Review

Data collection techniques a guide for researchers in humanities and education

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This paper is on data collection techniques. These are instruments that a researcher used in order to obtain data from the respondents. Various data collection instruments were discussed. Like observation method, questionnaire and interview method were all discussed. The paper did not take position, on which method is the best, this, is left to the potential researcher to choose. The use of journals, books and online sources was used in gathering the materials presented. It is hoped that, potential researcher from both the humanities and education faculties would make use of the information in selecting the instrument that will best suit their research.

Keywords: Questionnaire method, Interview method, Observation method.

INTRODUCTION

Research approaches or designs are approximately orthogonal to the techniques of data collection, and thus, in theory, any type of data collection technique could be used with any approach to research. This paper is intended to discuss the Data collection techniques especially in Education and Humanities research. Research according to Best (2003) is the systematic and objective analysis and recording of controlled observations that may lead to development of principles or theories, resulting in prediction and possible ultimate control of events.

Data in research means those facts that are collected for further investigation. Aina (2004) defines data as raw and un-processed facts. Therefore when data has been converted or processed it becomes information. Data as defined by encyclopedia Britannica 2011 as factual information (as measurements or statistics) used as a basis for reasoning, discussion, or calculation.

Research, therefore, has been defined as the formal, systematic application of the scientific method to the study of problems (Gay et al., 2009, Nenty, 2009; Best and Khan, 2003). While educational research has been defined as the formal, systematic application of the scientific method to the study of educational problems. The goal of educational research is essentially the same as the goal of all science: to describe, explain, predict or control phenomena, in this case educational phenomena (Olatoye, 2011, Gay et al., 2009).

Data collection techniques therefore allow the researcher to systematically collect information about their object of study (people, objects, phenomena) and about the setting they occur. In the collection of data, the researcher must have to be systematic because if he collects data haphazardly, it will be very difficult for him to answer questions in a conclusive way. Data collection is an integral part of research process in education and humanities. The general order of scientific method which the educational research follows attests to this claim.

There are so many types of research methods, such as Survey, experimental, historical among others. In this paper it is not the intention of the author to discuss on any type of research methodologies, but rather, this paper is intended to discuss on data collection techniques which is an aspect in one of the methodologies. Survey research involves collecting data to test hypotheses or to answer questions about people’s opinions on some topic or issue. A survey is an instrument to collect data that describes one or more characteristics of a specific population (Gay et al., 2009:175).

A variety of instruments are used to gather data in the process of undertaking research. A researcher may want to develop a new instrument or select a ready-made one from items bank. There are different ways of
Observation method

Observation means to watch attentively in a scientific or systematic manner. In an observational study, the current status of a phenomenon is determined not only by asking but by observing. Observation is sometimes treated as a research method, sometimes as data collection techniques to be utilized with a research method (Powel and Connaway, 2004:157). As a data collection technique, it is used in both basic and applied research in qualitative and quantitative studies.

Many researchers prefer systematic, direct observation of behavior as the most accurate and desirable method of recording the behavior of people. Using the direct observation, the researcher/investigator observes and records the behavior of the participants rather than relying on reports. When observation is made in research, it usually consists of detailed notation of behaviors, events, and the context surrounding the events and behaviors. In most cases, observation is usually employed to collect data regarding the number of occurrences in a specific period of time, or the duration, of very specific behaviors or events.

Best and Khan (2003) proposes five dimensions along which observations vary. First, the observer’s role may vary from full participant to complete outsider. Second, the observer may conduct the observations covertly (e.g., from behind), with the full knowledge of those being observed or with only some of those being observed aware of the observation. Third, those being observed may be given full explanation, partial explanations, no explanations, or given a false explanation. The fourth dimension is duration. The observations may take place over course of an entire year or even longer or could be as brief as an hour. The final dimension is the breadth of focus. The observation may vary from quite broad to quite narrow.

Observations can be of the setting or physical environment, social interactions, physical activities, nonverbal communications, planned and unplanned activities and interactions. The observer should also take into consideration for non-occurrences, things that should have happen but did not.

Questionnaire method

This is the list of questions related to the objectives of the study and hypotheses, which the respondent is required to answer. In other words a written questionnaire (also referred to as self-administered questionnaire) is a data collection tool in which written questions are presented that are to be answered by the respondents in a written form. Preparing a questionnaire is a significant step in research that may be done properly by watching the numerous pit falls and following an orderly procedure. Proper construction of the questionnaire is essential to its success. In general, the researcher must consider his or her information needs and the characteristics of the participants.

