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Original Article

Designing Questionnaires for Better Information Gathering

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Abstract - The use of questionnaires in data collection has increased because of their wide coverage and the ability of a researcher to get them administered to a large group all together. The questionnaire design aims to make respondents have a clear and comprehensive statement of questions and answer them or provide data, and to make the information obtained to facilitate the data processing. Questionnaire design is an important step in any survey and plays a central role in the data collection process. It has a major impact on data quality. Although there are some design theory principles, well-designed questionnaires in any field are still a big challenge. This paper expounds on how to deal with some problems in the questionnaire design process, introduces the method and process of questionnaire testing in practice, and explains the importance of choosing proper respondents and the demands of the organizer's capability. This study used Nigeria for context on how to obtain adequate and unbiased responses from an agricultural study.

Keywords - Collection processes, Design processes, Data quality, Questionnaire design, Survey.

1. Introduction

A Designed Questionnaire (DQ) (survey form or statistics form) by an investigator is composed of chains of questions that are expressly designed to obtain data from Selected Respondents (SR). In the work of [1], they defined the term questionnaire as a regulated document that a researcher uses to retrieve data from SR about specific issues. However, [2] stated that a DQ is a research tool with a developed set of questions—that wan up with the study issue in mind-used for Data Collection (DC) from SR for searching of answers to the study issue. Also, [3] defined a DQ as a list of queries developed to elicit data from SR by filling in appropriate answers in the provided spaces. Additionally, [3] stated that DQs are used by investigators in many ways for observation and data collection in social science research, but they are mainly related to survey research. The designing of a questionnaire is just as significant as the nature and phrasing of the queries asked. In other words, framing the right questions to obtain the right answer (unbiased response) from respondents or participants is very important. Questionnaires play a significant part in the procedure of DC, thus, their scheme has an enormous effect on the data quality and the authority of a statistical organization because the interviewer converts the collected information into measurable factors that are essential to the research under study. Investigators can design questionnaires for almost all fields for different forms of investigation, be it in the social sciences, engineering, sciences, arts, agriculture, finance, health, etc. According to [1], DQs are vital for epidemiological DC that is demanding to acquire or not obtainable elsewhere. Furthermore, they emphasized that in many studies, the SR may be the only data source as

to individual exposures, health-associated comportments, confounding dynamics, and other significant interesting variables.

According to [2], each phase of the marketing study is crucial, but the most vital period is the design stage of questionnaires. If the DQ is defective, no extent of ingenious questioning, analysis, and interpretation can offer evocative responses. As observed by [4], many textbooks proffer schemes for grouping queries, but regrettably, these schemes appear to be nearly as many schemes as there are textbooks. Furthermore, [4] stated that when it comes to the analysis of the results from a questionnaire, one will perhaps be considering various potential "cause-and-effect relationships." Rowe [4] separated the formulated questions in a questionnaire into two parts: the causal factors, which he referred to as demographics, and the effects, which he referred to as outcomes. The Causal Factors (CF) are things like age, gender, postcode, occupation, ailment status, etc., which are probably to be studied by the researcher as conceivable CF inducing results documented in other queries; these are what [4] referred to as 'demographics.'

However, there is one condition where the term demographics would perhaps be avoided by a researcher. With experimental studies such as medical trials, the treatment cluster that a subject belongs to would be the primary CF, possibly inducing results. Consequently, the researcher would not term such data as 'demographics' since treatment group membership is a system for assigning people or subjects, and the experimenter can influence the treatment group as so wish. For instance, the dose the experimenter administered to subjects in the designed treatment group where the experimenter determines the dosage and does not occur naturally. However, 'demographics' are normally thought by researchers to include pre-existing traits that enumerators cannot influence because the age or gender of a respondent is already a pre-existing factor that cannot be influenced.

Rowe [4] divided outcome data (effects) into three types: "outcome from Factual Question (FQ), an outcome from Opinion-Seeking Question (OSQ), and outcome from Knowledge-Testing Questions (KTQ)." He said that FQ results from questions like: "On how many occasions during the last 7 days did you take painkiller medicine? (Once/ Twice/ Thrice/ More than thrice)." "The pain lasted for: 0 - 19min| 20min - 1h| 1 - 3h| 3 - 6h| further than 6 hours." "Did you see a medical professional within one calendar month of first checking your blood pressure reading? (Yes/ No)." The OSQ evaluate more subjective questions, for example, did you think the parking facilities were adequate? (Yes/ No)." In your opinion, the staffs were: Very friendly| Friendly| Neutral| Unfriendly| Very unfriendly." The OSQs are one of the shared sources of ordinal data.

