

## ENHANCING QUALITATIVE SOCIAL RESEARCH USING WEB-BASED RESEARCH INSTRUMENTS

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### **Abstract**

Social scientists typically employ structured research instruments, notably surveys and questionnaires, for the purpose of gathering information from a sample of individuals, to facilitate the exploration and understanding of social issues. This paper x-rays the potential impacts, and examines the benefits of the adoption of hosted (web-based) research instruments, on studies carried out by a wide spectrum of researchers. Online survey research design was adopted for this study, aimed at gathering information about the driving behaviours of motorists. The population consisted of licensed motorists and the instrument employed for data collection was a web-based questionnaire. Findings reveal among others, that motorists are more conscious about warning indicators than safety signals/symbols. This paper also discusses how the widespread acceptance and deployment of online research instruments could tremendously improve the quality of social research in Nigeria, and concludes that by implication, generally enhance the quality of the Nigerian educational system. Amongst other recommendations, this paper suggests that increased participation in web-based surveys could be achieved by broadcasting online announcement messages to friends and potential respondents using e-mails, and popular social networking platforms, like facebook and hi5.

Researches carried out by social scientists are literally referred to as social research. In most cases, such researches are conducted with a view to systematically

investigate social issues. Neuman (1997) maintained that social methods used to carry out a social research could generally be subdivided into two broad categories; Quantitative methods, and Qualitative methods.

Quantitative methods are concerned with attempts to quantify social phenomena, collect and analyse numerical data, and focus on the links among a smaller number of attributes across many cases. Conversely, Punch (1998) stated that qualitative methods emphasize personal experiences and interpretation over quantification, are more concerned with understanding the meaning of social phenomena and focus on links among a larger number of attributes across relatively few cases. While very different in many aspects, it is pertinent to note that both qualitative and quantitative approaches involve a systematic interaction between theories and data. Established methods (or instruments) for conducting research include; Interviews, Observations, Recordings, Conversations, Surveys and Questionnaires. However, this paper focuses on surveys and questionnaires, and explores the effects of the deployment of these research instruments on the quality of social research in Nigeria.

### **Surveys and Questionnaires**

Oppenheim (1972) pointed out that a survey is a method of gathering information from a sample of individuals. He also noted that surveyors collect information by means of standardized procedures ensuring that every individual is asked the same questions virtually the same way.

He also explained that surveys are usually conducted on a fairly large scale and may last from a few months to many years but ideal surveys are designed to go through a number of stages or cycles of stages which include:

- i. Deciding the aim of the research and establishing the goals to be achieved.
- ii. Selection of target groups (the sampling process).
- iii. Designing or adapting relevant research methods and techniques.
- iv. Collecting and analyzing the data from respondents.
- v. Analyzing the results and drawing conclusions.

Having highlighted the various stages of conducting an ideal survey, it becomes evident that an ideal survey could be a complicated task and so should be approached technically with proper planning.

#### **Designing a Survey**

The quality of a survey is largely determined by its purpose and the way it is conducted and this necessitates the need for a design plan when conducting a survey. As stated in the previous section, an ideal survey is structured to go through the various stages of a design plan. These stages include:

##### **(i) Deciding the aim of the research and establishing the goals to be achieved.**

The first step in any survey is deciding the goals to be achieved. In this light, it is imperative to ensure the goals of the survey are made very specific so as to get usable results from responses.

##### **(ii) Selection of target groups (the sampling process).**

Two main components are considered in determining the target groups. The first is deciding what kind of people to interview. Researchers often call this

group the target population, as their responses are germane to the aim of the research being conducted. The other component is the sample size. This refers to the number of respondents to be sampled to get a useful or usable result. It is recommended that the larger the sample, the more precisely it reflects the target group (Kitchenham & Pfleger, 2003).

##### **(iii) Deciding on relevant research methods and techniques.**

After deciding on the sample, it is expedient to carefully decide on the method of data collection as the various methods have their pros and cons (Oppenheim, 1972). To get a relative comparison of the various research methods, attempt has been made to analyze some of the different methods in the succeeding section of this paper.

