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Questionnaire Construction for Educational Research: Approaches and Challenges

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Abstract

The purpose of this paper is to examine the different segments of questionnaire used as an instrument in educational research. The paper begins with the introduction followed by the research problem and the objectives of the research. The significance of the research was highlighted. Questionnaire construction process and test development validation were adequately captured. The types of information to be gathered from the questionnaire (background and demographic data, behavioral reports, attitudes and opinions, were adequately substantiated. The concept and the type of questionnaire (open and close ended response format, common response format, dichotomous scales, rating scale and semantic differential scales) were also elucidated. Lastly, common mistakes in questionnaire construction were outlined. Conclusion and recommendation were provided.

Keywords: Questionnaire Construction, Educational Research, Approaches, Challenges.

Introduction

It is an indisputable fact that questionnaire remains one of the most common research instruments in educational research. This is true because of its apparent simplicity, versatility and affordability in its usability as a tool for data collection. Questionnaire provides quality data that will aid in testing hypotheses and information for policy suggestions and implementation.

Lack of clearly defined theory of questionnaire design makes it impossible to have a perfect questionnaire, however, one can prepare a questionnaire that will satisfy the need and aspirations of respondents and conform to variety of situations with high level accuracy and consistency; careful questionnaire design calls for more caution.

Over the years many questionnaires have been produces with a lot of mistakes that may have serious implication on the value of data collected. Questionnaire developers and constructors should endeavor to minimize these mistakes to the nearest minimum.

Research Problem

Researchers face a lot of problems in the construction, conduct, analysis and reporting of questionnaire used as research instrument. The problems of determining the type of information the researcher requires, and the type of information to be gathered by the questionnaire, selecting of existing scales and issues affecting the validity and reliability of information collected posed a serious threat to researchers. The problem of this research,

therefore, is to identify these difficulties and offer useful explanations on how they can be minimized. Similarly, common mistakes which need to be avoided when constructing questionnaire were adequately elaborated.

The academic intent of the paper is expose students to understand how to develop a good questionnaire. This is because majority of the undergraduates, National Certificate of Education and Diploma students used questionnaire as a research instrument for data collection. Most of these questionnaires could neither answer research questions nor research hypotheses due to the way and manner they are constructed. This study will help address this and similar anomalies.

Objectives of the Research

I Explain the concept of questionnaire construction in educational research

ii. Examine the various segments of questionnaire in educational research

Significance of the Study

One of the major significances of questionnaire is its apparent simplicity, versatility and low financial demand as a medium of gathering data. It provides quality data for testing of hypotheses and contributes in making recommendations, conclusion and suggestions. Questionnaire is a good technology which elicits the responses of respondents. It hardly satisfies all the respondents' areas of exploitation. This should not be seen as a failure but an inevitable part in the research process, hence the need for careful questionnaire construction.

Over the years, many questionnaires have been constructed containing a lot of mistakes and avoidable errors which may have undermined the quality of the data collected. Efforts should be intensified by researchers to minimize some of these mistakes.

Literature review is an account of previous published work or material by experts and researchers in particular area of interest. Extensive review of literature involves knowing how to locate, read, evaluate analyses and organized related information in a field of study. The significance of literature review includes conducting a thorough and extensive scientific inquiry as the exercise help to equip the researcher with relevant knowledge and insight on the research topic or problem of interest.

Literature review normally assists researchers to; general and broad understanding of the subject matter or problem under investigation. It helps avoid duplication of past write up by other authors, it helps illuminates a method of dealing with the problem under study. A comprehensive review of literature and thorough review will of pertinent literature in the area of interest to the researcher serves to assist in carrying out and executing a worthwhile relevant research study. Procedure for reviewing literature requires expertise in retrieving relevant information in the area of study. Prospective research student needs to learn and acquire the relevant skills of searching for and locating information from both library and internet. Literature for research purposes should be organized for effective research

process by among others; decision on research topic, questions you may wish to investigate. Begin the review by checking the most resent and relevant studies in the area of interest. The following process should help in retrieving literature identify books/journals indexes, abstracts, annual reviews, test, critiques, year books, technical, reports, theses, and dissertations, periodicals and newspapers, etc.

