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Demystifying Survey Research: Practical Suggestions for Effective Question Design

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Abstract

Objective - Recent research has yielded several studies helpful for understanding the use of the survey technique in various library environments. Despite this, there has been limited discussion to guide library practitioners preparing survey questions. The aim of this article is to provide practical suggestions for effective questions when designing written surveys.

Methods - Advice and important considerations to help guide the process of developing survey questions are drawn from a review of the literature and personal experience.

Results - Basic techniques can be incorporated to improve survey questions, such as choosing appropriate question forms and incorporating the use of scales. Attention should be paid to the flow and ordering of the survey questions. Careful wording choices can also help construct clear, simple questions.

Conclusion - A well-designed survey questionnaire can be a valuable source of data. By following some basic guidelines when constructing written survey questions, library and information professionals can have useful data collection instruments at their disposal.

Introduction

Survey research is often undertaken for a number of reasons. Simply put, the survey is a “type of research in which a sample of individuals is asked to respond to questions” (Case 190). Library surveys may attempt to obtain input on awareness of library services, ease of access, quality and relevance of services, effectiveness of outreach efforts, and reasons why services or resources are not being used (Bertot and Davis; Plosker). According to Novotny, examples of survey research include “a questionnaire distributed after a library instruction session; a user satisfaction form given to every person entering the library; a telephone survey of a random sample of city residents; and a small group interview with some students about the library’s policies” (20). The survey approach can also reveal service issues and opportunities, identify unmet needs, and obtain input for strategic planning.

In survey research, questionnaires are often used as “the primary data-collection instruments” (Busha and Harter 61). As such, survey questionnaires can be designed to assess the needs of both current and potential customers (Plosker 65). Thus, survey questions can explore issues of satisfaction with current services, perceived needs for other kinds of information, other outside sources of information that are used, how libraries can provide better service, and the perceived role of the library.

The survey process begins by determining what topics or areas of interest would benefit from surveying. For example, gauging user reaction to a new service or evaluating the effectiveness of an outreach program. While some surveys (*e.g.* nationally conducted surveys) sometimes cover a broad range of topics, one strategy is to limit an inquiry to a narrowly defined issue which will allow for an appreciation of a single topic’s complexity. Thus,

identifying the survey’s specific purpose and considering how the data acquired from the survey will be used are important considerations. After understanding fully the survey’s purpose, what information is needed, and how that information will be used, then the types of survey questions to be asked will be determined (Fink 8).

The survey approach encompasses a variety of methods of data collection and the manner in which answers to research questions are obtained must also be taken into account. For instance, surveys can be conducted over the telephone (Plosker 66). Surveys may also be administered by an interviewer in face-to-face encounters, such as interviewing individuals in person or interviewing people together in small groups. With *self-administered* questionnaires, questions are administered in writing and respondents are asked to complete the questionnaire themselves. A common form of self-administered questionnaire is the mail survey (Babbie 266). There is increasing and widespread use of electronic versions of questionnaires, such as email or Web-based surveys. Fink highlights some of the similarities and differences between online surveys and other self-administered questionnaires, such as traditional paper-and-pencil surveys. Useful summaries of web-based surveys also help identify many considerations associated with web-based surveys, such as time and cost, response rates, and follow-up procedures (Gunn; Franklin and Plum; and Hayslett and Wildemuth). Thinking about data collection methods when designing the questionnaire is important because issues, such as having adequate resources and available expertise for analyzing and interpreting them, are important considerations to be addressed before the questionnaire is distributed.

As noted, a survey “is a method of collecting information directly from individuals” (Novotny 19). A common element of

surveys is observations or measurements (Line 13; Powell and Connaway 84). Walden describes a range of sources in survey research methodology to serve both the novice and the expert. Powell and Lorenzetti assist with the identification of study designs suitable for library research. Gothberg, Novotny, and Powell and Connaway offer helpful discussions on the various types of survey studies in library and information science research, including issues of sampling, data collection, and data analysis.

