CHAPTER - III

METHODOLOGY
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METHODOLOGY OF RESEARCH

Man does not live by bread alone. He wants to satisfy his curiosity and desire to know the unknown domain of the universe. He, being a thinking animal thinks, studies, observes and draws conclusions. This is the basis of human thoughts and discovery. Research is an advance process of systematic learning based on reliable and valid hypothesizes. The Advanced Learners Dictionary of Current English defines research as "investigation undertaken in order to discover new facts, get additional information etc." There is the involvement of a pragmatic method in problem solving applying an informal application of problem identification, hypothesis formulation, observation, analysis and conclusion. Research is a more systematic activity that is directed toward discovery and the development of an organized body of knowledge. John W. Best and James V Kahn\(^1\) defined; "Research may be defined as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations, principles, or theories, resulting in prediction and possibly ultimate control of events".

Robert R. Rusk defines\(^2\), "Research is a point of view, an attitude of inquiring of a frame of mind. It also asks questions which have hitherto not been asked, and it seeks to answer them by following a fairly definite procedure. It is not a mere theorizing, but rather an attempt to elicit facts and to face them once they have been assembled. Research is like wise not an attempt to bolster up pre conceived opinions, and it implies a readiness to accept the conclusions to which an enquiry leads, no matter how unwelcome they may prove. When successful, research adds to the scientific knowledge of the subject".


Clifford Woody of the University of Michigan writes in an article to the journal of education research (1927), "Research is a ‘careful inquiry or examination in seeking facts or principles; a diligent investigation to ascertain something, according to Webster’s New International Dictionary. This definition makes clear the fact that research is not nearly a search for truth, but a prolonged, intensive, purposeful search. In the last analysis, research ‘perse’ contributes a method for the discovery of truth which is really a matter of critical thinking. It comprises defining and redefining problems; formulating hypotheses or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and, at last, carefully testing the conclusions to determine weather they fit the formulating hypothesis”.

W.S. Monroe, University of Illinois States, “Research may be defined as a method of studying problems whose solutions are to be derived partly or wholly from facts. The facts dealt with in research may be statements of opinions, historical facts, those contained in records and reports, the results of tests, answers to questionnaires, experimental data of any sort, and so forth. The final purpose of educational research is to ascertain principles and develop procedures for use in the field of education; therefore, it should conclude by formulating principles or procedures. The mere collection and tabulation of facts is not research; though it may be preliminary to it or even a part thereof”.

Most of the definitions cited above are rather abstract. It is desirable that a summery of some of the characteristics of research may help clearly its spirit and meaning.

1. Research is directed toward the solution of a problem. The ultimate goal is to discover cause-and-effect relationships between variables, though researchers often have to settle for the useful discovery of a systematic relationship because the evidence for a cause–and–effect relationship is insufficient.

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2. Research emphasizes the development of generalizations, principles, or theories that will be helpful in predicting future occurrences. Research usually goes beyond the specific objects, groups, or situations investigated and infer characteristics of a target population from the sample observed. Research is more than information retrieval, the sample gathering of information. Although many school research departments gather and tabulate statistical information’s that may be useful in decision making, these activities are not properly termed research.

3. Research is based upon observable experience or empirical evidence. Certain interesting questions do not lend themselves to research procedures because they cannot be observed. Research rejects revelation and dogma as methods of establishing knowledge and accepts only what can be verified by observation.

4. Research requires expertise. The researcher knows what is already known about the problem and how others have investigated it. He or she has searched the related literature a carefully and also thoroughly grounded in the terminology, concepts, and technical skills necessary to understand and analyze the data gathered.

According to Sadhu and Amarjit, there are six categories of research. They are,

1. Ex-post Facto research (Descriptive Research)
2. Laboratory or Experimental Research
3. Field Investigation
4. Survey
5. Evaluation and
6. Action Research.

It is a matter of concern to study the nature and scope of descriptive research in view of the fact that the present research falls within its fold. Descriptive research is concerned with all of the following hypothesis formulation and testing, the analysis of the relationships between non manipulative variables,
and the development of generalization. It is this last characteristic that most distinguished descriptive research from assessment and evaluation. While assessment and evaluation studies may include other characteristics of descriptive research, only descriptive research, of the three, has generalization as its goal. Unlike the experimental method, in which variables are deliberately arranged and manipulated through the intervention of the researcher, in descriptive research variables that exist or have already occurred are selected and observed. This process is described as *ex post facto* or *casual-comparative research*. Both descriptive and experimental methods employ careful sampling procedures so that generalizations may be extended to other individuals, groups, times, or settings.

Descriptive research studies have the following characteristics which distinguish them from other types of research.

**DESCRIPTIVE RESEARCH**

Descriptive research\(^4\) studies have all of the following characteristics which distinguish them from the type previously described.

