
BLOCK 5 PRACTICAL COMPONENT OF BPCC134: STATISTICAL METHODS AND PSYCHOLOGICAL RESEARCH⁷

As was stated earlier, the present course has a practical component of 2 credits. Practical to be carried out and its procedure and so on has been discussed in this Block.

Structure

- 1.0 Objectives
- 2.0 Introduction
- 3.0 Procedure to be followed by the Academic Counsellor
- 4.0 Practical Notebook
- 5.0 Evaluation
- 6.0 Interest
- 7.0 Aptitude
- 8.0 Attitude
- 9.0 References
- 10.0 Frequently Asked Questions
- 11.0 Appendices

1.0 OBJECTIVES

After reading this section, you will be able to,

- learn about practical related to administering any one Indian standardised tool (psychological test) for measuring interest or aptitude or attitude.

2.0 INTRODUCTION

The present course is of 6 credits. 4 credit is assigned for theory and the 2 credits are assigned for practical. In this section of the course, you will learn how to administer tests in a controlled condition, that is in a laboratory setup. The test will be carried out on a human participant and you will be the test administrator. At times, this situation may also be reversed as during the course you will carry out practicals amongst your classmates. The tests are related to various topics that you have read or about to read in various theory courses of this programme. While using the material, you will be directly supervised by your academic counsellor. You will follow a standard procedure for administration, scoring and interpretation of the results and findings. You will also learn about ethical issues as they apply in laboratory work.

Psychological tests are administered in a standardised manner and include assessment of some mental process, trait or characteristic. We studied about psychological tests in unit six of this course.

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Practical

In practical the learner is expected to administer any one Indian standardised tool for measuring Interest (for example, Vocational Interest Inventory) or Aptitude (for example, Differential Aptitude Test) or attitude (for example, social distance).

Before you proceed with the practical it is important that you thoroughly read the unit six, where we discussed in detail about psychological testing. Unit six will form a framework for your practical.

3.0 PROCEDURE TO BE FOLLOWED BY THE ACADEMIC COUNSELLOR

The academic counsellor can select any one Indian psychological test for interest, aptitude or attitude. The practical sessions will be carried out by the academic counsellor at the study centre. There will be one session of three hours for the two credits practical component of this course.

The procedure to be followed by the Academic Counsellor is as follows:

- 1) Go through the manual of the test thoroughly.
- 2) Explain the test in detail to the learners in the class.
- 3) Introduce the test in terms of:
 - History of the Test
 - Author
 - Development of the test
 - Features of the test (e.g. no. of items, dimensions, reliability, validity)
 - Administration
 - Scoring
 - Interpretation
- 4) After the introduction of the test, demonstrate to the learners how to administer the test.
- 5) The demonstration of administration will include the following:
 - a) Preparation for the test, for instance, keeping the test material (test booklet, answer sheet, stopwatch) ready.
 - b) Establishing rapport with the participant, making him/her feel comfortable.
 - c) Explaining the test (procedure, time limit, precautions).
 - d) Taking informed consent for undergoing the test and informing the participant that the test findings will remain confidential.
 - e) Taking permission to record the session, wherever applicable.
 - f) Reading the instructions for test administration from the manual and showing it to learners as to from where they have to read the instructions.
 - g) Clearing all doubts in the mind of the participant about the test administration.
 - h) The participant takes the test.
 - i) Taking the answer sheet from the participant after completion of the test.

- 6) Explain the scoring procedure (as given in the manual) to the learners.
- 7) Explain how to interpret the scores.
- 8) Ask learners to administer the test on each other in pairs and monitor the same.
- 9) The learners will now administer, score and interpret.
- 10) The learners will have to write a report of the test in the Practical notebook which will be evaluated by the academic counsellor.

4.0 PRACTICAL NOTEBOOK

As mentioned earlier, you will be administering test in the practical component and record the procedure in the practical notebook. The notebook should be handwritten and checked by the academic counsellor under whose guidance you have conducted practical.