The last example is typical of this because the researcher can probably record the options to the question as a score ranging from 1 (very hostile) to 5 (very approachable). The third type of outcome data is from KTQ, which is designed to look at and define how knowledgeable the respondent is. In a survey, the public, health professionals, or farmers could be targeted respondents and questions like: "Is an educational campaign needed?" "In what areas is more training needed?" "Has the enlightenment on the new method of pest control organized by agricultural extension workers been helpful?" Rowe [4] stated that there may be abnormal times when it is simply needed to find out if the respondent identifies a single bit of information. A single query will do, but usually, clusters of such queries should be developed by researchers to tolerate a wider test of knowledge.

According to [5], DQ is conceivably the most used and most misused survey instrument. Too frequently, it is used by researchers to offer a group of obliviousness in circumstances where only an experimental technique can give a significant response. Furthermore, [5] said that DQs constitute the major efforts at true scaling (actual rating). They are mostly beneficial when the sample size is largely sufficient, making it inefficient for time or funds to notice or interview each respondent. However, DQ does not allow the test settings to become standardized, particularly in mailing. Perhaps the greatest exertion with DQs that enumerators disperse to the subjects is the likely bias, which happens when less than the total number in the sample truly responds. As suggested by [5] that, the first step to be

taken by a researcher to achieve a well DQ, is to define the issue to be handled in the survey and resolve on which queries to ask.

Furthermore, the researcher should avoid continuously trying to conceal too much and ask all questions that may become uninteresting because long, incoherent DQs are demoralizing for any respondent and should be no lengthier than is essential. Also, he argued that guiding principles and suggestions for designing questionnaires should be considered by researchers in terms of scientific data gathering rather than as factors peculiar to the questionnaire because the task is to provide a vehicle that will permit and encourage the respondent to respond truthfully without bias. More specifically, the goal is to devise an instrument with maximum validity and reliability capable of obtaining information relevant to the given topic. The main objective of this paper is to bring out the rudiments for a well DQ that is adequate to capture the data needed to answer identified research questions. Also, to discuss appropriate steps for designing questionnaires with relevant questions that specifically identify problems in agricultural research. This idea is necessary because of the problems most researchers have in designing a well-structured questionnaire that can address the issues that informed the research. This research will help address this gap, leading many researchers to use instruments limited in application [5].

2. Principles of Design (POD)

According to [6], there was a ferocious squabble about the theory of a DQ. In 1980, Labaw, a British scholar, published a book titled "Advanced Questionnaire Design," and in the book, she contended that the utmost flaw of a DQ was an absence of theory. So, she suggested a systematic theory that set off some debate. Also, in one of her articles, she created the basis for incorporating her principles for a DQ and the subsequent works of [7-12], and others. This research is not in the direction of theorizing the design of questionnaires but offers an intangible discussion of the DQ process and principles, which include the following:

A DQ must fit the techniques of DC: There are variances between a Telephone (TS), Face-to-Face (FTFS), Mailed Questionnaire (MQS), and online surveys. The TS cannot design graphics; the MQS do not give respondents the opportunity to ask, "What is the exact meaning of this?" when respondents do not comprehend the query, and so on.

A DQ structure must be consistent and sensible: The general structure of a DQ consists of the title, queries and, themes, and several other parts. Firstly, the setup must be normative. Secondly, the interlude between several parts must be suitable. Thirdly, the design needs to be clear and easy to fill.

A DQ should be as short and simple as possible: No matter the survey method used by an investigator, most respondents prefer to complete a short DQ and unrelated questions to the research should not be added by the investigator. The questions should be in the order of easy to difficult. A brief introduction for the respondents to comprehend the essence of the DQ and know how to complete it is the first important step.

A choice between closed and open-ended questions principle: If respondent's subjective data are needed or when the scope of the study's questions is not well defined, open-ended questions will be suitable. If the questions are able to plainly describe the purpose of the survey and the choices are easily defined then the closed-ended questions are used.

Based on the principles above stated by [6], these PODs can be looked at from another perspective and format, which is as follows:

- Objective of the Questionnaire: The aim, objective, and importance of the DQ must be stated at the top or front page of the questionnaire.