1. They involve hypothesis formulation and testing.

2. They used the logical methods of inductive- deductive reasoning to arrive at generalizations.

3. They often employ methods of randomization so that error may be estimated when population characteristics are inferred from observations of samples.

4. The variables and procedures are described as accurately and completely as possible so that the study can be replicated by other researchers.

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These characteristics are what make descriptive research similar to other kinds of research, including those described. However, descriptive research methods are non experimental, for they deal with the relationships among non-manipulated variables. Since the events or conditions have already occurred or existed, the researcher merely selects the relevant variables for analysis of their relationships.

Descriptive research seeks to find answers to questions through the analysis of variables relationships. What factors seem to be associated with certain occurrences, outcomes, conditions, or types of behaviors? Because it is often impracticable or unethical occurrence to arrange occurrences, an analysis of past events or of already, existing conditions may be the only feasible way to study causation. This type of research is usually referred to as ex post facto or casual–comparative research or, when co relational analysis is used, it may be referred to as co relational research.5

Research has been identified as the second dimension of education, the first dimension being teaching. Research becomes a frontal service in modern education. Research and result oriented projects and studies are encouraged all over India. In India we have national progress of research for in service college and university teachers known as Faculty Improvement Programme (FIP) with facilities of services and research sponsored by the University Grant Commission (UGC) to bring about a national up gradation of teachers working in different fields. Research avenues are opened with the objectives of a large scale ramification in concerted and organized sectors in the Universities and other research agencies in India.

Every researcher usually adopts a tenable method to get the research goal. Methodology is the sequence of actions and operations applied in conducting a research. The choice of the research methodology depends upon the nature of the problems selected and the kind of data and tools necessary.

5 Ibid, p.120.
for its solution. A method selected should be appropriate to the problem under investigation. It is good to adopt and follow a holistic and scientific approach.

It is obvious that tools of research are the instruments of a research. Methods and procedures are developed to aid in the acquisition of relevant data. These tools employ distinctive ways of describing and quantifying the data. Each research tool is appropriate in a given situation. The use of a tool at random will not give the desired result. John Best observes, "Like the tool in the carpenter's box, each research tool is appropriate in a given situation to accomplish a particular purpose. Each data – gathering device has both merits and hazards or limitations". A.S.Barr made his remark, "Which is better, a hammer or a handsaw?". At any cost a research tool used must give reliable, valid and authentic inventories in terms of consistency and inference or judgment.

The present research employs descriptive methodology mainly with its three tools – interview, observation and questionnaire as detailed below.

Interview

An interview is a process of collecting ideas and information from relevant persons and institutions. Goode, Barr and Scates observe, "In the interview for investigational purposes the research work is gathering data directly from others in face – to – face contacts". They further observe, "Perhaps no research technique is as close to the teacher's problems as the interview".

According to Rummel J. Francis⁶, "The interview method of collecting data requires the actual physical proximity of two or more persons, and generally requires that all the normal channels of communication be open to their use. It is necessary to see one another, to hear each other's voices, to understand one another's language, and to use all that is psychologically inherent in physical

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proximity. It usually entails a non-reciprocal relation between the individuals concerned. One party desires to get information from another – one party interviews the other – for a particular purpose”.

Goode and Hatt write7, “The interview is in a sense, the foundation upon which all other elements rest, for it is the data-gathering phase”.

Interview can be either individual or group. Research interview is specifically designed for researcher. Effectiveness of an interview depends on the expertise of the interviewer. The interviewer must have fact, objectivity, insight and sensitivity on his part to achieve the data or information.

The interview technique is in a sense oral questionnaire instead of writing responses, the subject or interviewee gives the needed information orally and face-to-face. One advantage of interview is that the interviewee can explain more explicitly the investigator’s purpose and what information he or she wants. Through the interview technique the researcher may stimulate the subject’s insight into his or her own experiences, thereby exploring significant areas not anticipated in the original plan of the investigation.

Preparation for the interview is a critical step in the procedure. Interviews must have a clear concept of just what information they need. It is desirable that they must clearly outline the best sequence of questions and stimulating comments that will systematically bring out the desired responses. The relationship between interviewer and the subject requires an expertness and sensitivity that might well be called an art. The initial task of seeking the confidence and cooperation of the subject is obviously critical.

Research interview is aimed at getting information required by the investigator to test his hypothesis or solve his problems of historical and the descriptive type.

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The technique of interview has certain advantages over questionnaire. The interviewer can obtain more data and greater clues by altering the situation. Such a situation is not provided in a questionnaire. Questionnaires are shallow and they fail to dig deeply enough to provide a true picture of opinions and the feelings. The interview situation usually permits much greater depth. The percentage of response is much higher than other tools. Success in interview depends very much on the tactfulness of the investigator.

