

**QUESTIONNAIRE DESIGN AND ITS APPLICABILITY IN MANAGEMENT SCIENCES
RESEARCH**

KUMOLU-JOHNSON, BABATUNDE OLADIPUPO

Department of Business Administration, Lagos State Univesity, Ojo, Lagos, Nigeria

E-mail: ola_breakthrough@yahoo.com

&

AKEWUSHOLA, RAHEEM OLASUPO (PhD)

Department of Business Administration, Lagos State Univesity, Ojo, Lagos, Nigeria

Abstract

Research is a systematic and scientific way of gathering data. The questionnaire is a critical component of the modern statistical survey of gathering data in research. The purpose of this paper was to discuss questionnaire design and factors that should be considered when using existing scales. Descriptive research was adopted for this study with aim of establishing the questionnaire development process needed in gathering information about specific issues. To successfully integrate the components of a study such as data collection, measurement, and analysis of data in a coherent and logical way, there is need to apply an appropriate questionnaire design that will suit the nature of the research to be carried out. The paper provided reasonable detailed, step-by-step constructive guidelines of questionnaire design with illustrations on questionnaire methods. It is therefore recommended that researchers should have basic understanding of the nature of a questionnaire design suitable and appropriate for a study in order to limit the level of error.

Keywords: *Research; Questionnaire; Questionnaire development*

1. Introduction

Research is a highly specialised activity that is more than just collecting information or writing a description. It involves collection of information in a targeted fashion, which is further analysed thoroughly to lead to answers of research questions and evaluate results (Ahuja, 2015). The collection of data is the heart of any research design, irrespective of the field of study. A research begins with certain questions, which need to be answered. More so, in providing answers to those questions required gathering data for desirable information and one major instrument in collecting data is questionnaire. Questionnaire is an instrument of data collection for gathering the desirable information carefully, with least possible distortion, so that the analysis may provide answers that are credible and stand to logic (Huma & Nayeem, 2017).

Questionnaires are useful and easy to administer to collect data from participants in studies (Colosi, 2015). It is absolutely important for a researcher to be aware of the importance of a well-designed questionnaire and whether it measures what it is intended to measure. Therefore, the use of a valid and reliable questionnaire as a tool to measure the properties of management concepts is an essential part of well-designed studies. Consideration should be given accordingly on whether the questionnaire will measure quantitative or qualitative data, and what would be its mode of administration. With respect to questionnaire design, the study presents a definition of measurement, the guiding basic principles of measurement, and broad overview to the readers on questionnaires. Moreover, the study discusses several important issues in the enhancement of the reliable data.

1.1 Statement of the Problem

A common mistake made by some researchers is that they began their investigations far too early, before they have thought critically about how information and data required to address the research problem (Beach & Rasmus, 2016; Gorard, 2013; Ahuja, 2015; Zull, 2016; Saunders & Lewis, 2007). Without appropriate attention to details in questionnaire design issues before hand, the overall research problem will not be adequately addressed and any conclusion drawn will normally be weak and unconvincing (Huma & Nayeem, 2017). As a consequence, the overall validity of the study will be undermined (Vogt, Paul, Gardner & Lynne, 2012; Akingbade, 2016). Also, most respondents have the tendency to respond to questionnaires without considering how missing responses will be analyzed, how they will contribute to answering research questions, and how researchers will account for questionnaires that are not returned by mail. Most researchers experience issues related to non-response when self-report questionnaires are used (Asika, 2004). The literature has offered suggestions on how to avoid those problems and how to develop questionnaires to measure management constructs more concisely. Hence, this study intends to carry out a descriptive study on literature review that will provide in depth knowledge on the applicability of questionnaire design.

1.2 Objective of the Study

The purpose of this study is to make clear the questionnaire development process bottlenecks researchers face in developing an appropriate questionnaire design in management sciences.

2. Literature review

2.1 Questionnaire Defined

A questionnaire is a systematic list of questions designed to obtain information from people about: specific events, their attitudes, their values, their beliefs (Ambrose & Anstey, 2015). Bailey (2008) stated that questionnaire is by far the most frequently used instrument in research. He further noted that a questionnaire is essentially a structured technique for collecting primary data. It is generally a series of written questions for which the respondents have to provide answers. A questionnaire contains a set of specific questions that are constructed and used by the researcher in obtaining information from the respondents during the conduct of a research (Asika, 2004). According to Sapsford and Jupp (2006) questionnaire is one of the distinguishing factors of survey research method being used to collect raw data, is more correctly designed and administered as a survey instrument. Indeed, it is a measuring instrument when it is looked at as a part of research designs. It is therefore, is a group of scales put together in order to generate responses to questions pertaining to every aspect of the entire research problem (Bailey, 2008).