Format for Writing Practical Notebook

The practical notebook will have a title page as given in the appendix I and that will be followed by the certificate, as given in appendix II.

The following format can be followed while preparing the practical notebook.

- **Title:** This heading will mention the 'title' or 'name' of the practical, for example, Vocational Interest Inventory.
- **Aims/ Objectives:** This will basically consist of the main objectives or purpose of the practical. For example, if you are performing a test on 'Vocational Interest Inventory' then the basic objective of the test will be: 'To assess interest of the participant using Vocational Interest Inventory'.
- **Introduction:** Under this section, the information about the concept being measured and the test is mentioned. For example, in case of Vocational Interest Inventory, you need to mention about the concept that is interest and the also provide details about the test. In the present practicum the topics specified for practical are interest/ aptitude/ attitude. Thus, based on the practical topic selected, necessary introduction needs to be provided. In the present block, we have briefly discussed about each of the topic in sections 6.0, 7.0 and 8.0, you will have to refer to more reference books and add more information about these concepts and also about the test that has been selected by the academic counsellor, in your introduction section of practical notebook. This will also help you prepare for viva voce during the Term End Examination (TEE).
- **Description of the Test:** Under this, the details with regard to the test are mentioned, like author of the test, basic purpose of the test, number of items, dimensions/ factors included in the test, time limit, reliability, validity, and scoring.
- **Materials Required:** The materials required for the administration of the test are mentioned. For example, in case of Vocational Interest Inventory, the test booklet, answer sheet, scoring key, pencil, eraser etc. are required.
- **Participant's Profile:** This will consist of detailed information about the participant, like, name of the participant (optional), age, gender, educational

qualification and occupation. You need not mention the name of the participant to ensure confidentiality. Instead you can use a code.

- **Procedure and administration:** The following sub headings are included here;
 - **Preparation:** The material required for conduction of the test, like, test booklet, answer sheet, stopwatch etc. are kept ready. Also mention any other preparation carried out.
 - **Rapport:** You have to mention that rapport was created with the participant and that he/she was well informed about the details of the test.
 - **Ethical issues:** Keep in mind the ethical issues and accordingly provide suitable information to the participant. Take necessary steps in this direction to secure the rights and safety of the participant. Debriefing be carried out if required.
 - **Instructions:** Instruction as given in the test manual are to be included here.
 - **Precautions:** Precautions, if any, to be considered while administration of the test to be are mentioned under this sub heading.
 - **Introspective Report:** After completion of the test by the participant, an introspective report is to be taken, that is, the participant's feeling and constraints faced by him/her while undergoing the test is mentioned under this sub heading in first person.
- **Scoring and Interpretation:** After the participant completes the test, the answer sheet is to be scored with the help of the scoring key and the scores are to be interpreted with the help of the norms given in the manual. The scores can then be mentioned and interpreted under this heading.
- **Discussion:** You have to discuss the results based on the interpretation. It may be further analysed in the light of the introspective report.
- **Conclusion:** Under this heading, you have to conclude the findings of the test.
- **References:**

The books, websites and the manual referred to by the learner are mentioned in American Psychological Association (APA) format.

References have to be written in APA format. These should be alphabetically listed.

Books

Anastasi, A. (1968). Psychological Testing. London: MacMillan Company.
Journal Article

Dennison, B. (1984). Bringing corporate culture to the bottomline. Organizational Dynamics, 13,22-24.

Book Chapter

Khan, A.W. (2005). Distance Education for Development. In: Garg, S. et.al. (Eds.) Open and Distance Education in Global Environment: Opportunities for collaboration. New Delhi: Viva Books.