- Confidentiality: the confidentiality of the information sought must be guaranteed before a genuine response can be obtained from the respondent.
- Simplicity: very simple, clear, and unambiguous queries should be asked. In fact, the edict of the questions must be logical, from simple to complex. An explanation note should be given where necessary, and the number of questions must be minimized to contain only the required information for analysis. More importantly, repetition must be avoided.
- Neatness: the DQ must be neat and attractive. Appropriate spacing of questions will attract the respondents' attention.
- Leading Questions: Leading questions should be avoided as much as possible. Leading questions are asked in a manner that the interviewee will likely answer in the manner the investigator wants.
- Exhaustive and Mutually Exclusive Questions: When optional questions are being asked, the options should be exhaustive and mutually exclusive, which means all possible responses to a specific query are stated, and the meaning of a given option should not coincide with another option.
- Pre-Testing: the DQ should be pre-checked before the actual field survey to identify problems faced by certain areas of the questionnaire. This will enable proper amendments to the affected areas of the questionnaire.
- Administering: After final amendments, the questionnaire is administered to the right target respondents for the research. If it is mailed, detailed guidelines should be drafted to guide respondents on how to respond to the questions. Hence, before field distribution, an adequate sample from the target population must have been drawn to help in retrieving unbiased answers [13].
- Analysis: questionnaires must be designed in such a way as to facilitate adequate statistical analysis and interpretation of the subject under study. For any investigator that does not consider this an important factor while designing his or her questionnaire then the DQ will have little or no value at all in studying the subject.
- Reporting of Results: after the statistical analysis has been made, the last factor that is always a problem is the reporting aspect of the result. The reporting of the result should be as simple as the designed questionnaire so as to convey the actual findings to whom it should be delivered or those to whom the research is of interest.

3. Types of Questionnaire

There are three kinds of questionnaires that form the basis of methods for designing questionnaires with little or no faults, and most of the time, this basis is not taken into consideration by experimenters before designing and distributing them. Most times, experimenters do not define what type of data format can be obtained and what type of statistical tools can fit the data for analysis and interpretation. The choice of information to be obtained from a survey or study is very important; it lies in the hands of the investigator, and so an interesting and adequate questionnaire design will arrest the respondent's nonresponsive attitude towards genuine information. These aims can be achieved if questionnaires are being designed in any of the three kinds, which are:

- The qualitative indicators questionnaires are DQs whose information cannot be measured numerically in discrete or continuous form but can be expressed using attributes they possess. For example, sex, the seed colour, the respondent's marital status, and the outcome of crop yield (very low, low, moderate, high, very high, etc.)
- The quantitative indicators questionnaires are DQs whose information can be measured numerically in discrete or continuous form; information can assume certain fixed whole number values (discrete) obtained when a counting process is conducted. Or infinite number values (continuous) between any two points on the number line or a given range, for example, heights, lengths, weights of cows, and volumes; in essence, fractions and decimals can be included. The quantitative questionnaire is to achieve a representative quantity [14].
- The combinative indicators questionnaire; these are DQs with double quality, that is, the design of the qualitative indicator and the quantitative indicator design. This type of DQ helps to achieve all forms of the object under research.

For either type of DQ, the design process should be led by the POD, and the question structures are in two forms:

- The Open-Ended (Unstructured) Questions (OEQ): These are DQs with questions that do not suggest answers or options to the respondent. The respondent is free to respond to the query asked; in other words, the interviewee is not restricted. Most often, blank spaces or dashes are provided to accommodate the respondent's response. According to [15], a specific response is not required from the respondents. For example, a simple question on poultry farming and feeding time can be as follows:
  How many times do you feed your birds?…….

- The Closed-Ended (Structural) Questions (CEQ): These are questionnaires with questions that have a series of or various options suggested to the respondent, and it is expected that the respondents tick their choice. Consider the question on poultry farming above by designing it as close-ended as it will be,

  How many times do you feed your birds?
  a. once a day
  b. twice a day
  c. three times a day
  d. Inconsistent numbers of times a day.

As stated by [6], there are numerous types of CEQ; the most regular questions are the two-choice question: the amount of options query and multiple-choice query, the sorting query and the grade assessment query, and so on. In practice, CEQs are widely used [16, 17]. Furthermore, in the qualitative indicators questionnaire, CEQs or OEQs should be used according to the enumeration theme. However, suggesting a combination of both OEQs and CEQs for better coverage of the information needed. He also stated that for the quantitative indicator questionnaire design, the scientific nature of the indicators must first be considered. Secondly, the researchers have to cogitates' their viability. If the indicator is highly scientific but in practice, the data cannot be collected, then it is not valuable. Thirdly, the DQ should simplify filling out the form. Fourthly, the layout should be clear and not complex. In this paper, the authors object to the first and second points by saying not all research is scientific, so feasibility might indicate social, psychological, educational, cost, etc., because questions like,

a. How many bags of maize were harvested? _____
b. How often do extension officers visit your farm? _____

