



EDUCATION LAB MANUAL

UG (HONS.), PG (EDU.), B.Ed.



**P.G. Department of Education
Rama Devi Women's University, Vidhya Vihar,
Bhubaneswar-22**



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**Rama Devi Women's University, Vidya Vihar,
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I. About the Lab Manual

This educational laboratory manual contains thirty-seven (37) numbers of psychological tests which will enable research scholars, students and teachers to perform their research activities smoothly and effectively. It also consists of multiple teaching learning equipment related to different school subjects Language, Social Science, Science in order to help students for better understanding as well as making their teaching more effective and interesting. Details of each and every psychological test, teaching learning materials such as handling guidelines, target group, to whom it will administered etc. has been provided in this Lab manual to make it user friendly. This manual also contains general guiding rules to be followed by the visitors in order to maintain the discipline and smooth functioning of the laboratory.

II. Purpose of Creating Lab Manual

The purpose of this educational laboratory manual is to

1. Provide a comprehensive, brief, simple and clear idea about the instruments available in the laboratory.
2. Provide information regarding the use of psychological tools and TLMs to the users (Students and Faculties). This manual aims at
3. Provide users clarity about tools as well as information about their theoretical background.
4. Develop scientific skills and attitude through empirical evidences.
5. Provide opportunities to students test and verify their theoretical knowledge through various tools and tests items.
6. Develop research skills, interest and aptitude among students at a very early stage of their academic career.
7. Prepare students to understand the procedure of developing psychological tools and understanding some crucial aspects of tool preparation.
8. Prepares student-teachers to understand the significance of using TLMs in teaching learning process.
9. Enable students to get information about proper use and instrument handling techniques.

III. Salient Features of the Manual

This educational laboratory manual comprises following key features

- **Accessible:** It is accessible all the time through all semesters for all courses under Department of Education.

- **Systematic:** It is systematically organized in each specific category to make it easily accessible.
- **Feasible:** The Language used in this manual is easy to understand.
- **Cost effective:** students can use and read all its tool and equipment without any cost
- **Informative:** The information provided in this manual can be useful in enhancing child's knowledge.
- **Relevant:** The Tools and Equipment included here are relevant to student's syllabus, area of knowledge and practical utility.
- **Easy to use:** It is easy to use as the guidelines are described clearly.
- **Student friendly:** Students can easily access and use.

IV. Practical Benefits of Manual

This educational lab manual enables student to get following practical benefit

1. Enhance student's instrument handling as well instrument developing skills.
2. Make students aware about multiple types of psychological tools and educational TLMs.
3. Provide opportunity to the students to perform experiments, test and to get practical experience.
4. Develops scientific skills, values and attitude.
5. Develop attitude and interest towards research and scientific inquiry.

V. Beneficiaries

This educational resource Centre has been specifically designed to cater educational needs of following:

- Students (PG, UG and B.Ed.)
- Research Scholars
- Teachers

VI. General Guidelines

Before visiting the laboratory visitors must Student should be up to date on the theoretical aspect of the practical. Student should read the lab manual comprehensively, before joining each practical class. Compulsory things to be carried by the students in lab

such as Lab manual, HB lead pencil, Eraser, Worksheet of the practical to be performed. Students will not be allowed in the laboratory without uniform and identity card issued by the university.

Dos	Don'ts
<ol style="list-style-type: none"> 1. Phones and other gadgets should be kept in silent mode before entering the lab. 2. Lab instruments should be handled carefully. 3. Students should maintain silence inside the lab. 4. Issuing of lab instruments should be maintained in issue register. 5. Read lab manual carefully. 6. Note readings/observations in specified worksheets only. 7. Respect the lab schedules by following timetable schedule. 8. Put bags, phones, eatables etc. outside the labs at specified places. 	<ol style="list-style-type: none"> 1. Don't come to the lab class with loose worksheets. 2. Don't create indiscipline in the lab class. 3. Don't sit idle in the lab. 4. Don't remove books, binders, or other lab materials from the lab. 5. No entry of students will be allowed without signature in the visitors register. 6. No food stuffs are allowed in the lab. 7. Students should not tear or damage lab equipment otherwise will be fined for the same.

VII. Requirements for Lab Reading

Following requirements to be ensured before coming to the Lab

- Plane sheets of paper
- Work sheet for Lab work
- HB Pencil and Eraser

PSYCHOLOGICAL TESTS

Psychological tests are written, visual, or verbal evaluations administered to assess the cognitive and emotional functioning of children and adults. Psychological tests are formalized measures of mental functioning. Most are objective and quantifiable; however, certain projective tests may involve some level of subjective interpretation. Also known as inventories, measurements, questionnaires, and scales, psychological tests are administered in a variety of settings, including preschools, primary and secondary schools, colleges and universities, healthcare settings, and social agencies.

They come in a variety of formats, including written, verbal, and computer administered. For children, academic achievement, ability, and intelligence tests may be used as tools in school placement, in determining the presence of a learning disability or a developmental delay, in identifying giftedness, or in tracking intellectual development. Intelligence testing may also be used with teens and young adults to determine vocational ability (e.g., in career counseling). Personality tests are administered for a wide variety of reasons, from diagnosing psychopathology (e.g., personality disorder, depressive disorder) to screening job candidates. They may be used in an educational setting to determine personality strengths and weaknesses.

This Lab Manual consists following 37 Psychological tests which are as follows.

1.0 PSYCHOLOGICAL TESTS: EDUCATIONAL PSYCHOLOGY

1.1 EMOTIONAL MATURITY SCALE

- 1. Title of the Tool:** Emotional Maturity Scale.
- 2. Authors:** Dr. Yashvir Singh Retd. (Head) Department of Psychology St. John's College, Agra and Dr. Mahesh Bharagava(Chairman), Harprasad Institute of Behavioural Studies.
- 3. Publisher/year:** National Psychological Corporation (Bhargava Bhawan,4/230, Kacheri Ghat, Agra-282004(India).
- 4. About the Tool:** The main purpose of construction of the scale is to measure the different aspects of emotional maturity by taking five broad factors. i.e., Emotional stability, Emotional progression, social adjustment, Personality integration and independence. Although the present scale has been developed only for the 198 college students, but it can be fruitfully administered to the entire young person. The scale is self-reported five point scale.
- 5. Participants Involved:** The scale was administered upon 198 college students belonging to urban as well as rural background.
- 6. Dimensions Covered:**

- i. Emotional Stability
- ii. Emotional Progression
- iii. Social Adjustment
- iv. Personality Integration
- v. Independence

7. No. of items: 48

8. Reliability: The reliability of this scale was determined by both test-retest method and internal consistency. Co-efficient of stability was calculated by test-retest method taking 150 subjects, and the co-efficient of stability was found to be 0.75. The internal consistency of the scale was checked by calculating the coefficient of correlations between total Scores and scores on each of the five areas such as emotional stability, emotional progression, social adjustment, personality integration and independence and the r values are .75,.63,.58,.86,.42 respectively.

9. Validity: In order to measure the validity, the number of this area is twenty-One. Product movement correlation obtained between total scores on all twenty-one (d) personality integration items and total scores on EMS was .64. (N = 46)

10. Administration: The emotional maturity scale is a self-administering scale for students. It can be administered on individuals as well as group setting. The students are requested to read the instruction carefully and fill up the answers for each in any of the five options very much, much, undecided, probably, never.

11. Scoring: Emotionally maturity scale is a self-reporting five point scale and all the statements are to be scored 5, 4, 3, 2,1for very much, much, undecided, probably, never respectively.

12. Interpretation: The scale was administered upon 198 college students belonging to urban as well as rural background. The three quartiles were calculated for the scores of all the 198 respondents. Quartile Deviations of Scores for N = 198(M=100, F = 98). Quartile Deviations Q1=80, Q2=88.5, Q3=106.7.

1.2 MULTIPLE INTELLIGENCE SCALE

1. Title of the Tool: Multiple Intelligence Scale

2. Author: Dr. Suraksha Pal (Professor, Department of Education, Chaudhary Charan Singh University, Meerut (U.P.) and Surbhi Agarwal(Research Scholar, Department of Education, Chaudhary Charan Singh University, Meerut (U.P.)

3. **Publisher/Year:** National Psychological Corporation (UG-1, Nirmal Heights, Near Mental Hospital, Agra-282007)
4. **About the Tool:** The Multiple Intelligence proposes the differentiation of human intelligence into specific “modalities of intelligence”, rather than defining intelligence as a single. In this respect, Multiple Intelligence can be used to guide learners to choose the suitable area of study which will in turn lead them to their career. The present scale is intended to measure the different levels of intelligence among the students studying in class X, XI, XII.
5. **Participants:** The test was administered on 200 students studying in class X, XI, XII in the age group of 14 to 18 years in English Medium School of Meerut, Ghaziabad and Noida in the state of Uttar Pradesh.
6. **Dimensions Covered:** Nine (9) dimensions are covered (Linguistic Intelligence, Logical-Mathematical Intelligence, Bodily-Kinesthetic Intelligence, Spatial Intelligence, Musical Intelligence, Naturalistic Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence, Existential Intelligence).
7. **Reliability:** The reliability of scale was measured by both “test-retest method” and “split half method” applied by Spearman-Brown Prophecy formula which resulted in 0.71 and 0.83 coefficients of correlations respectively.
8. **Validity:** In this scale content validity and intrinsic validity were estimated for this multiple intelligence scale. content validity was established on the basis of expert opinion from professors in various fields and intrinsic validity was found by the product moment correlation among the various dimensions of multiple intelligence. The coefficients of correlations were significant at 0.01 level of significance.
9. **Norms:** On the basis of statistical results of 200 students (both Boys and Girls), Z-score Norms and for the full scale have been prepared based on 9 dimensions. (Refer manual).

1.3 EMOTIONAL INTELLIGENCE SCALE

1. **Title of the Tool:** Emotional Intelligence Scale.
2. **Author:** Dr. Arun Kumar Singh (Professor and former Head, Patna University, Department of Psychology) and Dr. Shruti Narain (Department of Psychology, Patna Women’s College, Patna).
3. **Publisher/year:** National Psychological Corporation, UG-1, Nirmal Heights, Agra
4. **About the Tool:** Emotional intelligence ability to monitor one's own and others’ emotions, to discriminate among them and to use the information to guide one's thinking and actions

(Mayer and Salovey, 1997; 1990). Emotional intelligence includes traits like self-awareness, social deftness, and the ability to delay gratification, to be optimistic in the face of adversity, to channel strong emotions and to show empathy towards others. This tool measures Emotional intelligence of 200 adolescent.

5. **Item Analysis:** Originally, 80 items were written and submitted to a group of language experts who made necessary corrections and modifications. Out of the 80 items, 52 reached common consensus. Then the scale was administered on 200 adolescents and scores were obtained. The response was to be given in either 'Yes' or 'No'. A score of +1 And 0 was given. The response of the subjects on each item was scored and a total score was obtained. Following it, item analysis was done by using Point-biserial correlation.
6. **Reliability:** The test re-test reliability was calculated, by administrating the test on the same sample (N = 100) with a gap of fortnight. It was found to be 0.86 alpha coefficients, which was significant at .01 level.
7. **Validity:** The present scale was correlated against the Emotional Intelligence Scale developed by Hyde, Pethe and Dhar (2001). The concurrent validity was found to be 0.86, which was significant at .01 level. For this purpose, both scales had been administered on the same sample (N = 100).
8. **Scoring:** The answers of those items which tallied with the answers given in the scoring Key were given a score of +1. If they didn't tally, they were given a score of zero. The Scoring key is provided in Table 2.

Sl. No.	Dimensions	Items	Serial wise item no.	Total	
I	Understanding emotions	Positive	5, 15, 18, 28	4	4
		Negative	-	-	
II	Understanding emotion	Positive	3, 7, 9, 12, 16, 19	6	8
		Negative	20, 21	2	
III	Empathy	Positive	6, 8, 10, 23, 25, 26, 29, 31	8	10
		Negative	13, 17	2	

IV	Handling relations	Positive	1, 2, 4, 11, 14, 22, 24, 27, 30	9	9
		Negative	-	-	
Positive 27 + Negative 4 =				Total	31

9. **Norms:** Percentile norms for Emotional Intelligence Scale have been developed. For this purpose, the scale was administered on a larger sample of N = 500 in which the subjects from both sexes participated. Percentile norms for both groups (Male, N = 230; Female, N = 270) were developed separately as their t-ratios were found to be significant.

1.4 TEST OF GENERAL INTELLIGENCE FOR COLLEGE STUDENTS

1. **Title of the Tool:** Test of General Intelligence for college students
2. **Author:** Dr. K. S. Mishra (Professor Department of Education University of Allahabad, Allahabad) and Dr. S. K. Pal (Professor and Head for Professor Department of Education University of Allahabad, Allahabad).
3. **Publisher/year:** National Psychological Corporation, Agra-282007
4. **About the Tool:** Intelligence is a behaviour determining attribute. It is an inference drawn from the behaviour. Different scholars have defined intelligence in different ways. Ternman said that an individual is intelligent in proportion to his ability to carry on abstract thinking. According to Thorndike intelligence consists in the capacity for mere association or connection. Intelligence is not unitary but in comprises abilities. several effort have been made to construct verbal tests for measuring intelligence.
5. **Preparation of Items:** To begin with, several items were prepared and subjected to initial screening by authors. Consequently, 25 vocabularies, (word meaning), 27 analogy, 30 Classification, 25 number series, 19 syllogistic reasoning, 25 code transformation questions were retained for inclusion in the try out form.
6. **Try-out and Item Analysis:** The try form of the TGI was administered to 66 B.A.,28 B.Sc. and 16 M.A. Students studying in two-degree colleges and two University departments at Allahabad. Item analysis was done by calculating difficulty value and discrimination index for every item belonging to a particular subset. For item analysis, 30 students were selected from either end Was answer sheet arranged in descending order of

scores on a particular subtest. 10 were selected for inclusion in each subtest of TGI. The difficulty value of these items ranged from 20 to 73 while the discrimination index ranged from .20 to .85.

7. **Scoring:** Correct answers should be marked by putting the “tick” mark. Number of tick marks for every sub-test should be counted and then these sub-Scores should be added together to get a composite score.
8. **Reliability:** Split half as well as Test-retest reliabilities of the test scores have been calculated as .95 and .81 respectively for 148 students studying in degree and post graduate classes.
9. **Validity:** Criterion related validity was calculated by finding out product moment coefficient of correlation between scores on TGI and scores on Cattell's Culture Fair Test of Intelligence, Scale 3 form A. The value of correlation was .68 (for N = 36) correlations between various subtests of TGI were also calculated.
10. **Norms:** It gives percentile norms for the scores on TGI. They are based on a sample of 384 students studying in B.A., B. Sc., B. Com, M.A., M.Sc., L. T./B. Ed. and M.Ed. classes (Refer manual)

1.5 EMOTIONAL INTELLIGENCE INVENTORY

1. **Title of the Tool:** “Emotional Intelligence Inventory.”
2. **Author:** Dr. S. K. Mangal (Guest faculty, department of education, M. D. University, Rohtak) and Mrs. Shubhra Mangal (Principal, C. R. S. College of Education, Noida)
3. **Publisher/year:** National Psychological Corporation, Agra-282007
4. **About the tool:** Emotional Intelligence Inventory has been designed for use with Hindi & English knowing 16 + years age of school. college & university students for the measurement of their emotional intelligence (total as well as separately) in respect of four areas or aspects of emotional intelligence namely, Intra-personal Awareness (Knowing about one's own emotions) Inter-persons/ Awareness (Knowing about others emotions), Intra-personal Management (Managing one's own emotions) and Inter-personal Management (Managing others emotions) respectively.
5. **Item analysis:** Item analysis was carried out by computing biserial correlation of each item (1) with the total scores on the inventory and (2) with the area total scores. The significance of a biserial at .01 level was fixed as the criterion for retaining an item. This led to the elimination of 48 items.