Websites

<http://www.mcb.co.uk/apmfirum> (accessed on 2.3.2011)

Note:

- The practical is to be **handwritten** on ruled A4 size papers and the same can be neatly filed.
- Ensure that you draw any tables, diagrams, figures on a blank page. These are to be drawn with pencil and to be labeled appropriately.
- Enclose the original answer sheet of the test filled by the participant.
- Remember to number all the pages in your practical notebook.
- **Do not directly copy practical from any source** and write them in your own words and quote references where ever necessary.
- **Please keep a photocopy of the Practical notebook before submitting it at the study centre. Acknowledgement (Appendix III) is to be taken while submitting the notebook.**

5.0 EVALUATION

The **evaluation** of practical component (2 credits) consists of both internal and external evaluation. Total marks for practical component is 100 (Internal assessment is 50 marks and External assessment is 50 Marks). However, the weightage for internal evaluation is 70%, whereas external evaluation carries 30% weightage. The distribution of marks is as follows:

Internal	Marks	External	Marks
Attendance	5	Conduction	20
Conduction of test	30	Evaluation of answer script	10
Practical Notebook	15	Viva Voce	20
Total	50	Total	50

Internal evaluation is carried out by the academic counsellor after the practical classes are completed, whereas external evaluation is done by the external examiner during the Term End Examination (TEE). Internal assessment refers to actual conduction of practical in the classroom at the study centre and reporting them in the practical notebook in the prescribed format. You will submit Practical notebook to the academic counsellor and get it corrected before the Practical Term End Examination. There are also marks for attending the practical classes. External assessment refers to conduction/ administration of a test on the exam day (TEE) and appearing for viva- voce based on the test conduction.

Term End Examination (TEE) for the practical will be organised at the study centre. You will have to deposit separate exam fee for the TEE of practical component. The exam fee is Rs.150 (subject to revision). Kindly check the latest fee amount applicable from www.ignou.ac.in

Practical

You will bring the practical notebook at the time of examination. The duration of the examination will be of 3 hours. During the examination, you will conduct the test learned and written by you in the practical notebook. You will collect the test material and start conducting the practical. You need to bring one participant on the day of examination on whom the test will be conducted. Once you finish conducting the practical, write the findings in the answer sheet. This will be followed by viva-voce. The participant may leave after the conduction of the practical is over.

The following be remembered while answering the TEE of practicals:

- You will receive an answer sheet in which you have to fill in the details like enrolment number, course code and so on. Ensure that you fill in the details correctly.
- Mention the name of the test that you are conducting along with the aims and objectives. Further, you also need to mention about the description of the test, material required, participants profile, procedure and administration, findings based on scoring and its interpretation, discussion and conclusion (these are as we discussed under the format for writing practical notebook.

The practical answer sheet will be corrected by the external examiner and the viva- voce will also be conducted by the external examiner.

Minimum passing marks in the Practical component is 35 out of 100. There is no re-evaluation in TEE of Practical.

Date Range for Term End Examination of Practical in BPCC134

TEE	Date range
June	1st July to 14th August
December	1st January to 15th February

Note: The dates for TEE of Practical of BPCC134 will not appear in the date sheet provided by SED, IGNOU. For this, please contact your respective study centres.

As you have now understood the details with regard to practical, format of practical notebook and evaluation, let us now look at the topic to be covered in the practical. As stated earlier, you need to carry on practical on any one Indian standardised tool for measuring interest or aptitude or attitude. Thus, it is important that you have a basic understanding about these concepts, though you will carry out practical on only one of these.

6.0 INTEREST

Interest refers to one's likings and preferences. You may like to play football more than reading a story. This reflects your interest and it means you have more liking for playing football compared to reading. It does not mean that you'll not be able to do well in reading. However, it indicates your natural inclination or natural desire to undertake one activity in place of another. Thus, an interest is a tendency to become absorbed in an experience and to continue it and to enjoy it.

Interest is an integral part of our personality. The development of interests depends on our environment. If a child is exposed to a family environment where everybody talks about music then there is more likelihood that the child will develop interest in music. Once an interest is developed, it may continue long term or it may even change. Interests change depending on one's motives, experiences, exposures and emotional responses. However, many of our interests get stabilised by adolescence and young adulthood.

