The Emerald Research Register for this journal is available at
www.emeraldinsight.com/researchregister

The current issue and full text archive of this journal is available at
www.emeraldinsight.com/1066-2243.htm

The value of online surveys

Joel R. Evans and Anil Mathur
Zarb School of Business, Hofstra University, Hempstead, New York, USA

Abstract

Purpose – To provide a thorough analysis of the role of the internet in survey research and to discuss the implications of online surveys becoming such a major force in research.

Design/methodology/approach – The paper is divided into four major sections: an analysis of the strengths and potential weaknesses of online surveys; a comparison of online surveys with other survey formats; a discussion on the best uses for online surveys and how their potential weaknesses may be moderated; and an overview of the online survey services being offered by the world's largest research firms.

Findings – If conducted properly, online surveys have significant advantages over other formats. However, it is imperative that the potential weaknesses of online surveys be mitigated and that online surveys only be used when appropriate. Outsourcing of online survey functions is growing in popularity.

Practical implications – The paper provides a very useful source of information and impartial advice for any professional who is considering the use of online surveys.

Originality/value – The paper synthesizes the vast literature related to online surveys, presents original material related to survey methodology, and offers a number of recommendations.

Keywords Internet, Surveys, Research, Research methods

Paper type General review

Introduction

During the twentieth century, there were great advances in the techniques and technologies utilized in survey research, from systematic sampling methods to enhanced questionnaire design and computerized data analysis. The field of survey research became much more scientific, and several leading associations emerged to further enhance industry practices. These include ESOMAR (World Association of Opinion and Marketing Research Professionals, www.esomar.org), AIMRI (Alliance of International Market Research Institutes, www.aimri.org), CASRO (Council of American Survey Research Organizations, www.casro.org), and AAPOR (American Association for Public Opinion Research, www.aapor.org).

Over the last 25 years in particular, technology has revolutionized the way in which surveys are administered – with the advent of the first e-mail surveys in the 1980s and the initial web-based surveys in the 1990s (Schonlau *et al.*, 2001). As Grossnickle and Raskin (2001, p. 9) have noted:

> While initial forays were fraught with technical difficulties and methodological hurdles, recent developments have begun to expose the medium's immense potential. The earliest online tools offered little more than the ability to deploy paper-based questionnaires to internet users. Today, tools and services are available with a wide range of feature sets at a wide range of price points. One or more of them are almost certain to meet the needs of any marketing research professional.

In 2002, nearly $500 million was spent on online surveys in the USA (Hogg, 2003); and according to Inside Research, this figure was expected to reach about $960 million in

Internet Research
Vol. 15 No. 2, 2005
pp. 195-219

1066-2243
DOI 10.1108/10662240510590360

2004 (Aster, 2004). Already, leading firms such as Unilever and Procter & Gamble conduct – or contract out – a huge number of online surveys. More than half of Procter & Gamble's US consumer surveys are done online (Heun, 2001).

According to a 2003 study on respondent cooperation by the Council for Marketing & Opinion Research (CMOR, www.cmor.org), preference for online surveys rose to 18 percent among respondents, up from 10 percent in 1999. Laurence N. Gold, of *Inside Research*, projects that by 2006 online surveys will account for one-third of all surveys conducted (Jackson, 2003). Further into the future, some experts expect that the majority of all survey research will be done online (Schonlau *et al.*, 2001).

Despite the advances in survey research overall, major threats still remain. These include declining response rates, incomplete or limited online data bases, mistrust about survey uses (true research versus selling), survey length, privacy and security issues, caller ID and call blocking, internet surveys perceived as spam, and excessive interviewing (see, for example, Gilbert 2001; McDaniel *et al.*, 1985; Schleifer, 1986; Jarvis, 2002). According to CASRO's annual surveys, in some cases, refusal rates exceed 50 percent (www.casro.com).

The purpose of this article is to synthesize the vast literature related to online surveys and offer a number of recommendations. Our work contributes to the literature in the following manner: We present the strengths and weaknesses of online surveys in a comprehensive, detailed, and systematic manner. We compare online surveys with mail, personal, and mail surveys – including a look at the distinctive strengths of online surveys versus mail surveys with regard to respondent methodology. We offer a number of solutions for dealing with the major weaknesses of online surveys. Through worldwide examples, we discuss the range of online survey services that are available for organizations interested in doing online surveys.

The article is divided into several sections:

(1) An analysis of the strengths and potential weaknesses of online surveys.

(2) A comparison of online surveys with other survey formats.

(3) A discussion on the best uses for online surveys and how their potential weaknesses may be moderated.

(4) An overview of the online survey services being offered by the world's largest research firms.

Major strengths and potential weaknesses of online surveys

Online surveys have numerous strengths and potential weaknesses, as highlighted in Figure 1 and covered below. Yet, although the attributes of online surveys have been widely described in the literature (see, for example, Fricker and Schonlau, 2002; Furrer and Sudharshan, 2001; Ilieva *et al.*, 2002; Malhotra, 2004; McDaniel and Gates, 2005; Tingling *et al.*, 2003; Wilson and Laskey, 2003), no single source covers the strengths and weaknesses of online surveys in the same depth as our discussion.

Major strengths

Global reach. According to the *Computer Industry Almanac*, there will be 1.1 billion internet users globally in 2005 (ClickZ, 2004). Global Reach (2004) states that 36 percent of users are native English speaking and 64 percent are not. internet penetration is

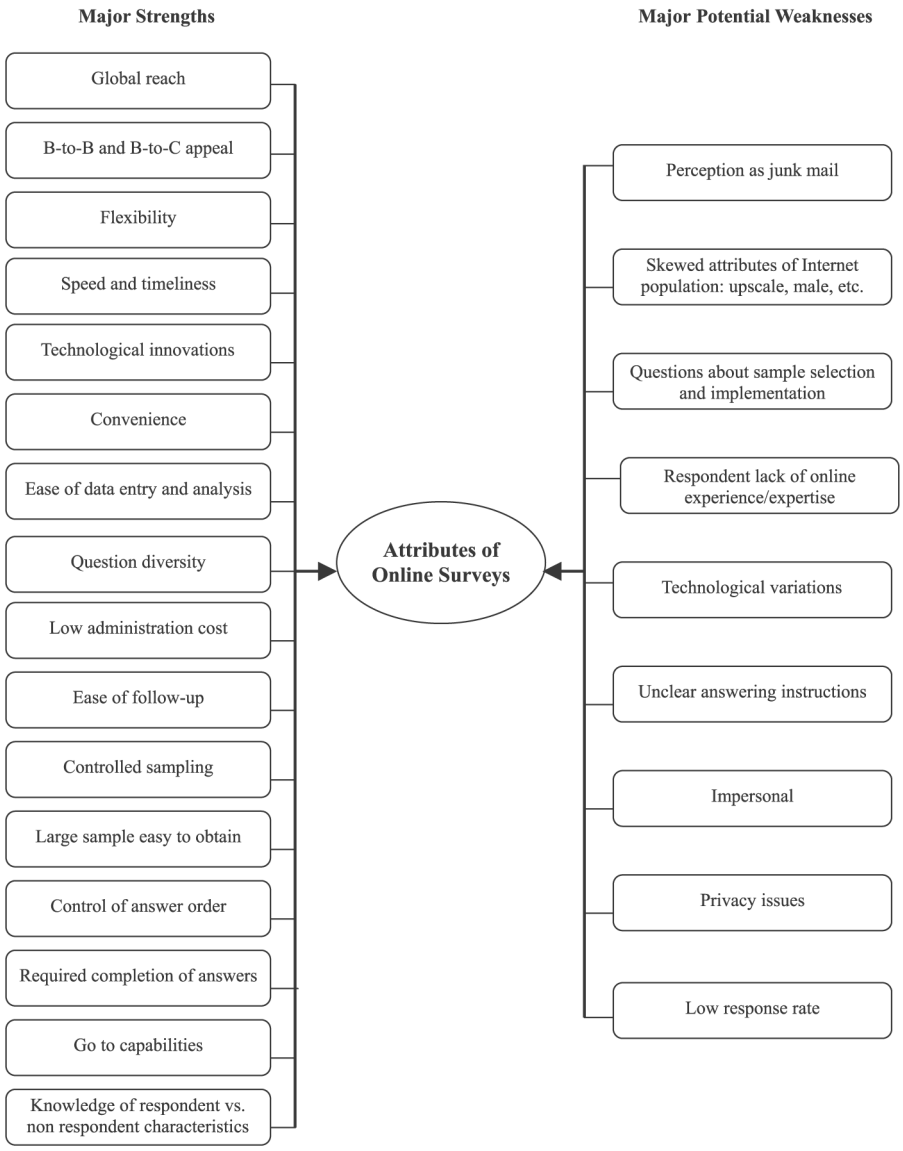

Figure 1.
The strengths and potential weaknesses of online surveys

greatest in industrialized countries and lowest in less-developed ones, thus in some regions, the potential for online surveys is greater than the current application. Scholl *et al.* (2002) state that when most of a society has internet access and savvy, the basic drawback for the use of online survey research – the lack of representativeness – disappears. The internet will then be an even more valued tool to obtain information from respondents living in different parts of a country or around the world, simply and at a low cost.