The two questions above are not scientific but provide useful information adequate for assessment. Questions like,

a. How old was the crop at first fertilizer application? _____
b. Specify quantity or level of fertilizer applied _____

The two questions above possess scientific importance, which can help in providing information on maximizing crop yield. Finally, concern should be given to the DQ format, including the question array, notes location, and design layout. The combined DQ considers all the above factors. These steps are in tandem with [18], who clearly opined that the researcher's first step towards developing a questionnaire is deciding how the required data will be collected.

3.1. Questionnaire Distribution

A successfully designed questionnaire needs to be distributed, that is, after pre-testing and amendments to the defected or lapsed area. Though certain things are to be considered by agricultural advisory officers or field

researchers, they are: when do I distribute my questionnaires, to whom do I give them, how many respondents do I give them, how long should questionnaires be with respondents, and by what means do respondents receive my questionnaires and deliver them back to me? These issues have to be resolved by the researchers in order to achieve their goal of gathering adequate and unbiased information.

3.1.1. When Should My Questionnaires be Distributed?

According to [19], agriculture has analogous problems. However, the diversity of relatively small units, the lack of standardization, and the greater complexity of decisions to be taken have limited the systemization of sampling. In essence, the time of distribution of questionnaires lies solely on the sampled size; for a large sampled size, then a vibrant means of distribution has to be devised for the quick distribution and return of completed questionnaires. The distribution has to be made at an interval when respondents of your target population are obliged to report the facts pertaining to their holdings and not when vital information on the study subjects might have been lost. According to [20], it is worthy of note that many factors influence the rate of return of DQs. For example, the length of the DQ and the ease of filling it out all contribute to motivating the respondents to respond and return their responses.

3.1.2. Whom Should be Given My Questionnaires?

Accurate information on the study subject depends greatly on who fills out the form; is the respondent the right one? Does he practice what you want to acquire for your research? Many and more of these questions have to be on the minds of researchers so as to produce or gather true raw data that is relevant. As [19] stated, obtaining statutory authority for collecting records from every farmer for each new inquiry proposed is obviously impracticable. In essence, this is either due to the complication of questions, the loss of records by farmers, or not wanting to respond or having no idea about the subject. For example, a poultry farmer cannot give information on the quantity of fertilizer to be administered to a certain crop, nor can he describe the pests experienced during the farming season or the type of insecticide used. Therefore, the researcher should administer questionnaires to those with relevant ideas about the study subject.

3.1.3. How Many Respondents Should be Given?

Sampling plays a great role in the number of questionnaires to be produced in correspondence to the number of respondents to be interviewed. A valid inference can be made only if sampling has been done. For example, in a particular state, say Kaduna in Nigeria, if research is to be made on maize farmers, then there is the need to look at the size of the state and its approximate number of farmers. Definitely, it will be too large for a short-term or long-term survey. The state has to be divided into local government areas, and a sample of ten local governments is selected for each group. A simple random sampling is then taken based on size, and a group is selected, but it is still too large for study. The ten local government areas can be regrouped into two groups; a sample is drawn, and if the sample is too large to be studied, a simple random sampling based on size is made, and a local government area is drawn for the study. This local government can still be further sampled in districts, and only one or two districts can be drawn for the study. If, for instance, Sabon Gari local government is drawn and out of its districts, Basawa district is selected, then a different random sample has to be made on the farms to be studied in Basawa district, and this could be determined by farm size. If one hundred and fifty farms are in Basawa district and 70 farms are selected randomly based on size, then 70 questionnaires are to be produced for the 70 farms, which is our sample size, and farmers of each farm who are the subjects will respond. Therefore, the number of respondents should not be a problem; rather, let your fraction of the population be representative.

3.1.4. How Long Should Questionnaires be with Respondents?

How long it will take respondents to feel questionnaires and deliver back to the researcher depends on the researcher's idea of how fast he/she needs the information. Most times, researchers do not make available means for quick return of mailed questionnaires, and this interrupts information gathering because, sometimes,

respondents carelessly keep filling in questionnaires, resulting in misplacement. This is one major problem faced by distributed questionnaires by mail. Its defect is the interruption of sample size, where much reduction in sample size might no longer give a true representation of the target population. Therefore, questionnaires should not stay long at all in the hands of the respondents, which is why it is advisable for designed questionnaires to be short and simple so that respondents don't see it as an added stress to their day job.