Before a researcher start distributing his questionnaire, there is the need for him to take the following steps as outline by (Olatoye, 2011, Best and Khan 2003, Gay et al., 2009): That, information sources should be listed precisely and you should place yourself in the position of the respondent to determine the kind of responses that are likely to generate when the questionnaire is administered. That, you should determine the sequence in which, the various subject should appear in the questionnaire and that is to say you should determine which topic might be most suitable for the lead in questions and the succeeding question. That, the researcher

Should provide a space for the answer to each question in multiple choice questions. You should also ensure that the data sought are those needed to arrive at the solution to the problem. Preparing questionnaire is a significant step in research that may be done properly by watching numerous pit falls and following an orderly procedure. If the following steps are taken in the order given, they shall promote the construction of a successful questionnaire. The steps are:

- Information source should be listed precisely. As a researcher you should place yourself in the position of the respondent to determine the kind of responses that are likely to generate when the questionnaire is administered.
- Determine the sequence in which, the various subject should appear in the questionnaire, you as a researcher can determine which topic might be most suitable for the lead in questions and the succeeding question.
- As a researcher you are to determine what type of question will be most suitable for the topic. Some questions may need to be supplemented with illustration or explanation.
- As a researcher you can write the actual questions effectively and neatly to ensure that each question contain only one element, its relationship with the proceeding question must be evident and any element of bias must be reduced to a minimum.
- Also you should provide enough space for the answer to each question in a multiple choice questions, so that you will handle the alternative answers.
Table 1. Closed ended questionnaire

<table>
<thead>
<tr>
<th>S/N</th>
<th>Name</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dichotomous</td>
<td>Questions offering two options answer</td>
<td>Yes or No/True or False</td>
</tr>
<tr>
<td>2</td>
<td>Multiple choice</td>
<td>A question offering 3 or more answer choices</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Likert scale</td>
<td>A statement in which the respondents choose the amount of agreement or disagreement</td>
<td>SA,A,D,N,SD</td>
</tr>
<tr>
<td>4</td>
<td>Semantic differential or polar ends</td>
<td>A scale inscribed between bi-polar point or end and the respondent select the point, the directive and intensity of his or her feelings</td>
<td>Hot-Cold, small-Big, Good-Bad, Right-Left</td>
</tr>
<tr>
<td>5</td>
<td>Scale</td>
<td>A scale that rates the importance of attributes for not all that important- extremely important</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Rating scale</td>
<td>A scale that rate same attribute from poor to excellent</td>
<td>Poor-Fair, Good, Excellent.</td>
</tr>
</tbody>
</table>

Table 2. Open ended questionnaire

<table>
<thead>
<tr>
<th>S/N</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Completing instruction</td>
<td>The question that a respondent can answer in an almost unlimited number of ways</td>
</tr>
<tr>
<td>2</td>
<td>Word association</td>
<td>Words are presented at a time and the first word that comes to mind is selected</td>
</tr>
<tr>
<td>3</td>
<td>Sentence completion</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Picture completion</td>
<td>Picture if different character are presented with one statement</td>
</tr>
</tbody>
</table>

As a researcher you must ensure that you scrutinized the whole work to detect disjointed flow between questions, clumsy and ambiguous questions and even design.

Finally, you should consider how the information is to be analyzed and cross analyzed. This can be achieved by protesting the questionnaire in actual interview, which will produce the quantity and quality needed.

Types of questionnaires

While selecting or writing specific questions, the researcher must first consider what kind of data he/she needs. The major types of questions, according to the kind of information needed, include the following:

- Factual questions: These are questions used to ascertain such things as the respondent's age, gender, and so on. They are probably the most straightforward type of questionnaire item.
- Opinion and attitude questions: These are questions intended to determine a person's ideas, inclinations, prejudices, convictions, and so on. Mostly this type of questionnaire is used for attitudinal survey, they tend to be more subjective than factual questions and are more difficult to validate externally (Powell and Conway, 2009; p.127).

There are two major types of questionnaire, open ended questionnaire and close ended questionnaire. Researchers from both humanities and education writing projects, theses and proposals, can as well use either of the two, depending upon the type of survey they are conducting.(table 1 and 2)

Questionnaire is tools with which a researcher could gather data from group/groups of respondents. There must have a very good arrangement of the draft questionnaire before it is finally printed and distributed. Arrangement is a process with which you establish the Validity and reliability of the questions. It is a measure that is obtained from a per-tested questionnaire. In so doing, the questionnaire has to follow these three structures:

- Instructions
- Personal information
- Body of items

* Instructions’ is a directive that conveys the purpose of the questionnaire and provides the kind of information that should elicit appropriate response.
* Personal information provides descriptive data on the sample most importantly; the data is a source of independent variables that are employed in explaining the typical behaviours of their respondents. Information state in this section includes, sex, age, educational background, economic status, marital status, etc.

