure evaluative attitudes towards the self in school, academic, family and personal areas of experiences which indicate the extent to which a person believes him/her self competent, successful, significant and worthy.

The adult form of the Self-Esteem Inventory has been designed to be used with persons with age sixteen and above. The Cronbach's alpha reliability co-efficient have been reported to range from .78 to .85 for different groups and in terms of age sample, it was .80 for
younger ones and .81 for elder ones, thereby showing internal consistency of the inventory. The construct validity of the Inventory along with concurrent and Factorial Validity has been established (Kokenes, 1973, 1978; Matteson, 1974; Simon and Simon, 1975; Williams, 1977; Cowan et al., 1978; Reasoner, 1982).

**Hindi version of STAI:** *(Spielberger, Sharma and Singh, 1973)* *(Appendix 1f)*

The Hindi version of STAI (Spielberger, Sharma and Singh, 1973) has 40 items, and has been used to assess the state-trait anxiety of the university students.

This version has been empirically demonstrated to provide internally consistent, reliable and valid scale for measuring state-trait anxiety. The STAI has also been translated into 32 languages the world over and hence reliable cross-cultural comparison can be made. Both the A-State and A-Trait scales of the STAI have 20 items each.

The State-Anxiety scale (STAI FORM X-1) consists of statements that evaluate how respondent feels “right now, at this moment”. The A-State scale is rated on four categories ranging from not at all to very much so. The STAI A-State scale is balanced with ten items scored directly and ten are reversed items. The T-Anxiety scale (STAI Form x-2) consists of 20 statements that assess how people generally feel. For A-Trait scale categories ranged from almost never to almost always. In this scale there are seven reversed items and thirteen directly scored items. The range of possible scores on the STAI varies from scores of 20 to 80 on both the subscales.

Correlation between Hindi and English A-Trait scale was .88 and A-State scale was .85. High test-retest correlation for Hindi STAI A-State and A-Trait scales attested the reliability of both the scales. For A-State scale correlations were consistently lower varying from .37 to .66 over a period of 30 and 90 days in contrast, the Hindi STAI A-Trait scale was stable over time as indicated by high test-retest
correlation for this scale which ranged from .77 to .83 over the same period of days and these correlations were comparable with the English STAI A-Trait scale.

The concurrent validity of the Hindi STAI has also been sufficiently demonstrated (see, Spielberger, Sharma and Singh, 1973).

3.3 SAMPLE

First of all, 400 university students (200 boys and 200 girls) were administered the CTI questionnaire. Based on their CTI scores, 20 boys and 20 girls have been selected at each of the four levels of the CTI. Those having CTI total scores of less than 40 and endorsed only 1 to 5 items as agree to strongly agree were assigned to level 1. Those having CTI total score from 40 to 50 and endorsed 4 to 16 items as agree and strongly agree were assigned to level 2. Those having CTI total score from 51 to 60 and endorsed 9 to 28 items as agree to strongly agree were assigned to level 3. Those having CTI total score greater than 60 and endorsed more than 28 items as agree and strongly agree were assigned to level 4.

Thus the final sample consisted of 160 students (80 boys and 80 girls), half of which (40 boys and 40 girls) were exposed to each of the four CTI interventions according to their level of dysfunctional career thinking.

3.4 SCORING

Scoring of career thoughts inventory (CTI)

The CTI items and answer sheet are combined along with the profile into one test booklet. Subjects respond to these 48 items using a 4 point Likert-type scale ranging from strongly Disagree (SD) to strongly Agree (SA). The CTI is easily hand scored (5-8 Min) by first adding the numbers representing each of their response to all 48 items down the columns, corresponding to SD(1), D (2), A (3), and SA (4) to calculate CTI total score.
Scoring of achievement motivation scale

The achievement motivation scale is a forced choice test consisting of 24 items, which are to be responded as “Yes” or “No”. The test is directly scored from test booklet. Question no. 2, 3, 5, 7, 9, 11, 13, 17, 19, 20, 22 and 24 are given one mark if answered positively by the subject. These items will be assigned zero if answered in a negative manner likewise item no. 1, 4, 6, 8, 10, 12, 14, 15, 16, 18, 21 and 23 are awarded one mark if answered in negative manner. These items are assigned zero if answered in positive manner. Maximum possible score is 24. A high score reflect high achievement motivation.

Scoring of life satisfaction scale

The scale has 60 items. Every item is to be responded either in yes or no. There is no other alternative. Every “Yes” response is assigned I mark. The sum of marks is obtained for the entire scale.

Scoring of general self-efficacy scale-Hindi

Each item has a four choice response pattern ranging for “Not at all true” which scores “1” to “Exactly true” which scores “4”. The scores of each of the ten items are summed to give a total score. Thus the range of possible sore for this instrument could vary from a minimum score of 10 to a maximum score of 40.