Ethical considerations in the collection of data from respondents was summarized by [21] as follows: the purpose of the research must be known to the respondents and, the usefulness of the data, and the respondents must be guaranteed that no disagreeable concerns will emerge from the research procedures, assurance that all the data obtained will be treated with utmost confidentiality and will not be traceable to the respondents, interviewee should not be asked to behave in an unprofessional way and respondents should be assured that they may receive a summary of the analyzed data. If adequately applied, these ethical considerations presented by [21] will go a long way in retrieving filled questionnaires from respondents.

3.1.5. By What Means do Respondents Receive My Questionnaires and Deliver them Back to Me?

Respondents in three ways receive questionnaires, and they are;

- Through mail
- Face-to-face delivery
- Schedule delivery

The mailing questionnaire is one of the popular ways of distribution, but, unfortunately, it is a drawback in most African countries and other countries around the world where there is poor mailing service since it cannot reach hideouts of local farmers, for instance, whose information is are well needed. Another alarming issue is the respondents' home addresses, which might not be accessible by the mailing services. Therefore, the mailing system is not advisable for most research, which seeks results because postal distribution and returns lead to loss of questionnaires thereby loss of information. This is not only applicable to Nigeria and Africa at large but also the developed countries. As [19] stated, if the questionnaire is short and simple, there will be a temptation to depend on postal returns; this introduces risks that some farmers will not respond and that those who do are a biased sub-sample of the whole sample.

Besides mailing difficulties, it gives room for ambiguous answers, and this might lead to further expenses because, the researcher will have to visit respondents to secure consistency, which might be because of respondent inability to understand questions or lack of response. In this regard, [5] stated that it is clear a MQS as a DC technique has its pros and cons. Among the former, comparative cheapness and speed are the most vital. Among the latter, the issue of non-responses stands out but if its downside effect can be well-handled, the economics of the technique would certainly bring it into favour.

The FTFS delivery is also ineffective because sometimes respondents feel reluctant to fill in the form since the researcher is not present. As this persists, there might be a missing questionnaire and ambiguous answers, affecting the sample size. Sometimes, the respondents are away, and upon their return, the time given to mail back the questionnaire might have elapsed, affecting the response rate and uneconomical. The scheduled delivery is more accurate, though more expensive, but is it worth more than the information needed? Well, it is left for the researcher to decide. The researcher schedules with his/her respondents when to bring the questionnaires for filling and collecting them back from each respondent immediately. This procedure gives the researcher the privilege to guide his/her respondents on how to fill and answer the question of I do not understand certain questions or a particular question. This system gives no room for questionnaire loss, affecting the sample size [22].

As [19] stated, even questions that are answered explicitly might give unreliable information because different farmers adopt different conventions in their replies. Although faults and ambiguities are reduced if a trained enumerator assists the farmer, the expense of arranging for a visit to every farm is likely to be prohibitive. However, most times this method covers a small sample size due to its cost. Nevertheless, it should be kept in mind the statement of Finney that the temptation to allow convenience to take precedence over the strict demands of representativeness may be great because there can scarcely be any evidence that the farms are not representative in respect of the qualities studied.

3.2. Questionnaire Editing

This is an essential method for the completeness of questionnaires because it helps to detect defective questionnaires that might need amendment. Most research produces results that are not representative because errors were not detected as a result of improper editing of completed questionnaires. As [14] stated, this concept involves careful scrutiny at an early stage to detect errors, omissions, commissions, and inconsistencies. When completed questionnaires are received a substantial extent of preparatory work is essential before the data is in shape to be presented. The editing requires checking for incomplete responses, the wrong form of answering the questions, and deliberate Data from DQ are raw data which, after used by the researcher, becomes secondary if adequate checking and examining of the questionnaire is not done, the second user becomes a victim of misinterpretation and incompleteness. Therefore, the transformed faulty data into processed and summarized information becomes a valid error. Questionnaire editing helps reduce inconsistencies, reducing error to its barest minimum for present and future use.

3.3. Coding of Questionnaires

To put the DQ into meaning, the filled-in DQ are coded in order for statistical tools to be applied for analysis and interpretation; otherwise, the information gotten will make no sense. These codes represent the options provided by a question in a questionnaire and apply to all other questions. For instance, if the example for the close-ended question on poultry farming above is considered, that is

How many times do you feed your birds?

a. once a day
b. twice a day
c. three times a day
d. Inconsistent numbers of times a day.