Sl. No.	Area	Nature of items	No. of Items	Total no. of items	Total
I	Intrapersonal Awareness	Positive	6, 18, 19, 20, 23, 24, 25	07	25
		Negative	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15. 16, 17, 21, 22	18	
II	Interpersonal Awareness	Positive	27, 28, 29, 31 ,41, 42,43,44	08	25
		Negative	26, 30. 32, 33. 34, 35, 36, 37, 38, 25 39, 40, 45, 46, 4~ 48, 49, 50	17	
III	Intrapersonal Awareness	Positive	51, 52, 53, 54, 55, 56, 58, 60, 61, 62, 63, 64, 65, 66,67, 68, 70 71, 73, 74, 75	22	25
		Negative	67, 69, 72	03	
IV	Interpersonal Awareness	Positive	76, 79,80, 81, 82, 84, 88, 89,90,96,99	11	25
		Negative	77, 78, 83, 85, 86, 8 7, 91, 92, 93, 94, 95, 97, 98, 100	14	
Positive Items = 48 + Negative Items = 52					100
Total Items					

6. Standardization: The final test of 100 items was administered on a large sample of 2200 (1050 males and 1150 females) students 16 + years age. This sample was drawn by stratified proportionate cluster random sampling technique from the population of the students studying in (1) XII class of the higher secondary schools of Haryana state affiliated to Board of school education Haryana or C.B.S.E. (2) colleges including

engineering and B.Ed. colleges affiliated to M.D. University Rohtak and (3) students studying in the post-graduation departments of M.D. University Rohtak.

7. Reliability: Reliability of the inventory was examined through three different methods, namely

- (i) Split half method using Spearman-Brown prophecy formula.
- (ii) K-A formula
- (iii) Test-retest method (after a period of 4 weeks)

And the value was calculated as .89,.90,.92 respectively.

8. Validity: The validity for the inventory has been established by adopting two different approaches namely factorial and criterion related approach. Among which in factorial approach intercorrelation among the areas of the inventory vary from .437 to .716; for criterion related approach, the validity coefficient for adjustment inventory is -0.662 and for emotional maturity scale validity coefficient is -0.613.

9. Scoring : The Scoring System has also been revised and the new scoring system is;

Sl. No.	Type of Statement	Always	Sometimes	Never
I	Positive	2	1	0
II	Negative	0	1	2

10. Norms: On the basis of statistical results in Table 10 (Refer Manual) the Z score norms have been prepared. Area wise and full inventory Z-scores norms for male group have been presented from table 11-15 (Refer Manual) and female group from table 16-20 (Refer Manual). The norm for the interpretation of the level of emotional intelligence for male group have been given in table 21 and female group in table 22.

1.6 GROUP TEST OF INTELLIGENCE

- 1. Title of the Tool:** “Pramila Group Test of Intelligence”
- 2. Author:** Dr. (Mrs.) Pramila Ahuja
- 3. Publisher/Year:** National Psychological Corporation (Bhargava bhawan,4/230, kacheri ghat, agra-282004, India)
- 4. About the Tool:** The construction of this test was undertaken to meet the pressing need for a group test of intelligence in English for the pupils of age group 9 to 13 years (class

group V to VIII) studying through English medium Secondary Schools of Greater Bombay. The preliminary draft of the test contained 226 items placed under different sub-tests.

- 5. Participants Involved:** The test is meant for measuring the intelligence of pupils studying in class-group V to VIII through English Medium Secondary Schools of Greater Bombay.
- 6. No. of Items: 110**
- 7. Reliability:** Reliability has been studied by two methods one which concerns the stability of the measure in terms of time and the other which involves the internal consistency of the test i.e. The Test-Retest Method and The Split-Half Method. The coefficient of correlation was found to be $.852 \pm .013$ and $.943 \pm .005$ respectively.
- 8. Validity:** Internal consistency of the test was established on the basis of a thorough item analysis. Empirical validation involves the comparison of the two sets of data on the same subjects. The coefficient of correlation between them gives the validity coefficient. The validity coefficients were determined with (a) Examination marks i.e. = $.494 \pm .042$ (N = 371), (b) Teacher's judgements $r = .491 \pm .045$ (N = 280) and (c) Some other valid tests of intelligence and the score was $r = .565 \pm .052$.
- 9. Scoring:** This procedure is very simple for this test. Put the relevant stencil key on each page of the answer sheet. It should be so adjusted that on the left-hand side through each hole A of every practice example is visible. Then the correctly marked answers (cross marks) will be visible through the holes, Count the number of right answers The sum of the right answers for both the pages gives the total score. Before scoring, it is necessary to inspect the answer sheets to determine whether a student marked more than one answer If in the same item, more than one answer is marked, score it as wrong.
- 10. Norms:** Age norms and class norms have been worked out separately for boys and girls. Along with these, some procedures of expressing the individual scores in units of brightness such as Deviation intelligence quotients, Percentile ranks, Scores, Sigma scores Standard scores and Stanine scores have also been established.

1.7 SPIRITUAL INTELLIGENCE SCALE

- 1. Title of the Tool:** Spiritual Intelligence Scale.
- 2. Author:** Dr.Santosh Dhar (senior professor, Jaipuria Institute of Management, Jaipur) and Dr.Upinder Dhar (Director, Vice Chancellor, J.K. Lakshmipat University, Jaipur)

3. **Publisher/year:** National Psychological Corporation, Bhargava Bhawan, Kacheri Ghat, Agra-282004 (India).
4. **About the Tool:** Spiritual intelligence has been equated with being open, compassionate, more unflappable and buoyant. Spirituality involves a sense of wholeness, connectedness at work and a deeper value. Workplace spirituality involves the effort to find one's ultimate purpose in life, to develop a strong connection to co-workers and other people associated with work, and to have consistency between one's core beliefs and the values of the organization. Zohar and Marshall proposed that IQ and EQ are subsidiary to and supported by SQ and SQ is the highest intelligence. Spiritual intelligence has been well recognized as a complex, multi-dimensional construct universally that has the potential to influence the performance of the employees and managerial activities in the work setting of an organization. It needs to be assessed from time to time, so that necessary steps are taken. One of the first steps in conducting rigorous research is to clearly define and measure the spirituality construct. An attempt, thus, has been made to develop a standardized psychometric tool for assessing the variable of Spiritual Intelligence in Indian context.

5. Factors and Dimensions Involved

The test was administered on 15 factors.

Factor Total Correlation Matrix

Sr no.	Factors	R	Sr no.	Factors	R
1	Conviction	0.622316	9	Just	0.630175
2	Self-efficacy	0.747264	10	Generous	0.600959
3	Inner harmony	0.748167	11	Ethical	0.541489
4	Forgiveness	0.709757	12	Privy	0.427185
5	Achievement orientation	0.648493	13	Compatible	0.372267
6	Self-actualization	0.579359	14	Altruism	0.78238
7	Self-realization	0.62828	15	Optimism	0.587684
8	Humane	0.587229			

The test was administered on 6 dimensions.

Dimension-Total Correlation Matrix

Sr. No.	Dimensions	R
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I.	Benevolence	0.910767
II.	Modesty	0.89411
II.	Conviction	0.744073
V.	Compassion	0.820279
V.	Magnanimity	0.609323
VI.	Optimism	0.587684

6. Development of the scale: Based on the review of literature on spiritual intelligence and views of the subject experts, 53 items/statements were finalized and presented on a 5-point Likert scale for administration on 323 executives in varied organizations. The collected data were tabulated and item-total correlations were computed to identify the items/statements which significantly contributed towards spiritual intelligence. all the items / statements had significant coefficients of correlation at 0.05 level of significance and were thus retained. The data were subjected to Factor Analysis by using SPSS method. These fifteen factors were furthered subjected to second order factor analysis to find the dimensions of spiritual intelligence. However, to explore the degree of relationships between total raw score of the measure and these factors and dimensions, factor-total correlations, dimension-total correlations, inter-dimension correlations and factor-dimension correlations were computed.

7. No. of items: 53

8. Reliability: The reliability of the scale was determined by the split-half method corrected for full length by applying Spearman-Brown prophecy formula on the data collected from the sample of 323 subjects. The reliability coefficient was found to 0.98.

9. Validity: Besides face validity, as all items of the scale were related to spiritual intelligence, the scale has high content validity. The index of reliability gives the maximum correlation which the given test is capable of yielding in its present form. The later has indicated high validity on account of being 0.99.

10. Norms: Norms for the scale are available on the sample 323 executives working in private and public sector organizations. These should be regarded as reference points for interpreting the Spiritual Intelligence scores. The reliability, validity and norms were developed on the basis of English version of the scale.

- 11. Administration:** No time limit should be given for responding. Most of the groups should finish it in about 15 minutes. Before administering the scale, it is advisable to emphasize orally that responses should be marked as quickly as possible. The results of the scale help in self-knowledge and their responses would always remain strictly confidential. There is no right or wrong answer to the statements. The statements are designed to assess the differences in individuals' reactions to various situations. The scale is meant to identify perceptual differences between individuals and not rank them as good/bad, right/wrong, desirable/undesirable.
- 12. Scoring:** All statements have to be answered in terms of strongly agree, agree, not sure, disagree or strongly disagree. Each item which is checked as strongly agree, agree, not sure, disagree and strongly disagree should be awarded the score of 5, 4, 3, 2 and 1 respectively.
- 13. Limitations and Cautions:** The scale does not tap unconscious or such characteristics of spiritual intelligence of which the respondent himself/herself has no knowledge. Lastly, since the respondent is likely to get some insight as to what the scale tries to assess, it should be used with great caution, especially where any great advantage occurs to the individual for getting high or low scores i.e., for getting rewarded.

1.8 VERBAL TEST OF CREATIVE THINKING

- 1. Title of the Tool:** Verbal test Of Creative Thinking.
- 2. Author:** Baqer Mehdi, Retd. Professor of Education, N.C.E.R.T., New Delhi
- 3. Publisher/Year:** National Psychology Corporation, Bhargava Bhawan, 4/230, Kacheri Ghat, Agra-282004
- 4. About the tool:** Recent advances in the area of creativity research have necessitated the development of suitable measuring tools and devices to assess reliably the creative potential of pupils for their proper education and training. Several attempts have been made to develop tests of creativity, especially in the United States. Torrance, Guilford, and Wallach and Kogan have brought out their own batteries of creativity tests, which are being extensively used not only in the United States but also in other countries including India either as such or with some minor adaptations. The battery is meant to identify creative talent at all stages of education except pre-primary and primary. The type of tasks included in the test have been chosen so that they could be most easily and economically

administered over a wide age range of sample starting from middle school and going up to the graduate level.

5. **Preparation of the Battery:** The verbal test which has been described in the present manual is part of the total battery which consists of both verbal and non-verbal tests. The verbal test of creativity includes four sub-tests namely consequences test, unusual uses test, new relationships test, and product improvement test.
 - i. **Consequences Test:** The consequences test consists of three hypothetical situations (a) What would happen if man could fly like birds ? (b) What would happen if our schools had wheels? (c) What would happen man does not have any need for food?
 - ii. **Unusual Uses Test:** This test presents the subject with the names of three common objects a piece of stone, a wooden stick, and water-and requires him to write as many novel, interesting and unusual uses of these objects as he may think of. The example given on the test booklet properly acquaints the subjects with the nature of the task this test measures the subject's ability to retrieve items of information from his personal information in storage.
 - iii. **New Relationships Test:** This test presents the subject with three pairs of words apparently different-tree and house, chair and ladder, air and wale and requires him to think and write as many novel relationships as possible between the two objects of each pair in the space provided. The test provides an opportunity for the free play of imagination and originality. The time allowed for each pair of words is 5 minutes.
 - iv. **Product Improvement Test:** In this test, the subject is asked to think of a simple wooden toy of a horse and suggest addition of new things to it to make it more interesting for the children to play. The time allowed is 6 minutes. The total time required for administering the test is 48 minutes in addition to the time necessary for giving instructions, passing out test booklets to children and collecting them back.
6. **Reliability:** The test-retest reliabilities of the factor scores and also the total score was obtained on a small sample (N =31). Total creativity score reliabilities are considerably high ranging from .896 to .959. These values are highly satisfactory. The reliability of the total creativity score which came out to be .959 is again quite high. Inter-scorer reliabilities for the factor scores in one study were found to range from .653 to.981.
7. **Validity:** The test was administered to two samples-one urban and the other rural consisting of 300 and 175 pupils respectively studying in classes VII and VIII. Each item was scored for fluency, flexibility and originality. Item Validity-validity range from .761 to.818(N=300) in urban area and .541 to .646(n=175) in rural area at 0.01 significant level.

Co-relation between creativity and intelligence – correlation in verbal creativity test were found to be .194 and .181 in rural sample and in urban sample it was found to be .176 and .159 respectively. Correlation between verbal and non-verbal test of creativity-it was found to be .456 and .356 for the urban and rural sample respectively. Validity coefficient for factor scores against Teacher rating (N=300) were for fluency, flexibility, originality .40,.32 and .34 respectively.

8. **Scoring:** There is no right or wrong responses, much care has to be exercise at the time of scoring. Each item to be scored for fluency, flexibility and originality. Here fluency is represented by number of relevant and unrepeated ideas which the respondent produces. flexibility is represented by a person ability to produce ideas which differ in approach or thought trend. All ideas which fall under one category of approach or thought trend are treated as one for purposes in flexibility scoring. originality is represented by uncommonness of a given response. The responses given by less than 5% of the group are treated as original.
9. **Norms:** Percentile norms for urban and rural samples of pupils studying in classes VII and VIII have been constructed for the test. Percentile Norms for Verbal Factors of Creativity for Class VII Urban Sample (N=145)(Refer manual).

