



# Central University of Tamil Nadu

## Department of Education

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### ADVANCED RESEARCH METHODS AND STATISTICS

#### UNIT - I

##### BASICS IN EDUCATIONAL RESEARCH

Research – Meaning, Objectives of Research- Characteristics, Scope, and Need for Research, Ethics in doing Research, Research Proposal.

Classification Based on Data Type – Quantitative, Qualitative - Classification Based on Purpose – Pure or Fundamental, Applied, Action - Classification Based on Method – Historical, Philosophical, Diagnostic Studies, Experimental Studies, Ex-Post Facto Research, Case study, Descriptive – Survey.

Hypothesis – Meaning, Characteristics, Types, Formulation of Hypothesis, Level of Significance, Type I and Type II Errors, Population and Sample- Meaning, Techniques of the Sampling, Characteristics of a Good Sample, Sample Size and Sampling Error.

#### UNIT - II

##### MIXED METHOD AND TOOLS OF RESEARCH

Mixed Methods - Meaning- Purpose- Types of Mixed Methods Design - Key Characteristics of Mixed Method Designs- Steps in conducting a Mixed Methods Study - Values added in conducting Mixed Method Research - Challenges in conducting the Mixed Mode Research.

Tools of Research - Meaning, Qualities of a Good Tool, Standardized and Non-Standardized Tools. Tools for Quantitative Data – Types, Criteria in Selection. Tools for Qualitative Data – Types, Criteria in selection. Construction of a Tool – Item selection, Try Out, Pilot Study, Item Analysis—standardization of a Tool – Reliability, Validity, Meaning, Importance, and Types and Norms.

#### UNIT - III

##### QUANTITATIVE DATA ANALYSIS

Scales of Measurement- Nominal, Ordinal, Interval, and Ratio, Normal Probability Distribution -Concept, Characteristics and Applications, Deviation from Normality.



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Correlation- Meaning, Computation, and Interpretation of Linear correlation, Product-Moment Correlation, Rank Order Coefficient of Correlation, Partial and Multiple Correlation,

Regression- Concept of Linear Regression, Regression Equations - Computation and Application, Prediction in Relation to Correlation.

### UNIT – IV

#### QUALITATIVE DATA ANALYSIS

Techniques of Qualitative Data Analysis - Content Analysis, Classification, Categorization, Triangulation, Frequency and Percentage Analysis, Trend Analysis, and Utilization of Corroborative Evidence.

### UNIT - V

#### INFERENCE STATISTICS - PARAMETRIC & NON-PARAMETRIC

Inferential Statistics- Meaning and Logic, Concept of Sampling Distribution of Statistics. Parametric Testing of Hypothesis, Concepts of One-tailed and Two-tailed, Degrees of freedom, Testing the Significance of the Difference Between Means, Variances, and Proportions. ANOVA and ANCOVA- Inference and Generalization.

Non-Parametric Statistics in Education - Use of Non-Parametric Tests and Its Rationale for Distribution free Data; Chi-Square Test; Median Test; Sign Test, Mann Whitney U Test, and Wilcoxon test, Kruskal-Wallis Test and Friedman's Test.

#### References

- Anfara, Vincent & Mertz Norma T. (2006). Theoretical Frameworks in Qualitative Research. New Delhi: SAGE Publication.
- Best, W. J and Kahn, J. W. (2006). Research in education. Prentice Hall.
- Cohen, L., Lawrence, M. and Keith, M. (2007). Research Methods in Education. Routledge, London.
- Creswell, J. W. (2014). Educational research. PHI Learning.
- Henry E. Garrett. (2008). Statistics in psychology and education. Surjeet.
- Mangal, S.K. (2012). Advanced Educational Psychology, 2nd Edition PHI Learning Pvt. Limited, New Delhi



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### EDUCATION

#### UNIT - I

#### PHILOSOPHY OF EDUCATION, INDIAN SCHOOLS, AND WESTERN SCHOOLS OF PHILOSOPHY

Meaning and Concept of Philosophy of Education -Philosophy, and Education - Relationship between Education and Philosophy- Significance of Philosophy of Education - Branches of Philosophy - Scope and Functions of Educational Philosophy.

Fundamental Philosophical Domains – Epistemology, Metaphysics, Axiology, Contribution of Indian Schools of Philosophy (Sankhya, Vedanta, Buddhism, Jainism Islamic).

Contribution of Western Schools of Thought (Idealism, Realism, Naturalism, Pragmatism, Marxism, Existentialism)

Western Thinkers: Dewey, Rousseau, Montessori, Froebel, Plato, and Confucius. Indian Thinkers: Swami Vivekananda, Sir Aurobindo, Rabindranath Tagore, Mahatma Gandhi, Dr. Radhakrishnan, J. Krishnamoorthy.

#### UNIT - II

#### SOCIOLOGY OF EDUCATION

Meaning and Nature of Educational Sociology, Society – Definition and Characteristics. Social Structure – Definition and Elements of Social Structure.

Social Groups – Definition, Characteristics, and Types. Social Institutions - Meaning and Characteristics. Social Control – Definition and Types of Social Control Conformity and Deviance. Social Stratification- Definition, Characteristics and Functions, Social Mobility.

Education for Social Development as a whole(Cognitive/ Affective/ Psychomotor/ Environmental/ Spiritual).

Auguste Comte- Positivism, Law of Three Stages, Hierarchy of Sciences, Social Statics and Social Dynamics.



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Herbert Spencer- Evolutionism, Organic Analogy, Theory of State, Concept of Super organic. Social Change for the benefit of humanity

### UNIT - III

#### EDUCATIONAL PSYCHOLOGY

Psychological Development: Piaget, Bruner; Psycho-Social Development: Erikson; Moral Development: Piaget, Kohlberg.

Learning: Concept and Nature of Learning – Factors affecting Learning - Theories of Learning and their educational implications: Hull's systematic Behaviour Theory. \

Intelligence: Theories of Intelligence: Spearman's Two factory theory, Guilford's Structure the Intellect Theory, Thurston's Group Factor Theory, Howard Gardner's Multiple Intelligent Theory, Sternberg's Triarchic Theory

Theories of Personality: Type Approach (Galen, Sheldon, Kretschmer, Jung); Trait Approach: (Allport, Cattell, Big Five Theory); Type-cum-Trait Approach (Eysenck); Psychoanalytical Approach (Sigmund Freud); Humanistic Approach (Maslow, Carl Rogers)

### UNIT - IV

#### CURRICULUM DESIGN AND EVALUATION

Curriculum: Meaning and Definitions. Foundational Subjects of Curriculum Studies- Philosophy, Psychology, Sociology, History, and Technology.

Perspectives in Curriculum Theory: Herbartian Theory - Social Efficiency Movement - Progressive Reform Movement - Multicultural Education Movement and Critical Theory.

Curriculum Design: Curriculum Planning, Curriculum Development, Curriculum Implementation, Curriculum Organization, Curriculum Supervision.

Types of Curricula in the Classroom, Types of Curriculum Evaluation, CIPP Model of Curriculum Evaluation, Phases of Curriculum Evaluation, Techniques of Curriculum Evaluation, Principles of Curriculum Development / Evaluation.



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House Pvt. Ltd., New Delhi

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