Chapter-3

Methodology
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METHODOLOGY

In all disciplines methodology plays an important role for conducting research. Research is generally defined as a systematic effort to identify and find out the solution of the problem. Mounton and Marais (1993) defined methodology as “the logic of the applications of scientific methods to the investigation of the phenomena”. In conducting research there is a sort of decision-making process in which a researcher has to select appropriate design, sampling techniques, measuring instruments tabulation, data analysis methods suitable for the scientific research problem, and at last, description and rational interpretation of results. However, the objectivity of research investigation is contingent upon adequate research methodology adopted by a researcher in carrying out the study.

All research investigations follow a particular research design which helps in conducting research in an unbiased and scientific fashion. Selitizer, Jahoda, Deutsch, and Cook (1962) pointed out that “research design is the arrangement of conditions for collecting and analyzing the data in a manner that aims to combine relevance to the research purpose with economy in procedure”. It is a kind of blue - print which is prepared in advance by the researcher with minimum expenditure of time, money, effort and other requirements. Mohsin (1984) viewed that a “research design contains a built- in system of checks against all factors that might affect the validity of the research outcome”.

In the light of the above contention and the nature of the present research problem, survey research design is adopted in pursuit of the present research endeavour. Having adopted the survey research design, the following steps were taken in carrying out the whole research work.

Sample

This investigation was planned to conduct study on the sample of engineers working in Thermal power plants located at Begusarai, Barauni Thermal Power Plants and in Muzaffarpur, Kanti Thermal Power Plants in Bihar.
The sample consisted of N=300 engineers who were randomly taken from Barauni and Kanti Thermal Power Plants located in North Bihar. The sample characteristics are given in Table-3.

**Demographic characteristics of the sample are being presented in the Table-3.1**

**Table 3.1**

Sample Characteristics (N=300)

<table>
<thead>
<tr>
<th>Designation</th>
<th>N</th>
<th>Age (years)</th>
<th>Experience (years)</th>
<th>Marital status</th>
<th>Rural/urban Background</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>300</td>
<td>47.4</td>
<td>15.3</td>
<td>271</td>
<td>215</td>
</tr>
</tbody>
</table>

**DESCRIPTION OF TOOLS**

In behavioral sciences, the tools for measuring behavioral phenomena have always been considered inevitably very important to understand human experiences and behavior. Among the various methods used in behavioral sciences, especially in psychology, questionnaire method is a convenient technique in understanding and gaining information about numerous social issues and psycho-personal problems in which a researcher is interested. Pertaining to questionnaire, it is imperative to mention that without determining the efficacy of the tools such, results cannot be obtained which may be considered. Therefore, standardization of psychological tests are very necessary and/or prerequisite before using them. Standardization of psychological test involves - item analysis, ascertaining reliability and validity. In this regard, it is important to mention that whatever the tools were used in quest of studying the present problem, standardized psychological tests were chosen.

The descriptions of the various tools used in this investigation are being presented below:
Measure of Absenteeism:

It is extremely difficult to take all information regarding employees’ rate of absenteeism. Since the present investigation was based on the data collected on engineers from large thermal power plants located at Barauni & Kanti in Bihar, so the information pertaining to the rate of absenteeism could be gathered with the help of administrative of personnel. The present investigator collected the information of the three consecutive years from 2010 to 2012 as have already been indicated earlier that plainly total number of days absent in a year was recorded irrespective of the controversy of authorized or unauthorized absence. Absenteeism record were tapped with the information of the individual biographies (See Appendix -A)

Psychological Wellbeing Scale:

Psychological wellbeing scale developed by Shahnawaz and Anseri (2012) it consists of sixteen items comprising eight dimensions, viz., Self confidence, Worthwhile feeling, Life satisfaction, Decision making, Inter personal relation, Social support, Negative feelings, and Health related perception. This scale has a 5-point response category ranging from “Highly agree” (i.e., ‘5’) to “Highly disagree” (i.e., ‘1’). The authors have reported high reliability and validity that ascertains the standardization of the scale. (See Appendix -B)

Job Satisfaction Scale:

To measure employees’ job satisfaction, Porter (1961) Need Satisfaction scale was used (See Appendix-C). This scale consisted of fifteen items based on five dimensions viz. Security need, Social need, Esteem needs, Need for Autonomy, and Self-Actualization need. The scale has a 5-point response category ranging from “strongly agree” (i.e., ‘5’) to “strongly disagree” (i.e. ‘1’). It is a widely accepted and commonly used scale which is reported to be highly standardized as its reliability and validity are reported to be significantly quite high.