1.9 NON-VERBAL TEST OF CREATIVE THINKING

1. **Title of the Tool:** Non-Verbal Test of Creative Thinking.
2. **Author:** Baqer Mehdi, Rtdr. Professor in Education, N.C.E.R.T. NEW DELHI.
3. **Publisher/ Year:** National Psychological Corporation,
4. **About the tool:** The non-verbal test which has been described in the present manual is part of the total battery which consist of both verbal and non-verbal test. The non-verbal test of creative thinking is intended to measure the individual's ability to deal with figural content in creative manner. Three types of activities for the purpose that is picture construction, picture completion, and triangles and ellipses. The total time required for administering the test is 35 minutes. In addition to the time necessary for giving instructions, passing out booklets and collecting them back.
5. **Participants Involved:** The test was administered on 384 Under-graduate students and PG students.
6. **No. of items:** 60

7. **Reliability:** The test-retest reliabilities of the factor scores and also the total score was obtained on a small sample of 50 pupils. Total Creativity Score is found to be .94. As will be seen, the reliabilities of factor scores and also the total creativity score are considerably high, ranging from .93 to .91. The inter-scorer reliabilities using 34 test-scripts were found to be .98, .98, and .91 for elaboration, originality and total creativity scores respectively.
8. **Validity:** The validity coefficients against the teacher ratings for each factor and the total creativity score are .38 (N=50)

9. **Administration:**

Preparing for the Test: The place for administering the test should be such that children may work comfortably and without disturbance. The usual setting for test administration is the class-room. Care should be taken that the class is not over crowded. A maximum of 30 to 35 students may be taken up for group administration. The pupils should be properly motivated to take the test. The word test however should never be used throughout the session. Rather, it should be presented as a set of interesting tasks which the children would enjoy doing. What is important is to avoid a threatening situation which is frequently associated with testing. The pupils should be told that they would soon be involved in an interesting activity in which they would be required to give interesting and novel responses to certain activities provided in the booklet. The language used by the test administrator in giving instructions to the children should be as simple as possible so that each one understands what is required of him. The test administrator should see that each child has available with him a pen or a pencil. He should, however, have a stock of pencils with him so that he may meet any emergency situation. The test administrator should preferably have a stop watch with him for timing each activity. A wrist watch with a center second should also do. If both the non-verbal and verbal tests are to be administered, it is recommended that they be given in two different sittings, the verbal test may be given first. If the two tests are to be administered the same day, a break of about two to three hours should intervene between the two sittings. For well-rounded information about the creative thinking abilities of a pupil, it is strongly recommended that both the tests be used.

10. **Scoring:** The total elaboration and originality scores should be entered in the appropriate columns of the table. The composite creativity score should be entered after converting the raw scores into standard scores. This is necessary because standard deviations of the two scores sometimes markedly differ, and if the raw scores are added up, then the ranking

will be greatly affected. Procedure for converting raw scores into 'T' scores Once the total raw scores have been obtained for originality and elaboration dimensions of creativity, the following procedure for converting raw scores into 'T' scores should be followed. Calculate M and SD for the total raw scores of each dimension.

For converting the raw scores into 'T' scores with $M = 50$ and $SD = 10$

For making the calculations easier the formula can be written as $T = \frac{10(X-M)}{SD} + 50$, where $\frac{10}{SD}$ will be a constant value by which each $X-M$ can be multiplied; then add 50. In the total the same raw score may occur a number of times, so the calculation of T scores can be further facilitated by first preparing a conversion table. The conversion table can be used easily for converting the actual raw scores by merely looking at the conversion table.

Mean and SD of the different creativity dimensions can be easily calculated with the help of a hand calculator.

11. Norms: Percentile Norms for Non-Verbal Factors of Creativity for Class VII (Refer manual)

1.10 SCIENTIFIC INTEREST INVENTORY

- 1. Title of the Tool:** Scientific Interest Inventory
- 2. Author:** Karuna Shankar Mishra, M.Sc., M.Ed., Ph.D., Professor and Former Head, Department of Education, University of Allahabad, Allahabad
- 3. Publisher/year:** National Psychological Corporation, UG-1, Nirmal Heights, Near Mental Hospital, Agra-282 007
- 4. About the tool:** Scientific Method is used by scientists to develop science. Scientists have willingness to give up an old established theory when they find it consistent with a new fact. This is the attitude of science. The present inventory contains list of activities in which IX to XI grade students of science may be interested was prepared. It was condensed and 49 statements were prepared. A five-point response format was prepared to measure the extent to which a student of science likes an activity. These five responses were- "Very much, much, normal, less and very less. Students were asked to put tick mark in the box related to the column of their response.
- 5. Participants Involved:** The researcher selected 100 students of IX to XI grade. Among them 50 male and 50 female participants.

6. **No. of items:** 49
7. **Reliability:** Test-retest reliability was found to be 0.652 for a sample of 50 students studying in class IX of two schools. Time interval between test and retest was 15 days. The r-value is significant at 0.01 level of significance.
8. **Validity:** Validity of the inventory was calculated against 'scientific Interest Inventory' developed by Vijay Kumar (2003). It was found to be 0.8387, which is significant at 0.01 level of significance.
9. **Scoring:** A score of 5, 4, 3, 2 and 1 was awarded to responses related to Very much, much, normal, less and very less respectively.
10. **Norms:** z-Score Norms have been prepared for conversion of Raw Scores and presented in table (Refer manual)

1.11 ATTITUDE SCALE TOWARDS RESEARCH

1. **Title of the Tool:** Attitude Scale towards Research.
2. **Author:** Dr. Vishal Sood, School of Education (SOE) Department of Education, Indira Gandhi National Open University, (IGNOU), MaidanGarhi, New Delhi, Prof. Y.K. Sharma, H. P. University, SHIMLA
3. **Publisher/year:** National Psychological Corporation, Bhargava Bhawan, 4/230, KacheriGhat, Agra-282 004
4. **About the Tool:** The present scale is intended to measure the attitude of post graduate students, M. Phil. and Ph. D. students, students aspiring for Ph. D., teacher educators, college and university teachers towards research works or studies undertaken in their fields for improving the quantum of knowledge and solving various kinds of problems related to their concerned areas. The 'method of summated ratings' as given by Likert (1932) had been employed for constructing the present scale. Each item/ statement of the scale is to be rated on five consecutive points i.e. strongly agree, agree, undecided, disagree and strongly disagree. An individual respondent's score on the attitude scale is the sum total of his /her ratings on all statements/ items.
5. **Participants Involved:** Here 272 individuals who were students of M. Ed., M. A. (Education), were taken as participants
6. **Pages Included:** 15
7. **Dimensions Covered:** The literature available in the area of development of attitude scales, anxiety scales and theoretical as well as practical aspects of research and research-

related activities was reviewed intensively by the investigators. In addition, critical discussions were made with research experts and university teachers regarding different dimensions of attitude towards research. On the basis of all this, it was finally decided to have followed four dimensions for attitude scale towards research. Attitude towards General Aspects of Research and Research Process, Attitude towards Usefulness of Research in Professional career, Attitude towards Relevance of Research in Personal and Social Life and Attitude towards Difficulties in Research and Research Anxiety

8. No. of items: 42

9. Reliability: The reliability of the scale was established by: test-retest method, and Split-Half method. For this, the scale was administered on a sample of 100 individuals who were post-graduate students (M. Ed. and M. A.), teacher educators, college teachers, M. Phil. and Ph. D. students from the field of behavioral sciences. These respondents were different from those who were earlier selected for carrying out item analysis of the scale.

Test-Retest Reliability

This type of reliability was computed by applying Product Moment Correlation' method. For computing test-retest reliability of the scale, a time gap of one month was given between testing and retesting stage. The product moment correlation r ie. Reliability index, between two testing was 0.739 which is significant at .01 level of significance and scale has high reliability.

Split-Half Reliability

The split-half reliability of the scale was also estimated by employing Product Moment Correlation' method. For this, the scale was divided into two halves by adopting odd-even procedure. The split-half reliability coefficient came out to be 0-63. After applying Spearman Brown Prophecy formulae, the reliability index for whole of the scale (complete scale) was found to be 0.773. This value is significant at .01 level of significance that the scale is internally consistent to measure attitude towards research.

Internal Consistency:

The internal consistency of the scale was estimated with the help of coefficients of correlation (product moment correlation) between total score on the scale and score on each of four dimensions of attitude scale towards research.

10. Validity:

Content Validity

The content validity of the scale was established by carrying out critical discussions with the research experts at the time of development of preliminary draft of attitude scale. The experts were of the opinion that the statements of the scale are fully adequate and relevant to measure the attitude towards research. In addition to this, only those items were retained in the preliminary draft of attitude scale for which there had at least 80% agreement amongst experts with regard to relevance of items to the attitude towards research. Thus, the scale possessed adequate content validity.

Item Validity

The scale can be considered to be valid enough in terms of item validity because only those items were retained in the final form of the scale which were having-t-value greater than 1.75 (highly discriminating items).

Intrinsic Validity

The correlation coefficients computed between scores on each of four dimensions and total score of attitudes towards research ensured internal consistency of the scale. Also, the split-half reliability coefficient of 0.773 was also appreciable and ensured intrinsic validity of the scale.

Face Validity

The face validity refers to know whether present scale for attitude towards research looks valid to the subjects who take it (Anastasi, 1970). The Face validity was established by having the reactions of research experts, teacher educators and college and university teachers towards present attitude scale. They were of the opinion that present scale seemed to be valid enough for measuring Attitude towards Research.

11. Scoring: ASTR is a self-administering and self-reporting five-point scale. Items of the scale are in statement form requiring information for each item on either of the five options on a continuum as follows; Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. The items are scored in such a manner that if the answer to a positive item is 'Strongly Agree', a score of 5 is given; for 'Agree', a score of 4; for 'Undecided' option, a score of 3; for 'Disagree', a score of 2 and for 'Strongly Disagree' option, a score of 1 is awarded. On the other hand, in case, of negative items, the above scoring procedure is completely reversed. In the Test Booklet, after the negative items serial number, a star (*) has been put to indicate that the nature of that item is negative. Serial number without (*)

are positive items. The sum of scores on all statements of the scale is considered as respondent's total attitude score. The score on the scale can range from 42 to 210. The higher total score on the scale will reflect favorable attitude towards research and vice-versa. There is no time limit for giving responses to all items of the scale.

- 12. Norms:** The scale was administered on 272 individuals who were college and university teacher from different faculties, teacher educators and students of M. Ed., M A (Education and psychology), M. Phil. and Ph. D. courses in various faculties. These respondents belonged to colleges and universities of the state Himachal Pradesh and Punjab. The selection of these respondents was made by following stratified random sampling technique and it was ensured that the sample (for whom present scale is mainly intended) should be appropriate in terms of its adequacy and representativeness (Refer manual).

1.12 PARENTAL ATTITUDE TOWARDS PRE-SCHOOL EDUCATION SCALE

- 1. Title of the Tool:** Parental Attitude towards Pre-School Education Scale.
- 2. Author:** S. Venkatesan (Professor, Department of Clinical Psychology, All India Institute of Speech and Hearing, Manasangotri, Mysore).
- 3. Publisher/year:** National Psychological Corporation, H.P. Bhargava Book House, Agra-282007.
- 4. About the Tool:** The parental attitude scales towards pre-school education proposes to elicit opinions of parents/care givers on various problems and practices in contemporary pre-school education system in our country. This paper is a 25 item Likert type of rating scale, whose content were drawn from the information derived from several interviews, discussion notes and proceeding of seminars, workshops and refresher courses held between 1988-98 at National Institute for the Mentally Handicapped. The target group of participants included Parents, teachers, special Educators, clinical Psychologist, speech Therapist, developmental Therapist.
- 5. Participants Involved:** The test was administered on 156 parents from twin cities of Hyderabad and Secunderabad. Among them Male, Female, Under-graduates, Graduates and Post-graduates 96,60,60,48,48 respectively.
- 6. Dimensions Covered:** Parental Attitude (Male-Female, Graduate-Undergraduate, Postgraduates) and Pre-School Education.
- 7. No. of items: 25**

- 8. Reliability:** An in-house two-week test-retest reliability check for PAPESES on a sub-sample (n=42) showed a correlation coefficient of 0.83.
- 9. Validity** The face validity for the instrument was confirmed by expert as being high. A series of interitem co-relation carried out to ascertain Kuder-Reichardson-20 (KR-20). Estimate of internal consistency coefficient was found to be 0.77; thereby confirming the homogeneity of test item pool included in PAPESES. All statistical calculations were carried on computer assisted statistical packages (Nornsis, 1989).
- 10. Norms:** On the basis of statistical results Male and Female subjects, z-score norms for male and female have been prepared separately. Norms for interpretation of level of parent's attitude towards pre-school education also have been presented.
- 11. Utility:** The PAPESES is expected to be a useful instrument for: Ascertain contents of parent/care giver attitude towards problems practices and issues in contemporary PSE in our country. Determining the attitudinal valence of parent/care giver towards problems, practices and contemporary PSE in our country. Formulating baseline for planning or implementing attitude change/parent training programs towards change towards positive valence in parents of pre-school children in our country.

12. Scoring:

Type of Items	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Positive	5	4	3	2	1
Negative	1	2	3	4	5

1.13 PARENTAL ENCOURAGEMENT

1. Title of the Tool: Parental encouragement

2. Author: Dr. Kusum Agrawal (professor in Education, H.N.B. Garhwal university)

3. Publisher/year: National psychological corporation, Agra-282007

4. About the tool: The present scale is an attempt to measure quantitatively the parental encouragement as perceived by the child. It is also useful too to categorize the students

in terms of the degree of their parental encouragement.

5.Participants Involved: The test was administered on 100 parents and 100 students belonging to that parents respectively.

6. No. of items: 80

7.Reliability: Two indices of reliability of the scale were found out. Firstly its reliability was determined by K.R method(.79),secondly ,two test -retest reliabilities were determined after an interval of three month(.82),and the other after an interval of six month(.80).

8. Validity :Internal validity, the responses of each item were correlated and the value were found to 0.64.

9. Administration: This scale may be administered individually as well as the group. There is no fix time limit for this response, but usually take 40 to 50 minutes for filling the whole scale.

10. Scoring: The scale can be scored accurately by hand. Items of the scale are in statement form requiring information for each item on either of the five options on a continuum as follows; Always, most often, Frequently, sometimes, Never. The items are scored in such a manner that if the answer to a positive item is 'Always, a score of 5 is given; for ' most often', a score of 4; for ' Frequently' option, a score of 3; for ' sometimes ', a score of 2 and for ' Never' option, a score of 1 is awarded .

11. Norms: on the basis of the statistical results ,z-score norms have been developed(Refer Manual)

1.14 META COGNITIVE SKILLS SCALE

1.Title of the Tool: Meta cognitive skills scale

2.Author: Prof. Dr. Madhu Gupta (Former head , Department of education, Maharshi Dayanand university, Rohtak(Haryana)) , Ms. Suman(Research scholar,Department of education, Maharshi Dayanand university, Rohtak(Haryana))

3.Publisher/year: National Psychological Corporation, Bhargava Bhawan, 4/230, KacheriGhat, Agra-282 007

4.About the tool: The awareness of students to execute the information and one's own

cognitive process in learning is called metacognition. In this present scale is an attempt to improve metacognition skill which control one's learning process. This scale was constructed on Likert five point scale which mostly used in behavioural science.