##### **(iv) Collecting data from respondents**

The whole essence of a survey is to gather information that could be well-analysed to provide significant insight into the subject being researched or surveyed. The different methods of data collection (enumerated in the next section) are affected by various factors including; speed, cost, internet usage, literacy and sensitive questions.

##### **(v) Analyzing the results and drawing conclusions**

Gillham (2000) pointed-out that a thorough analysis of the results from surveys using proven statistical techniques, is necessary for reaching a logical and useful conclusion.

### **Survey Methods**

Various methods of conducting surveys abound. These methods will be briefly discussed in this paper.

### **The Interviewing Method**

This could be either Telephone or Personal interviews. An interview is said to be Personal when the Interviewer presents the questions face-to-face with the Interviewee. Such interviewing method could take place in the home, or at any location. Personal interviews are more suitable for survey relating to a product as it affords the interviewee an opportunity to see, feel and/or taste the product as the case maybe. On the downside, Personal interviews usually cost more per interview than other methods, particularly with in-home interviews, where travel time is a major factor.

Couper (2008) opined that telephone Survey is arguably one of the most popular interviewing methods especially in developed countries with nearly universal telephone coverage as over 90% of homes have a telephone. It offers a faster means of contacting respondents than the other methods. However, Harder and Kuhne (2012) explained that telephone interviewing/survey was becoming more challenging with the growing reluctance of potential respondents to partake by using their answering machines to screen in-coming calls as most assume that telemarketers usually disguise to be legitimate researchers. In addition, the fact that potential respondents are away at work during working hours also makes it difficult to get respondents to telephone interviews.

### **Mail Survey Method**

This simply involves sending the survey questions to the target population by mail. It is relatively less expensive and is recommended when you have the names and addresses of the target population, but not their

telephone numbers. It is particularly suited for questions involving pictures. However, Mail surveys take longer time than other kinds. Researchers will need to wait several days or weeks after mailing out questionnaires before getting most of the responses.

### **Electronic Mail (E-mail) Survey Method**

E-mail surveys are both more economical and faster than the regular mail surveys (Kaplowitz, Hadlock, and Levine, 2004). They have the capacity to incorporate pictures and sound files. Research has shown that more people have e-mail than have full Internet access. This makes e-mail a better choice than a Web page survey for some populations. E-mail surveys are best used in a corporate environment where e-mail is common or when most members of the target population are known to have e-mail. On the downside, E-mail surveys cannot be used to generalize findings to the whole population. General dislike for unsolicited e-mail, and respondents not checking and/or responding promptly to E-mails are notable disadvantages of using the e-mail survey method.

### **Internet / Intranet Survey Method**

These are Web-based surveys which are fast gaining popularity and the focus of this research. Schonlau, Flicker, and Elliot (2002) posited that a questionnaire posted on a popular Web site can gather several thousand responses within a few hours. In addition, they are cost effective and could be designed to show pictures, video and play sound. Web page questionnaires can use complex question skipping logic, randomizations and other features not possible with paper questionnaires or most e-mail surveys. However, the use of Web-based surveys is not without some drawbacks. Baker, Woods, and Reynolds (2007) explained that because current use of the Internet is far from universal, Internet surveys do not reflect the

population as a whole, even if a sample of Internet users is selected to match the general population in terms of age, gender and other demographics.

### **Potential Impacts of the Adoption of Web-based Research Instruments**

Online (web-based) surveys have a significant influence on survey methodology vi. because the web offers profound advantages over more conventional survey techniques (Harde, Crowson, Xie & Ly, 2007). To effectively gauge the effects or consequences of the adoption of web-based surveys and questionnaires, effort would be made to vii. highlight identified strengths and weaknesses of online surveys and online questionnaires.

### **Strengths of Online Surveys**

Zanutto (2001) maintained that there was no other method of collecting survey data that offers so much potential for so little cost as Web surveys. In a similar view, Harde, Crowson, Xie & Ly (2007) opined that other advantages of Web surveys include: faster response rate; and relative ease to process survey data, based on the possibility to downloaded responses to a spreadsheet data analysis package, or a database. They also identified some possibilities that cannot be included in paper surveys, these include the inclusion of pop-up instructions for selected questions; and, the use of drop-down boxes. Evans and Mathur (2005) argued that respondents are more likely to give more honest answers to sensitive topics like sex and drugs or questions which seem to reveal their level of ignorance and/or awareness. Couper (2000) identified the multimedia capability of Web surveys as a real advantage as they could be could be designed to show pictures, video and play sound. In a similar view, Schonlau, Fricker and Elliot (2002) lauded the speed with which responses to online survey are collated

and reported that a questionnaire posted on a popular Web site can gather several thousand responses within a few hours.

