Chapter V
Online–Questionnaire Design Guidelines

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ABSTRACT

As a new medium for questionnaire delivery, the Internet has the potential to revolutionize the survey process. Online (Web-based) questionnaires provide several advantages over traditional survey methods in terms of cost, speed, appearance, flexibility, functionality, and usability. Designers of online questionnaires are faced with a plethora of design tools to assist in the development of their electronic questionnaires. Little if any support is incorporated, however, within these tools to guide online questionnaire designers according to best practice. In essence, an online questionnaire combines questionnaire-based survey functionality with that of a Web page/site. As such, the design of an online questionnaire should incorporate principles from both contributing fields. Drawing on existing guidelines for paper-based questionnaire design, Web site design (paying particular attention to issues of accessibility and usability), and existing but scarce guidelines for electronic surveys, we have derived a comprehensive set of guidelines for the design of online questionnaires. This article introduces this comprehensive set of guidelines as a practical reference guide for the design of online questionnaires.

INTRODUCTION

As a new medium for questionnaire delivery, the Internet has the potential to revolutionise the survey process. Online (Web-based) questionnaires provide several advantages over traditional survey methods in terms of cost, speed, appearance, flexibility, functionality, and usability (Bandilla, Bosnjak, & Altdorfer, 2003; Dillman, 2000; Kwak & Radler, 2002). Online questionnaires can also provide many capabilities not found in traditional paper-based questionnaires: they can include pop-up instructions and error messages; they can incorporate links; and it is possible to encode difficult skip patterns, making such patterns virtually invisible to respondents. Despite this, and the introduction of numerous tools to support online questionnaire creation, current electronic survey design typically replicates that of paper-based questionnaires, failing to harness the full power of the electronic delivery medium. Worse, a recent environmental scan of online

questionnaire design tools found that little, if any, support is incorporated within these tools to guide questionnaire designers according to best practice (Lumsden & Morgan, 2005). This article introduces a comprehensive set of guidelines; a practical reference guide for the design of online questionnaires.

BACKGROUND

Online questionnaires are often criticised in terms of their vulnerability to the four standard survey error types: coverage, nonresponse, sampling, and measurement errors. Although like all survey errors, coverage error ("the result of not allowing all members of the survey population to have an equal or nonzero chance of being sampled for participation in a survey" (Dillman, 2000, p. 9) also affects traditional survey methods; it is currently exacerbated in online questionnaires as a result of the digital divide. That said, many developed countries have reported substantial increases in computer and Internet access and/or are targeting this as part of their immediate infrastructure development (OECD, 2001; OECD, 2002). Indicating that familiarity with information technologies is increasing, these trends suggest that coverage error will rapidly diminish to an acceptable level (for the developed world at least) in the near future, and positively reinforce the advantages of online questionnaires.

Nonresponse errors occur when individuals fail to respond to the invitation to participate in a survey or abandon a questionnaire before completing it. Given today's societal trend towards self-administration (Dillman, 2000), the former is inevitable, irrespective of delivery mechanism. Conversely, nonresponse as a consequence of questionnaire abandonment *can* be relatively easily addressed. Unlike traditional questionnaires, the delivery mechanism for online questionnaires makes it difficult for respondents to estimate the length of a questionnaire and the time required for completion[1], thus increasing the likelihood of abandonment. By incorporating a range of features into the design of an online questionnaire, it is possible to facilitate such estimation, and indeed, to provide respondents with context sensitive assistance during the response process, and thereby reduce abandonment while eliciting feelings of accomplishment (Crawford, Couper, & Lamias, 2001).

For online questionnaires, sampling error ("the result of attempting to survey only some, and not all, of the units in the survey population", Dillman, 2000, p. 9) can arise when all but a small portion of the anticipated respondent set is alienated (and so fails to respond) as a result of, for example, disregard for varying connection speeds, bandwidth limitations, browser configurations, monitors, hardware, and user requirements during the questionnaire design process. Similarly, measurement errors ("the result of poor question wording or questions being presented in such a way that inaccurate or uninterpretable answers are obtained" (Dillman, 2000, p. 11) will lead to respondents becoming confused and frustrated.

Sampling, measurement, and nonresponse errors are likely to occur when an online questionnaire is poorly designed. Individuals will answer questions incorrectly, abandon questionnaires, and may ultimately refuse to participate in future surveys; thus, the benefit of online questionnaire delivery will not be fully realised. To prevent errors of this kind[2], and their consequences, it is extremely important that practical, comprehensive guidelines exist for the design of online questionnaires. Many design guidelines exist for paper-based questionnaire design (e.g., American Statistical Association, 1999; Belson, 1981; CASRO, 1998; Fink, 1995; Jackson, 1988; Lindgaard, 1994; Oppenheim, 1992; Taylor-Powell, 1998); the same is not true for the design of online questionnaires (Dillman, 2000; Norman, Lee, Moore, Murry, Rivadeneira, Smith, & Ver-

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