Scoring of self esteem inventory

The self esteem inventory can be scored in a few minutes by using the scoring keys for the form that has been administered. If a scoring key is not available, the general rules listed below should be followed when scoring the self-esteem items:

Scoring negative items correct (for example,” I get upset easily at home”) if they have been answered “unlike me. “

Scoring positive items correct (for example,” I’m pretty sure of myself”) if they have been answered, “Like me”. 
To arrive at a total score sum the number of self- esteem items answered correctly.

**Scoring of the Hindi version of STAI**

a) **Scoring of A-State scale of STAI**

Responses to statements were obtained on a 4-point scale. Scale has ten directly scored items and ten are reversed. The scoring of item numbers 1, 2, 5, 8, 10, 11, 15, 16, 19 and 20 would be in a sequence of 4, 3, 2, 1 and of items numbers 3, 4, 6, 7, 9, 12, 13, 14, 17 and 18 would take place in the sequence of 1, 2, 3, 4. Categories for A-State scale are (1) not at all, (2) somewhat, (3) moderately so, (4) very much so.

b) **Scoring of A-Trait scale of STAI**

Response to this scale are also obtained on a 4-point scale categorized as (1) almost never,(2) sometimes,(3) often,(4) almost always. Seven reversed scored items are 21, 26, 27, 30, 33, 36 and 39. For instance, if a respondent encircled fig.4 on any of the above mentioned items, then score on that item is considered as 1. The scores of all the items are summarized up to obtain a total score.

**3.5 PROCEDURE**

Participants were called individually for the intervention. Prior to the intervention, all the questionnaires were stapled together and were given to the participants.

Then according to their levels of CTI, they were exposed to the intervention relevant to their level (one of the 4 levels) and after the completion of each intervention, all the questionnaires given prior to the interventions were again given to the subjects. The subjects were tested on all the self report measures again after a period of one month. This is regarded as a follow-up measure.
The control group of each of the four levels were given any intervention, but pre-post and follow up measures were taken for them also in the same manner as for the intervention groups.

**INTERVENTIONS (Appendix 3)**

As per requirement of the respective levels following interventions were used:

1) **Level 1: Item level analysis**

Scores at this level represent a minimal amount of dysfunctional career thoughts impeding career problem solving.

At this range, each item was individually discussed to ascertain if it signals a particularly troubling concern. The items where individuals were having dysfunctional career thoughts were pointed out and individuals were merely made aware of their thinking. Thus each such item was pointed out and briefly discussed so that subject may know how to cope with it.

2) **Level 2: Item level analysis Plus Cognitive restructuring**

At this level some degree of dysfunctional career thinking needs to be specifically addressed so that subjects can effectively progress through CASVE problem solving and decision making cycle. Subjects were asked to identify how many negative thoughts they had and what kind of negative thoughts they had and they were taught how to change them. The cluster of items suggesting the categories of difficulty either within the pyramid of information processing domain or the CASVE cycle was discussed.

3) **Level 3: Item level analysis, Cognitive restructuring and Rehearsal and practice**

At this level items and themes were discussed with the individual and CTI cognitive restructuring exercise was also performed. Individual counseling was also carried out with the subjects to rehearse the reframing of key statements.
For this construct scales of decision making confusion, commitment anxiety and external conflict were used to identify related negative statements. Then out of these 3 to 5 statements were chunked together. Depending on the progress of each individual a new set of 3 to 5 statements was introduced as homework assignments as practice exercise. Individual flash cards were prepared. Each card had a dysfunctional career thought on one side and the individual's own reframing of statement on the other. At a predetermined time each day, as individual reviewed each card, he/she was directed to say aloud “I will think” the “reframed statement” instead of the endorsed statement (Appendix 2b). The talk aloud and think aloud protocol was used to help the individual verbalize his/her thoughts when using assessment or information resource.

4) **Level 4: Item level analysis, Cognitive restructuring, Rehearsal and practice, Progressive relaxation and guided imagery**

Since individuals scoring in this range may indicate considerable levels of confusion and uncertainty. There may be intense feelings of anxiety, despair and hopelessness regarding prospects for finding a rewarding occupation or field of study.

Progressive relaxation and guided imagery practiced on a daily basis was used to channel career thoughts and to keep them focused and under control. This technique began with selecting any single dysfunctional thought and setting it aside. With the individual resting comfortably in a chair, the practitioner helped the individual enter a state of complete relaxation, starting with relaxing the toes and progressing through the body and ultimately to the top of the individual's head. During this procedure, the practitioner provided images of clouds, seashore, mountain views to free the individual’s mind of surface stress and tension.

Once the individual was in this relaxed state, the researcher took the dysfunctional statement for the day and helped the individual
restructure the dysfunctional statement into a more functional statement through paired associate learning. Here, the dysfunctional statement is paired with a negatively reinforcing image connoting lack of control, confusion and anxiety and a restructured statement is paired with a positively reinforcing, calming image such as waterfall, beach scene or mountain view, where the individual is in control of his/her emotions and behavior.