### **Weaknesses of Online Surveys**

Zanutto (2001) discussed a number of issues which reveal the limitations of Online surveys. These include:

Questionnaires do not always look the same in different web browsers and on different monitors, this may lead to respondents seeing different views of the same question, and not receive the same visual stimulus that could influence their responses.

Respondents are much likely to have different levels of computer expertise, and the lack of computer expertise can be a source of error or non-response.

viii. The researcher or surveyor is faced with concerns about the level of data security on the server to ensure that the personal data of respondents is kept private and secure in line with established privacy and data protection guidelines.

Cobanoglu(2001) explained that Internet surveys do not reflect the population as a whole, because not all potential respondents have access to the internet which necessitates participation in web-based surveys.

### **Merits of the Use of Online Questionnaires**

The advantages of online questionnaires include:

- (i) **Speed and volume of data collection:** Kaplowitz, Hadlock, and Levine (2004) observed that the use of online questionnaires enables the researcher to collect large volumes of data at anytime of the day, quickly and at reduced cost.
- (ii) **Savings in costs:** Costs associated with online questionnaires can be substantially lower than those associated with onsite survey methods. This is because the costs

for paperwork, travel and other costs associated with onsite methods of data collection are eliminated with the use of online questionnaire.

- (iii) **Flexible design:** Online questionnaires can provide a superior questionnaire interface compared to onsite survey methods, this is based on the possibility to make them more user friendly and attractive, thus facilitating respondent's motivation to complete the questionnaire (Couper, 2000).
- (iv) **Data accuracy:** Responses from online questionnaires can be automatically inserted into spreadsheets, databases or statistical packages. This enhances automated data processing, and results in a reduction of human error in data entry.
- (v) **Access to research populations:** Online questionnaires are useful in providing direct access to small specific population sub-groups, such as people with specific illnesses, family structures, particular ethnicities, or the socially and physically isolated groups.
- (vi) **Respondent anonymity:** Harder, and Kuhne (2012) reported that respondents are more likely to answer socially embarrassing or threatening questions in online questionnaires compared to onsite surveys.
- (vii) **Data analysis:** Gillham (2007) suggested that the analysis of closed questions is relatively straight-forward and because online questionnaires are usually designed using closed questions with predetermined answers, they could be automatically exported into spreadsheets and other statistical packages for efficient analysis.

#### **Demerits of Online Questionnaires**

Some of the inherent disadvantages with the use of online questionnaires include;

- (i) **Problems of motivating respondents:** Gillham (2007) argued that few people are motivated by questionnaires unless they can see it having personal relevance.
- (ii) **Measurement error:** Sax, Gilmartin, and Bryant (2003) observed that online surveys are, in most cases, subject to a considerable level of unreliability (or measurement error) because responses to the same question vary if the questionnaire is administered online or onsite.
- (iii) **Non-response bias:** this essentially refers to the bias introduced when the respondents who answer an online questionnaire have very different attitudes or demographic characteristics to those who do not respond.
- (iv) **Length, response and dropout rates:** Couper (2008) suggested that online questionnaires are designed to be shorter than those conducted onsite as respondents tend to blatantly abandon online questionnaires easier than onsite survey methods.
- (iv) **Technical problems:** There are potential problems associated with the use of online questionnaires. Reid (2000) maintained that technical variance in computers, monitors, browsers and internet connections may have significant design implications on the development of online questionnaires.
- (v) **Ethical issues:** Umbach (2004) posited that protecting respondent privacy and confidentiality was a significant ethical issue in social research. He also suggested that to maintain ethical standards, researchers must be very careful not to

unwittingly collect information without respondent permission. In relation to data privacy and security, he stressed that data security is also important to protect the anonymity and confidentiality of the respondent.