B-to-B and B-to-C appeal. Online surveys can be applied in both business-to-business (B-to-B) and business-to-consumer (B-to-C) settings. The literature has paid insufficient attention to B-to-B online surveys and focused on B-to-C surveys. Nonetheless, B-to-B offers strong possibilities. As Poynter (2004) notes, customer relationship management (CRM) and marketing research (MR) are getting closer to one another. As CRM develops further, opportunities for online B-to-B research will grow. Real-time monitoring, electronic orders, and e-compliance present new opportunities for researchers to add value and create market niches. B-to-B respondents are busy; and they are going to get harder to reach – due to the heavy volume of communication they receive. According to Poynter, for medium to large samples, the internet will be the predominant survey methodology.

Flexibility. Online surveys are quite flexible. They can be conducted in several formats: e-mail with embedded survey; e-mail with a link to a survey URL; visit to a web site by an internet surfer who is then invited to participate in a survey; etc. Surveys can be in plain text or html (see, for example, Schonlau *et al.*, 2001). In addition, they can easily be tailored to customer demographics, language, purchase experience, etc. by having multiple versions of a questionnaire. Each respondent sees only the pertinent questions.

Speed and timeliness. Online surveys can be administered in a time-efficient manner, minimizing the period it takes to get a survey into the field and for data collection. Kannan *et al.* (1998) conclude that the speed and global reach of the internet allow real-time access for interactions with geographically diverse respondent groups and information servers. Broadband access to the internet also facilitates the transmission of multimedia content – due to the speed of downloads, which enhances the scope and richness of online surveys. These factors have led to innovative internet-based techniques such as online focus groups, chat rooms, and bulletin boards; these participants interact with each other and the interviewer/facilitator in a multimedia setting.

Technological innovations. Online surveys have come a long way from the simple, text-based, e-mail surveys of the 1980s to the technologies available today. Respondents can click on a URL sent by e-mail and be transported to a feature-rich web survey tool that is directive and powerful, or reply directly to an e-mail survey by inputting answers as instructed (see Dommeyer and Moriarty, 1999/2000; Mullarkey, 2004). Tingling *et al.* (2003) conclude that internet-based technology not only provides greater control and flexibility regarding where objects or information are presented, but can also be used to reduce possible bias by randomly rotating choices to the left/right and top/bottom of the screen, thus providing more complex, fully randomized displays than have been possible with paper surveys. Furthermore, respondents can be shown "fuel gauge" type indicators that let them be more specific with their answers.

Convenience. Online surveys provide convenience in several ways. Respondents can answer at a convenient time for themselves. They may take as much time as they need to answer individual questions. Some online surveys let respondents start and then return later to the question where they left off earlier. As Hogg (2003) notes, instead of being annoyed at an inconvenient time with a telephone survey, a respondent can take an online survey whenever he or she feels it is convenient.

Ease of data entry and analysis. It is relatively simple for respondents to complete online surveys and for their responses to be tabulated and analyzed. For companies conducting online surveys, much of the administrative burden of sending and

receiving questionnaires, as well as inputting data, is considerably reduced. In addition, once the last questionnaire for a study is submitted, the researcher instantaneously has all the data stored in a data base (Wilson and Laskey 2003).

Question diversity. Online surveys are capable of including dichotomous questions, multiple-choice questions, scales, questions in a multimedia format, both single-response and multiple-response questions, and even open-ended questions. For example, Survey Pro promotes the many types of questions available in its surveys at the company web site (www.surveypro.com/info/design.html), such as:

- Yes/no or other dichotomous questions.
- Open-ended text responses (long answer and short answer).
- Multiple choice – select exactly 1 of n (select a single answer).
- Multiple choice – select exactly k of n (select a fixed number of answers).
- Multiple choice – select as many as k of n (select variable number of answers).
- Multiple-question batteries (multiple questions using the same scale).
- Likert and semantic differential questions.
- Open-ended questions.
- Rank order (select first choice, second choice...).
- Constant sum (allocate 100 points among choice options).
- Horizontal-scale, vertical-scale, drop-down, side-by-side formats.
- Conjoint analysis questions.

Low administration cost. Survey costs can be divided into two categories: preparation and administration. With regard to preparation costs, until recently, online surveys could be costly to construct because of the technological and programming requirements. Today, with the availability of advanced survey software and specialized online questionnaire development firms, preparation costs are much lower. In terms of survey administration, online surveys are automatically placed into the database, and then tabulated and analyzed in a coordinated, integrated manner that greatly reduces costs. And because surveys are self-administered and do not require postage or interviewers, costs are also kept down.

As an example, Consumer Reports is among the research organizations seeking to shift much of the work to the internet. In 2002, its annual survey of products and services went out by regular mail to almost four million subscribers. Paper, printing, and postage cost $700,000, the organization's most expensive survey effort. In 2003, nearly 900,000 people subscribing to the magazine's online edition got the survey by e-mail. Each e-mailed survey cost half of its mail counterpart. Even greater savings are expected in the future since programming costs will be much less (Jackson, 2003).

Ease of follow-up. Due to the low expense of sending out e-mails and the simplicity of doing so with online surveys, companies are more likely to send out follow-up reminders – and they can do this around the world – to increase the survey response rate. If online panels are used, personalized follow-ups can be targeted specifically at those who have not yet replied. At *Consumer Reports*, the response rate for its online survey was 25 percent, up from 13 to 14 percent for its annual mail survey (Jackson, 2003).

Controlled sampling. Samples for online surveys can be generated in several different ways. Two of the best sampling methods are noted here; the more criticized methods are discussed as a potential disadvantage in the next section. Through their own databases, companies can develop opt-in mailing lists of their customers. This approach not only enables companies to get customer feedback, but also to enhance their relationships by showing that they are interested in customer opinions. Companies can also work with market research firms and gain access to demographically balanced panels – B-to-B and/or B-to-C. For example, Greenfield Online (www.greenfield.com/panel/americas/b2b.asp) has a 250,000 member US B-to-B panel; and FGI Research (www.fgiresearch.com/online.htm) has a SmartPanel Global online panel that includes more than 14 million consumers in 29 countries throughout South America, Europe, and Asia Pacific.

Large sample easy to obtain. Given the simplicity with which messages can be e-mailed to respondents, the low costs of doing so, the availability of specialized research firms, and the access to global databases, online surveys can use large samples. At FGI Research (www.fgiresearch.com/global.htm), "There is no substitute for country-specific expertise when conducting global research. To produce valid results, studies must use sampling and programming methods that account for nuances in each unique culture and dialect. FGI Research uses only in-country experts for language translation and quality control of programming".

Control of answer order. Unlike with mail surveys, online surveys can require the respondent to answer questions in the order intended by the study designer, as well as prohibit the respondent from looking ahead to later questions. This reduces survey bias. However, as Schonlau *et al.* (2001) note, with a mail survey, a respondent can flip ahead to see how much still must be completed. In contrast, an online questionnaire might appear to have a seemingly endless number of questions. To avoid this scenario, a graphical progress indicator can be quite informative for respondents.

Required completion of answers. Online surveys can be constructed so that the respondent must answer a question before advancing to the next question or completing the survey, and so that instructions are followed properly (such as providing only one answer to a question). This eliminates item non-response and the necessity to throw out answers that that been entered improperly. Studies indicate that online surveys have a much higher item completion rate than mail surveys; and answers to open-ended questions tend to be longer with online surveys than with mail surveys (Ilieva *et al.*, 2002).

Go to capabilities. Online surveys can be constructed to ensure that respondents answer only the questions that pertain specifically to them, thus, tailoring the survey. This eliminates respondent confusion, because complicated instructions (for example, "If you answer yes to question 2, then continue with question 3. If you answer no to question 2, then go to question 10.") are not needed. In addition, the perceived questionnaire length is reduced by tailoring the survey. Schonlau *et al.* (2001) state that this means the software program, rather than the respondent, manages skip patterns. This reduces errors and, from the respondent's perspective, makes the process simpler for taking a survey.

Knowledge of respondent vs. nonrespondent characteristics. When companies use their own data bases or the online panels of market research firms, they benefit in two

ways. First, they already know the demographics of potential respondents – and can assign them a unique identifier; they do not have to request this information each time they do a survey. Second, since the characteristics of all members of a sample are known, it is possible to compare the demographics of the respondents with those of non-respondents. This helps to validate survey results or alert a company to discrepancies (see Ray and Tabor, 2003).

Major potential weaknesses

If not properly addressed, online surveys also have these potential weaknesses. Remedies for the problem areas are presented later in this article.

Perception as junk mail. Spam (unsolicited junk mail) is a big problem. In May 2004, MessageLabs, an internet security firm (www.messagelabs.com), found that 692 million out of 909 million scanned e-mail messages (76 percent) sent to its US customers were screened as spam. As a result, many respondents have a tough time distinguishing between a legitimate survey and a spam message: "Even if an e-mail comes from a trusted source, it's unlikely that some customers will click on a link to take them to a web site. And that's if the e-mail actually gets through", said Joanie Rufo, research director of AMR Research. Increasingly, marketing messages – even those that are opt-in – are blocked at the mail server level (Bannan 2003, p. 1).