Questionnaire Construction Process

One of the most important considerations in designing a questionnaire is to find out the kind of information you want to generate in the questionnaire. In other words, what exactly do you want to use the questionnaire for? The motive for using the questionnaire will determine the type of information the questionnaire will contained. Secondly, to generalize the use of questionnaire is often difficult because of its versatility as a data gathering instrument. What is more useful here is to categorize common objectives to enable the questionnaire satisfy these objectives well. This information will help to fine- tune the questionnaire design process.

In generating hypotheses, questionnaire plays a very important role by asking a large number of people about their feelings, opinions and responses to a number of issues. In trying to elicit people's responses, they should be allowed to response freely without restrictions. Allow people to make open-ended responses without any restrictions. People responses should not be constrained by your prior expectation of what responses are useful to you (Glynis, Hammond,Chris,and Jonathan,2006).When unstructured interviews and group discussion are used, a questionnaire can give you a feel of variety of responses and an idea of how certain common responses are (Glynis et al 2006).It is important to note that since there is no established theory on generating hypotheses about the items to be included in the questionnaire, it is only your analytic procedure and intuition that can help generate hypotheses about the nature of certain items for future studies (Glynis et al 2006).

Test Development and Validation

Test development and validation is very important aspect of questionnaire design. This is multifaceted. A set of questions on the form may be subjected to test as a potential scale used to measure certain psychological constructs like, anxiety and the objective is to collect various responses to the items to enable different psychometric processes to be utilized to test their reliability and validity. A set of items meant to measure some psychological construct may be administered to groups with known attributes so as to attempt to assess the validity of the measure (Chris, 2006).

Types of Information Gathered from Questionnaire

Background and demographic data: Most questionnaires ask questions on respondents themselves. A lot of time people deviate from the information asked. This is either because the question is not clear to them or they do not want the disclosed the actual information required. There are two main sections in many questionnaire constructions.

Section 1 Demography which is composed of the following:

1. Age: Why do you want to know about people accurate age? What importance does it have in your research? Some respondents may not want to disclose their exact number of years for reasons best known to them. In this situation it is appropriate to let people state their approximate age or age range (eg 18 to 25, 26 to 35). If your research is interested in disclosing people actual number of years then you have to explain to people why specifically you want your respondents to disclosed their specific number of years. You can ask for years and months, however, the more you asked for precision the more some respondents will deviate from the question.

2. Biological Sex: Although Social scientists have distinguished between biological sex and gender, a lot of respondents are not clear with these differences. Lay respondent may tend to confuse the two terminologies. For example, if you leave the response category open ended, respondents will put something inappropriate in the gender column. Questions like "what is your gender" can annoy certain section of the society and there by produce inappropriate response. Unless it is necessary in your research, issues of biological sex and gender should be avoided.

3. Ethnicity and Nationality: These are some of the important information you may wish to ask about a researcher. The researcher should make respondent understand the distinction between ethnicity and nationality and why it is important to include such information in your research. Ensure that information on ethnicity and nationality is not meant to ridicule any group or at the disadvantage of any particular tribe, social class or specific socio economic status.

4. Social class and socio economic status: A lot of explanation exist on social class and socio economic stratification. It is not easy to use information of one occupation to describe his social status. For example, if you are a teacher could mean anything starting from primary, secondary or tertiary education teacher, similarly an engineer could mean simple motor cycle repairer to aero plane engineer. For women it is difficult to know how her social status should be assessed; particularly, some women jobs tend to carry more occupational status than men's job. Basing a women social class/status on her husband's occupation is not proper, because it ignored those that are not married.

5. Income: Income is one of the most important social issues you ask in social research. People may not want to disclose the exact information about their income. Some will be suspicious about such information for reasons best known to them. It is therefore very advisable to specifically explain why you need such information as a researcher and what you want to use the information for. If it is necessary to ask such questions, it is advisable to use ranges example, from (#10,000 to #30,000, #50,000 to #70,000). It is also useful to ask

respondents if they do not wish to provide certain information about their income, should have an alternative of providing similar information in the questionnaire.