### **Effects of the Deployment of Online Research Instruments on Social Research**

To highlight the impact of the deployment of online research instruments on the quality of social research, a study was conducted to assess motorists' ability to recognize, understand and take the most appropriate action on noticing various warning and safety symbols on the dashboard of vehicles.

### **Design and Sample**

An online survey research design was adopted for this study. The population of the study consisted of licensed motorists. The research instrument, and online questionnaire, was accessed by 2024 respondents within a week. However, a total of 1865 respondents completed the survey. This response rate of 93.25% was considered sufficient to draw meaningful conclusions.

### **Instrumentation**

The instrument used for data collection was a web-based questionnaire. Responses were saved in a database connected to the questionnaire. The instrument was designed to obtain information on the understanding of various signals/symbols and audible reminders on the dashboard of vehicles by motorists. It was made up of a total of 50 questions divided into two classes. The first class was designed to test respondents' understanding/appreciation of warning indicators, while the second class was to test respondents' appreciation of safety precautions. These questionnaire content was handed to a couple of experts for validation in

the area of logic, clarity and intelligibility. Minor corrections were effected on the basis of their feedback.

### **Findings**

Responses from respondents saved in the database were imported into Microsoft excel, a renowned electronic spreadsheet for effective data analysis. Consequently, the imported data was automatically converted to bar charts and thus the following findings/results were arrived at based on careful analysis of the information presented in the bar chart:

- (i) Majority of respondents gave correct answers to the class of questions designed to test respondents' understanding of warning indicators than those designed to test motorists appreciation of safety precautions suggesting that motorists are less conscious about safety precautions.
- (ii) Automatically importing responses from online questionnaire into statistical packages save substantial time spent on data analysis, and ensures data processing is automated, thereby reducing common data entry human errors.
- (iii) In as much as online questionnaires are usually designed using closed questions with predetermined answers, they could easily be imported into spreadsheets and other statistical packages for efficient analysis.
- (iv) Online questionnaires help to save enormous administrative costs and serves as a medium to reach out to a large group of potential respondents within a relatively short space of time as it provides a platform for respondents to access the questionnaires using internet-enabled devices from remote locations and at any time of the day.

- (v) Sophisticated dashboard designs with plethora of indicators could adversely affect driving performance as these indicators could distract the attention of drivers.
- (iii) Ensure that colours and multimedia features are used sparingly in the development of the online questionnaire.

### **Conclusion**

The ultimate aim of using hosted research instrument is to obtain more reliable research results. Having reviewed the advantages and disadvantages of the use of online research instruments, we could conclude that the advantages of the deployment of web-based research instruments clearly outweigh the disadvantages (Gold, 2007; Gingery, 2000; Reid, 2000). By appropriating these findings to the Nigerian context, we could safely infer, by direct implication, that the widespread acceptance and deployment of web-based research instruments by Nigerian researchers would substantially enhance the quality of social research in Nigeria and ultimately, result in a significant improvement in the quality of the Nigerian educational system.

### **Recommendations**

Based on the findings of the study, it is recommended that surveyors developing a questionnaire to be placed on the Web to enhance its accessibility should make concerted effort to ensure that the questionnaire is developed to:

- (i) Include a Welcome (introduction and instructions) page, that is motivational and with clear information emphasizing the purpose of the research survey, and how the questionnaire is to be completed.
- (ii) Include incentives to encourage participation thereby increasing response rate to enhance the validity of the results.
- (iv) Ensure simplicity and consistency in the design of the different pages (or questions) of the questionnaire.
- (v) Meet the research objectives by ensuring that the questionnaire is worded to persuade respondents to provide precise information.
- (vi) Export the saved responses (results) from participants saved in the database unto Spreadsheets like Microsoft Excel or other statistical packages so they could easily be converted to more effective data analysis instruments like graphs and charts for the results of the research to be efficiently analyzed.
- (vii) Increase participation on the Web-based research survey by attracting visitors to the site by manually enlisting the main page on popular search engines like Google and yahoo search, advertise the site on print and electronic media, and publicize the page by broadcasting announcement messages to friends and potential respondents using emails, and popular social networking platforms such as facebook and hi5.

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