2.2 General Guidelines for Questionnaire Construction

An extensive review of research on guidelines for questionnaire construction (Zull, 2016; Oddgeir & Jan, 2013; Brace, 2004; Peterson, 2000; Huma & Nayeem, 2017), can be summarized by noting that there are a number of general principles of question writing that need to be used to avoid common errors in writing items for questionnaires. These principles will enable analysts and evaluators to design questionnaires that will yield better responses. Following is a selection of “do’s,” or appropriate use, and “do not’s” that are sound guidelines for writing good question items for analysis and evaluation in management sciences programs.

Write Simple, Clear, and Short Questions. Ambiguity, confusion, and vagueness bother most respondents. To avoid these problems, questions for questionnaires should be simple, clear, and kept as short as possible. The longer the question, the more difficult is the task of answering. Fewer words are better than more and shorter questions produce higher response rates

Make Specific and Precise Questions. Specific questions are usually better than general questions because of their accuracy and similar interpretation by all respondents. Question items should be worded specifically with a particular audience in mind: the group you expect to answer the questions. The more general the question, the wider will be the range of interpretations. Questions with specific and concrete wording are more apt to communicate the same meaning to all respondents. Avoid words that may be interpreted differently by each respondent, such as “frequently,” “most,” “sometimes,” or “regularly”.

Use Appropriate Language. Questions should be worded at the appropriate level for respondents. Professional jargon, slang, technical terms, and abbreviations can carry many different meanings to respondents who vary in life, work experiences, and education. Avoid questions with such terms unless a specialized population is being used as respondents. If the questionnaire is designed for a specialized group, it is acceptable to use the jargon or technical terms of that group, provided all respondents are familiar with them.

Ensure Respondents' Ability to Answer. Respondents must be competent to answer questions. In making questions, we should continually ask ourselves whether the respondents are able to provide useful information. Asking questions that few respondents can answer frustrates the respondents and results in poor-quality responses. Asking the respondents to recall past details, answer specific factual information, and make choices about something they know little or nothing about may result in an answer, but one that is meaningless.

Include Only One Topic or Idea per Item. Each question should be related to only one topic or idea. Items that contain two separate ideas or try to combine two questions into one are called “double barreled” questions. The problem with double-barreled questions is that agreement or disagreement with the item implies agreement or disagreement with both parts of it. The best way of dealing with double-barreled questions is to break the item up and list each part as separate items; that is, one question per idea or topic. As a general rule, whenever the word *and* appears in a question or statement, question developers should check whether they are asking a double-barreled question.

Use Appropriate Emphasis for Key Words in the Question. The use of appropriate emphasis tools such as boldfaced, italicized, capitalized, or underlined words or phrases within the context of a question can serve as a constructive way to clarify potential confusion within the questionnaire. Appropriate emphasis for key words can add clarity to questions.

Take Care with Sensitive Questions. Asking sensitive questions on questionnaires has always been a difficult issue. People vary in the amount and type of information they are willing to disclose about their salary, race, ethnicity, and so on. In dealing with these kinds of sensitive questions, special care should be taken. It is also necessary to consider avoiding questions that use words or phrases of regional terminology, or occupational or social class differences.

Avoid Negative Questions or Double Negatives. The appearance of a negation, for example the word *not*, in a questionnaire item paves the way for easy misinterpretation. Double negatives in ordinary language are grammatically incorrect and confusing. Questions with double negatives are also confusing and difficult to answer. A double negative question may ask respondents to disagree that something in a question statement is false or negative. This situation can result in “an awkward statement and a potential source of considerable error”.

Avoid Biased or Loaded Questions and Terms. The way in which questions are worded, or the inclusion of certain terms, may encourage some respondents more than others. Such questions are called “biased or loaded” and should be avoided in question development. Words have implicit connotative as well as explicit denotative meanings. Titles or positions in society can carry prestige or status, and can bias questions. There are many ways to bias a question, such as identification of a well-known person or agency and social desirability. Words with strong emotional connotations and stands on issues linked to people with high social status can color how respondents hear and answer questions.