6. Environment: respondents' locality, Urban or Rural background.

Attitudes and Opinions

The attitudes and opinions of people are very important and of great interest as far as social research is concerned, but how best do you measure them? The simple way is to present a set of statement and ask people to rate them on a scale of usually five or seven points how much they agree or disagree to such statements. An alternative to the rating options is the forced choice design, where only two opposite statements will be presented and the respondent is forced to select one of the two statements. This procedure is not common as it does not give the extremity of one's agreement or disagreement.

Intentions, Aspirations and Expectations

These can be fairly measured using questionnaire. However, one should be more careful to take into consideration suitable time frame for these responses, as it is very likely that if the explanation is vague, the response will also be vague. Clear and adequate explanation should be provided on what exactly you require from the respondents

Hypothesis is a researcher's main supposition(s) Drew (1990) defines it as a guess or conductive declaration regarding two or more variables. NKPA (1997) view hypothesis as a reasoned supposition or a statement expressing possible relationships among variables. In educational research hypothesis can be source from five name observational, experiences (previous research and deduction from existing theories the function of hypothesis as by Abba (2000) includes:

a) Facilitate understanding of a phenomena under investigation.
b) Provide closely and direction to the researcher.
c) Serve as guides in the choice or adoption of appropriate methods and the collection of relevant data.
d) Provides the frameworks for drawing conclusions in a more meaningful manner.
e) It guides the researcher on what to observe, what variable to note and row to relate them.

Hypotheses could serve as a useful research tool when properly and unambiguously stated. Good hypothesis must possess the following qualities

a) Clarity: one that precisely states the relationships between variables
b) Relevance: a good hypothesis should be appropriate to research problem under study
c) Pliability: hypothesis that is based on informed, researchable and tenable rather than supposition or gives.
d) Veritable one that is appropriate research evidence which can be readily for possible probe
e) Consistency a good hypothesis cannot go contrast to known or established facts

f) Testability: hypothesis must be testable in accordance with statistical procedure

Hypothesis can be null or alternate, null hypothesis are statements that do not predict relationship or different between variables, hey are normally stated when there is no significant relationship or difference as the case may be indicated by the on the other land alternate hypothesis predicts possible relationship or difference between variables denoted H1. Alternate hypotheses are therefore logical complement of null hypotheses.

On the other hand, alternate hypothesis prefects' possible relationship or differences between variables denoted by H1. Alternate hypotheses are therefore logical complement of null hypotheses. Upon formulating any of the two the researcher selects level of significance to take a decision either to accept or reject the hypotheses.

Concepts and Types of Questionnaires

Questionnaire is a research tool that composed a set of questions on a specific problem under investigation to which the subject or participants in a study are expected to respond OFO (2009) the most commonly used method of data collection is questionnaire which are constructed in clear simple and easy to understand. Abba (2005) stated that questionnaire should have clear directions as to how to respond, the questions should be having clear directions as to how to respond, the questions should be direct specific and clearly worded. Questionnaire can be constructed based on the following: a introduction of clear statement of the purpose/intent of the study response instruction, this provides clear direction on the most competing the questionnaire demographic information which is concerned with personal data of the respondents which are closely related to the variables under study they composed of items to which answer are to be provided by the respondents.

Open and Close Ended Response Format

Questionnaires are majorly divided into two open ended and close ended. Opened ended or restricted questionnaire calls for a free response in the respondent's own words. The open form provides greater depth of response. The respondents provide from of reference and possibly the reasons for their responses. Because of the response demands it return upon become merger. Close ended questionnaire call for short, check-mark Reponses does times called restricted or closed from types. It can be answered by yes or no write short response or check an item from a list of suggested responses. Likerts scale of type 3,4,5,6, and 7 are popular and widely used in closed ended questionnaire. While supply items are often used by researchers.

Common Response Format

The response format is how you collect the answer from the respondent. Let's start with a simple distinction between what we'll call unstructured response formats and structured response formats. The most commonly used survey scale question is the Likert Scale, named after its inventor Rensis Likert. This response scale allows the survey participants how much they agree or disagree on a statement. Typically, Likert Scales use a 3-point or

5-point system, meaning there are three to five choices to pick from. The response formats used in surveys vary depending on the type of question being asked. Responses can be as simple as a choice between "Yes" or "No" or as complex as choosing an answer among seven response options. The response options for each question in your survey may include a dichotomous, a three-point, a five-point, a seven-point or a semantic differential scale. Each of these response scales has its own advantages and disadvantages, but the rule of thumb is that the best response scale to use is the one which can be easily understood by respondents and interpreted by the researcher.