Interest may be intrinsic or extrinsic, for example, playing hockey or tennis for the sake of it is intrinsic interest, whereas playing it for earning money is extrinsic interest. Thus, extrinsic interests are connected with the pursuit of different activities which give rise to satisfaction or pleasure; intrinsic interests are those related to the pursuit of the activity itself. Super (1990) has classified interests into three groups:

- **Expressed Interests:** These are the interest expressed or told by the individual. These reflect the subjective opinion of the individual.
- **Manifest or Observed Interests:** These are the interests which we observe in a person while he/she is involved in some or the other activity. However, the observation has to be on a long term basis and across different occasions to know the interests of that person.
- **Measured or Tested Interests:** These refer to interests found by assessing/testing the individual by using different types of Interest Inventories.

Thus, it can be said that interests can be assessed formally as well as informally. The first two types of interest involve informal assessment whereas the third one involves formal assessment. In other words, when you ask somebody about her interest, this is eliciting information at an informal level. Informal assessment techniques include client's expression of interests and observation. As a guidance counsellor, you can interview the client and collect information regarding the client's interests.

On the other hand, formal assessment techniques make use of interest inventories. There are different types of Interest Inventories. Important ones are Kuder's Preference Record (KPR) and Strong's Vocational Interest Blank (SVIB). The first systematic assessment of vocational interests was the development of Strong Vocational Interest Blank by Edward K. Strong Jr. The SVIB helps to reveal a person's interest patterns by asking the subjects to indicate their preference in terms of Like (L), Indifferent (I) or Dislike (D). It uses a category response type of assessment. The SVIB is designed to find out the extent to which the interest of an individual corresponds to those of people who are successful in a given occupation.

Kuder Preference Record (KPR) developed by G. Frederic Kuder, measures preferences of the individual for specific activities. Each item contains three choices. The participant has to select one of the three choices as her first choice, and another as her third choice. An example is given below:

- Build birdhouses
- Write articles about birds
- Draw sketches of birds

This particular item aims to assess three types of interests such as mechanical, literary and artistic interest. In contrast to SVIB, the KPR uses a forced choice pattern type of assessment where the individual is forced to say which one of the three activities he/ she likes best and which one he/ she likes least, even though he/ she may not like any of these.

There are also R.P. Singh Interest Record and Chatterjee's Non-language Preference Record. Some other tools like Self Directed Search (SDS) (Holland, Powell, Fritzsche, 1994) and the Unisex Edition of the ACT Interest Inventory (UNIACT) (Swaney, 1995) developed on the lines of Holland's theory are also frequently used to assess interest.

Assessment of interest provides useful information about the individual which is important for providing educational and vocational guidance and counselling. As part of your practical course work, any Interest Inventories can be used.

7.0 APTITUDE

Aptitude has great relevance in educational and vocational guidance and counselling. Assessment of aptitude along with other aspects of behavior such as interest, abilities, achievement and personality will provide useful information to arrive at a better understanding of the individual. Aptitude tests came into existence as a result of the increasing need for career guidance and counselling.

Aptitude refers to the potential that the individual has, for example, he/she has aptitude for music. This means he/she has the potential for music and with suitable training he/she will be able to develop this ability. On the other hand, if a person does not have an aptitude for music, no amount of training can help him/her develop musical talent. Thus, aptitude can be termed as a special ability or cluster of special abilities required to do a job or perform a task. It indicates the probability of success in a particular area of work.

It will be useful to distinguish the terms aptitude, ability and achievement here. Ability refers to what the individual is capable of achieving in the present situation. Whereas achievement refers to what the individual has been able to learn/achieve. Thus, ability is concerned with the present whereas achievement depends on past experience and training. Aptitude is concerned with future performance, what the individual can achieve with necessary training input given. There is difference between aptitude and interest too. Interest refers to one's preferences whereas aptitude refers to potential. For example, a person may like to sing (an interest), but may not have any musical potential to sing well (aptitude).