Numerous studies in librarianship have “relied upon the survey approach” (Busha and Harter 88). A review of the recent library and information science literature has yielded several, mostly descriptive, studies about how the survey technique has been deployed in various library environments (for example, see: Chen and Chen; Franklin and Plum; Perkins and Yuan; Shenton and Johnson; Tennant et al.; Walter). Major themes in the literature concentrate on the information-seeking behavior of users or evaluating a specific library service or program. While much of the existing research is useful for understanding the use of surveys in general, there has been limited discussion in the library and information science literature on the process of constructing effective survey questions suitable for library research (Janes; Jerabek and McCain; Novotny). As a result, further

guidance to assist library practitioners preparing written survey questions is warranted and will be addressed in this article.

When well-constructed and implemented effectively, survey questionnaires can be useful data collection tools. There are several key steps in constructing a well-designed survey questionnaire. A survey *questionnaire* is “an instrument specifically designed to elicit information that will be useful for analysis” (Babbie 253). As such, Peterson states “questionnaire construction is one of the most delicate and critical research activities” (13). The aim of this article is to provide practical suggestions and advice useful to library practitioners trying to craft their own survey questions. Table 1 highlights some of the commonly seen problems with survey questions that this article seeks to address.

Recommendations are drawn from several sources, including the works of Babbie, Converse and Presser, Fowler, Janes, Plosker, and personal experience (for example, see: Charbonneau et al). It is not intended to be an exhaustive list, but rather a set of guiding recommendations for constructing survey questions gleaned from a selective review of the literature. This includes choosing appropriate question forms, techniques for measuring attitudes, strategies for helping respondents recall past activities and the importance of pretesting.

- Negative wording or leading statements
- Double-barreled (single question has multiple parts)
- Use of jargon, vague, or confusing language
- Not specific for recall of past activities (need to narrow the reference period)
- Agree-disagree statement does not fully capture range of intensity (try using scales)

Table 1. Common Problems with Survey Questions

Suggestions and Considerations

Use Simple Language and Avoid Jargon

In general, survey questions should observe several guidelines. Researchers have emphasized the need for “simplicity, intelligibility, and clarity” when crafting survey questions (Converse and Presser 10). As Janes notes, “people will answer the question you ask them, not necessarily the question you wanted to ask them” (322). Thus, the wording of survey questions is critical. In fact, the wording of questions can influence the way in which people respond. Using simple and clear language should not be underestimated in survey research. McMain and Jerabek suggest avoiding jargon, such as scientific terms, library, or vendor-specific terminology, and instead using everyday language whenever possible. When appropriate, definitions or explanations of terms should be provided. This is in agreement with several other studies that found that the use of library jargon and terminology can be problematic for users (for example, see: Chaudhry and Choo; Cobus et al.; Hutcherson; McGillis and Toms). Therefore, it is important to be cognizant of the terms that users prefer, or those that users are more likely to be familiar with, and to construct questions accordingly. Respondents should be able to “read an item quickly, understand its intent, and select or provide an answer without difficulty” (Babbie 258).

Asking specific, rather than general questions, is typically a good rule to follow. Questions should be “precise so that the respondent knows exactly what the researcher is asking” (Babbie 255). Moreover, if respondents are being asked to select the one best answer from among the options that are provided, then this should be clearly stated in the instructions. Using negative language or leading statements should be avoided because the appearance

of such language in a questionnaire can lead to unnecessary confusion or misinterpretation. For example, words such as *control*, *restrict*, or *oppose* convey negative meanings and should be avoided (Converse and Presser 14). The following question is a classic example of a leading statement: “Do you own a library card?” (Fowler 36). According to Fowler, “when a question is phrased like this, there is a tendency for respondents to think that the researcher expects a “yes” answer” (36). Therefore, one possible alternative may be: “Many people get books from libraries. Others buy their books, subscribe to magazines, or get their reading materials some other way. Do you have a library card now, or not?” (Fowler 36). This wording provides some legitimacy and some reasons why the “no” response is acceptable. Other examples of negative wording and leading statements include questions beginning with “Are you aware that” and “Do you agree.”