In the course of the investigation of the work, evidently the researcher interviewed a large number of individuals and groups/ institutions/ departments in a face to face interaction. Relevant questions were put and answers recorded. The modality of questions for interview was by and large in the line of the set questionnaire placed in Appendix –B, at page 217. The results of the interview were shown in the table along with the scores on the basis off relative responses of the subjects on the topic of the research in questions.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Institutions / Depts. /organizations</th>
<th>Very high</th>
<th>High</th>
<th>Average</th>
<th>Below Average</th>
<th>Low</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27 (Sports Associations)</td>
<td>15</td>
<td>6</td>
<td>6</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Dept. of Youth Affairs and Sports, Manipur</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Faculty of Physical Education, and Sports Sciences, D.M. College of Science, Imphal</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>Dept. of Physical Education and Sports Sciences, M.U. Canchipur</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>SAI, NERC, Takyliepat, Imphal</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>Individuals (Professional) 25</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>Individuals (Non professionals) 25</td>
<td>9</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>Players (Men) 30</td>
<td>20</td>
<td>5</td>
<td>5</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>Players (Women) 30</td>
<td>20</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>Veterans 20</td>
<td>10</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>11</td>
<td>Others 30+20 (random)</td>
<td>25</td>
<td>10</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>X</td>
</tr>
<tr>
<td><strong>Total (211)</strong></td>
<td></td>
<td><strong>113</strong></td>
<td><strong>41</strong></td>
<td><strong>38</strong></td>
<td><strong>14</strong></td>
<td><strong>5</strong></td>
<td><strong>211</strong></td>
</tr>
</tbody>
</table>

From the analysis of the scores in the table, it is evident that this significant trend is the favour of the contribution of physical education in the development of games and sports during the period under study. 53.55% stand for very high score; 19.43% stand for high score; 18.01% stand for average; 6.64% stand for below average and lastly 2.37% stand for low. The population of the survey represents
fair groups of associations/organizations, departments, individuals, players including veterans and random population. The score stands reliable.

**Observation**

The technique of observation is also an effective tool of research. If it is applied in its proper perspective the result will be immense and rewarding. Good and Hatt state, “Observation may take many forms and is at once the most primitive and most modern of research techniques. It includes the most casual, uncontrolled experiences as well as the most exact film records of laboratory experimentation”.

Carter V. Good, A.S. Barr and Douglas E. Scates write about this method as:

i) Observation is specific—not haphazard looking around for general impressions.

ii) Scientific observation or behavior is systematic—not chance dropping in – on a situation opportunistically.

iii) Observation is quantitative—recording the number of instances certain types of behavior are noted.

iv) Observation is recorded immediately – notes are made promptly rather than trusting them in memory.

v) Observation is expert- being done by someone trained to do such work.

vi) Observational result can be checked and substantiated to ascertain reliability and validity.

An excellent statement of observation is found in Thomson’s Introduction to Science: “the fundamental virtues are clearness, precision, impartiality and caution. Common vices are rough and ready records, reliance on vague impressions, acceptance of second-hand evidence, and picking the facts to suit. Since observers are fallible mortals, we readily understand the importance of cooperation, of independent observation on the same subject, and of instrumental means of increasing the range and delicacy our senses and automatic impersonned methods of registration such as that supplied by photography”.
Observation continuous to characterize all research: experimental, descriptive and qualitative. The use of the technique of participant observation is remarkable and significant. Morris S. Schwartz and Charlotte G. Schwartz observed... "The process and the kinds of data are influenced by continuing observed – observer transactions. The role of the observer may be passive or active. In either case effective involvement with the observed develops inevitably and may range from sympathetic identification to protective distortion. The form it takes is a function primarily of the observer's experience, awareness and personality. Anxiety and bias are sources of distortion, and their adequate handling is a major problem in refining the human instrument for gathering data".

The participant – observer usually stays in the company or social setting under study, as he takes part in the activities and the functions of the particular group(s). This enables him to get the 'feel' of what the various activities and processes mean to the regular participants. He must take an objective and neutral position to find the facts or information wanted by him.

Direct observation, as a data-gathering device, may be of use to descriptive research. It is confirmed that certain types of information can best be obtained through direct examination by the researcher.

Symonds gives a list of nine essentials of good observations.

They are:

| i) | Good eye sight. |
| ii) | Alertness. |
| iii) | Ability to estimate. |
| iv) | Ability to discriminate. |
| v) | Good physical conditions. |
| vi) | An immediate record. |
| vii) | Good perception. |
| viii) | Freedom from pre conceptions. |
| ix) | Emotional disinterest. |

Devices used in observation for recording of information are check lists, rating scales, scorecards and scaled specimens. They provide systematic means of summing or quantifying data collected by observation or examination.
Uses and advantages of observation cannot be ignored. We may consider the following advantages of observation …

i) This technique is employed to observe characteristics of various designs of research.

ii) For coaching purposes, an observation of various skills in games and athletics is made.

iii) A study of the significant aspects of the personality which express themselves in behavior can be made.

iv) The behavior of the players in a given situation can be effectively analyzed.

v) We observed the behavior of those who cannot speak, read or write.

vi) Observation of players behavior as recorded in the cumulative records serve as evidence and supplied data for research studies.

