

**Chapter 3**  
**Research Methodology**

## **CHAPTER-3**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The theoretical background of the study is presented along with the significance, objectives and hypotheses in chapter 1. A review of related literature along with research findings and rationale of the study is written in the previous chapter. The present chapter is devoted to the description of the methodology given in the present study. In this chapter the discussion will be in detail about the variables, population, sample, tool used for the collecting the data, steps for tool construction, the procedure of the data collection, and statistical techniques used for the given study.

#### **3.2 Research Method**

The research methods are basically supervising the research in a specific manner so that the problem can be solved effectively and efficiently. It is a format through which the investigator is aware how to proceed with the research problem and arrive at the result. It includes the entire process that is involved in the research part from the initial process of planning, execution, drawing interpretations and promulgating the results.

The present study is basically quantitative and results are obtained. It is designed and carried out on the lines of the survey under descriptive methodology. The main agenda is to describe the differences that exists and in between the variables.

#### **3.3 Research Design**

The research design is done for the purpose of following conditions

1. Collection and analysing of the data in a manner that aims to merge it in a proper manner.
2. It is a decision making process as the plan of action is prepared by the investigator before taking over any study.
3. It is an arrangement of the conditions for the collecting and analysing data in a well-organized manner.

4. It is a conceptual framework within which the research is conducted and it constitutes the blueprint for the collection, measurement and analysing of data in a meaningful and structured way.
5. It enables the investigator to save a great deal of time, resources and labour.

### **3.4 Variables of the Study**

Variables are basically the periphery in the research part. It is basically the entity that can take any value and can vary. The dependent variable is the factor that is measured to determine the effect of the independent variable. It is on which the research is being studied. A dependent variable is one about which an investigator makes a prediction on. Here in this, the opinions of teacher educators is taken as a dependent variable and awareness level, discipline and gender of teacher educators are taken as an independent variable.

### **3.5 Population**

It is a group of individuals that share common characteristics which distinguishes from other groups. In the present study, the population is the respective faculties of the Department of Education from different teacher education institutions of Odisha. The teacher educators are from both Government B.Ed. and Government DIET colleges and also from some of the state universities.

### **3.6 Sample**

Data collection is essentially an important part of the research process so that the hypotheses tentatively held may be identified, rejected or not rejected and inferences are made. For the data collection process, the investigator needs to take the sample from the population. The process of obtaining information about the entire population by examining only a part of it is referred to as sampling. In this study probability sampling techniques will be adopted. The sample comprises 80 teacher educators from different teacher education institutions of Odisha. The selection of the institutions from which the sample was drawn was done by using purposive sampling technique.

Table No. 3.1

*Description of sample according to type of Institutions*

Sr. No.	Name of the Institution	Type of institution
1	Rajendra university, Balangir	University
2	Sambalpur University, Burla, Sambalpur	University
3	North Orissa University, Baripada, Mayurbhanj	University
4	Fakir Mohan University, Balasore	University
5	Berhampur University, Berhampur	University
6	Central university, Koraput, odisha	University
7	Regional Institute of Education, Bhubaneswar	Teacher Education Institute
8	DIET College, Chhendiapada, Angul	DIET College
9	DIET Bhawanipatna, Kalahandi	DIET College
10	Radhanath Institute of Advanced Studies in Education, Cuttack, Odisha	IASE
11	DIET, Remuna, Balasore	DIET College
12	DIET, Sambalpur	DIET College
13	DIET, Khorda	DIET College
14	DIET, Dhenkanal	DIET College
15	DIET, Dolipur, Jajpur	DIET College
16	DIET, Koraput	DIET College
17	DIET, Baripada, Mayurbhanj	DIET College
18	DIET, Phulbani, Kandhamal	DIET College
19	Government Secondary Training School, Bhanjanagar, Ganjam	B.Ed. College
20	DIET, Paralakhemundi, Gajapati	DIET College
21	Government Secondary Training School, Dharmagarh, Kalahandi	B.Ed. College
22	DIET, Nawarangpur	DIET College
23	Government Secondary Training School, Sonapur	B.Ed. College



24	Government Secondary Training School, Kuarmunda, Sundergarh	B.Ed. College
25	DIET, Rayagada	DIET College
26	Government Secondary Training School, Patnagarh, Balangir	B.Ed. College
27	Government Secondary Training School, Bagudi, Balasore	B.Ed. College
28	DIET, Bhadrak	B.Ed. College
29	Government Secondary Training school, Pipili, Puri	B.Ed. College
30	Government Secondary Training School, Boudh	B.Ed. College
31	Government secondary Training School, Nuapada	B.Ed. College

### 3.6.1 Profile of Teacher Educators Respondents

In this part the investigator has presented the demographic profile of the teacher educator respondents of the study area with their gender and disciplinary backgrounds. As per the data collected the total numbers of teacher educator respondents are 80. Among the 80 teacher educator respondents 47 are male teacher educators and 33 are female teacher educators and 52 teacher educators belong to science background and 28 teacher educators belong to social science background.

**Table No. 3.2**

*Demographic profile of teacher educator respondents with their gender and disciplinary background and the study area*

Study Area	Respondents	Gender		Disciplinary Backgrounds	
		Male		Science	
Odisha	Teacher Educators	Male	47	Science	52
		Female	33	Social science	28
Total			80		80

### **3.7. Tools Used**

In research, data gathering tools are called research tools. The advantage and importance of research is totally dependent on the relevancy of the tools used to extract the information from the sample population. The tool should be relevant, reliable and valid.

The tool for present research were

1. Questionnaire is developed by the investigator. This questionnaire consists of 25 multiple questions.
2. Opinionnaire developed by the investigator. This opinionnaire is of three point scale which consists of 20 items.

