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The Business School

**On-line Surveys in International Marketing
Research: Pros and Cons**

WP01/10

July 2001

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Abstract

In a recent article on conducting international marketing research in the 21st century (Craig and Douglas 2001) the application of new (electronic) technology for data collection was encouraged. Email and web-based data collection methods are attractive to researchers particularly in international marketing, because of low costs and fast response rates. Yet the conventional wisdom is that, as some people still do not have access to email and the Internet, such data collection techniques may often result in a sample of respondents that is not representative of the population in question. In this article we evaluate multimode strategies of data collection that include web-based, email and postal methods, as a means for the international marketing researcher to obtain survey data from a representative sample. An example is given of a multimode strategy applied to the collection of survey data from a sample of respondents across 100 countries.

Keywords: **Marketing research, electronic surveys, multimode methods, self-administered questionnaires.**

Introduction

The self-completed postal or mail survey is a recognised form of data collection in marketing research (Dillman, 1978). Well-documented practical problems with this form of data collection include poor response rates, slow response, and manual transcription of data from a hard copy questionnaire to an appropriate statistical analysis tool, where non-response and data entry errors may result. Perhaps as a consequence, research on *on-line* data collection methods has significantly increased during the late 1990s. This has been preceded by a growing number of Internet and e-mail users, which have started to mirror the general population in some countries (Kehoe, Pitkow and Rogers 1998), as well as various computer assisted data collection techniques, such as Computer Assisted Personal Interviews (CAPI) and Computer Assisted Telephone Interviews (CATI). Investigation into the validity of on-line data collection has been mainly grounded in comparisons between on-line surveys and mail surveys (Stanton 1998, Schaefer and Dillman 1998, Sheena and Macmillan 1999). The need for mastering new tools, which incorporate the latest technology in the data collection techniques, has been identified by Craig and Douglas (2001). They advise that international marketing researchers will need to broaden their capabilities in order to design, implement and interpret research in the twenty-first century.

Problems may arise here, however, as a sample of respondents with internet/email access may not be representative of certain populations. To overcome these problem, Schaefer and Dillman (1998) suggested a multimode strategy of data collection i.e. approaching the the respondents via e-mail and by post/mail. This paper is an empirical investigation into this strategy, which has been successfully applied in a survey covering 150 countries. The study argues that different modes of on-line and postal surveys complement each other and there are increased advantages in them being used together rather than applied separately.

The paper starts with a review of the on-line surveys literature and attempts to build a "bridge" between the theoretical advances of academic researchers and the practical conclusions suggested by experts providing e-mail and web survey services. A

comparison is made between on-line surveys and postal surveys in terms of response rates, data quality, response time and financial resource implications, and a suggestion is made on how to mix the e-mail and web-based modes of approaches in order to optimise the comparative advantages of on-line data collection techniques. An on-line survey, based on empirical research carried out into central bank independence (CBI), which covered responses from 100 countries world-wide, is used for illustration. Finally, limitations of on-line surveys, and weaknesses of on-line self-administered questionnaires are outlined, as well as some possibilities of how they can be dealt with in the future.

E-mail and web based surveys: a literature review

There are many similarities between on-line and postal surveys, stemming from the common methodology of self-administered questionnaires (referred to hereafter as SAQ) and the nature of the data that both produce. However, these techniques differ in the means through which they have been carried out. On-line surveys can be conducted through e-mail or they can be posted on the web and the URL provided (password is optional depending on the nature of the research) to respondents who have already been approached. When a wider audience is targeted, the on-line survey can be designed as a pop-up survey, which would appear as a web-based questionnaire in a browser window while users are browsing the respective web-sites. The latter type of on-line surveying has been considered as "the most positive contribution to web-site research in the brief history of Internet Research" (Comley, 2000).