Skewed attributes of internet population: upscale, male, etc. Until recently, users of the internet and e-mail were not truly representative of the general population in countries around the world. This lack of representativeness has been widely discussed (see, for example, Fricker and Schonlau, 2002; Grossnickle and Raskin, 2001; Miller, 2001; Ray and Tabor, 2003; Wilson and Laskey, 2003). In many nations, this is changing. Fricker and Schonlau (2002) say that the differential between offline and online populations is quickly closing and may be insignificant in the near future. internet access still varies widely by country.

Questions about sample selection (representativeness) and implementation. Some online sampling methods are frowned upon by research scientists. Heavily criticized sample selection methods are blanket e-mailing and "volunteer" samples. Blanket e-mailing often resembles spam when messages are sent to huge numbers of potential respondents in an unsolicited manner. With "volunteer" samples, people visit web sites and proactively sign up to participate in surveys. As Kulp and Hunter (2001, p. 35), ask: "How much different is this from an 800 or 900 poll?" Another key potential problem regarding sample implementation is the possibility that an unintended person will reply.

Respondent lack of online experience/expertise. Although the internet population is becoming more representative, there may still be survey difficulties due to the lack of familiarity of possible respondents with internet protocols. According to Jupiter Research, in 2002, those who had used the internet for two or fewer years represented 13 percent of the online population in Sweden, 21 percent in the USA, 25 percent in the UK, 28 percent in France, 33 percent in Germany, 40 percent in Italy, and 43 percent in Spain. By 2007, these figures are expected to fall to 5 to 16 percent in these countries (Greenspan, 2003).

Technological variations. Online surveys are affected by both the type of internet connection and the configuration of the user's computer. For home users, dialup connections are more common than for at-work users who are more likely to have a

broadband connection (WebSiteoptimization.com, 2004). Dialup connections adversely affect download speed and the time to complete a survey. Configuration problems may occur due to monitors of different size and settings, with different operating systems, and one of many generations of web browsers. Questions and their answers that seem neatly aligned on one monitor may be distorted and confusing on another monitor (Ray and Tabor, 2003).

Unclear answering instructions. Because online surveys are self-administered, answering instructions must be extremely clear. If not, as Ray and Tabor (2003) report, some people may be frustrated and exit a survey without finishing the entire questionnaire. Therefore, web survey design must be sure to use technology to improve data collection methods without overloading the respondent.

Impersonal. As with mail surveys, there is usually no human contact in online surveys. This can limit the ability to probe in-depth as a skilled interviewer could do (Scholl *et al.*, 2002). For example, Brown *et al.* (2001) state that a telephone survey may present a better opportunity for a respondent to pause to reflect on his or her thoughts and attitudes on an issue, in a consequence-free manner. They question how the motivation to participate in a survey works on the internet, and ask about what other motivational levers are best when using the internet for surveys.

Privacy and security issues. Respondent privacy concerns remain important (for example, see Berry 2004). The concerns fall into two categories: the security of transmissions and how data will be used. Standard e-mail surveys do not have a high level of security. Messages can be intercepted. In addition, many respondents wonder if their answers will be treated confidentially, and whether their contact information will be sold to other firms. Concerns exist even among online panel members. Rubin (2000) summarizes the privacy issue by noting that online research companies must persuade participants to agree to be surveyed and to share personal data. Therefore, the industry needs to police itself and set tough privacy standards; otherwise, there will be government intervention. With regard to security, many respondents are hesitant to open e-mail attachments for fear that they may be infected with a virus.

Low response rate. Several researchers have examined the low response rates of many online surveys (see, for example, Fricker and Schonlau 2002; Ilieva *et al.*, 2002; Sheehan and McMillan, 1999; Wilson and Laskey, 2003). Fricker and Schonlau (2002) state a popular conclusion that there is limited evidence in the literature that online surveys generally obtain higher response rates than do other survey types. They report that the majority of reported results show online surveys to at best attain response rates equal to other modes and sometimes to do worse; and they suggest that the reasons for this merit more study.

Contrasting online surveys with other survey formats

Over the years, there has been a lot written about the characteristics of the three other dominant survey methods: the mail survey, the personal survey, and the telephone survey (see, for example, Alreck and Settle 2004; Dillman, 2000; Malhotra and Peterson, 2001; Schonlau *et al.*, 2001; Spaeth, 1977). Less has been written about how each of these survey formats compares with online surveying.

In discussing the three traditional survey modes in the second edition of their book, Alreck and Settle (1995) note that personal interviewing offers the best opportunity for close contact and two-way interaction between interviewers and respondents. Mail

surveys present the most remote contact; and telephone surveys fall in between. Costs vary a lot among personal, mail, and telephone surveys, as do time requirements, questionnaire design expertise, physical facilities, and the speed of conducting the surveys. Even the control over data collection varies.

In this section, we contrast online survey attributes with those of the three other main survey methods.

Mail surveys

As widely reported, mail surveys generally have a number of major strengths, including the ability to use a large sample, the geographic coverage, the lack of interviewer bias, less respondent time pressure, the variety of questions that may be asked, possible respondent anonymity, and the low cost per respondent relative to personal surveys. Mail surveys also have these major potential weaknesses: the time needed for a company to receive all responses, the high non-response rate, unclear instructions, the tendency for some item non-responses – where answers are left blank, incomplete answers, brief answers to open-ended questions, an impersonal approach, and respondent ability to control the order in which questions are answered (see, for example, Alpar and Spitzer 1989; Cavusgil and Elvey-Kirk, 1998; Gendall and Menelaou, 1996; Greer *et al.*, 2000; Jussaume and Yamada, 1990; Ratneshwar and Stewart, 1989).

Because online and mail surveys are self-administered and have many similarities, a growing body of literature exists. Archer (2003) does a good job of summing up many of the advantages and potential disadvantages of online surveys versus mail surveys. Online advantages include: the virtual elimination of paper, postage, mail out, and data entry costs; reduced implementation time; reduced surveying costs once an electronic data collection system is developed is in place; data display and tabulation simultaneous with completion of surveys; availability of data in graphic and numerical format; easy to send reminders to non-respondents; and simplicity of importing data into data analysis programs. Potential online disadvantages include: everyone not connected, so online surveys will not work with some populations; limited computer literacy among some possible respondents; different screen configurations; difficulty of sampling e-mail addresses; and the quicker, sometimes instantaneous, decision not to respond.

Here is a cross-section of the findings from research studies comparing online and mail surveys. With the exception of survey response rates, the results are quite consistent with one another:

- In a review of eight published studies, Sheehan and McMillan (1999) reported that the response rates were sometimes greater and sometimes lower for e-mail surveys, largely due to the sample chosen and the survey topic. In all instances, response times were shorter with online surveys.
- Griffis *et al.* (2003) surveyed managers and merchandisers belonging to the Council of Logistics Management. They found that the online questionnaire had a higher response rate, faster responses, and lower costs; and the quality of data was similar. The authors concluded that the "perceived urgency of the contact method" was a contributor to the higher online response rate.
- Mehta and Sivadas (1995) surveyed those who had posted messages on 20 popular newsgroups. They determined that electronic mail surveys were cheaper

and more timely, and had a higher response rate (except for their mail survey scenario with an incentive). The authors found the answers to be similar, although respondents contacted by e-mail tended to provide more comments.

- McDonald and Adam (2003) surveyed members of an Australian Rules Football club. They found that online surveys had a lower response rate, but were less costly and faster to conduct. The authors also concluded that online respondents were less apt to pick extreme answers at either end of scales.
- Ranchhod and Zhou (2001) surveyed British executives. They found online respondents to be more internet savvy, to be heavier users of e-mail, and to have more years of e-mail experience.
- Kaplowitz *et al.* (2004) surveyed undergraduate, graduate, and professional students at Michigan State University. They found that respondents to e-mail surveys were significantly younger than traditional mail respondents. They also discovered that e-mail surveys preceded by a postcard notification had a substantially higher response rate than e-mail surveys alone.

Despite the considerable literature regarding online surveys versus mail surveys, there has been too little discussion about the significant methodological strengths of online surveys, especially those using panels. We have developed two original charts to compare the respondent methodologies for online and mail surveys that involve panels. Figure 2 highlights online surveys, and Figure 3 focuses on mail surveys.

With today's online surveys, demographically balanced panels of B-to-B or B-to-C respondents can be selected. This means a lot of information is known about each respondent from the company's or research firm's data base. Opt-in e-mails are sent to chosen panelists notifying them about a survey; they are given a distinctive URL (coded to them). Some visit the URL at a convenient time for them, while others ignore the e-mail. Panelists who visit the survey site may:

(1) complete the survey in full;

(2) start the survey and abandon it; or

(3) look at the instructions and decide not to reply.

