Designing Effective Web Surveys

Designing Effective Web Surveys is a practical guide to designing Web surveys, based on empirical evidence and grounded in scientific research and theory. It is designed to guide survey practitioners in the art and science of developing and deploying successful Web surveys. It is not intended as a "cookbook"; rather it is meant to get the reader to think about why we need to pay attention to design. It is intended for academic, government, and market researchers who design and conduct Web surveys.

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For Mary Beth

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I'm also grateful to those persons and organizations who were willing to share with me their examples of design – both good and bad. Many of these examples have become fodder for my critique, but I have also learned a great deal by seeing real examples of what Web survey designers are doing. Similarly, I appreciate those who've allowed me access to their instrument, in various states of readiness, in exchange for suggestions on design improvements. These include, but are not limited to, the Government Accountability Office, the Defense Manpower Data Center, the U.S. Census Bureau, Statistics Canada, Statistics Norway, and Statistics Sweden. I am certainly richer for the exchange.

Many of the examples I've seen and used were volunteered, and I am grateful to those who did so. Many other examples came from trolling the Web for material, joining a number of opt-in panels to see what others were doing, volunteering for banner-advertised surveys, and generally just vacuuming up whatever was out there. Over this time, I've become a true Web survey junkie. I have literally thousands of images captured from hundreds of different Web surveys. As of early 2008, my collection of the good, the bad, and the ugly of Web survey design approached 6,000 images, and I continue to collect examples of the best and the worst of what's out there. I have tried to anonymize most of the examples (where feasible) but have attempted to preserve the content of the original as closely as

possible. Where the essence of an example cannot be presented without identifying the source, I have done so. But my goal is not to focus on particular researchers or companies or software products. We all make mistakes, and we can all learn from our mistakes.

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Preface

One of the challenges of writing a book such as this is that the Web is changing rapidly. The World Wide Web of today is not the same as the Web of a few years ago. It certainly will not be the same as the Web (or its successor) of a few years hence. Much of the debate about general Web design (and it applies equally to Web survey design) is based on different assumptions about bandwidth, browser capacity, and so on. At one extreme, we're told to design for the lowest common denominator. In other words, design for what the Web *was*. This could result in boring, plain HTML, with no interactivity and few visual or other enhancements. At the other extreme there are those who argue one should design for what the Web *will be*, requiring the latest versions of browsers and plug-ins and the use of high-end systems to bring all the interactivity and enhanced features to the Web experience. Somehow, we have to strike a balance between these two extremes, designing instruments and developing design guidelines that are useful both now and in the future.

My effort to find a comfortable middle ground means that I am writing for today's dominant technologies but trying to focus on general principles rather than specific details, with the intention that they should apply to the future Web as much as to the present. There are some areas where this is obvious – good survey design is good survey design, no matter what the underlying platform or mode of delivery. However, there are other areas where it is less clear, for example, the use of client-side scripts, or applets, to deliver dynamic content versus restricting design to static HTML, with all activity being server-side. Whatever the tool that

will be used for the former (JavaScript, DHTML, or whatever), the trend is clearly in the direction of greater interactivity, and I discuss the relevant design issues accordingly.

I will have failed in walking this tightrope of making the material relevant to both present and future design if readers dismiss my suggestions because the "flavor of the day" software or system has changed. I will have succeeded if the details are no longer applicable because of changing technology, but the general lessons learned about good Web survey design still apply. I will let you, dear reader, be the judge of that.

While I'm getting these issues off my chest, I should reveal other biases. I work primarily in the academic/government survey sector, and this book reflects that perspective. The goal of survey research in these sectors places relatively more emphasis on quality than on cost or speed of implementation. The latter goals might be more common in the market research sector. Thus, the rigor applied to a particular survey is valued on different dimensions in the two communities. In the market research sector, getting an estimate or result that is sufficiently accurate or reliable to make a business decision in a speedy and cost-conscious manner may be the overriding goal. In the academic and government sectors, the focus is more on "getting it right" or understanding the underlying phenomenon, with less regard for the cost side of the equation. Surveys in this sector are typically more complex and serve more varied purposes, resulting in a greater focus on overall quality. Both are legitimate approaches to the survey enterprise, but each leads to different design decisions and trade-offs where different aspects are emphasized.