5.Participants Involved: The test was administered on 400 students studying in secondary, senior secondary and U.G. students.

6.No. of items: 42

7. Dimensions:

- i. planning
- ii. Implementation
- iii. monitoring
- iv. Evaluation

8.Reliability: Reliability of the scale has been measured by Test-retest method and split-half method. The coefficient of correlation through test-retest method was 0.763 and split-half method was found 0.949 which has been measured by spearman-Brown prophecy formula.

9.Validity : The validity of the meta-cognitive skill scale was calculated on the basis of face validity and content validity. To assess the face validity, MCS scale was presented to 15 experts for their opinions. Content validity was of primary importance for this scale which addressed by experts and item category. correlation among different dimensions of the scale have been found to high through pearson product moment correlation and the coefficient ranges from 0.709 to .924 .

10.Scoring: The scoring of MCS scale is easy and objective. There is no negative statement. Each item being a statement is followed by five point scale ,strongly agree, agree, undecided, disagree and strongly disagree and which scored as 5,4,3,2,1 respectively.

11.Norms: Dimensionwise & for full scale ,z- score norms have been prepared(Refer manual)

2.0 PSYCHOLOGICAL TEST IN THE AREA OF EDUCATIONAL PHILOSOPHY

2.1 SPIRITUAL VALUES SCALE

1. **Title of the Tool:** Spiritual Values Scale.
2. **Author:** Fauzia Nazam (Research Scholar, Department of Psychology, Aligarh Muslim University, Aligarh) and Prof. Akbar Husain (Professor, Department of Psychology, Aligarh Muslim University, Aligarh)
3. **Publisher/year:** National Psychological Corporation, 4/230, kacheri ghat, AGRA-282 004
4. **About the tool:** Values emerge at all levels in society. A true community maintains itself and harmonizes its practical and spiritual goals by cultivating the fundamental virtues of renunciation and service that produce humane, cultured, unselfish citizens. To foster a spiritual attitude and generate ethical and moral culture are chief objectives of society. Spiritual values like charity, compassion, contentment, courage, forgiveness forbearance, fortitude, goodness, gentleness of speech, humility, justice, kindness, love, modesty, truthfulness, self-restrain, selflessness etc. are those values that an individual need to search within his or her soul with which mankind are blessed. Spiritual values are such which have no territory of being specific to a country or to a typical cohort or with a specific religion, since it is woven in human soul but, nevertheless the practice of spiritual value varies on the ground of individual's orientation and attach the importance of cultivating spiritual values at the right age particularly at the age adolescence.
5. **Dimensions of Tool:** On the recommendation of the expert or education, psychology, sociology, philosophy and religion as agreed by the experts Five Dimensions of Spiritual Values have been recognized and accepted for this Scale. These dimensions are: (1) Altruistic Values, (2) Humanistic Values, (3) Personal Values, (4) Divine Values and (5) Affective Values.
6. **Standardization of the Scale:** The final format of the Spiritual Values Scale was administered on a sample of 400 adolescents (200 male and 200 female) from Aligarh

Distribution of Sample

Sr. No.	Gender	Number of Subjects	%
I	Male	200	50

II	Female	200	50
Total		400	100

7. **Reliability:** The reliability of the scale has been calculated by Cronbach Coefficient alpha in each dimension and for the full scale. For Altruistic values, Humanistic value, personal value, Divine values, Affective value the reliability coefficient 0.856, 0.781, 0.741, 0.696, 0.681, 0.911 respectively.
8. **Validity:** Content (Face and Logical) validity of the scale was verified by number of experts and academicians. There are various methods to establish construct validity of the tool. Factor analysis with varimax rotation was used to establish the construct validity of the tool which is significant at 0.01 level.
9. **Scoring:** The scale is 5-point Likert type alternatives, viz., Strongly Disagree, Disagree, and undecided, Agree and Strongly Agree. Which scored as 1,2,3,4,5 respectively.
10. **Norms:** On the basis of statistical results, z score norms have been given in table 8 and 9 respectively (Refer manual)

2.2 VALUE CONFLICT SCALE

1. **Title of the tool:** Value Conflict Scale.
2. **Author:** R. L. Bharadwaj (Department of Psychology, D.S. College, Aligarh)
3. **Publisher/Year:** Pankaj Mapan, 1998, 2001, 'BalNiwas', TajBasai, Agra-282001
4. **About the Tool:** The value-conflict scale has been developed to measure the clear value assumptions of the people, as they exist besides the approach-avoidance type of value-conflicts related to six dichotomous modes of value probabilities of everyday life. This preliminary form of the scale with clear instructions was administered on a sample of 100 post-graduate students. The responses given by them were statistically treated to determine the relation between item to item of each value-conflict and each item to total score of that particular value-conflict. The correlation which were found to be low or negative for item to item of each value-conflict and item to total score of that particular value-conflict were dropped in the final selection of the items of the scale. The obtained correlated values in the context clearly indicate that out of 10 items framed for each value-conflict, only four items were found to be relevant to the measure the value assumptions and value-conflict of the people in general.

5. Participants Involved: The test was administered on 100 post-graduate students.

6. No. of items: 24

7. Dimensions:

(a)Evasion vs. fortitude

(b)Dependence vs. self-reliance

(c) Selfishness vs. Probity

(d)Hate vs. love

(e)Fear vs. assertion

(f) pragmatism vs. idealism

8. Reliability: The reliability of this scale was determined by test and retest method with an interval of fifteen days on a sample of 100 elements. The obtained reliability co-efficient for six value conflict area are .67,.72,.76,.70,.69,.65 respectively.

9. Validity: validity of this value-conflict scale is high as the areas and then the selection of items in the scale are based on research proven techniques. The validity of values-conflict scale was also determined with the parallel form and the validity coefficient under six dimensions are .62,.53,.59,.68,.79,.61 respectively

10. Scoring: The scoring of value- conflict scale is based on the line of Likert's five-point scale. Scoring of item number 1,2,3,5,6,8,9,11,13,14,15,17,19,20,21 and 23 are to be scored from upper to lower in the form of 1,2,3,4 and 5. The scoring of item number 4,6,10,12,16,18,22 and 24 will be in reverse order from upper to lower in the form of 5,4,3,2 and 1. The obtained score then to be transferred in the table of last page of the booklet the obtained scores are to be added horizontally to determine the value-conflict scores for all the six values probabilities separately(Refer manual).

3.0 PSYCHOLOGICAL TEST IN THE AREA OF EDUCATIONAL SOCIOLOGY

3.1 SOCIOECONOMIC STATUS SCALE

1. Title of the tool: Socioeconomic Status Scale.

2. Author: R. L. Bharadwaj (Formerly Associate Professor D. S. College, Aligarh)

3. Publisher/year: National Psychological Corporation, 4/230, kacheri ghat, AGRA-282
007

4. **About the tool:** The present Socio-economic Status Scale has been constructed with a view to Seek clarity of distinct aspects of social and economic status of an individual separately and integrally. Socio-economic Status' appears to be the resultant of the position of an individual in a society by virtue of a complex fusion of both of them, which often do not run parallel to each other in their own areas. This intermingling takes place in an undefined and curious manner eventually to present and indicator to 'Socio-economic Status.' The present scale of 'Socio-economic Status' has been developed for literate people. It can be administered on illiterate people also, but only by personal interview. At preliminary state, fifteen areas of 'Socio-economic Status' were selected with the careful study of the relevant literature and from some popular tests in the field. The lists of fifteen areas were submitted to twenty judges to know the most important areas which can measure the 'Socio-economic Status' of the individual in society. Opinion of the twenty judges pointed out only seven areas to provide the desired information.
5. **Reliability:** The reliability of the test of the has been calculated by test and retest method. The scale was administered on a sample of 200 students and after 21 days it was readministered on the same sample. The correlation between two scores was calculated by Spearman-Brown Formula and the reliability coefficient is found to be .76.
6. **Validity:** The validity of the scale and items are solely based on research proven items is very high and promising.
7. **Scoring:** Scoring of the test is very easy and of a quantitative type. Scoring key provides the weighted score for each item. Every alternative of any of the items has only one weighted score which will serve to provide the score. The scoring key has to be placed vertically between the two assigned points on the test. The separate scores for each area are then totaled vertically.

4.0 PSYCHOLOGICAL TEST IN THE AREA OF GUIDANCE AND COUNSELLING

4.1 STUDY HABIT INVENTORY

1. **Title of the tool:** Study Habit Inventory.
2. **Author:** M. Mukhopadhyay (Former Professor) National Institute of Public Administration New Delhi and D.N. Sansanwal(Former Professor) school of education Devi AhilyaVishwavidyalaya (DAVV)
3. **Publisher/year:** National Psychological Corporation, 4/230, kacheri ghat, AGRA-282 007

4. **About the tool:** The study habit is very important characteristics of all human beings who are being educated and are educated. As much study habits is important for higher academic achievement of the students, so much it is important for their fruitful use of leisure time. The later aspect is also important for adults who are now in the job particular for the teachers. Thus, study habit as a habit is generic rather than specific in terms of its importance. It has very long reached effects deep into the life of individuals, and by cumulative and interactive effects in the society. Present tool contains nine sub-components of study habits and it was subsequently validated by several experts.
5. **Participants Involved:** Present scale is administered on 180 students that were analyzed on the basis of total scores, the response sheets were arranged in descending order. Top 60 and the bottom 60 scored sets were taken out to determine the discrimination power.
6. **No. of items:** 70
7. **Reliability:** The reliability of the whole inventory was worked out by using split half method. The reliability coefficient is .91 which is fairly high and indicates that the inventory is reliable.
8. **Scoring:** This is a five-point scale viz. always, frequently, sometimes, rarely and never. Which scored as 5,4,3,2,1 respectively.

4.2 CAREER COMMITMENT SCALE

1. **Title of the tool:** Career Commitment Scale.
2. **Author:** Dr. Mihir Kumar Mallick (Professor, Department of Social Science, National Institute of Health and Family Welfare, New Delhi) and Komal Sharma (Ph.D. Research Scholar, School of Education, Lovely Professional University, Phagwara)
3. **Publisher/year:** National Psychological Corporation, 4/230, kacheri ghat, AGRA-282 007
4. **About the tool:** Modern careers are being characterized by high degree of uncertainty due to changing environment. This has led to newer relationship between employers and employees being introduced (Park, 2010) Careers have been described in fundamentally two different ways. firstly. they can be described as being subjective reflections of the individual's own sense of his or her meaning derived from career Secondly. they can be described as being objective reflections of the more observable positions salary and status that serve as standards of gauging progress in society Using the subjective standard for career Success is one of the imperative characteristics of the contemporary career. The,

modern career has emphasized the importance of subjective criteria for measuring career success (Heslin, 2005). Career Commitment may be defined as one's attitude towards one's profession or vocation (Blau, 1985). Career Commitment is characterized by strong sense of identification, persuasion, development and active involvement in individual career goals. In other words, it is commitment of one's career goals (Colarelli & Bishop, 1990). Unlike organization goals, these are self-generated, commitment in one's career can lead to employment in various organizations.

- 5. Construction and Development of the Tool:** For construction of the Career Commitment Scale extensive survey of literature was done on commitment and professional commitment. After reviewing the literature the relevant dimensions were selected. Discussion with experts in the field of Psychology and education was held, with regard to justifying the appropriateness of selection of dimensions. The tool at its initial drafting stage included 60 items. After initial modification of the tool based on the suggestions of the subject experts, 58 items were retained.
- 6. Reliability:** Reliability of the Career Commitment Scale by using Split-Half Method was found to be 0.85.
- 7. Validity:** Both "Face" and "Content validity" of the "Career Commitment Scale" was determined based on the opinion of the subject experts. For determining content validity, the test was shown to 10 subject experts belonging to the field of Education and Psychology. Based on their judgement validity index was Calculated.
- 8. Scoring:** A Likert type scale was used with choices namely: "Strongly agree", "Agree", "Undecided", "Disagree" and "Strongly Disagree". The individual score for all the 100 teachers were ranked from the highest to the lowest. Then 27% of the subjects with the highest total scores and 27% of the subjects with the lowest total scores were sorted out for the purpose of calculation of discriminatory power of each of the items of the tool. Then each item was taken individually and the number of teachers who responded "SA" (Strongly Agree), "A" (Agree), "U" (Undecided), "D" (Disagree) and "SD" (Strongly Disagree) was found out for both the high and low groups separately. If the discriminatory power value of the item was greater than 1.98 then the item was found valid and accepted. Those items were rejected which had less than 1.98 discriminatory value.

4.3 CAREER DECISION MAKING SCALE

1. **Title of the tool: Career Decision Making Scale.**
2. **Author:** Dr. Kirandeep Singh Department of Education Panjab university ,chandigarh
3. **Publisher/year:** National Psychological Corporation, 4/230, kacheri ghat, AGRA-282 007
4. **About the tool:** A major concern in the area of vocational counseling in Indian set up is to identify the career decision-making status of students in terms of their career decidedness and career indecision. The pre-requisite to competent career decision making is accurate knowledge and acceptance of one's own aptitudes, abilities, needs, limitation, interests, values, feelings. Adequacy of self-understanding or insight is a crucial variable for successful career development. All these characteristics indicate decidedness of an individual with respect to choose of a career or subject. Hence, decided individual can be operationally defined as having certainty about future plans, is confident of the decisions taken, and knows how to implement these plans.
5. **Development of the Scale:** Item Writing To measure the career decidedness and career indecision, the proposed inventory i.e., Career Decision-Making Scale (CDMS) consists of two sub-scales, viz., Career Decidedness Scale (CDS) and Career Indecision Scale (CIS). In accordance with the objectives of the Career Decision-Making Scale, stated above, plausible items for the two sub-scales were constructed. These items were written in a statement form. Total of thirty items were constructed. These were arranged in an order. The first fifteen items aimed to find the career decidedness of the respondents and subsequently the measures responsible for it. The next fifteen items measure the career indecision and the factors which were instrumental in the process.
6. **Participants Involved:** The test was administered on 97 Class-XII students.
7. **No. of items:** 18
8. **Reliability:** The test-retest reliability co-efficient of correlations were worked out in order to see the consistency. It was worked out on a sample of 97, class XII students from academic (N = 57) as well as vocational stream (N = 40). The time gap was about thirteen days for getting the retest scores. The correlation coefficients between the two administrations of the CDMS were found to be 0.943 and 0.957 for Career Decidedness Scale and Career Indecision Scale respectively.
9. **Validity:** For the validation of the CDMS the techniques of internal consistency validity and criterion related were employed. Internal consistency validity was calculated separately for the two subscales in terms of items-total correlations. The range of

significant r , co-efficient of correlations of the selected items is from 0.532 to 0.701 for Career Decidedness Scale and 0.257 to 0.659 for Career Indecision Scale. Criterion related validity was calculated separately for the two subscales in terms of items-total correlations. The range of significant r , co-efficient of correlations of the selected items is from 0.69 for Career Decision Scale and .59 for Career Indecision Scale at .01 significant level.