In (1), there are sequential precision, accurate question filtering, no missing or incomplete answers, and less time pressure on respondents than with surveys requiring human contact. Survey cut-off dates can be strictly followed, the time taken to answer each question (and the overall survey) can be monitored, an analysis of respondents that require two or more URL visits to finish the survey can be done, and answers can be linked to demographics without having to ask for these data (since they are stored in a data base). In (2), although respondents do not complete the survey, their answers can be reviewed for the questions they do complete; and the characteristics of these respondents can be analyzed. In (3), the characteristics of the panelists can still be compiled to see if the demographics of non-responders differ from responders. This is also possible for panelists who totally ignore the survey and never visit the URL.

With current mail surveys, demographically balanced panels (B-to-B or B-to-C) can be selected. As with online surveys, this means considerable information is known about each possible respondent. The surveys are sent to chosen panelists. Their questionnaires are often coded with a distinctive identification number. Some panelists:

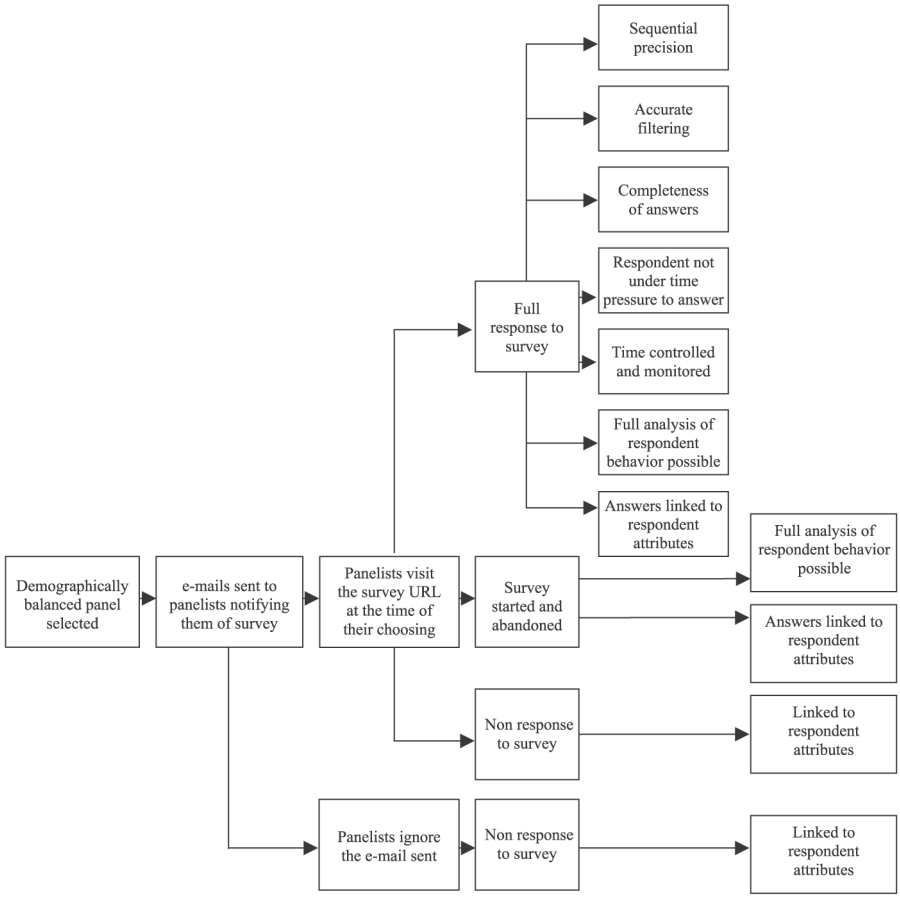

Figure 2.
Online surveys: respondent methodology

(1) complete the survey at a convenient time for them;

(2) start the survey and abandon it; or

(3) just ignore the survey altogether.

Unlike with online surveys, in situation (1) for mail surveys, there are a lack of sequencing controls, question filtering can be inaccurate (if respondents misunderstand instructions or skip around), and there can be missing or incomplete answers. Although there is less time pressure on respondents than with surveys requiring human contact, mail survey cut-off dates are harder to enforce, the time taken to answer each question (and the overall survey) cannot be monitored, and no analysis of respondents that require two or more occasions to finish the survey can be done. Answers can be linked to demographics without having to ask for these data only if the questionnaires are pre-coded with respondent ID numbers. In both (2) and (3), no analysis of panelist survey behavior is possible. It cannot be determined if a survey nonresponse means a mail panelist started a survey and abandoned it after a couple of questions, abandoned it after

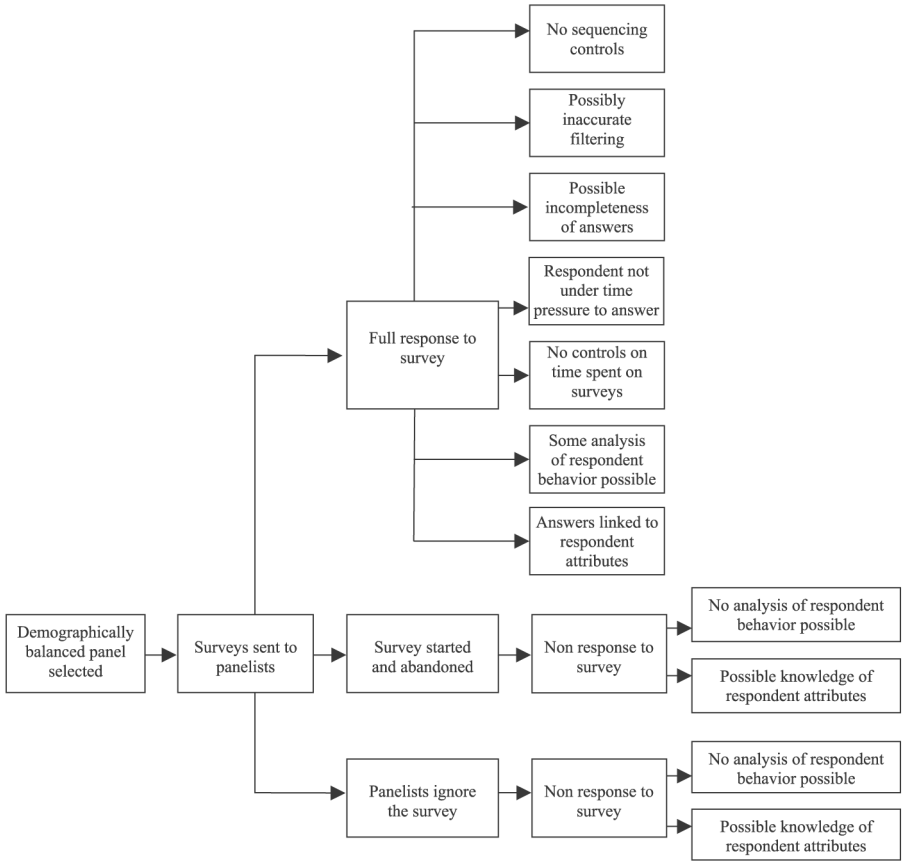

Figure 3.
Mail surveys: respondent methodology

Note: Once in a while, mail respondents send back partially completed surveys. In those instances, analysis parallels that for partially completed online surveys. However, all partially completed online surveys can be analyzed, while only those mail surveys actually sent back can be analyzed

particularly difficult questions (such as lists of scales), or never looked at a survey. Non-respondent characteristics can be studied with coded questionnaires.

Personal surveys

Personal surveys have several key strengths, including personal interaction, clear instructions, question variety, flexibility and adaptability, use of probing techniques, ability to use physical stimuli, capability to observe respondents, and control over the survey environment. Major potential weaknesses include interviewer bias, costs per respondent, limited sample size, geographic limitations, convenience sampling with questionable response rates (such as mall surveys), respondent time pressure, and the difficulty in getting demographics (see, for example, Alreck and Settle, 2004; Bowers, 1998/Bowers, 1998/1999; Brennan, 1997; Goldsmith, 1989; Holbrook *et al.*, 2003; Malhotra, 2004; Presser and Zhao 1992).

There has been rather little empirical research that contrasts actual respondent behavior to online surveys with actual respondent behavior to personal surveys. Here are the highlights from two studies:

(1) Scholl *et al.* (2002) surveyed consumers in three countries – the UK, Sweden, and Singapore – using face-to-face and online groups. They found online surveys to be faster and less expensive. However, face-to-face surveys gathered more information and allowed for greater probing of respondents – even though the overall results from the two formats were similar.

(2) Curasi (2001) surveyed US college students using face-to-face interviews and e-mail surveys. She concluded that online semi-structured surveys have advantages as an additional data collection technique. Online surveys can be a viable alternative to face-to-face surveys if time, cost restraints, or geographic boundaries limit a study.

Telephone surveys

Telephone surveys generally have several strengths, including the possibility of random sampling, good geographic coverage, cost savings from centralized phone banks and discount calling providers, control over the survey process, timeliness and completion speed, personal interaction, and technological enhancements for interviewers that ease data entry and reduce errors. Major potential weaknesses include interviewer bias, the refusal of many of people – leading to low response rates and non-representative samples, the need to be brief, a lack of respondent trust – often related to the unseen nature of interviewers, and an inability to use visual aids (see, for example, Colombo, 2000; Goldstein and Jennings, 2002; Groves and Mathiowetz, 1984; Peterson *et al.*, 2003; Struebbe *et al.*, 1986; Tyebjee, 1979).