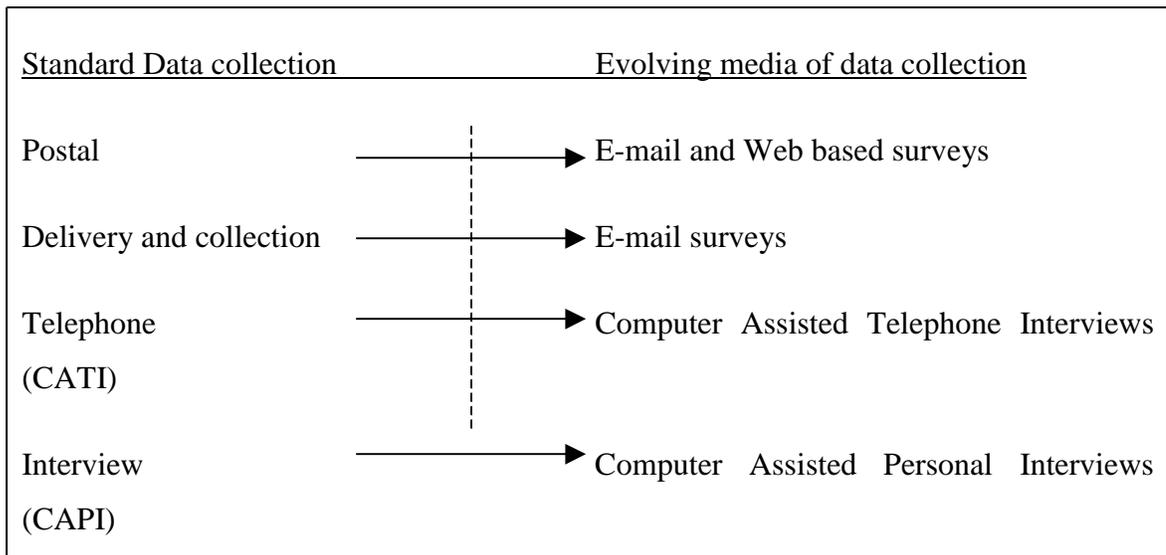
Introducing e-mail and web based surveys

Although on-line surveys have been mainly used for web-site research, academics and practitioners from mainstream disciplines such as marketing are showing an increased interest in applying on-line data collection techniques. A recent web-based survey research project (Ray, Griggs and Tabor 2001) shows the following discipline demographics: marketing (70%), Information Systems (27%), Management (2%) and Economics (1%). Significant in this research was the ratio of respondents conducting an

on-line survey for a first time (39%), which indicates a growing use of this mode of data collection.

Figure 1 shows the technological "evolution" of some standard data collection methods (postal surveys, telephone interviews and personal interviews) and their on-line counterparts.

Figure 1: Self-administered questionnaires methods



A significant advantage of *e-mail surveys* is the speed of data collection (See Table 1). At very low cost (no postage and printing costs, telephone messages and no involvement of interviewers), and with instant access to wider audience, irrespective of their geographic location, e-mail surveys are very appropriate for cross-sectional studies and/or international comparisons. A *web-based survey* is appropriate for a wide audience, where all the visitors to certain web-site have equal chance to enter the survey. However, the researcher's control over respondents entering the web-based survey is less than in case of e-mail surveys. Another advantage of web-based surveys is the better display of the questionnaire, whereas e-mail software still suffers from certain limitations in terms of design and interactive format. However, these two modes of surveys can be mixed (i.e. *multimode approach*), combining the comparative advantages of each.

Response rate

The apparent disadvantage of SAQs is the comparatively low response rate (30% is usually considered reasonable, Saunders, Lewis and Thornhill 1997). However, there are some significant differences in the response rates of web surveys and e-mail surveys. Comley (2000) summarises the response rates of all virtual surveys in 1999, most of them being in the range 15% - 29%. On the other hand, a report on e-mail surveys by Virtual Surveys Ltd (2001) shows that the response rate to e-mail surveys varies between 25% - 50%¹, which is significantly higher than web-based surveys. Schaefer and Dillman (1998) had a 58% response rate to their e-mail survey, which was not very much different from the mail survey (57.5%). Different results were obtained by Wygant and Lindorf (1999) in their study comparing results from e-mail with those from a mail survey. The response rate for the electronic survey was much higher (50%) than the mail one (32%). Ray, Griggs and Tabor (2001) summarised the response rates in their survey to be as follows in the respective sectors: 40.8% (academic), 31.3% (general web) and 19% (business). Runham (1999) achieved up to 80% response rate in a web-based survey, which might have been due to the fact, as Comley (2000) suggests, the user was "hi-jacked and the survey appeared in the main browser window".