John W. Best and James V. Kahn⁸ develop the following characteristics of good observation:

Observation is carefully planned and systematic and perceptive. Observers know what they are looking for and what is irrelevant in a situation. They are not distracted by the dramatic or the spectacular.

Observers are aware of the wholeness of what is observed. Although they are alert to significant details, they know that the whole is often greater than the sum of its parts.

Observers are objective. They recognize their likely biases and they strive to eliminate their influence upon what they see and report.

Observers separate the facts from the interpretation of the facts. They observe the facts and make their interpretations at a later time.

Observations are checked and verified, whenever possible by repetitions, or by comparison with those of other competent observers.

Observations are carefully and the expertly recorded. Observers used appropriate instrument to systematize, quantify and reserve the results of their observations.

Observations are collected in such a way as to make sure that they are valid and reliable.

The Questionnaire

Wrightstone, Justman and Robbins write in their book—Evaluation in Modern Education—"Questionnaire, inventories and the interviews are similar techniques for gathering data by securing answers to questions. On the questionnaire the respondent writes answers to a limited number of questions. The question may refer to matters of fact or matters of opinions. On the inventory, one may write (or encircle "Yes", "No", etc.) Short responses to a rather complete set of questions. In the interview one communicates verbally and directly, face to face with the questionnaire or councilor. There is a rather arbitrary division between the questionnaire and the inventory; however, there is no mistaking the differences between the questionnaire or inventory and the interview when one considers format, situation and purpose. When the questionnaire, inventory, or interview is used for an evaluative or diagnostic purpose, it should have reasonable and appropriate degree or reliability, validity and objectivity and they should fit the practical situation".

Constructing the questionnaire

The following points are to be observed in the construction of a questionnaire for research purposes;

i) To use the question technique when it is most appropriate.
ii) To define general purposes and specific aims.
iii) To construct appropriate questions.
iv) To arrange questions in appropriate groupings.
v) To design the format with appeal.
vi) To check the questionnaire for adequacy.
Classification of questionnaire

P.V. Young classifies the questionnaire into two groups,

i) Structured questionnaire and the

ii) Non-structured questionnaire.

Structured questionnaire contains definite, concrete and pre-ordained questions. It is designed to produce two things; accurate communication and accurate response.

Non-Structured questionnaire, often known as interview guide, is used for focused depth and non-directive interviews. It contains definite subject matter areas, the coverage of which is requires during the interview, but the interviewer is largely free to arrange the form and timing of inquiry.

Administration of the questionnaire

i) All attempts should be made to choose respondents carefully.

ii) For better returns of the duly filled in questionnaires, the aid of sponsored ship or a person, organization or institutions may be secured.

iii) For inducting the respondents for compliance to the request of filling in the questionnaire, a covering letter couched in a courteous language should accompany the questionnaire.

iv) In the covering letter it may be stressed that the responses of the respondent will be kept strictly confidential.

Analysis of questionnaire responses

Data obtained through the administration of the questionnaire are qualified through tabulation and counting. Refinement of results in a tabular form in totals, percentages or averages must invariably be obtained. Responses from the narrative data need to be categorized and tabulated. This requires considerable labour and judgment.
Comparison of Questionnaire with Interview Vis a Vis

Questionnaire can be prepared in an effective way and it can gathered back by male from the subjects of the study from distant places within manageable time and cost. But interview or observation will not be appropriate tools in the above situation. The questionnaire can be administered to a large group of subjects simultaneously. In interview or observation, the investigator ought to have considerable technical skill in conducting the interview or observing the particular behavior of the subject.

The questionnaire can help in focusing the attention f the respondent on all the significant items. Since it is a written form, their standardized instructions for recording responses are fairly uniform. The interesting situation, on the other hand is rarely uniform from one interview to another, because the influenced of the interviewees response can not the same in every situation. It is bound to vary from interview to interview. The interviewer has no standard set of questions to ask in the interview, or even if he has, he finds them inadequate to apply. The questionnaire has a relative advantage.

Another psychological advantage of the questionnaire is that it has less pressure on the subject for immediate response. The subject takes his own time, he can think over each point rather than giving an off-hand reply that comes to his mine as is often the case in an interview.

In questionnaire technique, responses given by the subjects are available in their own language and version, where as in interview or observation, responses depend on how the investigator has recorded them. This brings validity to responses.

It may be observed that there are plus point as well as shortcomings of each tool of research.