10. Scoring: The CDMS can be administered on students studying in class X, XI & XII. The scale is a three points scale and the students (respondents) are required to record their response by putting a tick mark in the appropriate box for each statement which describes him to the nearest which of his response, viz., Exactly Like Me or Somewhat Like Me or Not at all Like Me. The scale is divided into parts, A and B, and the respondent be explained the purpose of the scale and how to mark their responses. Depending upon reading skill it takes 15-20 mins. to complete the scale.

4.4 EDUCATIONAL ASPIRATION SCALE

- 1. Title of the Tool:** Educational Aspiration Scale.
- 2. Author:** Dr. V. P. Sharma (Professor in Psychology, Pt. Ravi Shankar University, Raipur) and Dr. Anuradha Gupta (Dept. of Psychology, Pt. Ravi Shankar University, Raipur)
- 3. Publisher/year:** National Psychological Corporation, 4/230, kacheri ghat, AGRA-282 004
- 4. About the tool:** Level of Aspiration' is a psychological construct which reflects a cognitive motivation type of the individual. Frank defines it in terms of the level of future performance in a familiar task which an individual, knowing his level of past performance in that task explicitly undertakes to reach. Thus, the term level of Aspiration involves the estimation of his ability (whether over, under or realistic) for his performance on the future strength of his past experience (goal discrepancy), his ability and capacity, the efforts that he can make towards attaining the goal, thus set by him. In this present study 1050 sample were to be taken which includes high achievers, low achievers and average achievers of students of class x.
- 5. Reliability:** Coefficient of stability by Test-Retest method $r_{tt} = .98$. Coefficient of Internal consistency by odd-even technique using S-B formula, $r_{tt} = .803$. These results are significant at .01 level of significance.
- 6. Validity:** Against scholastic Achievement (Board Exam.) $r = .692$, predictive validity with EAS, Form V = .596 Significant at .01 level of significance.

7. **Standardization:** The Educational Aspiration Scale was administered on a student sample of 1050 studying in class X. The sample had three types of achievers in both boys and girls, which was as following Table.

Type of Achievement	Boys	Girls	Total
High Achievers	250	180	430
Low Achievers	220	150	370
Average Achievers	150	100	250
Total	620	430	1050

8. **Administration:** EAS could be administered individually or in group situation. It is a self-explanatory scale, however the tester should establish proper report before administering it. There is no time limit, however it takes about 25 minutes to administer the whole scale.
9. . The Total Score shall determine the Raw Score of the individual on the scale. **Scoring:** There is no right or wrong answer. The subject has to compare between a pair of statement given in each of the items, and weight one of this two by putting “Tick Mark” against it. Scoring Key has been prepared for EAS by the help of 5 judges. Two category responses have been admitted. The minimum and maximum score on this scale is 00 to 45
10. **Norms:** On the basis of spastically results, z-score norms has developed.(Refer manual)

4.5 ACADEMIC STRESS SCALE

1. **Title of the tool:** Academic Stress Scale.
2. **Author:** Dr. Poorva Jain (Principal, Noble College of Education, Sagar) Mrs. Neelam Dikshit (Assistant Professor, Noble College of Education, Sagar)
3. **Publisher/ Year:** Agra Psychological Research Cell, Agra-282004, 2016
4. **About the tool:** Academic stress is a pervasive problem around the world. It affects the social life of students within the institute as well as outside the institute. student’s life in terms of commitment to achieving goals , these goal is highly affected. Having knowledge about the cause of academic stress among the students will make the educational administrator know how to monitor and control the stress factor which are responsible for causing academic stress.

5. **Construction of the Scale:** After discussing with the students about their problems, discussion with colleagues and reviewing the literature on academic Stress, a list of 39 items were prepared. The scale is constructed following Likert's method. The scale is meant for assessment of academic stress among the students. The scale was given to 10 experts and they were asked to rate the items. This scale is a self-administering scale. It can be administered to group and individual.
6. **Participants Involved:** The test was administered on 300 tertiary education students of Sagar (UP).
7. **No. of items: 28**
8. **Reliability And Validity :** Split half and test-retest Reliability co-efficient for the scale was calculated. The test-retest reliability co-efficient was 0.86 and reliability index was 0.93. The reliability co-efficient for split half was 0.79 and reliability index was 0.89. Hence the scale is reliable for measuring academic stress. The scale was discussed with 8 teacher educators and 2 psychologists. The affirmative responses were considered as the indicators of the face validity of the scale.
9. **Administration:** The Academic Stress Scale is a self-administering scale for students. The subjects are requested to read the instruction carefully and fill up the personal data prescribed on the first page. Respond to all the items in the scale.
10. **Scoring:** It is a five point scale. All the statements are to be scored 5, 4, 3, 2 and 1 for Strongly Agree (SA), Agree(A), Undecided(UD), Disagree(D) and Strongly Disagree(SD) respectively.
11. **Standardization and Norms:** The Academic Stress Scale was administered on 300 purposively selected tertiary education students of Sagar (MP). The students were from UG and PG level. Students scoring 80 and above are considered as high stress level, whose score is below 50-69 as moderate stress and below 50 are considered as less stress level.

4.6 VOCATIONAL ATTITUDE MATURITY SCALE

1. **Title of the Tool:** Vocational Attitude Maturity Scale.
2. **Author:** Dr. Manju Meheta (Professor in Psychology, University of Rajasthan, Jaipur)
3. **Publisher/year:** National Psychological Corporation (Bhargava Bhawan, 4/230, Kacheri Ghat, Agra-282004)
4. **About the tool:** The vocational maturity scale has been constructed to assess both rate and level of an individual's development with respect to vocational choice. It is very important

to assess rate and level of individual's development with respect to career matters i.e., vocational maturity, so that help may be given to facilitate vocational maturity of the students who have less vocational maturity. The present scale is intended to measure the vocational attitude maturity of XIth grade male students.

- 5. Participants Involved:** The test was administered to unselected sample of 60 commerce, 56 science and 52 arts students, studying in XIthclass at Poddar multipurpose higher secondary school Jaipur (Rajasthan).
- 6. Dimensions Covered:**
 - Involvement in the choice process
 - Orientation towards the problems of vocational choice
 - Independence in decision making
 - Preference for factors in vocational choice
 - Conception of vocational choice
- 7. No. of items:** 20
- 8. Reliability:** Reliability of the scale was determined by Kuder Richardson Formula -20 on the scores of standardization sample. The reliability co-efficient was 0.89. Hence the scale is reliable for measuring vocational attitude of students.
- 9. Validity:** To find out the validity of the scale tetracoric between the total scores on 20 selected items and total scores on 100 items pool of preliminary draft was calculated, which was .875.
- 10. Administration:** The vocational attitude maturity scale is a self-administering scale for students. It can be administered on individuals as well as group setting. The students are requested to read the instruction carefully and fill up the answers in either positive or negative i.e. yes or no type.
- 11. Scoring:** The scoring was done according to the method used by Crites (1971). One score was awarded to the subject for each item on which his response agrees with the response expected from a vocationally mature subject.
- 12. Norms:** The vocational attitude maturity scale was administered to 310 XIth grade science students from three Government higher secondary schools in Jaipur. Percentile norms are developed on the basis of data obtained from these 310 Ss.(Refer Manual)

4.7 CHILDREN'S SELF-CONCEPT SCALE

1. **Title of the tool:** Children's Self-Concept Scale
2. **Author:** Dr. S.P. Ahluwalia , Professor & Head, Faculty of Education, University of Sagar, (M.P.) , Dr. HariSankar Singh , Assistant Professor , P.P. College of Education, Gondia (Maharashtra)
3. **Publisher/year:** National Psychological Corporation (Bhargava Bhawan,4/230, Kacheri Ghat, Agra-282004
4. **About the tool:** The present scale has been prepared after the well-known Piers-Harris, Children's Self-concept scale (1969). The test contains eighty items in all with 'Yes' or 'No' responses. It includes 16 lie items to detect whether the children and adolescents have filled it accurately or not. It is a verbal paper-pencil test. The six sub-scales are included in the present scale.
5. **Participants Involved:** The researcher selected 300 B.Ed. students studying in teacher training colleges in Cuddalore district.
6. **No. of items: 80**
7. **Dimensions covered:** Behaviour, Intellectual and school status, physical appearance and attributes, Anxiety, Popularity, happiness and satisfaction.
8. **Reliability:** The Hindi version of this self-concept scale was administered to a random sample of 1060 students of U.P. (Sharma, 1984). The mean age of the sample was 14.5 years. The test-retest and split-half reliability method was used. The reliability coefficient lies between 0.83 to 0.88 for test-retest method and 0.74 to 0.79 for split half method.
9. **Validity:** It determined in 3 ways such as face validity- translation and back translation method, concurrent validity- sub concept scale and scores from each sub concept were interred correlated and factorial validity- through different multiple factor analysis method.
10. **Administration:** Only 15-20 minutes are usually required to administer the scale, but as a rule being a power test there is no limit of time on the scale. The scale has been used successfully for the children and adolescents who can read and write of school classes from class III-XII.
11. **Scoring:** For this purpose of scoring the self-concept scale, sex stencils, one for each sub-area, have been provided. These stencils are to be used one by one on the answer sheet to calculated the score for each sub-area which is to be recorded at the bottom of the answer-sheet in the scoring table provided. (Refer Manual)

12. Norms: z-Score Norms have been prepared for conversion of Raw Scores and presented in the table and the level can be find out minimum and maximum raw score range is 00 to 80. (Refer Manual)

5.0 PSYCHOLOGICAL TEST IN THE AREA OF TEACHER EDUCATION

5.1 TEACHERS EMOTIONAL INTELLIGENCE INVENTORY

- 1. Title of the tool:** Teachers Emotional Intelligence Inventory
- 2. Author:** Dr. Shubhra Mangal, Principal, C.R.S. college of Education, Noida(U.P)
- 3. Publisher/year:** National Psychological Corporation(UG-1, Nirmal Heights, Near Mental Hospital, Agra-282007)
- 4. About the tool:** Emotional intelligence is a way of Characterizing skills and abilities that help us to recognize emotions in ourselves and others, understand them and use language to communicate them; harness the power of emotions as a tool in cognitive activities like problem-solving, reasoning and creativity, and manage emotions both in ourself and in other people. The present test was devised in order to measure the emotional intelligence of secondary and senior secondary school teachers in Indian context. The various factors underlying the EQ of teachers were identified and related literature in the field of measurement devices for the assessment of emotional intelligence was studied.
- 5. Participants Involved:** The test was administered on the whole pool of the sample of 1273 school teachers, comprising 655 female and 618 male teachers.
- 6. Dimensions Covered:** For the present study final form comprising of 200 item was subjected to factor analysis in order to search for the fundamental dimensions of teacher's EI. Then, each of the derived factors were named and the necessary interpretation of each of them was done. The factors were named as: Awareness of self and others, Professional Orientation, Intra-personal Management or self-regulation, Inter-personal Management.
- 7. No. of Items:**200
- 8. Reliability:** Reliability of the inventory was established through two methods i.e Test-Retest Method and Split-Half Method and the reliability co-efficient for test-retest method was found to be 0.96(N = 150) Split half method was found to be 0.95(N=200).
- 9. Validity:** There is total three types of validity measures were obtained to assess the accuracy of the tool. For Content validity, which is non-statistical type of validity, the opinion of the eight judges was taken on the Suitability of the contents of the inventory. For the Construct validity, the factor loadings of the four factors for each of the 28 variables

were taken into account as these were nothing but the values of the correlation coefficient of the variables with each of the four factors. For Criterion related validity, correlation of the TEI scores with an external criterion was to be obtained.

Validity Coefficients of the Teachers' Emotional Intelligence Inventory

Measures Used	Mangal's Teacher Adjustment Inventory MTAI (N=200)	Rating of the teachers by their headmasters (N=500)
Validity co-efficients	0.55*	0.65*

- 10. Administration:** The Teachers emotional intelligence inventory scale is a self-administering scale for students. It can be administered on individuals as well as group setting. The respondents are requested to read the instruction carefully and fill up the answers on true response to the item.
- 11. Scoring:** The system of scoring the positive and negative natured items in the inventory has been prepared on the basis of four dimensions. i.e Awareness of self and others, Professional orientation, Inter-personal management, Intra-personal management and the scoring system is 5,4,3,2,1 for the above dimension respectively.
- 12. Norms:** On the basis of statistical results z-Score norms, based on each factor wise and for the total inventory have been prepared.(Refer Manual)

5.2 TEACHER SELF-EFFICACY SCALE

- 1. Title of the Tool:** Teacher Self-Efficacy Scale.
- 2.Author:** Dr.Vishal Sood(Department of Education, ICDEOL,H.P. University Shimla(H.P) and Ms. Sapna Sen(Research Scholar) Hamirpur(H.P)
- 3.Publisher/year:** H.P. Bhargava Book House(LG 1 & 2, Nirmala Heights, Near Halwaiki Bagichi & Mental Hospital, Agra-282007
- 4.About the tool:** Teachers' sense of self-efficacy is an important factor that had strong, positive relationships to students' performance, achievement of programme goals and other positive (educational) outcomes. Teacher efficacy includes two dimensions i.e personal teaching efficacy and general teaching efficacy. Personal teaching efficacy (PTE) represents a teachers belief that he/she possesses the skills and abilities to facilitate student

learning, that is, it is the teacher's overall sense of his/her own teaching effectiveness. General teaching efficacy (GTE) represents the belief that teaching (as an organizational form of education) can affect pupils positively, even in light of external factors or conditions such as, low motivation or poor home environment. The present scale is constructed on the basis of five point Likert type scale is intended to measure the self-efficacy level of secondary school teachers. Although, the present scale has been specifically developed for secondary school teachers but it can be used well for teachers working at elementary and higher secondary school level.