Supervisory Behavior Scale:

A scale was developed by author of the present investigation for the purpose of using it in pursuance of PhD work. It consists of twelve items based on three dimensions i.e., Authoritative, Democratic, Laissez-faire which has Likert type 5-
point scale ranging from “Highly agree” (score of ‘5’) to “Highly disagree” (score of ‘1’). Split-half reliability (r = .83) and face-validity of the scale have been found to be quite high. (See Appendix-D)

Job Characteristics Scale:

For measuring job characteristics, a scale developed by Naaz & Akhtar (1993) was used. It is likert type 5-point self-rating scale. It consisted of 28 items, comprising four job characteristics. Another of this scale had claimed that test is highly reliable and valid as well (See Appendix-E). The description of these characteristics follows:

AUTONOMY

It can be explained as the degree to which an employees has the freedom, independence and discretion in carrying out his / her work.

TASK IDENTITY

It refers to the employees attachment with the task.

FEED-BACK

Feedback refers to the knowledge of the level of performance attained by an employee which may have its impact on his subsequent performance. There have been six statements in this dimension.

SKILL VARIETY

Job high on the dimension of variety requires a number of different skills and abilities essential by important in carrying out the work, hence, provide opportunities to employees to experience meaningfulness on the job. This job characteristic contains six statements.

Personality Attributes Scale:

This scale originally developed by Nasreen and Ansari (1998). In this scale, there are 31 adjectives plus statements representing personality characteristics and the respondent were required to respond on 5-point scale by giving a score of 1 to the personality attributes which were present in them in minimum or least degree and
score of 5 when these are present in maximum degree. (Appendix-F) The scoring was
simple because it was done by simply adding the scores given to various attributes but
reversing the scores to the negative personality attributes. It is necessary to mention
here that each attribute present individual characteristics in itself.

Biographical Information Blank (BIB)

Biographical information blank was prepared for recording biographies of
employees. It contained employees' age, family status, number of dependents, marital
status, rural/urban background. Moreover, informations regarding qualification, work
experience, number of promotions earned, and monthly income of employees was
also incorporated in the Biographical Information Blank. (See Appendix -G)

Statistical Analyses

In the present investigation, researcher had used SPSS for running Multiple
Regression Analysis (MRA). MRA is a means of studying the predictive influence of
several predictor variables simultaneously on the criterion variable. It forms a linear
composite of explanatory variables in such a way that it has maximum correlation
with the criterion variable (Kothari, 1987). The objective of this analysis is to make a
prediction about criterion variable based on its covariance with all the concerned
criterion variables. This technique is appropriate when we have single metric criterion
variable which is supposed to be the function of other independent variables.
Moreover, Multiple Regression Technique relates individual to the dependent
variables in a manner which also takes interactive effects into accounts (Kothari,
1987).

There exist variations of MRA such as standard multiple regression,
hierarchical multiple regression and step-wise multiple regression. In the present
study step-wise multiple regression was applied in which the investigator adds the
individual contribution of each explanatory variable into the prediction equation one
by one, computing simple correlation first, then by calculating partial correlation. The
process of developing a subset of IVs which are useful in predicting DVs and to
eliminate those IVs that do not provide additional prediction given to this basic set.
This process continues until no more useful informations are emerged from further
addition of variables. In the present analysis, F value of ANOVA for regression
predicted overall influence of all predictor variables on the criterion variables whereas, significant predictions were confirmed by significant ‘t’ values.

The step-wise multiple regression analysis was very appropriate that yielded very reliable results.

After getting results through the application of step-wise multiple regression analysis, now, the next step is of description and interpretation of results which are described in the next Chapter-4