Much of the good practice in case of mail surveys can be applied to on-line data collection. Dillman (1978, 1991) acknowledges the importance of "personalization" for attaining a good response rate. This technique can equally be applied successfully in e-mail surveys (Schaefer and Dillman, 1998). Martin (1995) acknowledges the impact of topic salience on mail survey response behaviour, demonstrating that there is a positive relationship between them. Sheehan and McMillan (1999) explore the same issue for e-mail surveys and their findings support the above relationship, i.e. response rate increases with increase of the issue salience. Furthermore, respondents' interest in the researched topic provides an attractive incentive for participation in the survey in terms

¹ Research published by Virtual Surveys Ltd. and Pete Comley involves in publication by one and the same organisation.

of promise of the survey results. Ray, Griggs and Tabor (2001) found that in 57% of the conducted web-based surveys, respondents have been promised survey results as incentive to participate. In about 36% of the surveys, participants were promised participation in a draw/raffle to encourage participation. On the practitioners' side, Comley's (2001) findings suggest that incentives have little impact on response rate in on-line surveys (+10% for e-mail surveys). However, incentives may have a negative impact on data quality as respondents can be tempted to distort data by, for example, entering the survey several times to increase their chances to win a prize. Virtual Surveys Ltd. (2001) encountered a case where the respondent filled out a pop-up survey 750 times in order to increase the chances of winning the prize. Furthermore, incentives may also encourage some people to enter irrelevant information in order to complete the survey and enter the raffle/draw. This is more likely to occur when respondents are selected on a random choice basis and the survey is a web-based one, associated with less researcher control of the individuals entering the survey. It is less likely to happen if the survey is conducted through e-mail and respondents' entry depends on a personalised invitation to participate.

Comley (2000) lists several factors affecting the response rate when conducting pop-up virtual surveys, listed in order of importance: (i) style of the survey first page, (ii) relationship with the web-site/brand and (iii) interest/relevance of the survey. Comley acknowledges the importance of the length of the first page of the survey and the response rate, as expressed by the formula:

$$\text{Response Rate (\%)} = 40\% - (8\% \times \text{Number of screens in the first page}),$$

where the number of the screens is defined by the number of the scrolls down to see the complete page.

A significant disadvantage of e-mail surveys relates to confidentiality of the participants in the survey. Mail surveys give respondents the choice of being anonymous, whereas e-mails always disclose the sender's identity. Perhaps response rates would be higher if respondents' anonymity was somehow guaranteed beforehand.

Response time

Short response time certainly is one of the greatest advantages of on-line surveys. On-line surveys allow messages to be instantly delivered to their recipients, irrespective of their geographic location. The same applies to the speed of the response. Responses to on-line surveys reported in different surveys took less than a month. Ray, Griggs and Tabor (2001), in their survey of on-line surveys, found that 34% of the on-line surveys took less than two weeks, 33% between two weeks and one month and 33% longer than one month. For example, Wygant and Lindorf's (1999) e-mail survey took 2 days for 80% of the final responses to be received, and Schaefer and Dillman's (1998) survey took 9.16 days. Most comparative research done on on-line and postal surveys concludes that response time of the latter is longer than that of the former (Tse *et al.* 1995, Weible and Wallace, 1998, Bachman, Elfrink and Vazzana, 1996, Mehta and Sivadas, 1995). The difference in the response time and response rates in electronic and mail surveys is summarised in Table 1.

Table 1: Response time and response rate: e-mail versus mail

Authors	Technique	Response time	Response rate
Bachman, Elfrink and Vazzana (1996)	E-mail	4.68 days	52.5%
	Mail	11.18 days	65.6%
Weible and Wallace (1998)	E-mail	6.1 days	29.8%
	Mail	12.9 days	35.7%
Schaefer and Dillman (1998)	E-mail	9.16 days	58%
	Mail	14.39 days	57.5%
Tse et al. (1995)	E-mail	8.09 days	6%
	Mail	9.79 days	27%
Mehta and Sivadas (1995)	E-mail	2-3 days (>50% of the responses)	54.3%
	Mail	21 day (>50% of the responses)	56.5%
Wygant and Lindorf (1999)	E-mail	2 days	50%
	Mail	9.16 days	32%
Parker (1992)	E-mail	NA	68%
	Mail		38%
Schuldt and Totten (1994)	E-mail	NA	19.3%
	Mail		56.5%
Tse (1998)*	E-mail	2.58 days	7%
	Mail	8.49 days	52%
Kiesler and Sproul (1986)	E-mail	9.6 days	75%
	Mail	10.8 days	67%
E-mail average response time and rate		5.59 days	41.99%
Mail average response time and rate		12.21 days	48.78%