Freeman et al., (1990) noted that," subject was helped to generate more adaptive alternative images to replace the dysfunctional ones". The cognitive restructuring exercise in the CTI workbook and the rehearsal and practice recommendations from level 3 were then used as follow-up activities.

In brief, with the help of CTI individual learn to monitor negative automatic thoughts, examine the evidence for and against these thoughts and then substitute more appropriate reality.

In order to reinforce the concepts presented during the intervention and to increase the active involvement of the subjects, homework was also assigned to them. It involved reviewing the previous activities and promotions maintenance of learning. Homework was reviewed at the beginning of each session, providing social reinforcement for task completion. Reasons for each homework assignment were clarified to the students.

Specific Intervention Strategies: Following seven-step sequence was used for service delivery:

1) Initial interview- To gain qualitative information about the context of subjects’ career problem
2) Preliminary assessment – Quantitative assessment of dysfunctional thinking through CTI
3) Define problem and analyze causes – Mutual preliminary understanding of the problem defined in terms of a gap between real state and ideal state.
4) Formulate goals- The researcher and the student collaboratively develop a set of attainable counseling goals to eliminate the gap between real and ideal state

5) Develop Individual Learning Plan – Individual action plan (IAP- see Appendix 2a) was used to help the students to identify the activities and recourses necessary to help them attain their counseling goals

6) Execute Individual Learning Plan- The students carries out IAP with the researcher providing encouragement, information, clarification and planning for future experiences

7) Summative review and generalization- Subject discusses his/her progress towards reaching the counseling goals established in step 4. If needed, plans for the continued use of career services are formulated. A discussion is held about applying the same career problem solving approach to the solving of future career problems

All the above mentioned sequences were used at levels 2, 3 and 4 of CTI intervention. Practice exercise of reviewing of individual flash card was also approached with the students as homework assignment at level 3. The cognitive restructuring exercise in CTI workbook and the rehearsal and practice recommendations for Level 3 have been used as follow up activities. Self directed relaxation and imagery practice was followed as homework for the week at level 4. Whatever strategy was collaboratively developed by the researcher and the students were systematically practiced over the period of 2-3 weeks for levels 3 and 4. So that the subject may be fully engaged in the career problem solving and decision making process without hindrance or distortion.

3.6 STATISTICAL ANALYSIS

To analyze the efficacy of four interventions a four factor mixed design (2 x 2 x 4 x 3) has been used with repeated measure on 4th factor (Trials). All the post-hoc comparisons have been made by Newman Keul’s multiple range tests.
HYPOTHESIS

1. DYSFUNCTIONAL CAREER THOUGHTS
   a) Pre to post and post to follow up changes in dysfunctional career thoughts (global) as well as subscale scores of decision making confusion, commitment anxiety, external conflict, due to intervention will be evident for both male and female university students at all the four levels of dysfunctional career thinking.
   b) For control condition no pre to post and post to follow up changes will be evident in dysfunctional career thoughts as well as decision making confusion, commitment anxiety, external conflict, for both male and female university students at any of the four levels of dysfunctional career thinking.

2. LIFE SATISFACTION
   a) Pre to post and post to follow up increase in life satisfaction scores due to intervention will be evident for both male and female university students at all the four levels of dysfunctional career thinking.
   b) For control condition no pre to post and post to follow up changes will be evident in life satisfaction for both male and female university students at any of the four levels of dysfunctional career thinking.

3. STATE-TRAIT ANXIETY
   a) Pre to post and post to follow up decrease in state-trait anxiety scores due to intervention will be evident for both male and female university students at all the four levels of dysfunctional career thinking.
   b) For control condition no pre to post and post to follow up changes will be evident in state-trait anxiety for both male and female university students at any of the four levels of dysfunctional career thinking.
4. **SELF-EFFICACY**

a) Pre to post and post to follow up changes in self-efficacy scores due to intervention will be evident for both male and female university students at all the four levels of dysfunctional career thinking.

b) For control condition no pre to post and post to follow up changes will be evident in self-efficacy for both male and female university students at any of the four levels of dysfunctional career thinking.

5. **SELF ESTEEM**

a) Pre to post and post to follow up changes in self esteem scores due to intervention will be evident for both male and female university students at all the four levels of dysfunctional career thinking.

b) For control condition no pre to post and post to follow up changes will be evident in self esteem for both male and female university students at any of the four levels of dysfunctional career thinking.

6. **ACHIEVEMENT MOTIVATION**

a) Pre to post and post to follow up changes in achievement motivation scores due to intervention will be evident for both male and female university students at all the four levels of dysfunctional career thinking.

b) For control condition no pre to post and post to follow up changes will be evident in achievement motivation for both male and female university students at any of the four levels of dysfunctional career thinking.