Avoid Questions with False Premises or Future Intentions. Respondents who disagree with the premises will be frustrated when attempting to answer a question. If it is necessary to include questions with a potentially false premise, the question should explicitly ask the respondents to assume the premise is true; then ask for a preference. Answers to a hypothetical circumstance or future intentions are not very reliable, but being explicit will reduce respondents' frustration. In general, questions for analysis and evaluation should be specific and concrete, and should relate to the respondents' experiences.

2.3 Determination of Question Format

Questionnaire item responses fall into two general categories: (1) closed-ended, or structured, fixed-response questions; and (2) open-ended, or unstructured, free-response questions. In closed-ended questions, including those with multiple choice, yes or no, and true or false answers, and questions with rating scales, respondents are asked to select their answer from a fixed set of response alternatives. Closed-ended questions are very common in questionnaires designed for analyses and evaluations because of a greater uniformity of responses and easy administration. Their main drawback can be in the structuring of responses (Zull, 2016).

Open-ended questions, such as those requiring fill-ins, short answers, and essays, ask respondents to provide answers to questions using their own words. They provide respondents an opportunity to answer using their own frame of reference without undue influence from prefixed alternatives (Oddgeir & Jan, 2013). In answering and interpreting open ended questions, there is the problem that some respondents will give answers that are irrelevant to the purposes of the analysis or evaluation. Sometimes questionnaire developers combine closed-ended responses with an open category or option. Such questions are called “semi-structured,” and they are used when the questionnaire developer is concerned that the set of closed-ended options is not exhaustive.

Closed-ended questions take longer to develop, require a single specific answer or choice from several specified options, and take a shorter time to complete by the respondents. Open-ended questions provide in-depth responses and unanticipated information, take longer to be completed by the respondents, and take longer to analyze. Each form of question has advantages and limitations (Micheal & Jeremy, 2016; Oddgeir & Jan, 2013; Zull, 2016). Table 1 summarizes advantages and limitations for the two major types of question formats.

Table 1. Characteristics of Closed-Ended and Open-Ended Questions.

<i>Question Type</i>	<i>Advantages</i>	<i>Limitations</i>
Closed-ended	Easier and quicker to answer	Frustration without desired answer
	More likely to get answers about sensitive topics	Confusing if many response choices are offered
	Easier to code and statistically analyze	Misinterpretation of a question without notice
	Easier to compare different respondents' answers	Simplistic responses to complex issues
	Easier to replicate	Blurred distinctions between respondents' answers
Open-ended	Opportunity for respondents to give their opinion	Different degrees of detail and irrelevance in answers
	Unanticipated findings to be discovered	Difficulty with response coding
	Adequate for complex issues	Difficulty with comparison and statistical analysis
	Creativity, self-expression, and richness of detail are permitted	A greater amount of respondent time, thought, and effort is necessary
	Respondents' logic, thinking processes, and frames of reference are revealed	Requires space for answers

Example of Open-ended Question

Open-ended questions

What is/are the main reason(s) for you to consult a doctor for your cough and cold? (You can list down more than one reason)

Figure 1.

There are three basic categories of closed-ended questions:

1. Dichotomous Questions

The simplest form of closed-ended questions is the dichotomous question. Dichotomous questions ask the respondent to select from two possible answers. Here are some examples:

Do you have a dog as a pet?	Yes	No
Mark your answer in the appropriate box:	<input type="checkbox"/>	<input type="checkbox"/>

Do you have a driver's license?	Yes	No
Mark your answer in the appropriate box:	<input type="checkbox"/>	<input type="checkbox"/>

Do you collect social security benefits?	Yes	No
Mark your answer in the appropriate box:	<input type="checkbox"/>	<input type="checkbox"/>

What is your gender?	Male	Female
Mark your answer in the appropriate box:	<input type="checkbox"/>	<input type="checkbox"/>

Figure 2.

These questions are considered categorical questions. They generate nominal level data as the answers are not numerical and no order is implied. Nominal data merely places the respondents' answers in one of the listed categories.

2. Multiple-Choice Questions

There are two forms of multiple-choice questions: Multiple-Choice and Multiple-Answer.

Multiple-Choice Questions: With multiple-choice questions, respondents select one answer from a list of three or more options. Here are some examples of multiple-choice questions:

Which of the following age groups are you in? Check the appropriate box:

Age	
18-years-old or younger	<input type="checkbox"/>
19 to 29-years-old	<input type="checkbox"/>
30 to 39-years-old	<input type="checkbox"/>
40 to 49-years-old	<input type="checkbox"/>
50 to 59-years-old	<input type="checkbox"/>
60-years-old or older	<input type="checkbox"/>

How many times a day do you brush your teeth?