Here are three findings from the limited research studies comparing actual respondent behavior with online and telephone surveys:

(1) Jeff Miller of Burke inc. reported that in multiple studies online respondents were less likely to answer at the extremes of scales than were telephone respondents (James 2001).

(2) Rubin (2000) found that overall response rates for US telephone surveys fell from 40 percent in 1990 to 14 percent in 2000 – partly due to the heightened popularity of caller ID and telephone answering machines. He found that opt-in online survey rates were 60 percent in 2000.

(3) Roster *et al.* (2004) conducted online and telephone surveys using a database from a commercial vendor. Among their various results, they found that telephone respondents were older.

The best uses for online surveys and how their potential weaknesses may be moderated

In this section, we discuss the best uses of online survey research and offer solutions to moderate the potential weaknesses of online surveys.

Best uses

On the basis of the comprehensive literature review conducted for this article, we believe that these are the conditions for which online surveys are best suited:

- *Wide geographic coverage is sought*. There are one billion-plus internet users around the globe, a figure that grows each year.
- *A large sample is desired*. Most of the costs of online surveys go for questionnaire design, thus, the added cost of sampling 10,000 (or 50,000) people rather than 1,000 people is rather small.
- *There is access to a good sample list*. Because blanket e-mails and "volunteer" surveys may result in very skewed results, online surveys work best when a company has a database with valid e-mail addresses (and permission by potential respondents to send surveys) or hires a market research firm with a proven online panel.
- *Split samples are used*. Online surveys are particularly effective when multiple samples are involved. For example, in a study of heavy users and light users of a product, an online survey can seamlessly have each subgroup be directed to answer only the questions relevant to them.
- *Survey research is conducted frequently*. After the first online study is done and the technological and software infrastructure is established, the costs of further online studies are greatly reduced (variable costs only versus fixed and variable costs for the initial study) and much lower than other formats due to automated data entry and analysis.
- *Strong methodological control is sought*. With online surveys, question order, answer completeness, and filtering ("go to") are controlled by the researcher and not the respondent. This is important for questions where there may be an order effect and for surveys that would require complex instructions if not conducted in an online format.
- *A multimedia approach is desired*. An online survey can incorporate photos, animations, demonstrations, and other multimedia techniques. For example, a concept test for a new product idea may work well in this manner. Multimedia surveys work best with broadband connections.
- *Longitudinal comparisons are a goal*. An underutilized type of marketing research analysis involves the monitoring of attitudes, behavior, demographics, etc. over time. It is easy for the results of online surveys to be stored in a data warehouse and for longitudinal comparisons to be conducted. With panel data, a large number of factors can be tracked for the sample people (rather than studies over time involving different respondents).
- *Interviewer interaction with respondents is not necessary and/or desirable*. To eliminate interviewer bias and other possible interviewer errors, more companies are beginning to favor controlled, self-administered online surveys. Online surveys are also perceived by many respondents as less intrusive than personal or telephone surveys for sensitive topics.
- *Timeliness is vital*. Not only do online surveys yield fast results, they are able to generate preliminary real-time data as the researcher waits for the full data set to be assembled. These data can be rapidly disseminated to the relevant parties in

the company sponsoring the research, and be available instantaneously to managers around the world through a secure web site.

- *The researcher wants to determine the similarities/differences between respondents and nonrespondents*. When online surveys are drawn from company databases or panels, sample validity can be determined by comparing the demographics of respondents and nonrespondents.
- *The researcher wants to examine the survey behavior of respondents*. With online surveys, the date and time of survey completion and the time spent on each question are known. This information can be used to see if there are differences in answers between those completing the surveys at various times. For abandoned surveys, it can be learned whether respondents stopped answering at a particular question (enabling the questionnaire to be improved for future studies).

Moderating the potential weaknesses of online surveys

Earlier in this article, we described the potential weaknesses of online surveys. Through careful planning, each of these weaknesses may be moderated – and sometimes, eliminated. Possible solutions are highlighted in Figure 4 and discussed next.

Perception as junk mail. This problem is reduced if online surveys are opt-in rather than sent in an unsolicited manner. According to Bannan (2003), unless respondents say it is all right to contact them by e-mail, this should not be done. Although a person may have opted-in at one time does not mean that he or she still wants to be contacted. Therefore, he or she must always be given an opportunity to opt-out. In addition, the contact e-mail should be short and direct the respondent right to the survey URL.

Skewed attributes of internet population: upscale, male, etc. There has been strong evidence that, in general, the internet population is demographically skewed relative to the general population (see, for example, Greenspan, 2004). While a gap does exist, it is closing each year as more people around the world gain internet access. In industrialized countries, the demographic gap is now small. However, the potential for a skewed sample exists, and a plan is needed to minimize the possibility. The best way to do so is through demographically balanced online panels (see, for example, Wansink, 2001; Wansink and Sudman, 2002). Bowers (1998) recommends panels because quotas and screening can help to target the proper respondents in a demographically balanced manner. In addition, panelists have already agreed to participate in online surveys, been screened for online activities, and answered demographic and other background questions.

Questions about sample selection (representativeness) and implementation. Furrer and Sudharshan (2001) do an excellent job of identifying sampling problems and offering solutions for them. They examine potential problems for seven steps in the sampling process: define the universe (population), define sampling units, identify a sampling frame, select a sampling procedure, determine sample size, select sample elements, and collect data from the designed element. Company – not respondent – control over the process is vital. E-mail lists must be regularly tested for accuracy and purged as needed (Tingling *et al.* 2003).

Respondent lack of online experience/expertise. To alleviate this problem, researchers need to provide very simple instructions, make it easy to access a survey through a

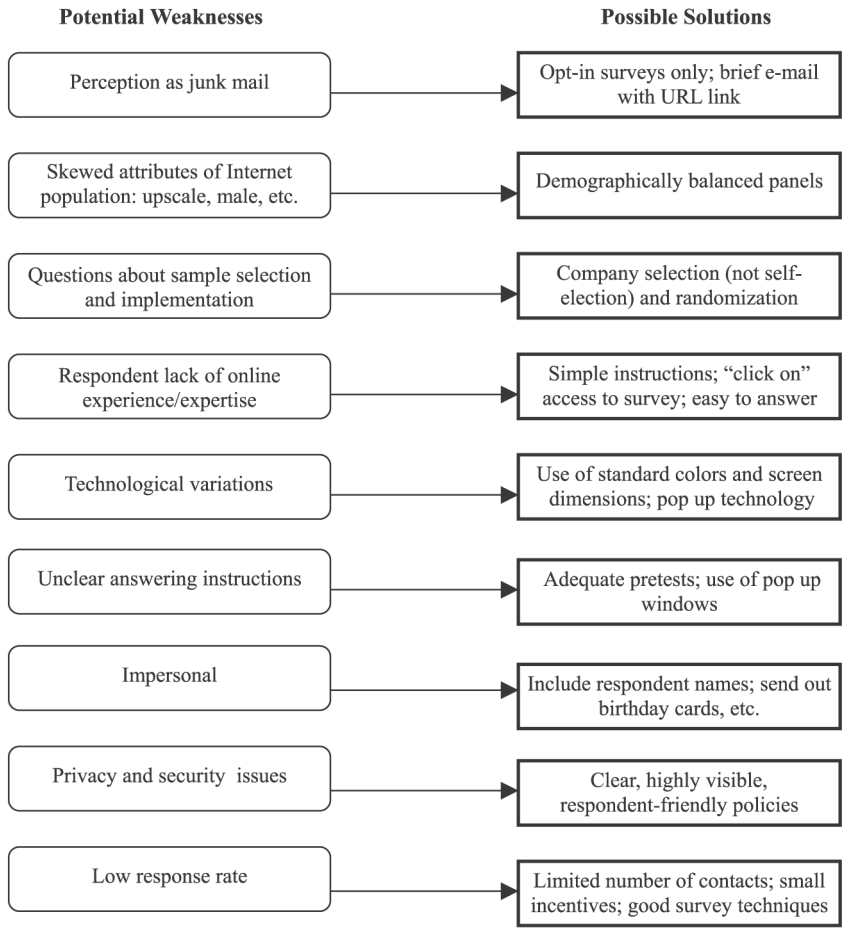

Figure 4.
Addressing the potential weaknesses of online surveys

URL embedded with a unique identifier for each respondent, and make it effortless to enter answers (see, for example, Gunn 2002). In addition, there should be some kind of "help desk" to enable respondents to report difficulties with survey access, instructions, and other survey issues (Schonlau *et al.*, 2001).

Technological variations. Researchers need to deal with the variations brought on by respondents' using different internet connections and browsers, setting their own text and color settings for their monitors, etc. (see, for example, Schonlau *et al.*, 2001). Surveys must be pre-tested with multiple browsers and screen settings to be sure of their applicability. Standard colors and screen dimensions are needed for online surveys. Popup windows, which are more under the control of the researcher, can also be valuable.

