M Ed Two Year Programme

S.Exp.1 (l) : Educational Evaluation and Psychometry

Maximum Marks: 100

Rationale

An expert in the field of education can't be a real expert without having knowledge of measurement and evaluation. For having an in-depth knowledge and understanding of the field of evaluation, one needs to develop critical understanding of the concept and designs of test items and test along with their applications for various purposes of evaluation. In addition to ensuring good characteristics of test items and test, it is essential to learn about statistical techniques which can take place by using these tests based upon various situations, focusing upon their specific advantages and applications.

Objectives

1. To develop critical understanding about the concept of measurement and evaluation in a broad and contemporary educational framework
2. To analyze and comprehend various types of items and their development with reference to their objective domains and applications
3. To critically look into various characteristics of test items and tests and develop procedural understanding for standardizing a test
4. To develop an in-depth understanding about higher level statistical techniques focusing upon their application in various situations based upon their advantages

Unit 1. **(a) Educational Measurement & Evaluation:**
Types of Evaluation, Taxonomy of Educational Objectives (with special reference to Bloom's, NCERT and other contemporary ideas); Scales of Measurement

 (b) Types of tests:
Theoretical description of tests in different domains:(i) Psychological tests, (ii) Educational tests (iii) Sociological measurements

Unit 2. **Achievement Tests test items &Item Analysis:**
Construction of different Objective items, Short Answer and Essay questions, Guidelines and scoring thereof Psychosocial Tests & test items: Construction of Attitude, Aptitude and Personality test items & Item Analysis thereof Other issues in Test construction: Criterion-oriented approach, Homogenous tests,Bi-polar domains of items, and tests for Special Purposes

Unit 3. **Reliability & Validity:**
Concepts, types and different procedures; Latent Trait Theory, ICC and ROC curves; and current developments in Measurement Norms: Concept, types (age, grade, percentile, sigma scores,T-scores, Sten scores and Stanines) and their preparation

Unit 4. Standardization of an Achievement Test: Concept, significance and procedure

Unit 5. Statistical techniques:
   (a) Correlation : Concept and methods- Bi-serial, Point bi-serial, Tetrachoric, Phi coefficient, Correlation ratio, tau, partial and multiple correlation, Non-parametric Tests of Association
   (b) Regression: Concept and methods: least squares, Bi-variate and Multi-variate regression analysis
   (c) Factor Analysis, Discriminant Analysis, Path Analysis: Concepts and analysis data using relevant Softwares such as Excel,SPSS, STAT, R, and other available softwares
   (d) Structural Equation Modelling: Concept & analysis

Practical Work:
   1. *Developing a test and developing appropriate norms*
   2. *Interpretation of computer output pertaining to Multiple regression, Factor analysis, Discriminant analysis, Path analysis, Structural Equation Modelling*

Suggestive Readings

Allen, M.J. & Yen,W.M.(2004). Introduction to Measurement Theory. Illinois: Waveland Press, INC.

Garrett, H. E. (2005). Statistics in psychology and education. New Delhi: Paragon International Publishers.

Guba,E.G. & Lincon,Y.S.(1989). Fourth Generation Evaluation. London:Sage Publications.

Guilford, J. P. & Fruchter, B. (1978). Fundamental statistics in psychology and education. New York: McGraw Hill.

Guilford, J.P. (1979). Psychometric Methods. New Delhi: Tata McGraw-Hill Publishing Company Ltd.

Gupta, S. P. & Gupta, A. (2004). Statistical methods. New Delhi: Sultan Chand and Sons.

Hinkle, D.E., Wiersma, W. & Jurs, S.G. (1994). Applied Statistics for Behavioural Sciences. Boston: Houghton Mifflin Company.

Kanvaria, V. K. (2011). Developing a Standardized Achievement Test. Germany: LAP.

Kault, D. (2003). Statistics with common sense. Westport: Greenwood Press.

Mangal, S. K. (2009). Statistics in psychology and education. New Delhi: PHI Learning Pvt. Ltd.

Nunnally,J.C. (1981). Psychometric Theory (Second Edition). New Delhi: Tata McGraw-Hill Publishing Company Ltd.

Popham, J.W.& Sirotnik,K.A. (1996). Understanding Statistics in Education. Illinois: F.E.Peacock Publishers,Inc.

Robson, C. (1994). Experiment, design and statistics in psychology (3rd ed.). England: Penguin Books.

Sani, F. & Todman, J. (2006). Experimental design and statistics for psychology: A first course. MA, USA: Blackwell Publishing.

Sharma, R. A. (2004). Essentials of scientific behavioural research. Meerut: Surya Publication.

Singh, A. K. (1992). Research methods in psychology, sociology and education. Delhi: Motilal Banarasidas.

Singh, A. K. (2001). Test, measurements and research methods in behavioural sciences. Delhi: Bharati Bhawan.

Singh, K. (2007). Quantitative social research methods. Los Angeles: SAGE Publications.

Thorndike, R. L. (1951). Reliability. In E. F. Lindquist (Ed), Educational measurement. Washington DC: American Council on Education.

Wiersma, W. (1991). Research methods in education. Boston: Allyn and Bacon.