Chapter II
Web Survey Design

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ABSTRACT

The Web survey design chapter covers the process of creating a Web (online) survey system. Along with technical requirements, the chapter gives instruction and examples for four stages of Web survey design: determine survey requirements, design initial survey system, pilot test, and system modification. In the determine survey requirements section, the authors direct the reader through steps that design a questionnaire form with data types that will meet the survey requirements. The chapter includes examples of design and coding procedures to be used for Web surveys. In the design initial survey system stage, issues such as user interface design, database design, and application interface design are covered, and recommendations are given. After the survey system is built, the chapter outlines procedures for a pilot test, giving solutions for debugging the system, and how to increase response rate. The chapter ends with methods to revise the system before its final use.

INTRODUCTION

According to Kerlinger (1986), research employs surveys to discover sociological or psychological variables' incidence, distribution, and interrelations. To conduct a survey, researchers today have several different options to choose from, ranging between the traditional paper-and-pencil survey to a Web-based survey. A Web-based survey has advantages over other survey types in that it sharply reduces the cost of data collection, eliminates the interviewer (and their bias) completely (Tourangeau, Couper, & Conrad, 2004), increases responses to sensitive questions (Turner, Ku, Rogers, Lindberg, Pleck, & Sonenstien, 1998), can incorporate images, audio, and video (Couper, Tourangeau, & Kenyon, 2004), and offers higher quality data due to built-in checks that prohibit respondent errors (Dillman, 2000; McCullough, 1998). In a population where each member has Web access, a Web survey can achieve comparable response rates (Kaplowitz, Hadlock, & Levine, 2004).

In this chapter, we define a Web survey as a type of survey using Web technology and server-client architecture. Many surveyors also integrate

Web technology with e-mail to inform participants of the Web address. There are several options for generating Web-based surveys. A Web survey author may develop the entire system themselves (self-development), or use commercial survey services (commercial development). Here, we assume you want to implement a pure self-developed and self-administered Web survey system.

A self-designed and administered survey system has many advantages over commercial survey systems. Researchers have more control over the system. It is easier to monitor the survey and back up the database regularly, and it is flexible so the researcher can fix unexpected problems promptly. Self-designed and administered systems can more easily comply with an organization's security policy, and make the system stable and reliable. For example, a survey designer may choose to host the Web survey on a Linux machine, which is widely recognized as a more secure system than other systems such as Windows. It also allows the researcher to better protect the respondents' privacy, because the researcher has actual control on what data to collect, and how to handle the collected data after the research is completed. Finally, it is cost effective if the researcher possesses the necessary hardware and software. If you have a nice, working computer and fast, Internet access, there is basically no financial cost involved to develop and administer the system.

This chapter provides guidelines for designing a Web survey system. It is for researchers who are not familiar with online surveys, but are interested in them and intend to deploy this approach in their research. To be practical and meaningful, we will design a Web-based survey system for computer icon research as an illustration.

CHAPTER AT A GLANCE

This chapter will help you do the following:

- Determine survey requirements
- Design initial survey system
- Pilot test
- System modification

Determine Survey Requirements

The first stage in designing a Web survey system is preparation. Generally, as a designer, two categories of requirements need to be considered: content or questionnaire design, and technical design.

CONTENT CONSIDERATION

Just as in paper-based surveys, the researcher must outline the objectives of the survey, determine questions to conceptualize the variables in the research problem, determine question types, determine the sample method, and consider scales and anchors (Bailar & Lanphier, 1978). For human-subject related research, the survey generally includes at least three parts. Part one has two pages, a cover letter page and demonstration page. Part two is the main question part, which is directly related to research questions in your study. Last is Part three, which is a "thank you" page.

Technical Considerations

Technically, you need a computer that can be used as the server to run the survey system. You also

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