Number of Brushings	
I don't brush my teeth	<input type="checkbox"/>
Once	<input type="checkbox"/>
Twice	<input type="checkbox"/>
Three times	<input type="checkbox"/>
Four times	<input type="checkbox"/>
Five times or more	<input type="checkbox"/>

Figure 3.

Multiple-Answer Questions: Multiple-answer questions are a type of multiple-choice question that allows respondents to provide more than one answer. These questions are sometimes called checklist questions as the respondent can check off multiple answers from a list of options. Here is an example of a multiple-answer question: Which of the following newspapers do you read regularly? Check all that apply.

Newspaper	
<i>Queens Courier</i>	<input type="checkbox"/>
<i>Newsday</i>	<input type="checkbox"/>
<i>New York Times</i>	<input type="checkbox"/>
<i>Wall Street Journal</i>	<input type="checkbox"/>
<i>New York Post</i>	<input type="checkbox"/>
<i>New York Daily News</i>	<input type="checkbox"/>

Figure 4.

3. Rating Scales. A rating scale yields “a *single score* that indicates both the direction and intensity of a person’s attitude” (Leung, 2001). Because the scoring method for most rating scales is based on the idea of measuring the intensity, hardness, or potency of a variable (Colosi, 2015), each item must differentiate those respondents with a favorable attitude from those with an unfavorable attitude. In addition, the question items must allow for expression of a broad range of feelings, from strongly favorable through neutral to strongly unfavorable.

According to Menold and Bogner (2016), if a rating scale is to be used in a questionnaire, three decisions must be made. The first decision is how many points to include in the scale. It is usually a good idea to construct scales with fewer than seven points, because psychological research indicates that people have difficulty reliably making more than seven distinctions. The second decision is whether to provide a middle alternative in a scale. It is generally good to include a middle alternative because it represents the best description of some respondents’ feelings. The third decision is how many points to assign to the labeled words. Verbal labels help to clarify the meanings of scale points for respondents. It is best not to mix labeling words with numbers.

There are several measurement techniques that have been used to assess beliefs, attitudes, and intentions. However, three major rating scales are commonly used in questionnaire development: (1) Thurstone, (2) Likert, and (3) the semantic differential.

Thurstone Scaling. Thurstone equal appearing interval scales, originally developed by Thurstone and Chave (1929), are based on the law of comparative judgment. Several steps are needed to arrive at a series of statements, each with its own weight or value. The Thurstone technique begins with a set of belief statements regarding a target subject. An analyst or evaluator can construct an attitude scale or select statements from a longer collection of attitude statements. Next, these statements are classified into one of eleven categories or dimensions from most favorable to neutral to least favorable through a judgment procedure of subject-matter experts (Bailey, 2008). Third, the analyst or evaluator computes a mean or median rating and assigns the value to the statement. Statements are discarded if the assignment of the statement is variable across experts. The Thurstone scale is then developed by selecting statements with a scale value evenly spread from one extreme to the other, that is, 1 to 11 (Menold & Kemper, 2015). An example of a Thurstone scale is shown in Figure 32.2. Although the weights or values in parentheses are not provided to respondents, they indicate the Thurstone values assigned to each question item.

Thurstone scaling approximates an interval level of measurement (Netemeyer, Bearden & Sharma, 2003; Menold & Bogner, 2016). Developing a true Thurstone scale is considerably more difficult than describing one (Asika, 2004). Nevertheless, economy and effectiveness of data reduction, if adequately developed and scored, are its strengths. The method is not often used by analysts and evaluators today because of the labor intensiveness of the dimension-construction process and the need for a large number of content experts to do the item rating and sorting (Zull, 2016; Menold & Kemper, 2015).