- 5. Participants Involved:** The test was administered on a representative sample of 1,048 teachers(600 male and 448 female) working in Government and Private schools of Himachal Pradesh State.
- 6. No. Of Items: 56**
- 7. Reliability:** The reliability to teachers' self-efficacy scale was determined by employing two methods i.e. test-retest method and split-half method. The test-retest reliability of teachers' self-efficacy scale was found to be 0.76 at 0.01 level of significance .The Split-half reliability of teachers' self-efficacy scale was estimated by administering by the final draft of the scale on 60 secondary school teachers . After calculating the correlation coefficient two sets of scores by applying "Karl pearson's Product Moment correlation Method", the reliability index came out to be 0.709 which was greater than the table value($r=0.325$) at 0.01 level of significance.
- 8. Validity:** It determined in 3 ways , Content Validity- This scale was established by carrying out critical discussion with filed expert at the time of development of preliminary draft of the scale, Cross Validity- Each sample of secondary school. teachers for carrying out item analysis, establishing reliability and for developing norms to avoid the chance of errors , Item Validity-Teachers self-efficacy scale was considered valid enough in terms of item validity because only those items were retained in the final draft of the scale which was having t-value equal to or greater than 1.75 (highly discriminating items).
- 9. Scoring:** The scoring system for teachers self-efficacy scale are always true , mostly true , sometimes true , rarely true and never true which scored as 5,4,3,2,1 respectively.
- 10. Norms:** Based on statical results Z-score norms has been developed (Refer Manual)

5.3 TEACHER EDUCATION CONCEPT ATTAINMENT TEST

1. **Title of the Tool:** Teacher Education Concept Attainment Test
2. **Author:**Dr. A.M. Ajatha Swamy, Head of Department, PG Studies and Research in Education, ShriJaneshwari College of Education, Saga road, Bhatkal (Karnataka) Smt. Shagufta Momin, Lecturer Anjuman P.G. College, Bhatkal (Karnataka)
3. **Publisher/year:** National Psychological Corporation, Bhargava bhawan,4/230,kacheri ghat,Agra-282004
4. **About the tool:**Teacher Education Concept Attainment Test (TECAT) is a tool to assess the teacher education related concepts attainment amongst teacher and teacher trainee community. The present study focuses on the development of a test to estimate the extent of attainment of concepts in teacher education curriculum in the areas like- Educational philosophy, Educational psychology, Educational technology, teaching strategies and evaluation and school management. Here researcher has made an attempt to develop a tool to test the level concept attainment related to teacher education amongst the B.Ed. student teachers and establish its validity and reliability.
5. **Participants Involved:** The researcher selected 3 colleges of education out of 8 colleges in Uttar Kannada district of Karnataka. 175 samples were selected in different categories among them male trainee 65,female trainee 110,Arts teacher trainee 132 and science teacher trainee 43.
6. **No. of items: 40**
7. **Reliability:** The reliability of TECAT was found by following two methods:Split half method ,Test retest method. The split half (odd & even) method was followed and the coefficient correlation obtained was $r = 0.59$. To compute test-retest reliability the test was re-administered after 15 days on a sample of 48 candidates. The correlation coefficient between test &re-test scores obtained was $r = 0.68$. it was found that both these coefficients of correlation were significant at 0.01 level of significance.
8. **Validity:** For content validity the test comprising 40 items was given to experts for their opinion regarding the relevance of items referring to teacher education curriculum.For concurrent validity of TECAT, it was compared with a standardized general concept Attainment Test of Anuradha Joshi and Ratnamala Arya (1998) by administering both the tests on a sample of 40 students. The coefficient of correlation between two sets of scores was computed. The obtained coefficient of correlation $r = 0.81$ is found to be significant. Attempt was also made to compare the TECAT scores with the Achievement

scores of trainees in the preliminary examinations B.Ed. the obtained correlation coefficient $r = 0.42$ is significant.

9. **Scoring:** The test has four alternative answers, out of which only one answer is correct. Award 1 mark for each correct answer and 0 mark for wrong answer. In this way total score ranges between minimum 0 to maximum 40.
10. **Norms:** The mean and standard deviation found for the scale on sample of 175 are Mean: 26.60 and SD: 4.04. z-score Norms have been developed for facilitating the interpretation of the test, and have been given in the Table. (Refer manual)

5.4 TEACHER'S TECHNO-PEDAGOGICAL COMPETENCY SCALE

1. **Title of the Tool:** Teacher's Techno-Pedagogical Competency Scale.
2. **Author:** Dr. S. Rajasekar, Professor of Education, Department of Education, Annamalai University, Annamalainagar(T.N.), K. Sathiyaraj, Research Scholar, Department of Education, Annamalai University, Annamalainagar (T.N.)
3. **Publisher/year:** National Psychological Corporation, Bhargava Bhawan, 4/230, Kacheri Ghat, Agra-282 004 (India)
4. **About the tool:** The investigators had decided to construct and standardize a scale to measure the techno pedagogical competency of higher secondary school teachers, as there is no suitable tool available to carry out the said study. In order to construct a scale, the investigators collected a variety of information related to this study from the print and electronic media, experts in Educational technology, teacher educators and so on and developed a Likert type five point rating scale with 40 statements collected from the aforesaid sources. All the 40 statements were positively worded with respect to techno-pedagogical competency and were categorized based on the experts' opinion.
5. **Participants Involved:** Here 100 teachers teaching higher secondary classes in the Tiruvannamalai district of Tamilnadu were taken as participants.
6. **Dimensions Covered:**
 - Technology in preparation for teaching.
 - Technology in providing motivation.
 - Technology in presentation.
 - .Technology in evaluation
7. **No. of items: 40**
8. **Reliability:** With the help of split-half technique (Consistency) followed by the use of

Spearman-Brown prophecy formula the reliability of this scale was found to be 0.82 (N =200) which is significant at .01 level of significance.

9.Validity:Techno-pedagogical competency scale has construct validity as items were selected having that 't' values equal to or more than 1.75 (Edwards, 1975). Its intrinsic validity was found to be 0.91 which clearly states that the scale is valid.

10.Scoring :The scoring procedure of Teacher's Techno-pedagogical competency scale is given by the statement Always, sometimes, uncertain, rarely and never, which scored as 5,4,3,2,1 respectively. The range of obtained score on this scale could be 40 to200

11.Norms: z-Score Norms have been prepared for the conversion of Raw Scores into standard scores for the purpose of interpretation of the Techno-pedagogical competency of Teachers (Refer Manual).

5.5 TEACHER'S COMPUTER AWARENESS TEST

- 1. Title of the tool:** Teacher's Computer Awareness Test.
- 2. Author:** Dr. Vishal Sood, Department of Education, ICDEOL, H.P.University, Shimla (H.P.),Mrs. Reena, Nirmand, Distt. Kullu (H.P.)
- 3. Publisher/year:** National Psychological Corporation, UG-1, Nirmal Heights, Near Mental Hospital, Agra-282 007.
- 4. About the tool:** The present test is intended to measure the computer awareness level of prospective secondary school teachers. Computer awareness test is comprised of recognition type of objective type items viz. multiple-choice type and true/false. There is 1 mark for every correct response. The total computer awareness score of a prospective teacher on this test is computed by adding the score on all individual items in the test.
- 5. Participants Involved:** Here 928 prospective secondary school teachers from 38 B.Ed. colleges selected from 7 districts of Himachal Pradesh State.
- 6. No. of items: 54**
- 7. Reliability:** The reliability of computer awareness test was determined by using two methods i.e., test-retest method and split-half method
 - **Test-Retest:** Test-retest reliability was computed on the basis of responses given by the 45prospective secondary school teachers. Then the Co-efficient of correlation was calculated between the two sets of scores by using Karl Pearson's Product Moment Correlation Method". The correlation coefficient Y i.e.,

reliability index came out to be 0.76 which is significant at 0.01 level of significance.

- **Split-Half:** The value of correlation coefficient was computed between the scores of two halves by using Karl Pearson's Product Moment Correlation Method and Spearman-Brown Prophecy Formula. Thus, the split-half reliability of teacher computer awareness test came out to be 0.80 which is significant at 0.01 level of significance.

8.Validity: validity of Computer awareness test was ascertained in terms of content validity, intrinsic validity, cross validity and item validity.

- **Content Validity-**The content validity of the teacher computer awareness test was established by carrying out critical discussions with field experts at the time of development of preliminary draft of the test.
- **Intrinsic Validity-**The teacher computer awareness test can be consider to have adequate intrinsic validity because split-half reliability of the test was found to be 0.80 which is a high correlation index.
- **Cross Validity-**The cross validity of the teacher computer awareness test was ensured by taking entirely different samples of prospective secondary school teachers order to carry out item analysis, establishing reliability and developing norms.
- **Item Validity-**Computer awareness test was considered valid enough in terms of item validity because only those items were retained in the final draft of the test which were having validity index greater than 0.25 and difficulty index values between 0.21 and 0.80

9.Scoring :Teacher Computer awareness Test is an objective type test. There is 1 mark for every correct response and zero for incorrect response. The time limit for completing the test is 30 minutes.

10.Standardization: For the purpose of standardization and development of norms, the test was administered on a sample of 928 prospective secondary school teachers from 38 B.Ed. colleges selected from 7 districts of Himachal Pradesh State. Statistical Results Based on the scores of 928 protocols, following statistical results were got.(Refer Manual)

11.Norms:Norms-On the basis of the statistical results , z-score norms have been prepared and the same have been presented. Norms for interpreting scores on computer

awareness test have been presented in the Table .(Refer Manual)

5.6 TEACHER'S MOBILE LEARNING ATTITUDE SCALE

- 1. Title of the Tool:** Teacher's Mobile Learning Attitude Scale.
- 2. Author:** P. Pachaiyappan & S. Raja Kumar (Assistant professor Department of Education, GRT College of Education, Chennai- Tiruppathi Highway)
- 3. Publisher:** National Psychological Corporation UG-1, Nirmal Heights, Near Mental Hospital, Agra-282 007.
- 4. About the tool:** Mobile Learning or m-learning has only just begun to take shape and many are unsure what that shape is exactly, but understanding the basic direction of technology that is of getting smaller then it is seen the need for e-leaning practitioners to be prepared for m-Learning. The mobile devices promote the use of anytime, anywhere learning, allowing users to transcend the limitations of the traditional presence-based classroom, and to fit learning into their daily lives, whenever they have the time or the inclination. This conveying of educational content through mobile phones, smart phones and PDA's is known as mobile learning. This present study develop and validate a scale (Mobile Learning Attitude Scale-MLAS) to measure prospective teachers' attitude towards m-learning.
- 5. Population:** A population is any group of individuals that have one or more characteristics in common. In this study, the population refers to B.Ed. student teachers studying in Government, Government Aided and Private Colleges of Education from two Districts of Tamilnadu, namely Chennia and Thiruvallur and Teachers Working in schools having minimum Five years teaching experience.
- 6. Sample size:**B. Ed. Students 120 for Pilot Study + 100 Teachers (240 for Actual Study), Teachers Working 220 for Actual Study with Five Years' Experience
- 7. Participants Involved:** The test was administered on 100 post-graduate students.
- 8. Method of the Study:**The researcher adopted the survey method to collect the relevant data from desired areas.
- 9. Dimensions Covered:**
 - Evasion vs. Fortitude
 - Dependence vs. Self-reliance
 - Selfishness vs. Probity
 - Hate vs. Lovel.

- Fear vs. Assertion
- Pragmatism vs. Idealism

10.No. of items: 24

11.Reliability:The reliability of the scale was established by calculating Cronbach's alpha r , which was 0.940. The second type of Reliability was calculated by Split-half (odd-even) method. The r found was 0.86. As such both the results are significant at .01 level of significance.

12.Validity :The scale's content validity was established by ,

- Experts' observation, review and unanimity on selected/rejection of items.
- The second method adopted was of Item Analysis which was also done on seeming large sample, and on the basis of the item analysis the final draft of the scale was selected, rejecting discriminating values.

13.Standardization of the Scale: The final draft of the Teachers' Mobile Learning Attitude Scale with 62 items was administered on the randomly selected sample of 240 B. Ed. Student-teachers of Govt., Aided and Private College from Chennai and Thiruvallur districts of Tamilnadu State and 220 Teachers Working in Senior Secondary Schools with minimum 5 years' experience from Govt., Aided and Private Schools of Chennai &Thiruvallur districts of Tamilnadu State.

14.Scoring :scoring system categories in 5 dimensions such as strongly disagree, disagree, undecided, agree and strongly agree which scored as 1,2,3,4,5 for positive nature of item and 5,4,3,2,1 for negative nature of items.

15.Norms: on the basis of statistical results z-score norms have been developed and Norms for interpretation of the level of usage of Facebook have been presented in Table(Refer manual).

5.7 ATTITUDE SCALE TOWARDS INFORMATION TECHNOLOGY FOR TEACHERS

- 1. Title of the Tool:** Attitude scale towards information technology for teachers.
- 2. Author:** Dr Nasrin ,Associate professor Department of Education, Aligarh Muslim university, Aligarh ,Dr Fatima islahi Resecher Department of Education, Aligarh muslim university, Alligarh .

- 3. Publisher/Year:** National Psychological Corporation Ug-1, Nirmal Heights, Near Mental Hospital, Agra-282 007,2005
- 4. About the tool:** In the present study the construction of "Attitude Towards Information Technology (ASTITT) Scale For Secondary School Teachers" the researcher constructed and validated an attitude scale using Likert Method also known as 'Method of Summated Ratings' to measure the attitude towards information technology. Likert's technique was preferred to Thurstone's technique because the former is simpler, takes much less time to construct and does not involve judgments for selecting the statements. This scale employs five choices expressing different degrees of agreement or disagreement.. The scale was designed to elicit information from respondents on their attitude towards Information Technology. The development of the scale involved five phases, Collection and writing of items, scrutiny and critique and try out followed by scoring and item analysis.
- 5. Participants Involved:** The test was administered on 100 post-graduate students.
- 6. No. of items: 30**
- 7. Reliability :** Reliability in this study utilized Cronbach's alpha, which estimates internal consistency reliability by finding out how items of an instrument relate to each other and to the total instrument. This was calculated using SPSS 12.0 statistical package. Using the scores of subjects on 30 items of the final form, reliability of ASTITT Scale was calculated. The polarity of the negative items in the Likert-type scale was reversed. This reversed polarity was used for subsequent analyses. Obtained Cronbach's alpha from the try-out and the actual study.
- 8. Validity :** The face validity of the measure is fairly high. Face validity refers to "the degree to which a test appears to measure what it claims to measure" (Gay & Airasian, 2000) Face validity of the instrument was established by a panel of experts. Content validity is "the degree to which a test measures an intended content area" (Gay & Airasian, 2000). Content validity for the instrument was also established by the panel. The instrument was evaluated during and after development. Feedback from the panel of experts was used to make modifications and clarifications prior to and after conducting the pilot study.
- 9. Administration :** The scale is self-administrable. To ensure careful understanding of the instruction, proper explanation may be given by the testers. There is no time limit and there is no right or wrong responses. Hence the respondents are quite free to express their responses as they perceive.

10. Scoring : For scoring of the ATIT, a scoring key has been developed which is under five categories ,such as Rarely, occasionally, Frequently, often and always. The scoring keys are 5,4,3,2,1 respectively.

11. Norms:An individual's raw score is the sum of his scores for each item of the scale. Many scales make use of raw scores only, for the purpose of interpretation. But in order to determine precisely the subjects' exact position with reference to the standardization sample, raw scores have to be converted into some relative measure. The norms for this ASTITT scale have been expressed in terms of z-Scores. (Refer Manual).

6.0 PSYCHOLOGICAL TEST IN THE AREA OF EDUCATIONAL TECHNOLOGY AND ICT

1. CYBER CRIME AWARENESS SCALE

1. Title of the Tool: Cyber Crime Awareness Scale

2. Author:Dr. S. Rajasekar ,Professor of Education ,Department of Education, Annamalai University, Tamil Nadu

3. Publisher/Year: National Psychological Corporation/ 13-05-2005

4. About the Tool :The investigator had collected variety of statements pertaining to cyber-crime from various sources like internet search, journals, books, experts in the field of computer education and also from teachers who are handling computer education as subject in B.Ed. and M.Ed. level in colleges and in Universities.