Dichotomous Scales

A dichotomous scale is a two-point scale which presents options that are absolutely opposite each other. This type of response scale does not give the respondent an opportunity to be neutral on his answer in a question. Examples:

- Yes- No
- True - False
- Fair - Unfair
- Agree – Disagree

Rating Scales

Three-point, five-point, and seven-point scales are all included in the umbrella term "rating scale". A rating scale provides more than two options, in which the respondent can answer in neutrality over a question being asked. Examples:

1. Three-point Scales

- Good - Fair – Poor
- Agree – Undecided - Disagree
- Extremely- Moderately - Not at all
- Too much - About right - Too little

2. Five-point Scales (e.g. Likert Scale)

- Strongly Agree – Agree – Undecided / Neutral - Disagree - Strongly Disagree
- Always – Often – Sometimes – Seldom – Never
- Extremely – Very - Moderately – Slightly - Not at all
- Excellent - Above Average – Average - Below Average - Very Poor

3. Seven-point Scales

- Exceptional – Excellent – Very Good – Good – Fair – Poor – Very Poor
- Very satisfied - Moderately satisfied - Slightly satisfied – Neutral - Slightly dissatisfied - Moderately Dissatisfied- Very dissatisfied

Semantic Differential Scales

A semantic differential scale is only used in specialist surveys in order to gather data and interpret based on the connotative meaning of the respondent's answer. It uses a pair of clearly opposite words, and can either be marked or unmarked. Examples:

1. Marked Semantic Differential Scale

Please answer based on your opinion regarding the product:

	very	Slightly	neither	Slightly	Very	
Inexpensive	[ ]	[ ]	[ ]	[ ]	[ ]	Expensive
Effective	[ ]	[ ]	[ ]	[ ]	[ ]	Ineffective
Useful	[ ]	[ ]	[ ]	[ ]	[ ]	Useless
Reliable	[ ]	[ ]	[ ]	[ ]	[ ]	Unreliable

2. Unmarked Semantic Differential Scale

The central line serves as the neutral point:

Inexpensive _____|_____ Expensive

Effective _____|_____ Ineffective

Useful _____|_____ Useless

Reliable _____|_____ Unreliable

Common Mistakes in Questionnaire Constructions

A poorly crafted questionnaire is one that lacks purpose and clear context; it is mostly made of unrelated questions strung together by the researcher. Poor designed questionnaires also make use of biased language which subtly influences the respondents. Under these conditions, the survey will be full of ambiguous and complex questions that can prevent the respondents from responding objectively. Some poorly designed questionnaires may even request for multiple answers that lack mutually exclusive options. This usually confuses the respondents, thereby making it difficult for survey data to be structured and processed accurately. With all these downsides to poorly designed questionnaires, you should ask yourself if you understand the importance of quality questions, and if you have the expertise to design a detailed questionnaire.

If you desire to achieve the most from your survey, you must be intentional about starting with the right type of questions. The design of your survey doesn't exactly matter; neither does the platform you employ in sharing your survey. The important thing is to avoid bad or poor survey questions as they will ruin your data collection process.

Surveys and data gathering processes require a lot of effort and this is why you must ensure you get the questions right at the first trial. Know the difference between poor survey

questions and good survey questions, as this will help you achieve an effective and efficient data collection process.

Conclusion

Questionnaire is a research instruments that consist of a set of questions on a specific research problem to which the subjects or participants in a study are expected to respond. It is the most widely used method of data collection in educational research. Questionnaire should be constructed in clear simple and easy way to understand. Questionnaire should either be open, close or common response format depending on the research and the information you want to generate. Questionnaire construction, development and validity should be clearly conducted. Common mistakes in questionnaire design should be adequately safe guarded.

Recommendations

1. Questionnaire should be made to measure what it is expected to measure.
2. Wordings should be clear and unambiguous.
3. Researcher should be conversant with type of questionnaire he is going to use.
4. Avoid bad or poor survey questions as they will ruin your data collection process.
5. Clear and adequate explanation should be provided on what exactly you require from the respondents.

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