Table 1: Example of Thurstone Scaling

Below are five statements about the training materials used in this human resource development program. Please indicate your feeling by circling either “A” or “D” for each statement. There are no right or wrong answers. A = Agree, or agree more than disagree D = Disagree, or disagree more than agree		
Training Materials Used in This Human Resource Development Program		
Training materials are enjoyable. (5.5)	A	D
Training materials are simple (1.3)	A	D
Training materials are traditional style. (2.8)	A	D
Training materials are up-to-date. (10.7)	A	D
Training materials are well organized. (7.3)	A	D

Likert Scale. Rensis Likert’s scale (1932), called a summated rating or additive scale, is widely used and very common in questionnaires because of its easy construction, high reliability, and successful adaptation to measure many types of affective characteristics (Ahuja, 2015). On the Likert rating scale, a respondent indicates agreement or disagreement with a variety of statements on an intensity scale. The five-point “strongly agree” to “strongly disagree” format is used. Responses are then summed across the items to generate a score on the affective instrument. An example of the Likert scale is presented in Figure 32.3. The simplicity and ease of use of the Likert scale is its real strength. The Likert scale can provide an ordinal-level measure of a person’s attitude (Bailey, 2008). Gathering and processing the Likert responses are efficient. When several items are combined, more comprehensive multiple-indicator measurement is possible. The rating scales have the advantage of providing data that use values rather than merely categories (Rattray & Jones, 2007; Netemeyer et al., 2003). This feature can provide greater flexibility for data analysis. The Likert scale has a limitation. Different combinations of several items may result in the same or similar overall score or result, and therefore the response set presents a potential danger (Nworgu, 2006). To effectively combine items to enhance the measurement of a characteristic, items included in the same dimension should have a strong relationship to the characteristic they are supported to measure, and the items should be logically related to each other.

Other modifications to anchor rating scales are possible: people might be asked whether they approve or disapprove, or whether they believe something is almost always true or not true. Table 3 gives additional sets of anchors that can be used with Likert-type questions for questionnaires.

Table 2: Example of Likert Scale.

Below are five statements about the training materials used in this human resource development program. Please indicate your opinion by circling “SA,” “A,” “U,” “D,” or “SD.” There is no right or wrong answers. SA _ Strongly agree A _ Agree U _ Undecided D _ Disagree SD _ Strongly disagree					
Training Materials Used in This Human Resource Development Program					
Training materials are enjoyable.	SA	A	U	D	SD
Training materials are simple.	SA	A	U	D	SD
Training materials are traditional style.	SA	A	U	D	SD
Training materials are up-to-date.	SA	A	U	D	SD
Training materials are well organized.	SA	A	U	D	SD

Semantic Differential Scale. Charles Osgood’s semantic differential scale (1952) provides an indirect measure of how a person feels about a concept, object, or other person. The scale measures subjective feelings about something by using a set of scales anchored at their extreme points by words of opposite meaning (Nwogu, 2006). To use the semantic differential, an analyst or evaluator presents target subjects with a list of paired opposite adjectives in a continuum of five to eleven points. Respondents mark the place on the scale continuum between the adjectives that best expresses their perceptions, attitudes, feelings, and so on. The results of semantic differential scales can be used to assess respondents’ overall perceptions of various concepts or issues. Examples of semantic differential scales are presented in Table 4.

Studies of a wide variety of adjectives in English found that they fall into three major classes of meaning: evaluation, or “good-bad”; potency, or “strong-weak”; and activity, or “active or passive” (Menold & Bogner, 2016). Of the three classes of meaning, evaluation is usually the most significant. Semantic differential scales yield interval data that are usable with virtually any statistical analysis. However, it is often difficult to give concise written directions for semantic differentials, especially to respondents unfamiliar with the rating scale.

Table 3: Examples of Semantic Differential Scales.

Please read each pair of adjectives below that describes the training materials used in this human resource development program. Then place a mark in the box between them that comes closest to your first impression or feeling. There are no right or wrong answers.						
How do you feel about the training materials used in this human resource development program?						
Enjoyable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unenjoyable
Simple	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Complex
Traditional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Modern
Out-of-date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Up-to-date
Organized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Unorganized

3. Steps in Questionnaire Design in Management Research

The process and steps for developing a scale vary depending on what is being measured in a study. Stehr-Green, Stehr-Green and Nelson (2003) summarized eight steps in creating a questionnaire for a successful business study as follows: a) Identify the leading hypotheses about the source of the problem and b) the information needed to test the hypotheses, c) Identify the information needed for the logistics of the study and to examine confounding factors, d) Write the questions to collect this information, e) Organize the questions into questionnaire format, f) Test the questionnaire, g) Revise the questionnaire, and h) Train interviewers to administer the questionnaire.