The quality (or usefulness) of a survey is not an absolute, but must be evaluated relative to the stated aims of the survey and the claims made from the data. The quality of a survey can be thought of as the "fitness for [the intended] use" of the data it produces (Juran, 1979). Similarly, O'Muircheartaigh (1997, p. 1) defines error as "work purporting to do what it does not." One would not want to spend a million dollars on a survey estimate that is fleeting and used for media purposes only (e.g., a presidential approval rating at a particular moment in time). On the other hand, one would not want a government statistical agency to skimp on survey quality when it came to estimating such economic fundamentals as the unemployment rate or the consumer price index, nor would one want estimates of the prevalence and spread of disease, health coverage, or other public health issues to be done in a lackadaisical way. By now, it should be obvious to the reader where I come down. The focus of this book is intended to be squarely on high-quality surveys where the goal is not simply to entertain or to get a rough estimate but rather to produce statistically reliable and valid estimates of broad

and lasting value to the research community, policy makers, and the public at large. That is, data that you can trust about things that are important to you.

Having said all of this, I believe that much of this book remains relevant to the broad range of survey endeavors from the frivolous to the deadly serious. Web survey design must be compatible with the goals of the survey and with the intended target audience. But, my core argument is that design has everything to do with quality in surveys. If one's goal is a high-quality survey yielding accurate and timely estimates, the design of the data collection process and instrument can and should be used to promote that goal. In other words, in the tradition of the Bauhaus movement in architecture, form follows function. Design is not an independent activity unrelated to the goals of the survey – rather, it is an integrated part of the process of achieving a particular goal.

Furthermore, design is not context-free. It would be a shame – for respondents and survey researchers alike – if Web survey design prescriptions resulted in cookie-cutter designs or one-size-fits-all approaches. It would be particularly disappointing if such were minimalist (black text on a white background; HTML 1.0) designs. The design of a survey should reflect the intended target audience, the survey organization conducting the study, the purpose of the survey, and the content of the instrument. Designing for the lowest common denominator, thereby avoiding any design enhancements, would lead to boring surveys and a lack of innovation. This book is not about stifling creative design but rather about designing surveys with care. The purpose of a survey is usually to gather data of high quality in a cost-effective manner. It is *not* to demonstrate the creativity or skill of the designer; there are plenty of other places for that. In other words, it's all about striking a balance, with a design that is visually pleasing but does not detract from the task at hand.

The designer of Web surveys can be creative but should do so in a way that enhances the experience for respondents and maximizes the quality of the data obtained. This means not only reaching the maximum number of potential respondents – that is, not excluding anyone from participating in the survey on grounds of browser incompatibility, failure to download the latest plug-in, lack of broadband access, or disability, whether it is vision, hearing, or some other physical impairment that makes it impossible for them to participate in the survey – but also encouraging them to provide the most accurate and honest responses that they can and supporting them in this task. Finally, the survey should leave them feeling good about the experience and likely to participate again, if called upon. Survey respondents are a precious commodity and should be treated as such.

Design should strike a balance. We should avoid the completely functional philosophy that led to Stalinist architecture. Aesthetics are certainly important (see Norman, 2004). But we should also avoid the other extreme of design for design's sake, without concern for usability. I am advocating for purpose-driven design, or respondent-focused design. In other words, form should closely follow function.

Finally, a brief word about my background. I should make it clear that I am not a programmer, nor am I an expert on technology of the Internet. I am a survey researcher, and what I do is design and implement surveys. More specifically, I'm a survey methodologist, and my time is spent doing research aimed at improving survey design. This is not a book for programmers but for survey researchers. My knowledge of HTML is limited to what I need to communicate with programmers on how to implement a certain design. My knowledge of CGI, CSS, Java, and the other esoterica of the Web is even more limited. This is a book *by* a survey researcher *for* survey researchers.

Over the past ten years or so, I have been involved in scores of Web survey design projects, whether as principal investigator, collaborator, consultant, or interested bystander. I continue to be amazed at the poor design of many Web surveys. I continue to hope that a book like this will soon be unnecessary, but the evidence suggests otherwise. The ultimate goal of this book is not to dictate but to get the designers of Web surveys to think.

Acronyms and Abbreviations

AJAX	Asynchronous JavaScript and XML
CAI	Computer assisted interviewing
CAPI	Computer assisted personal interviewing
CAPTCHA	Completely automated public Turing test to tell computers and humans apart
CASI	Computer assisted self-interviewing
CAT	Computerized adaptive testing
CATI	Computer assisted telephone interviewing
CGI	Common gateway interface
DOS	Disk operating system
DSL	Digital subscriber line
GUI	Graphical user interface
HTML	Hypertext markup language
HTTP	Hypertext transfer protocol
IP	Internet protocol
ISP	Internet service provider
IVR	Interactive voice response
RDD	Random digit dial
SMS	Short message service/system
SSL	Secure sockets layer
TLS	Transport layer security
URL	Uniform resource locator
XML	Extensible markup language