Aptitudes are assessed by administering Aptitude Tests. These tests usually consist of a number of subtests. The most commonly used Aptitude tests are Differential Aptitude Test (DAT), David's Battery of Differential Aptitude (DBDA), General Aptitude Test Battery (GATB) etc.

Aptitude test scores must be used along with previous achievement data, present interests, work preferences, general mental ability etc. in order to effectively guide the person. It may be noted that aptitude data provide only clues/suggestions to help in educational and career planning. It does not explicitly establish a fit between the individual and the job. Other factors such as interest, motivation,

hard work, etc. also contribute a lot. These need to be taken into account before reaching a conclusion.

8.0 ATTITUDE

Attitude can be described as the way an individual thinks or feels about individuals, events, objects and so on. Thus, it mainly involves evaluation of those individuals, events or objects and this evaluation can be neutral, positive or negative. Thus, we can either have positive, negative or a neutral attitude towards an attitude object. Allport in 1935 defined attitude as “a mental and neural state of readiness, organised through experience, exerting a directive or dynamic influence upon the individuals response to objects and situations which it is related” (Sears, Peplau and Taylor, 1991, page 137). Yet another definition describes attitude as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour”(Eagly and Chaiken, 1993, page 1). One cannot deny the contribution of past experience in one’s attitude towards attitude object and further the way we think and feel about any attitude object could be favourable or unfavourable (or even ambiguous). Attitude is mainly learned and can direct people to behave in certain manner. Attitudes are also quite permanent and are in the context of an individual, event, object and so on. Attitude has three main components, cognitive, behavioural and emotional, though not all attitudes may have all the three components. Cognitive component denotes the way an individual thinks about the attitude object. The behavioural component is related to the actions of the individual towards the attitude object and emotional component indicates the feelings of the individual towards the attitude object.

Attitude can be measured with the help of various measures including, self report inventories, covert measures, physiological measures and so. In the present practical you will use a self report inventory to measure attitude. For the present practical, a tool like social distance scale or other attitude scales can be administered.

For instance, some of the Indian psychological tests are as follows, though the academic counsellor can select any other Indian psychological test pertaining to interest, aptitude or attitude:

Interest

- Multiphasic Interest Inventory (Hindi/ English) by S. K. Bawa.
- Multi Factor Interest Questionnaire (Hindi/ English) by S. D. Kapoor and R. N. Singh.
- Science Interest Test (Hindi) by L. N. Dubey and Archana Dubey.
- Vocational Interest Record (VIR) (Hindi/ English) by S. P. Kulshrestha.
- Interest Schedule (Ram Ji Srivastava).

Aptitude

- Multidimensional Aptitude Battery- II (English) by Douglas, N. Jackson and N. K. Chaddha.
- Teaching Aptitude Test Battery (Hindi/ English) by R. P Singh and S. N Sharma.

Practical

- Managerial Aptitude Scale (Hindi/ English) by Santosh Dhar, Upinder Dhar and Priyanka Sharma.
- Teaching Aptitude Test (DSTAT) (English) by Surendra S Dahiya and L. C. Singh.
- Scientific Aptitude Test Battery (SATB) (Hindi/ English) by K. K. Agarwal.

Attitude

- Environmental Pollution Attitude Scale (English) by M. Rajamanickam.
- Secular Attitude Scale (Hindi/ English) by Anshu Mehra and Durganand Sinha.
- Scientific Attitude Scale (English) by S. C. Gakhar and Amandeep Kaur.
- Attitude Scale Towards Education (ASTE) (Hindi) by S. L. Chopra.

9.0 REFERENCES

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Rao, S. Narayan (1999) *Educational Psychology*. New Delhi: New Age International (P) Ltd. Reber, A S & Reber, E. (2001). *The Penguin Dictionary of Psychology*, 3rd Edition. London: Penguin Books.

