

WebResearch.caution
The WebQUAL Experience

Contact author details:

Dr. Kenneth R Deans
Senior Lecturer
Department of Marketing
University of Otago
PO Box 56
Dunedin
New Zealand.

Phone: 64.3.479.8166

Fax: 64.3.479.8172

e-mail: kdeans@commerce.otago.ac.nz

Mr. Stewart Adam
Senior Lecturer
School of Marketing
Faculty of Business
RMIT University
Level 14
239 Bourke Street
Melbourne.

Phone: 61.3.9925.5517

e-mail: stewart.adam@rmit.edu.au

WebResearch.caution The WebQUAL Experience

Abstract

This paper reports on some methodological issues concerning WWW research. The focus is issues concerning the WebQUAL Audit (hereafter referred to as WebQUAL), currently under way in Australia and New Zealand, that seeks to establish the strategic objectives behind a firm establishing a web presence. The 'web-based' elements of the methodology are an on-line survey and a content analysis. The survey techniques examined include email and the web 'form'. The issues raised are self-selection, sampling, SPAM, response rates, response timing, and some ancillary technical issues. A content analysis methodology will be presented at the conference.

Introduction

As new technology offers marketing researchers (academic and commercial) new methods of solving old problems, so the resultant pros & cons are becoming apparent. The benefits claimed for online research include: lower costs; faster turnaround; higher response rates; lower refusal rates; lower respondent error; broader stimuli potential; and flexibility in the form of adaptive questioning (Smee, Brennan, Hoek and Macpherson 1998; Forrest 1999; and Kehoe & Pitkow 1996). There are three main methods used: email surveys, postal invitations to visit a website and complete a web form, and email invitations to complete an online survey or web form.

WebQUAL Audit

WebQUAL has evolved from earlier studies examining organisational use of the Internet (Deans and McKinney 1997; Ho 1997; Hoffman, Novak, & Chatterjee 1997; Adam & Deans 1999).

Where earlier studies have been carried out, most have tended to be transaction focussed or have

dwelt on Internet advertising without considering the multiple roles the Internet performs and the value transformation possibilities presented. The study examines strategic intent reportedly missing from Web usage studies to date (Deans and McKinney 1997; NUA Surveys). It posits that the Internet has a three-fold role (Adam, 1998): *new media communications* (Hoffman and Novak 1996), *marketing channel* (Steinfeld, Kraut & Plummer 1997) and *knowledge media and relationship development* (Eisenstadt, 1995). WebQUAL is a four-stage, longitudinal study that is being developed to include a comparative element involving collaborators in Asia, UK, Austria, North America and Japan. Stage One involved an email invitation sent to a sampling frame comprised of every thirty-second domain name in Australia and New Zealand and sought to classify Web usage (ANZSIC classification) and establish how well management felt that their websites were meeting their objectives (Adam and Deans 1999). Stage Two involved a content analysis of 300 randomly selected websites involving both respondent and non-respondent organisations using criteria from the WebQUAL survey. Thus, from stage two a comparison can be made between responses by organisations and those of the independent WebQUAL researchers. Stage Three involved the researchers independently rating (content analysis) the respondent websites against a conceptual model involving the earlier-mentioned communication, transaction & relationship. Stage Four will comprise of a series of in-depth company interviews.

Online research benefits and issues

- 1. Cost benefits** - undoubtedly email surveys are inexpensive, as variable costs such as printing and stuffing are rendered unnecessary. The cost of developing and maintaining an email list in this new media should not, however, be underestimated. The cost of using *WebBot* (Microsoft) and *cgi-bin script*, where results are forwarded to the researcher as TAB delimited text, is negligible. Specialised software has a much higher cost. WebQUAL falls

into this category as it involves PERL and PHP (hypertext preprocessor) middleware to interact with a SQL (Structured Query Language) database. The middleware generates adaptive email and records responses in a secure manner. It is also to be noted that while distribution costs for online surveys are lower (development costs aside) for the researcher, many of the costs are passed to the respondent. Respondents are unlikely to be aware of these costs unless paying their own Internet Service Provider (ISP) costs. Concerns are also expressed when bandwidth issues arise from a (too) graphically rich online survey instrument.