Option A can be coded as 1, Option B as 2, Option C as 3, and Option D as 4. If it was observed that there was no response, it could be coded as 0 or 5, whichever is genuine. If the question was designed to be open-ended, then respondents' responses have to be well-studied so that coding will not be a problem. This is achieved by suitably grouping the responses in such a way that all respondents' responses fall in one of each group formed. The above code for the closed end can equally be used or can be re-designed as "code 1 for once and two times a day, code 2 for three and four times a day, and code 3 for inconsistent numbers of times a day". This form of coding can be regarded as group classification. The group classification system is very suitable for regrouping responses with zero or few responses.

This will help eliminate spurious results from the data analysis, especially when using the chi-square test. Also, the group classification is helpful in Likert scale measurement when extreme response is not necessarily needed. For example, agree and strongly agree could be easily merged as just agree and disagree and strongly disagree can be easily regrouped to disagree. Furthermore, a yes or no question, which is mostly found in both question designs, should not be overemphasized; coding 0 for no and 1 for yes is not different from coding yes 1 and no 2 because the code values represent the options. Coding can sometimes be confusing, which is why it is advisable to present

completed questionnaires to a professional statistician for better code judgment on every question's options or answers to produce representative and presentable results.

4. Tools for Analysis

This aspect of the questionnaire deals with what type of statistical method is suitable for analyzing the data (the coded information). Most times, summary statistics, graphical representation, cross-tabulation or contingency table presentation, and the chi-square test are used. However, the statistical method to be used should have been known for the study even before going to the field to distribute and collect data. The reason is because the different questions responses could be of different measurement scales, that is, ordinal, interval, nominal, and ratio. If the research is focused to see how the effect of some questions (independent factors) in the questionnaires on a particular question (dependent factor), regression analysis comes to mind first, and the measurement scale of each variable will determine the type of regression that will be suitable, and it is taken into cognizance will designing the questionnaire. That is why it is best if a professional statistician is involved in the research aspect of the questionnaire before going to the field so that he or she will be able to advise on the appropriate statistical method for the research.

5. Conclusion

No extent of statistical influence could make a bad experiment give good results. The first duty of an investigator is to carry out good experiments. Good experiments imply a well-structured, planned, and designed process for collecting observations relevant to the experiment in such a way as to provide the basis for valid inferences. He or she must not let a newly developed enthusiasm for statistics blind him or her to this; the best results will be achieved by a combination of good experimentation and good statistical science; the first is by far more important. In most statistical manipulated research, biased reasoning results in untrue representations, interpretations, and conclusions.

Another aspect of researchers' problems is their way of summarizing the results of a statistical analysis; some put too many entries into one table or too many curves on one diagram. This present complex ambiguity, despite what is done, is right, resulting in what [19] stated: "Few will read, and few will comprehend." As [6] stated, a "DQ is an art; the test is the way to improve the DQ." To design a high-quality questionnaire, the following should be adhered to:

- Pay more attention to the design and the reason, according to [23], to avoid common errors like T measurement, sampling, frame, selection, non-response, etc.
- Seriously listen, examine the needs of users, and investigate the viability and efficiency.
- Make suitable forms of the test group; invite some experts in the field of surveying and enumeration to be among the participants in the test group.
- Select a suitable interviewee.
- A serious study of the rationality and universality of the test results.

When an experimenter proposes to undertake an experiment or sampled investigation of any study, the experimenter might not be the best judge of whether the problem presents statistical novelty. A statistician should be consulted at the experiment's initial stage of planning. Even a year in advance may not be an excessive margin, especially if your investigation will continue for several years. Consideration of the intrinsic worth of alternative DQ can take a protracted time, so it is best if done in the shortest time possible than in a single concentrated effort, and it is always beneficial after vigorous discussion between the investigator and statistician. Hence, it should be noted that a DQ may be sufficient for DC on farmers' farm size but not sufficient for deciding on their preferred farming method or their willingness to accept a new method different from what they know. Therefore, carefulness

should be infused with deep thought and reasoning to develop questions for respondents to respond to; otherwise, the purpose of the DQ in answering the research question(s) might not be achieved.

Authors' Contributions

Conceptualization, D.I.J. and M.S.; Investigation, A.Y.A.; Resources, D.I.J., A.Y.A., and I.P.O.; Writing - Original Draft Preparation, D.I.J.; Writing - Review and Editing, All Authors.

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