*Response time has been reported in hours and converted to days for the above table

Source: Expanded from Sheehan and McMillan (1999, p.51)

Response time in e-mail surveys is shorter (average response time 5.59 days) than the time generally necessary for mail surveys (12.21 days average response time). Sheehan and McMillan (1999) explored the impact of pre-notification of a survey on the speed of the responses, and the positive relationship was partially supported by their findings. A possible reason for delayed responses could be the timing of a survey. For example, when e-mail surveys are conducted during the summer, some e-mail users (e.g.

university members) check their e-mail accounts less frequently. We would expect the response time to fall in future, with an increase in the e-mail users and increase in the frequency of checking e-mail as well as increase of the time that respondents spend on-line.

The response time of web-based surveys is somewhat controlled by the researcher conducting the survey, depending on the length of time that the survey is posted on the web. Virtual survey experts suggest that virtual surveys should run for at least one week (and usually up to a limit of two), thus allowing visitors to the respective web-site enough time to participate in the survey (Virtual Surveys Ltd, 2001). They advise surveys to be run every month/quarter for a short period of time rather than continuously when tracking studies are required.

Financial resource implication

On-line surveys have minimal financial resource implications and the scale of the survey is not associated with finances, i.e. large-scale surveys do not require greater financial resources than small surveys. Expenses related to self-administered postal surveys are usually shaped in outward and return postage, photocopying, clerical support and data entry, none of which is associated with on-line surveys. Furthermore, the respective questionnaire *can be programmed so that responses can feed automatically into the data analysis software* (SPSS, SAS, Excel, etc.). This adds to the time saving advantages of on-line surveys on the one hand and avoids all the data input (and associated transcription errors) on the other. Wygant and Lindorf (1998) estimate that the budget for the electronic administration equalled one sixth of the cost of the mail administration, which allowed two researchers within a year to conduct 27 electronically administered surveys projects, related with delivery of over 50,000 questionnaires to a population of 35,000. The inexpensiveness of on-line surveys has been confirmed in a wide range of studies (Mehta and Sivadas, 1995, Sheehan and McMillan, 1999, Schaefer and Dillman, 1998, Schuldt and Totten, 1999).

Data quality

It is not yet clear whether people react differently to e-mail and mail surveys as they both are SAQ techniques and rely on respondents' comprehension of written text. Schaefer and Dillman (1998) conclude that e-mail surveys provide more detailed and comprehensive information than mail surveys. Their study of developing e-mail methodology shows that 69.4% of e-mail respondents completed 95% of the survey whereas only 56.6% mail respondents completed 95% of the survey. Furthermore, e-mail participants provided answers to the open-ended questions with 40 words on average, whereas the mail respondents' answers were briefer, with ten words on average. The hypothesis that e-mail and web-based surveys provide more complete information is supported by research conducted independently by different authors (Bachman, Elfrink and Vazzana, 1996, Stanton 1998, Mehta and Sivadas, 1995). The on-line approach implies some psychological dimensions rooted in the respondents' anonymity. Respondents' candour is optimised when respondents' anonymity is guaranteed (Stanton, 1998, King and Miles, 1995), and anonymity is a problem with e-mail. However, at present there is not much research that has been carried out into respondents' beliefs about their anonymity when using the web and how sincere they are when filling in on-line questionnaires.