5. Participants Involved: The researcher selected 300 B.Ed. students studying in teacher training colleges in Cuddalore district.

6. No. of items: 42

7. Reliability :The reliability of Cybercrime awareness scale was established by the split half method (odd-even numbered) using Pearson Product Moment correlation. This only gives the reliability of the half scale and hence the coefficient of the reliability of the full scale determined by using the Spearman-Brown prophecy formula and was found to be 0.76, which is high and therefore the scale is reliable.

8. Validity:The Cybercrime awareness scale has construct validity as items were selected having the 't' values equal to or greater than 1.75 (Edwards, 1975). Its intrinsic validity was found to be 0.87 and hence the scale is valid.

- 9. Scoring :**A score of 5, 4, 3, 2 and 1 was awarded to responses related to were negative statements. Each statements were set against five point rating scale of ‘Strongly Agree, Agree, Undecided, Disagree, Strongly Agree respect
- 10. Norms:**z-Score Norms have been prepared for conversion of Raw Scores and presented in table.(Refer manual).

6.2 FACEBOOK USAGE SCALE

- 1. Title of the Tool:** Facebook Usage Scale
- 2. Author:** Dr. Madhuri Hooda, Assistant Professor, Department of Education, M. D. University ROHTAK (Haryana), Ms. Ankur Tyagi Assistant Professor, S. S. College of Education, Gohana, SONEPAT (Haryana)
- 3. Publisher:** National Psychological Corporation Ug-1, Nirmal Heights, Near Mental Hospital, Agra-282 007, 2001
- 4. Development of the Scale:**The main purpose of the construction of Facebook Usage Scale is to measure the nature and amount of using Facebook in four dimensions i.e. Self-Presentation, Maintaining Social Network, Information Gathering and Entertainment. Although, present scale has been specifically developed for senior secondary school students, but it can be fruitfully administered on the persons who use Facebook. The scale is verbal in nature and a paper pencil test. This scale is planned to act as self - administering individual as well as group test.
- 5. Participants Involved:** The test was administered on 350 Senior Secondary students.
- 6. Dimensions Covered**
 - Self-Presentation
 - Maintaining Social Network
 - Information Gathering
 - Entertainment
- 7.No. of items:** 25
- 8. Reliability :**Co-efficiency of stability was calculated by test-retest method 140 subjects were administrated the Facebook Usage Scale twice after a gap of 30 days. The co-efficient of stability was found to be .986, which is significant at .01 level of significance.
- 9. Validity:**Criticism Related Validity Facebook intensity Scale by Ellison et. al. (2007) and the personal Facebook Usage Scale were administrated on conveniently selected to senior secondary school students. The value of correlation coefficient (r) was computed

with the help of Product Moment correlation that came out to be 0 .87 which is significant at .01 level of significance.

- **Item Validity:**The items which included in Facebook Usage Scale were significantly able to discriminate between two extreme group of the scale with having its value .259 and above.
- **Intrinsic Validity:**Facebook Usage Scale possess adequate intrinsic validity has been established by through computing correlation coefficient (r) between Facebook Usage Scale scores on different dimensions of the scale as well with total Facebook Usage Scale.
- **Face Validity:**In the beginning the list of 35 statements were given to 5 experts in education and psychology to judge the relevancy of items with particular dimension. All the items were found to have 80% or more unanimity. The unanimity of experts about the items was taken as an indicator of face validity of the scale.

10.Scoring :Facebook Usage Scale is a five-point rating scale. The score to be awarded for different alternative responses are given as Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree by 5,4,3,2,1 for negative statement and 1,2,3,4,5 for positive statement.

11.Norms: Norms for interpretation of the level of usage of Facebook have been presented in Table.(Refer manual)

6.3 INTERNET USAGE SCALE

- 1. Title of the Tool:** Internet Usage Scale.
- 2. Author:**Shaloo Saini, Research Scholar, Assistant Professor, M. K. College of Education (C.T. Group of Institutions) JALANDHAR (Punjab) ,Prof. (Dr.) Parminder Kaur (PES-) Principal Government College, HOSHIARPUR (Punjab)
- 3. Publisher/Year:** National Psychological Corporation UG-1, Nirmal Heights, Near Mental Hospital, Agra-282 007, 2005
- 4. Development of the Scale:** The Internet Usage Scale is developed by the researcher to assess the internet usage level of the secondary school students. The present scale has been developed on the concept and constructs of Young's Internet Addiction Test and other reviews of the literature. The items of the questionnaire were prepared keeping in

mind the level of the secondary school students. Then the scores secured by all the students were arranged in the descending order from the highest scorer to the lowest scorer.

- 5. Participants Involved:** The test was administered on 100 post-graduate students.
- 6. Reliability:** For the Test-retest reliability, the scale was administered on a fresh sample of 100 students in order to compute the reliability coefficient. The researcher adopted split half method to test the reliability of the questionnaire. After obtaining the reliability coefficient of the half test, the Spearman-Brown prophecy formula was used to estimate the reliability of the whole test. The split-half correlation was calculated to be 0.84 and the whole test reliability was calculated to be 0.91, which are significant at .01 level of significance.
- 7. Validity:** The scale has construct validity since only those items were selected which had t-value equal or greater than 1.75. This is in line with the suggestions of Edward 1957. Therefore, the scale is valid.
- 8. Administration:** The scale is self-administrable. To ensure careful understanding of the instruction, proper explanation may be given by the testers. There is no time limit and there is no right or wrong responses. Hence the respondents are quite free to express their responses as they perceive.
- 9. Scoring :** The scoring of the scale is easy and quantitative type. An individual's score is the sum of the scores of all the 20 items of the scale. The score ranges from 20 to 100. Scoring is classified under 5 categories like Rarely, Occasionally, Frequently, often, always, with respective serial no 1,2,3,4,5.

6.4 INTERNET AND SOCIAL NETWORKING SITES ATTITUDE SCALE

- 1. Title of the Tool:** Internet and Social Networking Sites Attitude Scale.
- 2. Author:** Dr. Subhash Sarkar, Assistant Professor & Former Head (I/C), Department of Education Tripura University (A Central University) AGARTALA (Tripura), Mr Prasenjit Das, Guest Lecture ,Government Degree college Gandacherra
- 3. Publisher/Year:** National Psychological Corporation Ug-1, Nirmal Heights, Near Mental Hospital, Agra-282 007
- 4. About the Tool:** This scale has been developed to know the attitudes of the students towards Internet and Social networking websites. The present scale is intended to measure the attitude of school, college and university students in age group 15-25 years towards internet and social networking websites.

5. **Standardization of the Scale:**The final form of the scale with 50 statements (25 positive and 25 negative) was administered on randomly selected 400 students (210 boys and 190 girls students) in the age range of 15 to 25 years.
6. **Reliability:**The Reliability of the scale was calculated by Test-Retest Method. The scale was given to a fresh sample of 100 subjects and it was again given to this sample after an interval of 21 days. The reliability coefficient is found to be 0.85 at 0.01 level of significance.
7. **Validity:**The validity of the attitude scale was estimated on three levels: Experts' opinion where 100% agreement of the experts was the criteria of selection or elimination of statements. The face validity was established by having the reactions of the students' attitude towards present attitude scale seemed to be valid enough for measuring attitude towards Internet and social networking websites. Item validity came out by finding out the t-difference between the mean of high scoring group (30%) and low scoring group (30%) and on this basis elimination of items and final selection of the items. As such the scale could be considered as a valid tool.
8. **Administration:**The scale may be administered individual as well as on group. There is no fixed time limit for the response. But usually, respondents take 30 to 40 minutes for filling the whole scale. The instructions printed on the scale form should be made clear by the person administering the scale to the respondents.
9. **Norms:** z-score norms have been developed on the basis of statistical result.(Refer Manual)

6.5 COMPUTER SELF-EFFICACY SCALE

1. **Title of the Tool:** Computer Self-Efficacy Scale.
2. **Author :**Dr. Vishal Sood, Assistant Professor, Deptt. of Education, ICDEOL H.P University Shimla (H.P.) & Mrs. Reena Research Scholar Nirmand Distt. Kullu (H.P.)
3. **Publisher/year:** H. R Bhargava Book House Lg 1&2, Nirmal Heights, Near Halwai Ki Bagichi & Mentai Hospital, Agra-282 007
4. **About the Tool :** Computer self-efficacy refers to "a judgment of one's capability to computer." It was noted that self-efficacy judgments could influence an individual's expectations because "the outcomes one expects derive largely from judgments as to how well one can execute the requisite behavior". The present study is intended to measure

the self -efficacy of prospective and in service secondary school teachers towards using computer.

- 5. Participants Involved:** the Computer Self-efficacy Scale for teachers with 36 items was administered on a prospective teachers' sample of 928 randomly selected from 38 Teacher's Training Colleges (B.Ed. level) from Seven Revenue Districts of Himachal Pradesh.
- 6. No. of items:** 37
- 7. Reliability:** The reliability of computer self-efficacy scale was determined by using two methods i.e. test-retest method and split-half method. The correlation coefficient was calculated between the two sets of scores by using "Karl Pearson's Product Moment Correlation Method". The correlation coefficient r i.e. reliability index came out to be 0.73 which is significant at 0.01 level of significance and thus, was considered as satisfactory in terms of reliability. Scoring was done further separately for two halves of the scale and the value of Co-efficient were computed between the scores of two halves by using Karl Pearson Product Moment Correlation Method. The correlation coefficient for half of computer self-efficacy scale was found to be 0.79. The reliability of the whole computer self efficacy scale was obtained by applying Spearman-Brown Prophecy Formula. Thus, the split-half reliability of computer self-efficacy scale came out to be 0.88 which is significant at 0.01 level of significance.
- 8. Validity:** The validity of computer self – efficacy scale was ascertained in terms of item validity, content validity and cross validity. The content validity of the computer self-efficacy scale was established by carrying out critical discussion with field expert at the time of development of preliminary draft of the scale. The cross validity of the computer self efficacy scale was censured by taking entirely different samples of prospective secondary school teachers in order to carry out item analysis. For item validity ,those items were retained in final draft of the scale which was having t values equal or greater than 2.00(highly discriminating items).
- 9. Scoring:**The scoring system can be categories as strongly agree, agree, undecided, disagree and strongly disagree which scored as 5,4,3,2,1 respectively.
- 10. Norms:**On the basis of the statistical results, z-score norms have been prepared and the same have been presented.(Refer manual).

6.6 ATTITUDE TOWARDS E-LEARNING SCALE

1. **Title of the Tool:** Attitude Towards e-learning Scale.
2. **Author:** Dimpak Rani, Assistant Professor, Pratap college of Education, Ludhiana, Punjab
3. **Publisher/Year:** National Psychological Corporation (4/230, Kacheri Ghat, Agra-282004, India)
4. **About the Tool:** E-learning can be defined from different perspectives. The use of various technological tools that are either Web based, Web distributed or Web capable for the purpose of education (Nichols, 2003). Attitude is defined as an Individual's positive or negative feelings about performing the target behavior. This means that learner's positive or negative feelings of participating in e-learning activities through computer use will directly influence their behavior to use online learning to study. Different students have different insights in online learning. Understanding student's attitudes towards e-learning can help to determine the extent to which students utilize the e-learning system. The main purpose of this study is to improve the students in e-learning so that they feel more comfortable while using e-resources, it is very important to make them aware of its importance and its utility. Hence this study will help to know how the students react and think about e-learning and what is their attitude towards it. The scale is a Five-point scale containing Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. The scale has both positive and negative type items.
5. **Participants Involved:** The final draft of the scale with 65 item (38 positive and 27 negative type) was administered on a randomly selected sample of 200 students age group 14+ studying in senior secondary class of Ludhiana District in the state of Punjab (India). There are 104 boys and 106 girls as per Gender wise distribution of the sample.
6. **Dimensions Covered:**

Total four dimensions are covered in this psychological study including

 - E-learning Interest
 - Usefulness
 - Ease of e-learning
 - e-learning confidence
7. **No. of Items: 65**

- 8. Reliability:** The reliability of the scale was found by Test-Retest method and the scale was administered on a sample of 100 boys and girls, age group 14+ and on the same sample, the scale, the was administered after a gap of one month. The coefficient of correlation found was +0.87 which is significant at .01 level of significance.
- 9. Validity:** There are total two types of validity measures were obtained to assess the accuracy of the tool i.e content validity and construct validity. Content validity of the items was ensured through rational logical analysis of the technology experts and teachers in questionnaire construction. Construct validity means that the test scores are examined in terms of a construct. Correlation between total scores and item scores were also used for validity.
- 10. Scoring:**Each response category has different weightage such as-Strongly agree has given a weightage of 5 scores, agree has given a weightage of 4, undecided has given 3 scores, disagree has 2 scores and Strongly Disagree scored as 1. These are the scores in case of positive statements and in case of negative statements the scoring is reversed.
- 11. Norms:**On the basis of the statistical results z-Score Norms have been prepared which are gender free and the interpretation of the level of e-learning have been given in following table(Refer manual)

PART-II

TEACHING LEARNING EQUIPEMENT

A teaching aid is a tool used by teachers, facilitators or tutors to help learners improve reading and other skills, illustrate or reinforce a skill, fact, or idea and relieve anxiety, fears, or boredom since many teaching aids are like games. Audio-aids: Audio-aids help in developing the listening skill of a learner. Audio-aids are those aids which can be only listened. Examples, of such types of aids include, radio, gramophone, tape recorder, audio-tapes, Walkman and headphones etc.

- **Visual-aids:** Aids which require the involvement of learner's visual senses are called visual aids. Examples, of such types of aids include viz. graphic aids, 3d-aids, display boards and print material etc.
- **Audio-Visual aids:** In these aids both the listening (ears) and viewing faculties (eyes) are involved. Such aids include television programmes, video films, motion pictures, synchronized audio slide projectors, computers and computer-assisted instructions etc.,
- **Projected Aids:** Projected refer to those aids where a bright light is passed through a transparent picture by means of a lens and an enlarged picture is thrown or projected on the screen or the white wall. eg: film-strip projector, slide projector, overhead projector, TV/VCR etc.,

Non-Projected: Non-Projected aids refer to those aids which do not require projector electricity or projection screen. Such materials can be simply shown, can be hanged or touched such as; Chalkboard, Whiteboard, Flannel board, Magnet board, Charts and Wall-Charts, Posters and Pictorial Materials, Models etc.

Part-II of this Lab Manual consists following Teaching Learning Equipment.