Unclear answering instructions. This problem can be reduced by meaningful pre-testing and the use of opt-in po-pup windows that can be accessed if a question is not understood. Gaddis (1998) notes that pre-testing lets the researcher learn whether

questions make sense, are logically ordered, have biased wording, and will provide the desired information.

Impersonal. Online surveys will be perceived as less impersonal when they are personalized and respondents are recognized during the year – by sending e-mail birthday cards and small trinkets of appreciation. Sánchez-Franco and Rey (2004) note that respondent participation is enhanced when their perception of the Web interaction is enjoyable, playful, and experiential. Sweet (2001) and Montoya-Weiss *et al.* (1998) show how online focus groups – long a staple of the personal survey format – may be done. Online chat functionality should not be overlooked when studies seek small group interactions.

Privacy and security issues. Clear, visible, respondent-friendly privacy policies are imperative (see, for example, Graeff and Harmon 2002; Nancarrow *et al.*, 2001). To facilitate responsible online survey administration, many industry organizations have updated the ethics codes they expect members to use in online surveys. The organizations include CASRO (www.casro.org/codeofstandards.cfm), ESRA (www.esomar.org/main.php?a = 2&p = 75), and the Marketing Research Organization (www.mra-net.org/codes/internet_ethics_guidelines.PDF). Security issues can be addressed by having respondents visit secure web sites rather than e-mailing surveys as attachments.

Low response rate. To improve response rates, these practices should be applied: limit the number of times respondents are contacted, offer small incentives, and develop the best possible surveys. Researchers have to avoid being "survey-happy" with the same respondents and strive not to generate "panel fatigue or "panel conditioning" over time (Bannan, 2003, p. 1; Schonlau *et al.*, 2001, p. 39). Online surveys can use incentives more cheaply than mail surveys. According to Ray and Tabor (2003), with online surveys, researchers can use incentives to improve the response rate without issuing the incentives to those who do not respond. In contrast, incentives for mail surveys are provided in advance and, thus, available for both respondents and non-respondents. Ray and Tabor also say that the response rate will improve if a survey is short, relevant, and of interest to the targeted respondent. Brown (2003) notes that it is not the number of questions that affect the response rate, but the amount of time and effort needed to complete a survey.

An overview of the online survey services being offered by the world's largest research firms

A huge number of third-party research firms now provide online survey services. Some of them specialize in a particular function, such as survey design, while others perform all the steps in the survey process. The research firms all offer an expertise and technological infrastructure that make them a viable alternative to company-implemented research projects.

We recently looked at the Web sites of the largest US-based and global market research firms (as listed annually by Jack Honomichl in *Marketing News*) to determine their involvement with online surveys. On the basis of this effort, we generated Table I which indicates the company name and Web address, the online survey services they offer, whether they have online panels, their geographic coverage for online surveys, and whether they engage in B-to-B online surveys. (Please note: the information is

Table I.
A directory of online survey services

Company names and web addresses	Services offered	Panel	Geographic coverage	B-to-B
Abt Associates (www.abtassociates.com)	1,2,3,4,5,7,8	No	Global (USA and 20 other countries)	No
AMR – Advanced Market Research (www.amr-research.com)	1,2,3,4,5,9	No	Global (German based)	Yes
Arcresearch www.arcresearch.com	1,2,4,5,6,7,9	No	USA	Yes
B2B International (www.b2binternational.com)	1,2,3,4,9	No	Global) UK based)	Yes
Bernett Research www.bernett.com	1,2,3,4,5,9	No	USA	No
BioInformatics, LLC (www.gene2drug.com)	1,2,3,4,5,6,9	No	USA	No
Boston Research Group (www.bostonresearchgroup.com)	1,2,3,4,5,6,10	No	USA	No
Burke (www.burke.com)	1,2,3,4,5,6,7,9	Yes	Global (USA and 50 other countries)	No
C&R Research Services (www.crresearch.com)	1,2,3,4,5,7,9	No	Global (mainly USA, Latin-America, and Australia)	No
Cheskin (www.cheskin.com)	1,2,3,4,5	No	USA	No
Common Knowledge Research Services (www.commonknowledge.com)	1,2,3,4,5,6,9	Yes	USA	No
comScore Networks (www.comscore.com)	1,2,3,4,5,9	Yes	Global	No
Data Development Corp. (www.datadc.com)	1,2,3,4,5,7,9	Yes	USA	No
Data Recognition Corporation (www.datarecognitioncorp.com)	1,2,3,4,5,9	No	USA	Yes
Database Sciences (www.databasesciences.com)	1,2,3,4,5,9	No	USA	No
Decision Insight (www.decisioninsight.com)	1,2,3,4,5,6,9	No	USA	No
Dentsu Research (www.dentsuresearch.co.jp/english)	1,2,3,4,5,9	No	USA	No
Digital Research (www.digitalresearch.com)	1,2,3,4,5	Yes	USA	No
Directions Research (www.directionsrsch.com)	1,2,3,4,5,7,9	No	USA	No
E-Focus Groups (www.e-focusgroups.com)	1,2,5,6	No	USA	No
EResearch (www.iresearch.com)	1,2,5,6	No	USA	No
Future Information Research Management (www.confirmit.com)		No	Global	Yes
Gfk Custom Research (www.customresearch.com)	1,2,3,4,5,6,9	Yes	Global (mainly USA, UK, Canada, and Germany)	Yes
Global Market Insight (www.gmi-mr.com/index.phtml)	1,2,3,4,5,6	Yes	Global (USA and 40 other countries)	No

(*continued*)

Table I.

Company names and web addresses	Services offered	Panel	Geographic coverage	B-to-B
Greenfield Consulting Group (www.greenfieldgroup.com)	6,7	No	USA	No
Harris Interactive www.harrisinteractive.com	6	Yes	Global (mainly USA and Japan)	No
ICR/Int'l Communications Research (www.icrsurvey.com)	1,2,3,4,5,9	No	Global	No
iNetSurvey www.inetsurvey.com	1,2,3,4,5,9	No	USA	No
Information Unlimited (www.InsideHeads.com)	1,2,3,4,5,6,9	No	USA	No
Infosurv (www.infosurv.com)	1,2,3,4,5,6,9	No	USA	No
Innovative Concepts Marketing Research (www.ic-mr.com)	1,2,5	No	USA	No
InsightExpress (www.insightexpress.com)	1,2,3,4,5,9	Yes	Global	No
INTAGE (www.intage.co.jp)	1,2,3,4,5,7,9	Yes	Global (Japan base)	No
Ipsos (www.ipsos-na.com)	1,2,3,4,5,9	Yes	Global	No
Itracks (www.itracks.com)	1,2,3,4,5,6,9	No	USA	No
J.D. Power and Associates (www.jdpa.com)	1,2,3,4,5,7,9	No	Global	Yes
JRA, J. Reckner Associates Philadelphia (www.reckner.com)	1,2,3,4,5,9	Yes	USA	No
Lieberman Research Group www.liebermanresearch.com	1,2,3,4,5,9	Yes	USA	No
Luth Research (www.luthresearch.com)	1,2,3,4,5,9	Yes	Global (138 countries)	No
Maritz Research (www.maritzresearch.com)	1,2,3,4,5	Yes	USA	No
Market & Opinion Research Int'l (www.mori.com)	1,2,3,4,5,9	No	Global (London based)	Yes
Market Decisions Corporation www.mdcresearch.com	1,2,3,4,5,9	No	USA	No
Market Probe International-Research Group (www.marketprobeint.com)	1,2,3,4,5	No	Global	No
Market Strategies (www.marketstrategies.com)	1,2,3,4,5,7,9	No	USA and Canada	Yes
Marketing and Planning (www.mapsnet.com)	1,2,5	No	USA	No
Marketing Metrics (www.marketingmetrics.com)	1,2,3,4,5,9	No	English and 11 Non-English lanuages	No
Marketing Research Services (www.mrsi.com)	1,2,3,4,5,9	No	USA	Yes

(*continued*)

Table I.