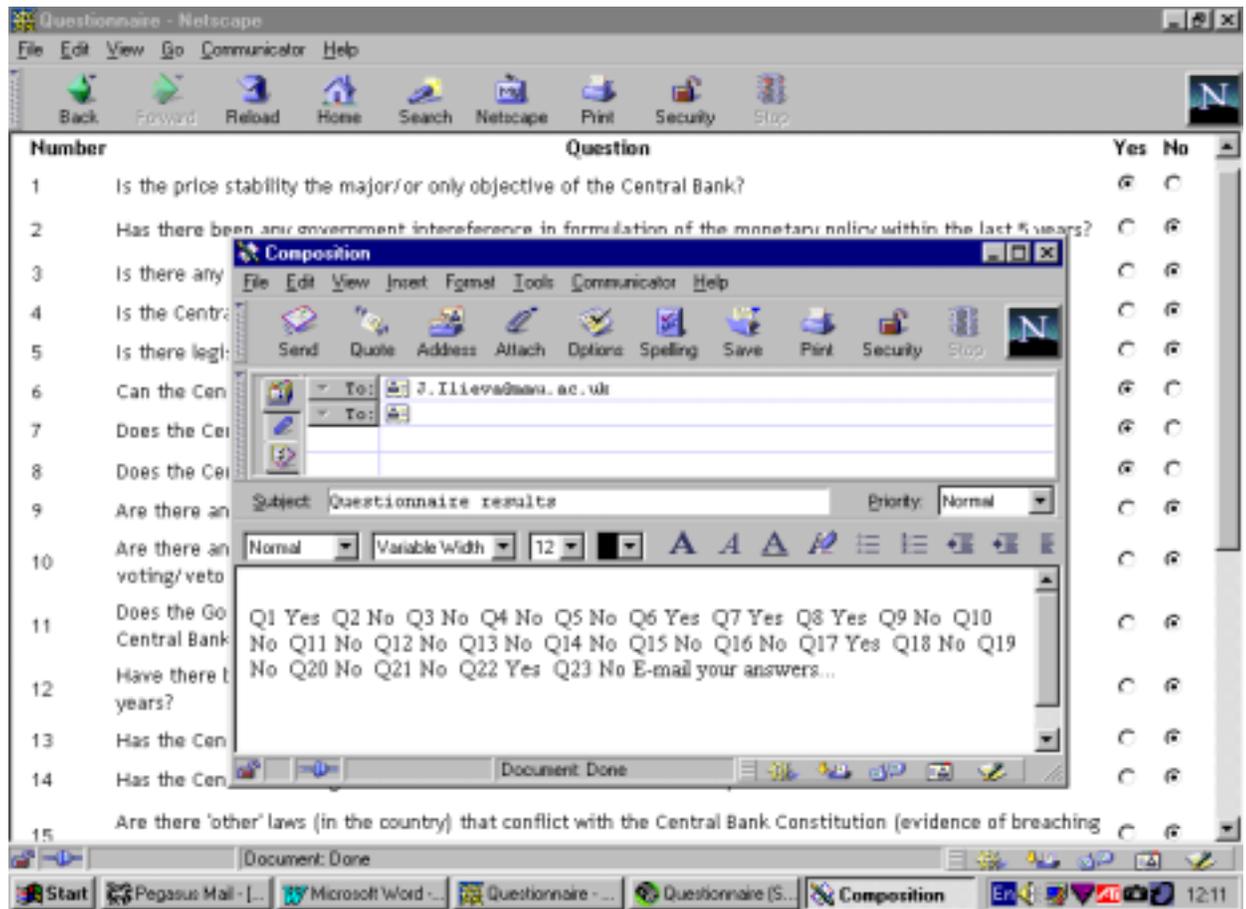
In summary, the major difference between on-line surveys and the conventional mail surveys stems from the technology employed when conducting them and therefore the advantages offered by the on-line surveys are technology-driven ones. They will increase with technological improvements, e.g. shorter response time and better data quality with more frequent use of the e-mail and Internet. The methodologies behind on-line and postal surveys are very similar and, irrespective of the variety of survey-based applications employed in data collection, they are still survey methodologies. Therefore, on-line surveys are more a new mode of data collection than a new data collection method.

Central bank independence survey

The example shown in Figure 2 is drawn from a survey, which covered Central Bank Independence (CBI) in 150 countries, and was carried out at the end of 1999 and beginning of 2000. It is used here to demonstrate, to international marketers, the potential of carrying out global surveys. The respondents approached were researchers based at the research department of the central bank and/or central bank board members. The survey contained an index-based questionnaire consisting of 23 questions, which aimed to measure the independence of the central banks from the central government in terms of decision-making and conduct of the monetary policy. Central bank institutions in approximately 150 countries were approached with 100 actually participating in the survey (a response rate of 66%). The exemplar questionnaire used binary coding ('Yes' or 'No' based questions). However, depending on the nature of the research, other options can be used (e.g. Likert scale, multiple choice answers, or open questions).