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10.0 FREQUENTLY ASKED QUESTIONS

- 1) The practical component is of how many credits?
A) Two credits.
- 2) Is this component compulsory?
A) Yes
- 3) How many sessions will there be of practical and where will these be carried out?
A) There will be one practical sessions for practical and that will be carried out at your study centre by academic counsellors.
- 4) Is attendance mandatory/compulsory for practicals?
A) Yes and one of the components in evaluation is that of attendance.
- 5) How to write Practical notebook?
A) The format is given in block 5 (5.0) of this course.
- 6) Who will evaluate the Practical notebook
A) The academic counsellor who conducted the practical sessions.
- 7) Do I need to pay any TEE fees
A) Yes Rs. 150/- to be paid (subject to revision)
- 8) Do I need to bring a participant for TEE?
A) Yes
- 9) What are passing marks for TEE of Practical?
Passing marks are 35 out of 100.
- 10) Is there re-evaluation for Practical?
A) No

11.0 APPENDICES

APPENDIX-1: FORMAT FOR TITLE PAGE OF PRACTICAL NOTEBOOK

Programme: BA Psychology (General)

Semester III

Course: Statistical Methods and Psychological Research

Course Code: BPC134

Name of the Learner:

Enrolment No.:

Address:

Phone No.:

Email:

Study Centre Name/Code/Address:

Regional Centre:

Date:

Signature of the Learner

APPENDIX II: CERTIFICATE

**Practical Component of
BPCC134: Statistical
Methods and
Psychological Research**

CERTIFICATE

This is to certify that Ms/Mr.....
Enrollment No.....of BA Psychology (General) has conducted
and completed the practical (2 credits) in BPCC134: Statistical Methods and
Psychological Research and satisfactorily noted the same in the practical
notebook.

Signature of Academic Counsellor

Name:

Designation:

Place:

Date:



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APPENDIX III: ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

This is to acknowledge that Ms./Mr.....Enrollment
No..... of BA Psychology (General) has submitted the
Practical Notebook for BPCC134: Statistical Methods and Psychological
Research at the study centre.....Regional Centre

Date:

Signature (with stamp)
(Coordinator, Study Centre)



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FORMULAE AT A GLANCE

Measure	Formulae
Percentile	$P = L + [(pN/ 100- F)/ f] X i$
Percentile Ranks for ungrouped data	$PR= 100-100R- 50/ N$
Percentile Ranks for ungrouped data	$PR= 100/ N [F + (X-L/ i) x f]$
Mean for ungrouped data	$M = \sum X/ N$
Mean for grouped data	$M = \sum fX/ N$
Assumed Mean	$M = AM + (\sum fx' / N \times i)$
Median for ungrouped data (Even)	$M_d = (N + 1)/ 2^{\text{th}}$ score
Median for ungrouped data (Odd)	$M_d = (N/2)\text{th}$ score + $[(N/2)\text{th}$ score + 1] / 2
Median for grouped data	$M_d = L + [(N/2) - F/ f_m] x i$
Mode for grouped data (first method)	$M_o = 3M_{dn} - 2M$
Mode for grouped data (Second method)	$M_o = L + [d_1/ d_1 + d_2] x i$
Range	$R = H - L$
Quartile Deviation	$QD = (Q_3 - Q_1)/ 2$
Average Deviation for ungrouped data	$AD = \sum x / N$
Average Deviation for grouped data	$AD = \sum fx / N$
Standard Deviation for ungrouped data	$SD = \sqrt{\sum x^2 / N}$
Standard Deviation for grouped data	$SD = \sqrt{\sum fx^2 / N}$
Standard Deviation for grouped data with assumed mean	$SD = i \sqrt{\sum fx^2 / N - (\sum fx' / N)^2}$
Pearson product Moment Correlation	$\frac{\sum xy}{\sqrt{\sum x^2} \sqrt{\sum y^2}}$
Pearson product Moment Correlation	$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2]}}$
Spearman's Rho	$\rho = 1 - \frac{6 \sum d^2}{[N (N^2 - 1)]}$
Standard Score (z-score)	$z = \frac{X - M}{SD}$

SUGGESTED READINGS

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