Open-ended vs. Close-ended Questions

Choosing to incorporate open-ended questions, close-ended questions, or a combination of both question forms is also an important consideration. In general, close-ended questions are easy to tabulate and analyze because respondents must choose from among the offered alternatives. In the case of closed-ended questions, the “respondent is asked to select an answer from among a list provided by the researcher” (Babbie 254). Limiting the number of responses available “ensures that everyone is using the same terminology” (Novotny 35). As such, closed-ended questions may also be referred to as *forced-questions* (Bertot and Davis 59). For example, close-ended questions can be constructed as “yes, no, uncertain” or “multiple choice.” When designing a close-ended question, it is important to consider all of the possible responses and to address these in your question so that respondents know what

information to provide (Novotny 39). Questions about occupation, education level, gender, age, and other demographic characteristics are commonly constructed as close-ended questions. Other examples of close-ended questions include:

- Did you find the workshop helpful? (yes or no)
- Would you recommend this [workshop or library service] to a co-worker? (yes or no)
- Would you like the library to offer a one-hour workshop on [topic or resource]? (yes or no)

Open-ended questions are another option available to consider when creating questions. Open-ended questions are “essay types that allow the user to express more in-depth input as well as allow for opinions and views” (Plosker 67). Basically, open-ended questions are when “the respondent is asked to provide his or her own answer to the question” (Babbie 254). As such, open-ended questions can elicit responses from the respondents in their own words. Examples of open-ended questions include:

- What other services would you like to see us offer?
- What suggestions would you make to improve the [library service]?
- What do you like most about the [library service] currently provided?
- What did you find helpful about the workshop?
- What services were you looking for today that were not found on the [Library’s] Web site?
- What was your reason for using the [Library or library service] today?

Thus, open-ended questions can be utilized to gain a richer understanding from the users’ perspectives. Furthermore, the use of *probes*, such as asking for an example or if there is anything else that respondents

would like to add to their answer, is another useful approach to elicit added input (Converse and Presser 43). Probe questions are most frequently used to follow-up answers to prior open-ended questions (Peterson 31).

In addition, open-ended questions are particularly useful when not all of the possible responses can be identified when constructing response options. Converse and Presser state “when not enough is known to write appropriate response categories, open questions are to be preferred” (34). However, it is also recommended that “no more than 10 percent of total survey questions be open-ended” (Plosker 67). This is due in part because of the effort required on behalf of the researcher to process and analyze such narrative responses to open-ended questions. As Fowler notes “answers in narrative form produce data that researchers sometimes find difficult to work with” (178). In particular, answers must be coded; someone must read the complexity of the answers and put them into meaningful categories for analysis which is a different process from when respondents answer in a more structured way. This recommendation for the use of open-ended questions is also due in part because open-ended questions require more time on behalf of the respondents to answer and may add significantly to the survey time. It is important to keep in mind that “survey research involves an imposition on those surveyed” (Hernon 83). Therefore, a concerted effort to ensure that respondents are not overwhelmed or experience survey fatigue is imperative.

Multiple Questions on a Topic

Some items warrant more than one question for investigation. By asking similar questions a number of times, any “distorting effects that may occur as a result of the

respondent misinterpreting a single question" can be reduced (Novotny 35). Therefore, another recommendation is to ask about an item in several different ways. As a general strategy, one can "look for questions that cast light at different angles" (Converse and Presser 47). This can be accomplished using *composite measures* that typically involve the measurement of an attitude or behavior in which several items are devised to help measure a single concept (Babbie 156). For example, crafting questions regarding usage of digital reference services and other electronic resources can be combined to create a composite of online user behavior (Bejune and Kinkus 188). Line also notes "much greater precision and objectivity can be obtained by employing several questions on the same matter" (63). As such, using multiple measures can help to reveal the complexity of attitude about an issue. Multiple questions that seek to explore satisfaction may include: "how satisfied are you with today's visit to our building," "how satisfied are you with today's visit to our web site," and "how helpful was the library staff today in answering your question." Thus, such *composite measures* provide a richer context of inquiry.