During the on-line stage of the survey, central bankers were approached via e-mail, containing a questionnaire in Hypertext Markup Language format (referred to hereafter as HTML) and also in text format in case respondents were not comfortable with HTML.

Figure 2



Response rate

The survey applied the multimode approach, advanced by Schaefer and Dillman (1998). The use of e-mail has been shown to generate higher response rate than web-based surveys (Comley, 2000). On the other hand, the format of an e-mail survey can be cumbersome to follow, which might discourage some respondents from answering (Schaefer and Dillman, 1998). Web-based surveys can be designed to appear on the whole screen, enabling respondents to follow the sequence of questions more easily due to their interactive nature (Dillman and Tortora, 1998). The CBI questionnaire was e-mailed as an HTML file and displayed in the browser's window (see Figure 2), combining the aforementioned advantages of e-mail and web-based surveys and making the presentation of the questionnaire much clearer and convenient for respondents to fill

in answers to the questions. One rationale behind this approach was to save the respondents' time given the nature of their work.

Respondents' "personalisation", suggested by Schaefer and Dillman (1998), depended on the contact details posted on central banks' websites. The people in charge of the research in the respective central bank were approached by mail when their e-mail contact details were not disclosed. The issue salience, as articulated by Sheehan and McMillan (1999) and Martin (1994), was strengthened by the relevance of the theme of central bank independence in many countries. This topic became a political preoccupation in the 1990s when many governments started granting their central banks with greater independence, following a series of theoretical and empirical studies, which suggested that greater central bank independence reduces the inflationary bias. The issue salience appeared to be crucial during the "triangulation" phase of the survey, when respondents' data were triangulated with responses provided by independent experts based at academic institutions. The response rate for the academics, however, was significantly lower (only 21 countries responded out of 150), presumably reflecting a lower level of interest in the area.

The survey required specialists in central banking to participate and therefore a web-based survey was not appropriate (due to the researcher's lack of control over the respondents entering the survey). Therefore the specialists were approached through e-mail. The response rate was 100% when central bankers were personally approached on the e-mail and 0% when Public Enquiries Departments were approached. This demonstrates the importance of identifying the "right person" who should be approached to participate in the survey and avoiding the "gate-keeper". Alternatively, when no electronic contact details are provided on the web, the "right person" in the company can always be approached by post. This suggests the possibility of incorporating a multimode approach - on-line and mail approaches can be employed in the same survey instead of perceiving them as rival data collection techniques.

Response time

The on-line part of the CBI survey took four weeks. The e-mails were not sent out the same day, but in different weeks, which explains the overall long period of the on-line survey. It took about a week to send out all the e-mails and mail letters using addresses from one and the same database. However, most of the electronically sent questionnaires came back within two days. Presumably, even this response time could have been shorter if the respondents had been located in the same time zone. Central bankers, defined as the "right person" to approach without specified e-mail addresses were approached by post. The postal survey took longer than nine months for all the completed questionnaires to be sent back. It is worth mentioning that some of the letters travelled more than three months one way, which significantly increased the time necessary for the survey results to come back. This period involved additional communication on clarifying the nature of the survey. An interesting observation, indicating web-awareness of respondents approached via mail, was that several of them, having received the postal questionnaire, e-mailed back requesting its electronic version. The response was then provided through the e-mail.

Data quality

Personalised letters had a two-fold implication in this survey: they resulted in increased response rate on the one hand, and, on the other, they increased the confidence that the right person had responded. In cases where a "non-personalised" letter was sent out (e.g. addressed to the head of research), the person who responded could always be checked on the respective central bank's web database.

A major concern in on-line surveys regarding the validity of the data collected on the web stems from the sampling frame (Ray, Griggs and Tabor, 2001), which is represented predominantly by a computer literate population rather than "appropriate" for the survey sample (where cases are not related to web-design, on-line shopping, etc.) A significant *positive* impact on the data quality was the easy contact and instant feedback from the e-mail respondents. Having just received a message from a researcher requesting further information or clarification on some points, an instant reply from the

respondent saves the effort of explaining the issue again and introducing the problem. The same is valid *vice versa* when clarification and additional information is requested from the respondents.