Company names and web addresses	Services offered	Panel	Geographic coverage	B-to-B
McMillion Research Service (www.mcmillionresearch.com)	1,2,3,4,5,9	No	USA	Yes
Mediamark Research (www.synovate.com)	1,2,3,4,5,9	Yes	Global	No
Morgan Madison & Company (www.morganmadison.com)	1,2,3,4,5,9	No	USA	No
MORPACE International (www.morpace.com)	1,2,3,4,5,9	Yes	USA	Yes
MSR Group www.theMSRgroup.com	1,2,3,5	No	USA	No
MSW Research (www.mswresearch.com)	1,2,3,4,5,9	No	Global	No
Neuwirth Research (www.neuwirth-research.com)	1,2,3,4,5,7,9	No	USA	No
NFO WorldGroup (www.nfow.com)	1,2,3,4,5,9	Yes	Global (70 countries)	No
NOP World (www.nopworld.com)	1,2,3,4,5,6,9	Yes	Global	Yes
NPD (www.npd.com)	1,2,3 4,5,9	Yes	Global (60 countries)	Yes
OpenVenue e-Research Solutions (www.openvenue.com)	1,2,3,4,5,6,9	Yes	Global	No
OPINION ONE (www.opinionone.com)	1,2,3,4,5,9	No	USA	No
Opinion Research Corporation (www.orcinternational.com)	1,2,3,4,5,6,7,8,9	Yes	Global	No
P. Robert and Partners S.A. (www.probert.com)	1,2,3,4,5,9	Yes	Global	No
Perception Research Services www.prsresearch.com	1,2,3,4,5,6,9	No	Global	No
PGM www.pgminc.com	1,2,3,4,5,6,9	No	USA	Yes
Pioneer Marketing Research (www.pioneer.bz)	1,2,3,4,5,9	No	USA	No
Polaris Marketing Research (www.polarismr.com)	1,2,3,4,5,9	No	USA	No
Protocol Research Solutions (www.protocolmarketing.com)	1,2,3,4,5,9	No	USA	Yes
Public Opinion Strategies (www.pos.org)	1,2,3,4,5,6,9	No	Global	No
Q Research Solutions (www.WhoisQ.com)	1,2,3,4,5,9	No	USA	No
Q&A Research (www.qar.com)	1,2,3,4,5,9	No	USA	No
R. Isaacs Computing Associates (www.ric-associates.com)	1,2,3,4,5,9	No	USA	No
RDA Group (www.rdagroup.com)	1,2,3,4,5,6,9	No	Mainly USA and Mexico	No
Research Spectrum (www.researchspectrum.com)	1,2,3,5	No	USA	No

(*continued*)

Table I.

Company names and web addresses	Services offered	Panel	Geographic coverage	B-to-B
Rigney and Associates www.rigneyassoc.com	1,2,3,4,5,9	No	USA	No
RONIN Corporation (www.ronin.com)	1,2,3,4,5,9	No	Mainly USA and UK	No
Russell Marketing Research (www.russellresearch.com)	1,2,3,4,5,9	No	USA	No
Schulman, Ronca & Bucuvalas (www.srbi.com)	1,2,3,4,5,9	Yes	USA	No
SmartRevenue www.smartrevenue.com	1,2,3,4,5,6,9	No	USA	No
SPSS (www.spss.com)	1,2,3,4,5,9	No	Global	No
Star Data Systems (www.mrsurvey.com)	1,2,3,4,5	No	USA	No
STARS (www.starstx.com)	1,2,3,4,5,9	Yes	USA	No
Survey Sampling International (www.surveysampling.com)	1,2,3,4,5,9	Yes	Global (mainly USA, Canada, and Europe)	No
Survey Support Group (www.surveysupportgroup.com)	1,2,3,5	No	Mainly Canada	No
Surveysavvy www.surveysavvy.com	1,2	Yes	USA	No
SurveyWriter (www.surveywriter.com)	1,2,3,5,9	Nos	USA	No
Swift Interactive Technologies (www.swiftinteractive.com)	1,2,3,5	No	USA	No
Taylor Nelson Sofres www.tns-global.com	1,2,3,4,5,6,9	Yes	Global	No
TechWise Research (www.TechWise-Research.com)	1,2,3,4,5,9	Yes	USA	No
Video Research Ltd. (www.videor.co.jp)	1,2,3,4,5,9	Yes	Global (mainly Japan and USA)	No
VNU (www.vnu.com)	1,2,3,4,5,6,7,8, 9	Yes	Global (100 countries)	Yes
Walker Information (www.walkerinfo.com)	1,2,3,4,5,9	Yes	Global (75 countries)	No
Web-interviewing.com (www.web-interviewing.com)	1,2,5	No	USA	No
WebSurveyor Corporation (www.websurveyor.com)	1,2,3,4,5,9	No	Global	No
Westat www.westat.com	1,2,3,4,5,9	No	USA	No
Wilkerson & Associates (www.wilkersonresearch.com)	1,2,5	No	USA	No
Wirthlin Worldwide (www.wirthlin.com)	1,2,3,4,5,9	No	Global	No

Notes: Services offered = 1, survey design; 2, survey implementation; 3, sampling; 4, data analysis; 5, data collection; 6, focus groups; 7, web site evaluation; 8, data sharing; 9, data reporting

current as of late 2004; and the listings and services in Table I are drawn directly from the firms' web sites.)

To further illustrate the availability of online survey services from research firms, we offer the following:

- Common Knowledge's Surveyguardian enables interviewers to monitor and assist with online surveys in real time (www.commonknowledge.com/surveyguardian.html).
- Global Market Insight has a worldwide panel with nearly 500,000 households, including at least 500 panelists in each of more than 50 countries (www.gmi-mr.com/pages/coverage.html).
- Harris Interactive has a variety of online demonstrations that show its methodologies (www.harrisinteractive.com/ advantages/surveydemos.asp).
- InsightExpress has both B-to-B samples (www.insightexpress.com/audiences/b2b.asp) and B-to-C samples (www.insightexpress.com/audiences/b2c.asp). Demographic profiles can be specified in advance of survey administration.
- Nielsen//NetRatings (part of VNU) has launched WebIntercept with a panel database of three million internet users (www.nielsen-netratings.com/downloads/WebIntercept.pdf).
- Walker Information offers clients the ability to develop their own online surveys or have them designed by Walker (www.walkerinfo.com/what/traditional).

References

Alpar, P. and Spitzer, D.M. Jr (1989), "Response behavior of entrepreneurs in a mail survey", *Entrepreneurship Theory and Practice*, Vol. 14 No. Winter, pp. 31-44.

Alreck, P. and Settle, R. (1995), *Survey Research Handbook*, 2nd ed., McGraw-Hill, New York, NY.

Alreck, P. and Settle, R. (2004), *Survey Research Handbook*, 3rd ed., McGraw-Hill, New York, NY.

Archer, T.M. (2003), "Web-based surveys", *Journal of Extension*, Vol. 41 August, online.

Aster, A.Z. (2004), "Consumer research goes online", *Marketing Magazine*, June 7, pp. 13-14.

Bannan, K.J. (2003), "Companies save time, money with online surveys", *B to B*, June 9, p. 1.

Berry, D.M. (2004), "Internet research: privacy, ethics and alienation: an open source approach", *Internet Research*, Vol. 14 No. 4, pp. 323-32.

Bowers, D.K. (1998), "The new research tool", *Marketing Research*, No. Fall, pp. 34-8.

Bowers, D.K. (1998/1999), "FAQs on online research", *Marketing Research*, Winter-Spring, pp. 45-8.

Brennan, M. (1997), "The effect of question tone on response to open-ended questions", *Marketing Bulletin*, Vol. 8 May, pp. 66-72.

Brown, J. (2003), "Survey metrics ward off problems", *Marketing News*, Vol. 17, November 24, pp. 17-20.

Brown, J., Culkin, N. and Fletcher, J. (2001), "Human factors in business-to-business research over the internet", *International Journal of Market Research*, Vol. 43 No. 4, pp. 425-40.

Cavusgil, S.T. and Elvey-Kirk, L.A. (1998), "Mail survey response behavior", *European Journal of Marketing*, Vol. 32 No. 11/12, pp. 1165-92.

ClickZ (2004), "Population explosion!" (2004), September 10, available at: www.clickz.com/stats/big_picture/geographics/article.php/151151

Colombo, R. (2000), "A model for diagnosing and reducing nonresponse bias", *Journal of Advertising Research*, Vol. 40, January-April, pp. 85-93.

Curasi, C.F. (2001), "A critical exploration of face-to-face interviewing vs. computer-mediated interviewing", *International Journal of Market Research*, Vol. 43 No. 4, pp. 346-75.

Dillman, D.A. (2000), *Mail and Internet Surveys*, 2nd ed., John Wiley & Sons, New York, NY.

Dommeyer, C.J. and Moriarty, E. (1999/2000), "Comparing two forms of an e-mail survey: embedded vs. attached", *International Journal of Market Research*, Vol. 42 No. Winter, pp. 39-50.

Fricker, R.D. Jr and Schonlau, M. (2002), "Advantages and disadvantages of internet research surveys: evidence from the literature", *Field Methods*, Vol. 14 No. 4, pp. 347-67.

Furrer, O. and Sudharshan, D. (2001), "Internet marketing research: opportunities and problems", *Qualitative Marketing Research*, Vol. 4 No. 3, pp. 123-9.

Gaddis, S.E. (1998), "How to design online surveys", *Training & Development*, Vol. 52 No. 6, pp. 67-71.

Gendall, P. and Menelaou, H. (1996), "Open-ended questions: some implications for mail survey research", *Marketing Bulletin*, Vol. 7 May, pp. 1-8.

Gilbert, M.C. (2001), "Disconnected: the first nonprofit email survey," August, available at: http://research.gilbert.org/nes/disconnected

Global Reach (2004), "Global internet statistics (by country)," November 17, available at: www.glreach.com/globstats

Goldsmith, R.E. (1989), "Reducing spurious response in a field survey", *Journal of Social Psychology*, Vol. 129 April, pp. 201-12.