Also, Colosi (2015) recommended steps to developing an effective questionnaire when evaluating one's own program using a questionnaire. That is, the researcher should decide what kind of information to collect,

and then review previous literature to obtain permission to use an existing questionnaire, or develop a new questionnaire. Then, the existing or newly developed questions should be modified or fit to the researcher's needs in a logical order. Finally, the researcher should re-read to clarify information for questions, or add specific instructions or transitions in parentheses where applicable.

At this point, the researcher (along with colleagues) should focus on the format of the questionnaire with attention to layout, readability, time demands on respondents, logic, and clarity of content. If necessary, the researcher can revise the instrument as needed based on feedback provided and prepare a protocol for implementing the questionnaire (Colosi, 2015).

From a methodological perspective, Rattray and Jones (2007) emphasized that a logical, systematic, and structured approach should be employed for questionnaire design, from item generation to psychometric evaluation. They, particularly, emphasized the importance of testing and pilot items, amendments based on item analysis, principal components analysis, reliability, concurrent validity, confirmation using an independent data set, and revision of the measure. Netemeyer, Beard and Sharma (2003) introduced four steps for developing paper-and-pencil measures of social-psychological constructs. The first step is to choose the construct definition and content domain. The second step involves generating and judging each item, and then designing and conducting research to develop and refine the scale. Lastly, the scale can be finalized. The study suggested strategies for designing questionnaires base on the various recommendations in the literature.

- a) Appropriately operationalize the key concept for the target population.
- b) Choose a clear response format.
- c) Generate items and confirm final items using face or content validity.
- d) Sufficiently pilot the questionnaire using item-analysis.
- e) Demonstrate reliability and validity.
- f) Finalize the scale and train the administrator.

4. Measurement Issues as regards Questionnaire Design

Use of an existing questionnaire

Many researchers have focused on instrument development to measure management phenomena. As a result, appropriate instruments can be easily found useful in research and practice. Use of existing instruments may provide the advantage of cost-effectiveness and knowledge accumulation; however, instruments should be used in the same way that they were designed, to fit the situation in terms of place, time, and population (Waltz, Strickland & Lenz, 2010; Bailey, 2008). When measuring a concept of interest, a preliminary search for an existing instrument is conducted. Likewise, searching for an existing instrument is the first step in defining the parameters and context of your concept. Zull (2016) suggested several tips for using databases when searching for existing instruments: a) search computerized database by using the name of keywords or instrument, b) generalized the search to specific area of interest, c) search for summary articles describing and evaluating the instruments used to measure a given concept, d) search journals that are devoted specially to measure, e) after identifying a publication in which relevant instrument are used, use citation indices to locate other publications that used them etc.

After identifying an instrument, it should be evaluated for adequacy in terms of its purpose and stated aims, measurement framework, conceptual basis, and psychometric properties. In particular, a psychometric evaluation should be performed before the existing instrument is chosen for use. Estimates of reliability, specificity, sensitivity, and validity based on psychometric testing ensure the appropriateness of the given instrument. In addition, whether an existing instrument corresponds to the specific population characteristics, place, and time for the intended setting should be considered (Huma & Nayeem, 2017; Waltz et al., 2010; Akingbade, 2016). If an existing instrument is identified, permission to use the instrument for a specific purpose should be obtained in writing from the developer or copyright holder (Gorard, 2015). This process is part of the legal and ethical responsibility of a user. If a given instrument requires modification, revised contents should be given to the developer. Moreover, the user has the responsibility to report and share

results regarding the tool's properties, the nature of the sample, and the diversity of conditions (Bailey, 2008).

5. Conclusion and Recommendations

Questionnaire design is more of an art than a science. This paper has tried to help researchers in considerations prior to questionnaire design, steps in development, and relevant details. The importance during the process of questionnaire design is attention to the purpose of the questionnaire. The flow of items should be clear and easy to understand in order to gather precise information. Moreover, when using an existing questionnaire, psychometric properties should be initially evaluated. A pilot test will help to evaluate preliminary questions prior to administration to avoid later mistakes.