Some limitations of on-line surveys

The major advantage of postal surveys over on-line ones is that respondents have physical addresses, whereas not everybody yet has got an electronic address. However, the random choice principle can still be kept in web-site surveys, where all visitors to a particular website have equal chances to be selected. This, however, represents a much reduced sampling frame than might be appropriate for studies not requiring computer literacy of the surveyed population. The demographic profile of Internet users in the United States towards 1998 has started to mirror a general population with an increased representation of female users (38.7%) whereas Europe seems to be less "gender-balanced" with 16.3% female respondents (Kehoe, Pitkow and Rogers, 1998). However, for large-scale cross-country surveys, the multimode approach, i.e. on-line and postal, compensates the misrepresentation of the general population.

Across all groups of users, the most commonly experienced problem with web surveys stems from the time necessary to download pages, encountered by 64.8% of respondents (Kehoe, Pitkow and Rogers, 1998). Participation in on-line surveys requires users to have specified e-mail accounts in their browser's preferences menu, unless they use browser enhanced e-mail software (this problem has been commonly encountered by Pegasus and Eudora users). In those instances the central bank independence questionnaire was faxed back, which in terms of time took as long as the e-mail would take. Problems may also arise with older browsers, which fail to properly display HTML questionnaires, with the appearance of the questionnaires in different browsers (Netscape, Internet Explorer).

Another significant limitation of on-line surveys stems from the technology required, which still suffers from not being user oriented enough. The need for a more user-centred approach was first addressed in the human computer interaction (HCI) literature, where HCI was conceptualised as a social phenomenon (Norman, 1986, Norman, 1993,

Laurel, 1995). Problems encountered in the CBI survey were related to proxy servers, which did not allow questionnaire-based e-mails through the system due to security precautions. However this can only be experienced with institutional servers, which is of concern when approaching on-line governmental and other organisations.

Conclusion

The major advantages of on-line surveys are:

- very low financial resource implications,
- short response time,
- researcher's control of the sample (and no involvement in the survey),
- data can be directly loaded in the data analysis software, thus saving time and resources associated with the data entry process.

Some of these advantages are expected to increase with the growing use of the Internet, which should positively affect the response time and data quality of on-line surveys. The response time can therefore be cut shorter with the more frequent use of the Internet as well as through increased speed in downloading websites. Data quality is expected to improve with an increase in the number of Internet and e-mail users, which will improve the representation of the sample of the on-line respondents. The technical problems will diminish in future with the move towards more user-centred technology and increased software compatibility, such as survey software that is compatible with most of the browsers and e-mail software.

An important issue in the method of data collection is the approach mode. Provided Internet users still do not mirror the entire population in some countries, a combination between on-line and postal techniques will positively affect the response rate, the representation of the respondents and data quality. However, the mode of contact depends on whether the "right" person's contact details are available as well as the required sensitivity of the questionnaire.

The empirical research carried out on on-line surveys shows that e-mail surveys generate better response rates than web-based surveys and that they provide greater researcher control over the sample of respondents, avoiding multiple entries to the survey by the same person. On the other hand questionnaires are better displayed, more interactive and easier to fill-in when displayed in browser window, than in an e-mail letter. Establishing the contact through personalised e-mail and providing the questionnaire in HTML format (or sending the website URL) combines the advantages of e-mail and web-based surveys and optimises the use of on-line data collection.

However, the traditional mail surveys have advantages in guarding respondents' anonymity. Sensitive issues, which may prevent respondents to give sincere answers, should be addressed via the post rather than on-line. Further research needs to be carried out on respondents' anonymity, which is easily disclosed in on-line surveys. Guaranteeing anonymity would have a two-fold impact: it is expected to affect positively both response rate and data quality (i.e. respondents' candour).

There are examples of on-line surveys informing marketing theory (See Meuter *et al.*, 2000), and such surveys are attractive precisely because of the advantages listed above. In practice, there are still many issues to address, both on the technical side, and on the representativeness of the electronic sample. It is hoped that this summary can encourage further developments in international marketing regarding this relatively new mode of data collection.

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