Goldstein, K.M. and Jennings, M.K. (2002), "The effect of advance letters on cooperation in a list sample telephone survey", *Public Opinion Quarterly*, Vol. 66, Winter, pp. 608-17.

Graeff, T.R. and Harmon, S. (2002), "Collecting and using personal data: consumers' awareness and concerns", *Journal of Consumer Marketing*, Vol. 19 No. 4, pp. 302-18.

Greenspan, R. (2003), "Tracking the experienced users," August 27, available at: www.clickz.com/stats/big_picture/geographics/article.php/3069511

Greenspan, R. (2004), "Google gains overall, competition builds niches," June 2, available at: www.clickz.com/stats/sectors/software/article.php/3362591

Greer, T.V., Chuchinprakarn, N. and Seshardi, S. (2000), "Likelihood of participating in mail survey research", *Industrial Marketing Management*, Vol. 29 March, pp. 97-109.

Griffis, S.E., Goldsby, T.J. and Cooper, M. (2003), "Web-based surveys: a comparison of response, data, and cost", *Journal of Business Logistics*, Vol. 24 No. 2, pp. 237-58.

Grossnickle, J. and Raskin, O. (2001), "What's ahead on the internet", *Marketing Research*, No. Summer, pp. 9-13.

Groves, R.M. and Mathiowetz, N.A. (1984), "Computer assisted telephone interviewing: effects on interviewers and respondents", *Public Opinion Quarterly*, Vol. 48, Spring, pp. 356-69.

Gunn, H. (2002), "Web-based surveys: changing the survey process", *First Monday*, Vol. 7 No. 12, online.

Heun, C.T. (2001), "Procter & Gamble readies online market-research push", *Information Week*, October 15, p. 26.

Hogg, A. (2003), "Web efforts energize customer research", *Electric Perspectives*, September-October, pp. 81-3.

Holbrook, A.L., Green, M.C. and Krosnick, J.A. (2003), "Telephone versus face-to-face interviewing of national probability samples with long questionnaires", *Public Opinion Quarterly*, Vol. 67, Spring, pp. 79-125.

Ilieva, J., Baron, S. and Healey, N.M. (2002), "Online surveys in marketing research: pros and cons", *International Journal of Marketing Research*, Vol. 44 No. 3, pp. 361-76.

Jackson, N.B. (2003), "Opinions to spare? Click here", *New York Times*, July 3, p. G1.

James, D. (2001), "New tricks for old dogs", *Marketing News*, Vol. 35, January 15, p. 19.

Jarvis, S. (2002), "CMOR finds survey refusal rate still rising", *Marketing News*, February 4, p. 4.

Jussaume, R.A. Jr and Yamada, Y. (1990), "A comparison of the viability of mail surveys in Japan and the United States", *Public Opinion Quarterly*, Vol. 54 No. Summer, pp. 219-28.

Kannan, P.K., Chang, A-M. and Whinston, A.B. (1998), "Marketing information on the I-way: data junkyard or information gold mine?", *Communications of the ACM*, Vol. 41, pp. 35-43.

Kaplowitz, M.D., Hadlock, T.D. and Levine, R. (2004), "A comparison of Web and mail survey response rates", *Public Opinion Quarterly*, Vol. 68, Spring, pp. 94-101.

Kulp, D. and Hunter, R. (2001), "Despite the technology hype, traditional research will remain key", *Marketing Research*, pp. 33-6.

McDaniel, C. and Gates, R. (2005), *Marketing Research*, 6th ed., John Wiley & Sons, New York, NY.

McDaniel, S.W., Verille, P. and Madden, C.S. (1985), "The threats to marketing research: an empirical reappraisal", *Journal of Marketing Research*, Vol. 22 February, pp. 74-80.

McDonald, H. and Adam, S. (2003), "A comparison of online and postal data collection methods in marketing research", *Marketing Intelligence & Planning*, Vol. 21 No. 2, pp. 85-95.

Malhotra, N.K. (2004), *Marketing Research: An Applied Orientation*, 4th ed., Prentice Hall, Englewood Cliffs, NJ.

Malhotra, N.K. and Peterson, M. (2001), "Marketing research in the new millennium: emerging issues and trends", *Marketing Intelligence & Planning*, Vol. 19 No. 4, pp. 216-35.

Mehta, R. and Sivadas, E. (1995), "Comparing response rates and response content in mail versus electronic mail", *Journal of the Market Research Society*, Vol. 37, October, pp. 429-39.

Miller, T.W. (2001), "Can we trust the data of online research?", *Marketing Research*, Vol. 13, Summer, pp. 26-32.

Montoya-Weiss, M.M., Massey, A.P. and Clapper, D.L. (1998), "Online focus groups: conceptual issues and a research tool", *European Journal of Marketing*, Vol. 32 No. 7-8, pp. 713-23.

Mullarkey, G.W. (2004), "Internet measurement data – practical and technical issues", *Marketing Intelligence & Planning*, Vol. 22 No. 1, pp. 42-58.

Nancarrow, C., Pallister, J. and Brace, I. (2001), "A new research medium, new research populations and seven deadly sins for internet researchers", *Qualitative Market Research*, Vol. 4 No. 3, pp. 136-49.

Peterson, K., Sattin, B., Vavra, T.G. (2003), Despite new law, phone surveys still effective, *Marketing News*, Vol. 37, September 15, pp. 22-23.

Poynter, R. (2004), "If the internet is so clever, why aren't we all rich!" available at: www.virtualsurveys.com/news/papers/paper_11.asp (accessed June 21).

Presser, S. and Zhao, S. (1992), "Attributes of questions and interviewers as correlates of interviewing performance", *Public Opinion Quarterly*, Vol. 56, Summer, pp. 236-40.

Ranchhod, A. and Zhou, F. (2001), "Comparing respondents of e-mail and mail surveys: understanding the implications of technology", *Marketing Intelligence & Planning*, Vol. 19 No. 4, pp. 254-62.

Ratneshwar, S. and Stewart, D.W. (1989), "Nonresponse in mail surveys: an integrative review", *Applied Marketing Research*, Vol. 29 No. 3, pp. 37-46.

Ray, N.M. and Tabor, S.W. (2003), "Cyber surveys come of age", *Marketing Research*, Spring, pp. 32-7.

Roster, C.A., Rogers, R.D., Albaum, G. and Klein, D. (2004), "A comparison of response characteristics from web and telephone surveys", *International Journal of Market Research*, Vol. 46 No. 3, pp. 359-73.

Rubin, J. (2000), "Online marketing research comes of age", *Brandweek*, October 30, pp. 26-7.

Sánchez-Franco, M.J. and Rey, J.R-B. (2004), "Personal factors affecting users web session lengths", *Internet Research*, Vol. 14 No. 1, pp. 62-80.

Schleifer, S. (1986), "Trends in attitudes toward and participation in survey research", *Public Opinion Quarterly*, Vol. 50, Spring, pp. 17-26.

Scholl, N., Mulders, S. and Drent, R. (2002), "Online qualitative market research: interviewing the world at a fingertip", *Qualitative Market Research*, Vol. 5 No. 3, pp. 210-23.

Schonlau, M., Fricker, R.D. Jr and Elliott, M.N. (2001), *Conducting Research Surveys via E-Mail and the Web*, Rand Corporation, Santa Monica, CA.

Sheehan, K.B. and McMillan, S.J. (1999), "Response variation in e-mail surveys: an exploration", *Journal of Advertising Research*, Vol. 39, July-August, pp. 45-54.

Spaeth, M.A. (1977), "Recent publications on survey research techniques", *Journal of Marketing Research*, Vol. 14, August, pp. 403-9.

Struebbe, J.M., Kernan, J.B. and Grogan, T.J. (1986), "The refusal problem in telephone surveys", *Journal of Advertising Research*, Vol. 26, June-July, pp. 29-37.

Sweet, C. (2001), "Designing and conducting virtual focus groups", *Qualitative Market Research*, Vol. 4 No. 3, pp. 130-5.

Tingling, P., Parent, M. and Wade, M. (2003), "Extending the capabilities of internet-based research: lessons from the field", *Internet Research*, Vol. 13 No. 3, pp. 223-35.

Tyebjee, T.T. (1979), "Telephone survey methods: the state of the art", *Journal of Marketing*, Vol. 43, Summer, pp. 68-78.

Wansink, B. (2001), "Editorial: the power of panels", *Journal of Database Marketing*, Vol. 8 No. 3, pp. 190-4.

Wansink, B. and Sudman, S. (2002), "Predicting the future of consumer panels", *Journal of Database Marketing*, Vol. 9 No. 4, pp. 301-11.

Wilson, A. and Laskey, N. (2003), "Internet-based marketing research: a serious alternative to traditional research methods?", *Marketing Intelligence & Planning*, Vol. 21 No. 2, pp. 79-84.

WebSiteOptimization.com (2004), "Will broadband penetration peak at 75?" June 19, available at: www.websiteoptimization.com/bw/0405