There are three main methods of administering the survey questionnaire. Powell and Connaway (2009) opined that, questionnaire can be self administered, which means that the respondents are asked to complete the questionnaire themselves; administered face-face to respondents by researcher; or questionnaire administered to respondents via telephone by interviewers. The self-administered questionnaire can be
mailed or electronically transmitted via e-mail or the web site. Therefore it is at the discretion of the researcher to choose the type of administration of questionnaire that he/she feels will best suit him.

**Interview method as a research tool**

Interview is a specific form of emphasizing, participating and observing trends that takes place between two people. The interviewer participate by determining the setting or social context in which the interview takes place and asking questions or presenting other stimuli in order to elicit information from the person being interviewed(Morgan and Harmon,2001). Therefore one of the first steps for conducting an interview must be the development of the list of questions to be asked, or the interview schedule. The techniques for constructing questionnaires and structured interview schedules are quite similar. In conducting an interview, the interviewer should attempt to create a friendly, nonthreatening atmosphere. Much as one does with a covering letter, the interviewer should give a brief, casual introduction to the study; stress the importance of the person's participation; and assure anonymity, or at least confidentiality, when possible.

The purposes of an interview are many, such that, it may be used as the main instrument of the research. It may be used to test hypotheses or suggest new ones. It may also be for gathering facts at the exploratory stage of research. Interview can also be used to identify variables and relationship. There are many criteria for interview questions;

- That, the questions to be asked should be related to the research problems and the research objectives.
- That, the type of questions to be asked should be appropriate, clear and ambiguous.
- That, you should avoid leading questions.
- That, the questions should not demand personal or sensitive information that the respondent may resist answering.

It is generally believe that the interview method is better at revealing information that is complex or emotionally laden. The use of visual aids can sometimes facilitate presenting and recording complicated information. The data gathered from internet interviews can easily be uploaded to data analysis software packages.

**Focus group interview**

The focus group interview is a group design to "explore in depth the feelings and beliefs people hold and to learn how these feelings shape overt behavior."(Morgan and Harmon, 2001). They are called focus groups because the discussion starts out broadly and gradually narrow down to the focus of the research. Focus groups are useful for orienting oneself to a new field; developing ideas and concepts or even generating hypotheses based on informant's insight; evaluating different research sites or study populations; developing and refining research instruments, such as interview schedules and questionnaires, and getting participant interpretations of result from earlier studies.

The participants of focus interview could be asked to discuss the sources they use to find information, what type of information they find most useful, how they evaluate the information they retrieve, and what resources or tolls would facilitate information retrieval for their specific purposes.

Finally, there are some features of research instrument. There are several criteria for evaluating the appropriateness of research instruments, these include: validity, reliability and usability validity. Therefore it is left for a potential researcher to look for these criteria and adapt what he feels is convenient to him.

**CONCLUSION**

In conducting research, especially those appearing in projects, it is important to examine the research design and methodology that a researcher intends to adopt. This paper examined data collection instrument that potential researcher from humanities/ social sciences and education could both use to obtain data. Various collections techniques were identified which includes observation, questionnaires and interviews. By the time a researcher is at a stage of the analysis of his/her data; most of the really difficult work has been done. It is even much more difficult to define the research problem, develop and implement a sampling plan etc. If you succeeded in doing that very well, the analysis of the data is usually a fairly straight forward affair. Finally, in selecting specific techniques, the researcher should weigh the various pros and cons of each method. For example, if one were particularly anxious to achieve a high response rate, he or she might choose the interview over questionnaire. If cost were the major concern, then the questionnaire would be the obvious choice, other Consideration being roughly equal. No one method is likely to be perfect for a given situation, but it should be possible to select one technique as the best alternative, given the objectives, subject, priorities, and limitation of the investigation. Survey data collection techniques may be combined in order to provide richer data. Despite the brief coverage presented here, research data collection techniques choice is a complex matter and it requires investigators to know and understand the choices that need to be made. They need to be specific in laying out what they intend to do and whether the result will have a
broader effect.

REFERENCES

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