References

1. Ahuja, R. (2015). *Research Methods*. New Delhi: Rawat Publication
2. Akingbade, W. A. (2016). *Employment of questionnaire as tool for effective business research outcome: Problems and challenges*. *Global Economic Observer*, 4(1): 136-144
3. Ambrose, D. M & Anstey, J. R. (2015). *Clarifying the process of questionnaire construction* . Retrieved from: <https://www.researchgate.net/publication/251710451>
4. Asika, N. (2004). *Research methodology: A process approach*, Lagos: Mukugamu and Brothers Enterprises.
5. Bailey, K. D. (2008). *Methods of Social Research (4. ed.)*. Free Press.
6. Beach, D. & Rasmus, B. P. (2016). *Causal Case Study Methods: Foundations and Guidelines for Comparing, Matching and Tracing*. Ann Arbor, MI: University of Michigan Press
7. Colosi L.(2015). *Designing an effective questionnaire [Internet]*. Ithaca, NY: Cornell University; Available from: <https://www.gateshead.gov.uk/DocumentLibrary/council/consultation/Questionnaire-design-guidance-web.pdf>
8. Frary, R. B. (2003). *A brief guide to questionnaire development*. Blacksburg, VA: Virginia Polytechnic Institute and State University.
9. Gorard, S. (2013). *Research Design: Creating Robust Approaches for the Social Sciences*. Thousand Oaks, CA: Sage.
10. Huma, P. & Nayeem, S. (2017). *Data collection*. *Media & Communication Studies*. <https://www.researchgate.net/publication/319128325>
11. Kim, J., Kang, J. H., Kim, S., Smith, T. W., Son, J. & Berkold, J. (2009). *Comparison between self-administered questionnaire and computer-assisted self-interview for supplemental survey nonresponse*. *Field Methods*, 22 (1): 57-69. <http://dx.doi.org/10.1177/1525822X09349925>
12. Knowles, E. S. (1988). *Item context effects on personality scales: Measuring changes the measure*. *Journal of Personality and Social Psychology*, 55(2): 312-320, doi: <http://dx.doi.org/10.1037/0022-3514.55.2.312>
13. Leung, W. C. (2001). *How to design a questionnaire*. *Student British Medical Journal*, 9:187-189.
14. Menold, N., & Bogner, K. (2016). *Design of rating scale in questionnaire*. *GESIS- Leibniz Institute for the Social Sciences*. doi: 10.15465/gesis-sg_en_015
15. Menold, N., & Kemper, C. J. (2015). *The impact of frequency rating scale formats on the measurement of latent variables in web surveys – An experimental investigation using a measure of affectivity as an example*. *Psihologija*, 48 (4): 431-449. doi: <http://dx.doi.org/10.2298/PSI1504431M>.
16. Micheal, R. H., & Jeremy, J. S. (2016). *Open-versus close-ended survey questions*. *Business Outlook*, 14(2): 1-5
17. Netemeyer, R. G., Bearden, W. O. & Sharma, S. (2003). *Scaling procedures: Issues and applications*. Thousand Oaks, CA: Sage Publications.
18. Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric theory*. 3rd ed. New York, NY: McGraw-Hill.
19. Nworgu, B.G. (2006). *Educational research: Basic issues and methodology*. Ibadan: Wisdom Publishers Limited.

20. *Oddgeir, F., & Jan, H. R. (2013). A comparison of open-ended and close questions in the prediction of mental health. Qual Quant, 47: 1397-1411*
21. *Rattray, J. & Jones, M. C. (2007). Essential elements of questionnaire design and development. Journal of Clinical Nursing, 16(2):234-243. <http://dx.doi.org/10.1111/j.1365-2702.2006.01573.x>*
22. *Sapsford, R., & Jupp, V. (2006). Data Collection and Analysis. Thousand Oaks, CA: Sage Publications.*
23. *Saunders, M. P. & Lewis, E. (2007). Research Methods for Business Students, (4th ed.) Harlow England, Prentice Hall: Pearson Education*
24. *Stehr-Green, P. A., Stehr-Green, J. K. & Nelson, A. (2003). Developing a questionnaire. FOCUS on Field Epidemiology. 2(2):1-6.*
25. *van de Vijver, F. & Poortinga, Y. H. (1992) Testing in culturally heterogeneous populations: When are cultural loadings undesirable? European Journal of Psychological Assessment. 8(1): 17-24.*
26. *Vogt, W. P., Paul, D. C., Gardner, G. & Lynne, M. H. (2012). When to Use What Research Design, New York: Guilford*
27. *Waltz, C., Strickland, O. L. & Lenz, E. (2010). Measurement in nursing and health research. 4th ed. New York, NY: Springer Publishing Company.*
28. *Zull, C. (2016). Open-ended questions. GESIS- Leibniz Institute for the Social Sciences. doi: 10.15465/gesis-sg_en_002*