Incorporating Scales

Surveys are "excellent vehicles for measuring attitudes" (Babbie 252). In fact, one of the most popular ways that attitude is measured are agree-disagree statements; however, this form has come under scrutiny

for not offering a range of possible options for respondents (Converse and Presser 38). Consequently, one recommendation is to incorporate the use of scales, which is a type of composite measure "composed of several items that have a logical structure among them" (Babbie 157). As such, scales offer the advantage of moving beyond simple agree-disagree statements and are useful for assessing "a dimension of attitudinal position, with intensity, and how strongly a position is felt" (Converse and Presser 38).

The Likert scale is a commonly used format. Likert items are those using such response categories as "strongly agree, agree, disagree, and strongly disagree" (Babbie 174). Somewhat similar to the Likert format, the *semantic differential* format asks respondents to choose between two dichotomous positions. However, the semantic differential rating scale is represented as a "seven-point scale labeled at either end by opposing positions" (Converse and Presser 37). Respondents are asked to rate something in terms of two, opposite adjectives (slight through extreme; *i.e.* good-bad) and the various points on the scale bridge the distance between the two opposites (Babbie 175). For example, a semantic differential rating scale can be used to measure satisfaction. (See Table 2). A semantic information measure is based on the "assumption that the more content elements implied by a statement, the more information it provides" (Tague-Sutcliffe 70). Over the years, several Likert-type scales and several variations of the semantic

Very important	1	2	3	4	5	6	7	Not important
Very helpful	1	2	3	4	5	6	7	Not helpful
Excellent	1	2	3	4	5	6	7	Seriously inadequate
Friendly	1	2	3	4	5	6	7	Unfriendly
Polite	1	2	3	4	5	6	7	Rude

Table 2. Examples of Semantic Differential Scales

differential rating scale have been offered (Peterson 75). Nonetheless, both the Likert and semantic differential scales attempt to improve the levels of measurement through the use of “standardized response categories in survey questionnaires to determine the relative intensity of different items” (Babbie 174).

Narrowing the Reference Period

Other strategies are appropriate for when respondents are being asked to recall past events and activities. One useful strategy is called *narrowing the reference period* (Converse & Presser 21). This technique provides a common frame of reference and enhances the validity of the reporting of the past. In fact, it may be helpful to reduce the reference period to the immediate past. For example, respondents can be asked to indicate how often they used a specific library service or resource within the last week, over the past weekend, or yesterday. Likewise, the *critical incident technique* is a method that has been used in library use studies (for example, see: Andrews; Bush et al.; Siegel et al.; Urquhart et al.). In such cases, individuals were asked to report on actual instances “which contributed significantly to the activity or behavior under investigation” (Line 51). For instance, asking respondents about incidents in which searches using a specific database were either effective or ineffective is an example of using the critical incident technique. Furthermore, using *landmarks* is another useful technique to anchor the timing of events (Converse and Presser 22). For example, survey questions inquiring about information behaviors or utilization of services since the start of the new calendar year or the start of a semester may prove fruitful.