#### **3.7.1 Questionnaire**

A questionnaire is a research instrument consisting of a series of questions for the purpose of gathering information from respondents through survey or statistical study. The investigator selected "Questionnaire" as a tool for collection of responses of teacher educators to check their awareness level regarding recommendations of NEP-2020 towards the opening of teacher education programmes.

The questionnaire consists of 25 items. The scoring of correct response of the questionnaire was done by assigning score 1 and the scoring of incorrect response of the questionnaire was done by assigning score 0.

**Table No. 3.3**

*Scoring of the Questionnaire*

<b>Number of Questions</b>	<b>Response Categories</b>	<b>Scores Given</b>
25	<b>Correct</b>	1
	<b>Incorrect</b>	0

**3.7.2 Opinionnaire**

An opinionnaire is defined as a special form of inquiry. It is used by the investigator to collect the opinions of a sample of the population on certain facts or factors of the problem under investigation. These opinions on different facts of the problem under study are further quantified, analyzed and interpreted. Opinionnaire is usually used in research of the descriptive type which demands survey of opinions of the concerned individuals. The investigator selected the three point "Opinionnaire" as a tool for collection of opinions of teacher educators regarding recommendations of NEP-2020 towards the opening of teacher education programmes.

The opinionnaire consists of 20 items which further the scoring of positive items of opinionnaire was done by assigning score 3, 2, 1 for agree, neutral, disagree. The scoring of negative items of opinionnaire was done by assigning score 1, 2, 3 for agree, neutral, disagree.

**Table No. 3.4**

*Number of Positive and Negative Items in the Opinionnaire*

<b>Positive Items</b>	Item No. 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17
<b>Negative Items</b>	Item No. 5, 6, 13, 18, 19, 20



**Table No. 3.5**

*Scoring of the Opinionnaire*

<b>Number of Statements</b>	<b>Response Categories</b>	<b>Scores Given for Positive Items</b>	<b>Scores Given for Negative Items</b>
20	<b>Agree</b>	3	1
	<b>Neutral</b>	2	2
	<b>Disagree</b>	1	3

**3.7.3 Reliability**

According to Best and Kahn (2011) “reliability is the degree of consistency that the instrument or procedure demonstrates: whatever it is measuring, it does so consistently”. It refers to the degree to which a test uniformly measures whatever it is intended to. Reliability means consistency or uniformity and its coefficient shows the consistency of the scores produced (Garrett, 2009).

For the present scales reliability was established by using the data scores of 50 teacher educators on 45 items of the Google form. The test re-test reliability was calculated and was found to be 0.81 and the split-half reliability was found to be 0.76. All reliability coefficients were significant at the 0.01 level of significance.

**3.7.4 Validity**

Validity refers to the degree to which a test accurately measures for what it was intended to measure (Lindquist, 1951). In order to determine content validity, the scales were sent to 5 experts including the guide and co-guide of the investigator from the field of Education and Psychology for their expert opinion. The statements and questions which were marked as ambiguous by these experts were rejected by the investigator. For ensuring content validity of the scales due care was taken by the investigator that all the content was taken from authentic sources such as books, encyclopaedias, online resources to get all the knowledge and information about the scale.

**3.8 Data Collection Procedure**

Data were collected from the teacher educators by using questionnaires and opinionnaires directly in the form of Google form. The investigator collected data individually from the respondents during data collection and supported the samples regarding any of their anomalies. Samples were requested to give their answers to each



statement as well as to each question freely without any hesitation and they had ensured the secrecy of their responses. Before data collection, the purpose of the study was explained and they were requested to give their frank and appropriate responses.

### **3.9 Analysis of Data**

Analysis of data obtained in any research work is only possible through some sort of statistical processing. The acceptance and rejection of hypotheses will ultimately determine the contribution of the investigation in any area of study. Analysis of data for the present research was done by the investigator himself.

The techniques employed were descriptive statistics- frequency and inferential statistics-Independent Sample t-test.

#### **3.9.1 Descriptive Statistics**

Descriptive statistical measures are used to describe the characteristics of the data which is followed by pie charts. This provides valuable information about the nature of a particular group (Koul, 2009). In the present study, the frequency and percentage were used to know the awareness and opinions of the teacher educators regarding the opening of teacher education programmes in multidisciplinary centres.

#### **3.9.2 Inferential Statistics**

Inferential statistics are used to describe and make inferences about the population. Inferential statistics is employed when generalizations from sample to populations are made (Sekaran, 2003; Huck, 2004). It includes testing of the hypotheses by using suitable statistical tests. In the present study the Independent Sample t-test was applied to test the significance of differences between the responses of teacher educators regarding their awareness and opinions towards opening of teacher education programmes in multidisciplinary centres.

#### **3.10 Effect Size**

Effect size refers to the standardized and objective measure which denotes the strength of a relationship between the variables. In other words, it is the standardized quantitative measure of the magnitude of the observed effect (Field, 2009).

### 3.10.1 Cohen's d (Effect Size for Independent Samples t-test)

Cohen's d is an effect size used to indicate the standardized difference between two means. "The pooled standard deviation is found as the root mean square of the two standard deviations" (Cohen, 1988, p. 44). Table no. 3.6 contains descriptions for magnitudes of Cohen's d as suggested by Cohen (1988).

$$\text{Cohen's } d = \frac{\text{Mean1} - \text{Mean2}}{\text{pooled standard deviation}}$$

(Huck, 2004)

**Table No. 3.6**

*Levels of Effect- Size d*

<b>Effect Size</b>	<b>Cohen's d</b>
<b>Small</b>	0.20
<b>Medium</b>	0.50
<b>Large</b>	0.80