7.0 TEACHING LEARNING EQUIPMENT ON SCIENCE PEDAGOGY

7.1 KALEIDOSCOPE

1. **Name of the TLM:** Kaleidoscope



2. **Audio/Video/ Projected/Model/Print:** Model
3. **Number of pieces available:** 1
4. **Structural Information:**A toy consisting of a tube containing mirrors and pieces of coloured glass or paper, whose reflections produce changing patterns when the tube is rotated.
5. **Functional Information:**A kaleidoscope is an optical instrument with two or more reflecting surfaces tilted to each other in an angle, so that one or more objects on one end of the mirrors are seen as a regular symmetrical pattern when viewed from the other end, due to repeated reflection. The reflectors/mirrors are usually enclosed in a tube, often containing on one end a cell with loose, colored pieces of glass or other transparent (and/or opaque) materials to be reflected into the viewed pattern. Rotation of the cell causes motion of the materials, resulting in an ever-changing view being presented.
6. **Possible Uses:**
 - To understand the concept of reflection of light.
 - To understand how does camera works.

7.2 EDUCATIONAL CDS

1. **Name of the TLM:** Educational CDS
2. **Audio/Video/ Projected/Model/Print:** Audio-Video
3. **Number of pieces available:**
4. **Functional Information:**Educational CDs play an important role in the educational field. Compact Disc Read Only Memory(CD-ROM) refers to a technology in which a range of data types, such as text, graphics, audio, photographs, and video can all be stored in digital form and accessed by conventional Personal Computers. Students can

become active participants as opposed to passive ones where they simply receive instructions or information. Web based tools can be used for providing demonstrations and examples that can help students credence in what they are learning. The role of educational CD's in the field of education is four fold :it is included as a part of curriculum, as an instructional delivery systems as a means of aiding instructions and also as a tool to enhance the entire learning process. Education has gone from passive and reactive to interactive and aggressive. It is geared towards creating curiosity in the minds of students. It helps students to understand and retain concepts better. CD allows distant learning which literally means that it deliver a 'classroom' in the homes. Teacher can establish credibility in what they are teaching. It provide distance learners with online communities, live chat rooms and bulletin boards. It allows students to collaborate and communicate even though they are isolated in their own space. CD-ROM based training have helped eliminate the need for an instructor based lesson plans. Students can grasp concepts faster ,proceed and move along , without being held back by ones who need more time and help for learning. Such individual pacing is beneficial to all. It allows students to put into practice information quickly and with better results. Students can save time and increase their productivity. Educational CD's can include demos , feed backs that can help the students to reflect on what they have learned. In all these ways educational CD's plays a major role in a student's life.

5. Possible Use:

- To use as self-learning Materials
- To use as audio-visual aids for better clarity
- To use during online mode of education
- To understand how does camera works.

8.0 TEACHING LEARNING EQUIPMENT ON SOCIAL SCIENCE PEDAGOGY

8.1 GLOBE

- 1. Name of the TLM: Globe**



2. **Audio/Video/ Projected/Model/Print:**Model
3. **Number of pieces available:** 6
4. **Structural Information:** Eight (8) inch rotating World Globe, Educational Desktop globe arranged in a spectrum of vivid colours.
5. **Functional Information:**Political Globe
6. **Purpose of the TLM :**A globe is a crucial learning tool in a myriad of class subjects, such as social studies, geography, and science, to name a few. World globes help children understand where they live, where other places in the world are located, as well as learning the unique shape of the Earth.It helps to identify certain regions and provide relational understanding to many locations. Students can also learn much about a country, including information about its landforms, bodies of water, natural resources and climate. A major part of geography concerns the technical aspects of map construction.
7. **Procedure of use :**The globe contains a needle is fixed through the globe in a tilted manner, which is called its axis. Two points on the globe through which the needle passes are two poles – North Pole and South Pole. The globe can be moved around this needle from west to east just as the earth moves. But, remember there is a major difference. The real earth has no such needle. It moves around its axis, which is an imaginary line. Another imaginary line running on the globe divides it into two equal parts. This line is known as the equator. The northern half of the earth is known as the Northern Hemisphere and the southern half is known as the Southern Hemisphere. They are both equal halves. Therefore, the equator is an imaginary circular line and is a very important reference point to locate places on the earth. All parallel circles from the equator up to the poles are called parallels of latitudes. Latitudes are measured in degrees. The equator represents the zero degree latitude. Since the distance from the equator to either of the poles is one-fourth of a circle round the earth, it will measure $\frac{1}{4}$ th of 360 degrees, i.e. 90° . Thus, 90 degrees north latitude marks the North Pole and

90 degrees south latitude marks the South Pole. As such, all parallels north of the equator are called 'north latitudes.' Similarly all parallels south of the equator are called 'south latitudes.' The value of each latitude is, therefore, followed by either the word north or south. Generally, this is indicated by the letter 'N' or 'S'. For example, both Chandrapur in Maharashtra (India) and Belo Horizonte in Brazil (South America) are located on parallels of about 20° latitude. But the former is 20° north of the equator and the latter is 20° south of it. We, therefore, say that Chandrapur is situated at 20° N latitude and Belo Horizonte is situated at 20° S latitude.

8. Possible uses:

- To identify places, rivers, mountains, roads, counties, states etc.
- To understand structure, rotation of earth, change in seasons, longitude latitude etc.

8.2 Educational Chart

1. **Name of the TLM:** Educational Chart
2. **Audio/Video/ Projected/Model/Print:** Print



3. List of Charts available

- Audio-visual aid chart
- Types of Modern Indian Education
- History and Development of Indian Education
- School of Psychology
- Theories of Personality
- Theories of Learning
- Theories of Intelligence

- Major Schools of Philosophy
- Schools of Indian Philosophy

4. Structural Information: A chart is a useful way to present and display information or instructions, especially in a classroom or other educational situation. It can range in size from a large wall chart to a single piece of paper.

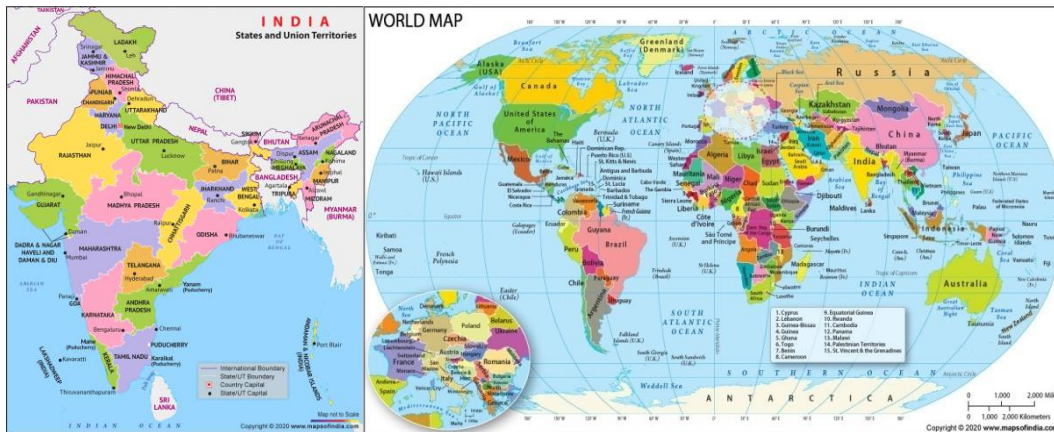
5. Functional Information: There is different type of charts, used by teachers in classroom situation to make the teaching learning process effective such as Classroom theme charts, Colour and shape charts, Flip charts, Inspirational charts, Language art charts, Math charts, Motivational charts, Multilingual charts, Pocket charts, Science charts and Social-studies charts. Charts are an excellent tool that can help students become independent thinkers and problem solvers when working to master the CCSS. And although the standards are complex, when the processes are broken down and displayed for students, they can more easily internalize and master them. Charts don't have to be perfect! They are most successful when they are created by or with students, and modified or altered as students' understanding of the concept changes.

6. Possible Uses:

- Makes concept clear, easy to understand and easy to find.
- Display content that is current and supports complex skills.
- Have a clear purpose.
- Include steps for how to do specific strategies or procedures.
- Have visuals including symbols, pictures, or photos to go with words.

8.3 Educational Maps

1. Name of the TLM: Educational Maps



2. Audio/Video/ Projected/Model/Print: Print

3. List of Maps available

- Indian Political Maps
- Indian Physical Maps
- World Political Maps
- World Physical Maps

4. **Structural Information:** Specially constructed hanging wooden frame containing maps

5. **Functional Information:** Maps are the most important tools for learning geography.

They record definite facts of positions, relief, climate, vegetation, materials and their distribution broadly over the earth, in continents, countries, states. In fact they are useful for the laymen too. Physical wall-maps of each of the continent and those of India and Orissa are necessary to find place in the geography room. Political wall-maps may also be used when desirable. Wall-maps are helpful, because the whole class can look at them. Bright colored physical maps are introduced to pupils in the teaching of geography. In these maps, low and plain lands are shown by green color; the uplands by yellow; mountains by brown, lakes, seas and oceans in blue color. Even the pupils from back benches can understand the meaning of such maps. They will supplement the correct information with the help of their atlases. Political maps generally indicate the boundaries of Units with major towns, capital cities, ports and harbors, roads, railways, air-routes etc. The wall-maps may not help in locating places from the back benches. The teacher should help students in reading their atlases.

6. Possible Uses:

- To record definite facts of positions, relief, climate, vegetation, materials and their distribution broadly over the earth, in continents, countries, states.
- Provides clarity in distribution of geographical areas such as rivers, mountains, forest areas etc., over the globe.
- Provides clarity on identifying states and countries, their positions.

9.0 TEACHING LEARNING EQUIPMENT ON ICT EQUIPMENT

9.1 Projector



1. **Name of the TLM:** Projector
2. **Audio/Video/ Projected/Model/Print:** Projected
3. **Number of pieces available:** 1
4. **Structural and Functional Information:** A projector or image projector is an optical device that projects an image (or moving images) onto a surface, commonly a projection screen. Most projectors create an image by shining a light through a small transparent lens, but some newer types of projectors can project the image directly, by using lasers.
5. **Purpose of the TLM:** A better interactive learning experience, Through the new LCD projectors, new learning experiences can occur, such as using Google Earth for geography, or looking at maps. Or using interactive school plans to learn a foreign language, or, even better using webcam functionalities to visit partner communities and schools for cross collaboration lessons. Schools can also stream videos with ease — something you cannot obviously do with either a whiteboard or an overhead projector.

New ways to learn

The new LCD projectors offer ways of reaching students in different ways. They allow the teacher to interact with students better, to use a multimodal form of teaching and to provide more entertaining ways to teach and get their lesson objectives and facts across.

Ease of use

In the past, connecting projectors to computers used to require specialist knowledge of connections and for training to be provided to teachers. Nowadays, teachers are a lot more clued up with technology, or if they aren't particularly savvy, projectors are now user-friendly enough to troubleshoot themselves if and when problems occur.

Easy to connect

Linked to above, LCD projectors allow images to be projected in a crystal clear format. This means that images be seen by all students in a lecture theatre or classroom, no matter the size of the room. Before LCD projectors came along, images were often blurry and small, which meant that only a certain amount of people (usually those in the front rows) could clearly see the image on the screen.

It's not just LCD projectors that are taking to classrooms by storm. New interactive flat panel screens (IFPS) that offer touchscreen capability are enhancing learning capabilities.

6. Procedure of use :

- Make sure your computer and laptop are both turned off.
- Connect the video cable (usually VGA) from your laptop's external video port to the projector. (Unsure what video output you have? View our video connection guide.)
- Plug your projector into an electrical outlet and press the "power" button to turn it ON.
- Turn on your laptop.
- If you need audio for your presentation, connect the laptop's "audio out" port to the projector, or to another sound system.
- Sync the projector and laptop by holding down the FUNCTION (Fn) key and pressing one of the following keys to toggle: F4, F5, F7, F8

7. Possible uses

- Multiple means of learning
- A better interactive learning experience
- Greater Teaching Versatility

- New ways to learn
- Effective presentation

10.0 OTHER TEACHING LEARNING EQUIPMENT

1.1 BLACK BOARD CLOTH

1. **Name of the TLM:** Black Board Cloth
2. **Audio/Video/ Projected/Model/Print:** Model
3. **Number of pieces available:**70
4. **Structural Information:**5m*6ma black board cloth is a reusable writing surface made of wood, hardboard, cement, asbestos, slate, cloth etc, on which text or drawings are made with sticks of calcium sulfate or calcium carbonate, known when used for this purpose, as chalk. It is originally made of smooth, thin sheets of black or dark grey slate stone.
5. **Functional Information:** Reusable writing surface on which text or drawings are made.
6. **Purpose of the TLM:**A black board cloth is a visual learning tool with a smooth dark surface attached to wall or supported on an easel used by teachers in schools for writing on with chalk. Black board cloth is a course management system that allows providing content to students in a central location, communicating with students quickly, and providing grades in an electronic format to students. It is a learning management system, which is used not only as a repository of information, i.e course materials and course information but also used as a tool for communication through emails, announcements, discussion boards and podcast etc.Blackboard provides some powerful assessment tools for monitoring student progress. These tools can be used to help monitor your students to help motivate them toward the course goals. It is used to reinforce skills or facts and relieve anxiety, fears or boredom because teaching aid is like a game. Maximum pupil participation is insures as pupil go to the board. It will further help the students to illustrate facts and processes, often with the help of drawings and sketches, maps and others.
7. **Procedure of use:**The blackboard is the most visually centered piece of equipment available to a teacher in the classroom. So, there are some basic

rules to use blackboard smoothly and appropriately.

- The Blackboard must be flat and it has to be on right position, where it can be visible to all students.
- The board should be wide enough to occupy enough content to be presented instead of rubbing it all the time.
- The sentences should be written in such a way so that relationship of the previous item is really apparent. The concepts should develop in a productive way from simple to complex.
- The lines should be written in the horizontal straight line.
- Both the words and diagrams should be large and clear. Try using big soft chalk if the room is large.
- When the board is filled up erase a large area thoroughly before continuing. Don't keep writing in the corners and edges of your old, filled up board.
- When one is facing the blackboard, don't talk into the blackboard.
- When one writes an important point or term, and then explain, don't stand in front of what you have just written.
- Diagrammatic visual presentation involving many processes should be prepared before the beginning of the lesson.

8.Possible uses:

- To provide a lot of scope for creative and decorative work.
- Useful for graphs, sketches, maps and statistics, etc.
- Helpful for teacher to focus the attention of his/her students on the lesson.



WORK SHEET FORMAT FOR LAB WORK
(For Psychological Tools)

Information about the Research Area

1. Area of the Study

2. Abstract

3. Objectives

4. Population and Sample

5. Design of the Study

Information about the Psychological Tool

1. Title

2. Author's name and affiliation

3. Abstract

4. Introduction

5. Method of Administration

6. Participants

7. Equipment and materials

8. Procedure of Data Collection

9. Observation of Activities

Analysis and Self-Reflection

Relevance of the Tool for your Study

WORK SHEET FORMAT FOR LAB WORK
(For Teaching-Learning Equipment)

Subject: _____

Class: _____

Topic: _____

Teaching-Learning Equipment: _____

Purpose of Use:

In which Stage to be used:

Relevance of the Teaching-Learning Equipment for the Topic:

Development of Skills Associated with the use of Teaching-Learning Equipment

(Separate Sheets may be attached)