Other Considerations

Double-barreled questions are a common problem and can be easily avoided. A *double-barreled question* is when a “researcher asks respondents for a single answer to a question that actually has multiple parts” (Babbie 255). For instance, consider the following survey question: “Please indicate which types of information you need to support your teaching and research.” A good rule to follow is whenever the word *and* appears in a question, check whether the question is asking multiple items (Babbie 255). A better way to phrase the question is to re-write the question as two separate questions: “Please indicate which types of information you need to support your teaching” and “Please indicate which types of information you need to support your research.” A list of response categories for respondents to select from should follow each question. Additional examples of multiple statements commonly seen in surveys include:

- The library staff is readily available, courteous, professional, and inviting.
- Study space in the library is readily available, quiet, and conducive to study.
- The library communicates information about hours, services, and resources adequately.
- The library delivers articles and books requested through InterLibrary Loan in a reasonable timeframe.
- The library’s web site is informative and up-to-date.
- The library has sufficient evening and weekend hours of service.

Each of the above statements is asking about multiple items. As such, the statements should be closely examined and re-written. For instance, the statement: “The library has sufficient evening and weekend hours of service” can be improved when revised as two separate statements: “The library has sufficient

evening hours of service” and “The library has sufficient weekend hours of service.”

Once the survey questions are crafted, layout and design issues relating to the construction of the questionnaire itself should be addressed. The questionnaire format should “maximize white space in the form,” be uncluttered, and pleasing to the eye (Janes 324). It is also customary to include a “cover letter stating the purpose of the research and providing an explanation of the importance of providing a response” (Losee and Worley 145).

Importance of Pretesting

Pretesting (or piloting) a survey questionnaire is always recommended (Converse and Presser 51). A pretest is a “kind of dress rehearsal” done for clarification and refinement (Spaeth 71). Bertot and Davis state that “the library needs to engage in a survey design process that includes pre-tests of both the survey questions and forms (be they electronic or print)” (59). Respondents are “sensitive to the context in which a question is asked” (Converse and Presser 39). Thus, pretesting survey questions will help elucidate whether the instructions were clear and whether or not the questions provided answers to the questions as posed “in the sense of producing meaningful information” (Peterson 46).

Pretesting also assists in identifying question problems and practical aspects of the questionnaire itself; such as making sure the questions are clear and the questionnaire is reasonably easy to complete (Fowler 132). Pretests can be instrumental in helping to catch problems of poor ordering or confusing wording; especially if the survey is tested in face-to-face encounters. When surveys are pretested in situations where body language and nonverbal cues can be observed, important insight can be gleaned

to refine the survey questions and overall questionnaire format (Janes).

Peterson states “all aspects of a questionnaire’s structure, from question sequencing to appearance [and] individual question wording and format, should be assessed” to determine any potential problems (115). In addition, Novotny suggests that unexpected responses may indicate a problem “with the question’s wording, or the set of options provided” (42). Additional problems to look for when pretesting include “respondents skipping questions, selecting more than one answer to the same question, [and] making notes in the margins” which are all indications that the survey instrument is unclear in some way (Novotny 42). Furthermore, pretesting the questionnaire and looking at the consistency of the responses to the questions helps to demonstrate the reliability of the questionnaire and may highlight potential problems with data collection and analysis. Lee provides a useful overview of reliability and validity issues that researchers should be aware of when conducting survey research in libraries.

Conclusion

In summary, a well-designed survey questionnaire can be a valuable source of data and as such surveys are popular in library research. Chauvel and Despres argue that the survey technique “brings an issue into focus by defining and detailing its various characteristics” and allows library practitioners to respond in a relatively quick manner (208). Drawing from the existing literature, a number of useful techniques to improve survey questions emerge. For instance, the use of different types of questions or specific rating scales (*i.e.* Likert scale or semantic differential scale) can be used to measure the degree and intensity of the respondents’ attitudes. Careful wording choices can also help construct clear and easy-to-understand questions. Furthermore,

an effort should be made to ensure that only one question for each item is being asked and that negative words are not being used to bias responses. In conclusion, constructing carefully written questions and a well-designed survey questionnaire can help illuminate the needs and desires of both current and potential library clientele, shape or reshape services, or guide strategic planning decisions.

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