2. **Response rates and response speed** - while the WebQUAL response rate using an email invitation to a secure web form accessible by computer generated password was somewhat lower than found by Weible and Wallace (1998), much of the difference can be explained in terms of the audience involved. In addition, it is suggested that the novelty value of the Web among respondents is waning. Our results do however, indicate a faster response rate - 336 out of 450 (75%) occurred within the first 10 days with no reminder. Where a commercial market researcher might offer clients incentives to respond, academic research such as WebQUAL must be independent and (key incentives were *confidentiality* and *respondent anonymity* (Burns and Bush 1998)). Additionally, the WebQUAL team offered respondents a short actionable summary report of the key findings.
3. **Higher accuracy** - Internet based surveys, whether low-tech 'fill in the boxes' email or rich (in text and graphics) html coded POP email or indeed Web browser readable forms (questionnaires), may offer degrees of accuracy far greater than permitted by earlier technologies. A major issue, which undoubtedly impacts on the representativeness of online samples, is the matter of bad email addresses. Another issue of concern is whether or not the receiving mail server is barring the mail because it is regarded as SPAM. In the WebQUAL

case, the response error was 13.6% in that 61 of the 450 respondents had commenced the survey but not provided a complete response. The 61 respondents were contacted by email to seek clarification as to whether an incomplete response was due to a technical matter or a deliberate withdrawal from the survey. Over 50% responded within 12 hours. Half of these thought they had completed the survey but indicated a willingness to try again. The overall response to this query demonstrates on-line flexibility, the willingness of respondents to become engaged and that there are technical issues to be overcome with electronic surveys.

4. **Output** - It is suggested that care is needed in ensuring that input translates into output fields as intended and in particular, care is needed with the number and type of characters permitted in open-ended questions using textboxes in web based forms. For example, an unwanted RETURN character in a textbox may signal to SPSS that a new response starts at this point. There are other technical issues such as high screen resolution dependency, Java script, 'cookies' and adaptive questioning when browser technology and computer hardware and firmware is not yet uniform enough to permit such technological enhancements and assumptions. The issue of duplicate responses can arise in many online consumer or end-user surveys. In the WebQUAL case, each respondent has a unique, server-generated password. This approach avoids over-sampling in that only a single response is accepted to the Oracle database for each respondent organisation, thus also overcoming another issue: that of pressing the SUBMIT button more than once. A related feature of WebQUAL is that follow-up emails are only sent to those who have yet to respond. The 'flags' can be reset to enable the database to be used in the planned longitudinal study.
5. **Identity** - there was the possible loss of local identity when New Zealanders were asked to complete a survey generated in Australia and vice versa. The earlier-mentioned 'middleware'

flips names and institution logos depending on country of domicile of the respondent in an endeavour to overcome any possible parochialism.

6. **Sampling** - perhaps one of the greatest threats to online surveys is SPAM, the electronic equivalent of junk mail. The sampling frame for WebQUAL came from systematically sampling the population of domain names in the public registry in each country using a skip interval of 31. Each site was visited to determine 'suitability' and manually extract an email addresses. Next, an email invitation to participate was sent to each organisation in the sample. The email requested that the message containing the secure survey (FORM) website location and password be forwarded to the relevant manager. In this instance, the issue of non-probabilistic sampling and the representativeness of Web users were less of an issue.

The conceptual model developed for the content analysis recognises different phases in a website's development and is an aggregate of 50 factors and will be discussed during the presentation.

References

- Adam, S. and Deans, K.R. (1999), "WebQUAL: An E-Commerce Audit," Refereed paper, *AUSWEB99 Conference Proceedings*, Ballina, Southern Cross University, Australia, (17-20 April):pp.253-262, <http://ausweb.scu.edu.au/aw99/papers/adam>
- Adam, S. (1998), "Electronic Marketing and the Internet: Measuring the IPOR Gap," Refereed paper, *Australian and New Zealand Marketing Academy (ANZMAC) Conference Proceedings*, 30 Nov - 2 December, University of Otago, Dunedin, New Zealand, pp.1-14.
- Comley, P. (1996), "The Use of the Internet as a Data Collection Method," *SGA Market Research*, <http://www.sga.co.uk/esomar.html>
- Deans, K.R. & McKinney, S. (1997), "A Presence on the Internet: the New Zealand perspective," Refereed paper, *ANZMEC'97 Conference Proceedings*, (December 1-3), Monash University, Caulfield.
- Eisenstadt, M. (1995), "The Knowledge Media Generation," *The Times Higher Education Supplement*, Multimedia Section, (7 April), pp.vi-vii, <http://kmi.open.ac.uk/kmi-misc/kmi-feature.html>

Forrest, E. (1999), *Internet Marketing Research*, McGraw-Hill, Sydney.

GVU User Surveys (1999), http://www.cc.gatech.edu/gvu/user_surveys/

Ho, J. (1997), "Evaluating the World Wide Web: A Global Study of Commercial Sites," *Journal of Computer-Mediated Communication*, 1(3), <http://www.ascusc.org/jcmc/vol3/issue1/ho.html>

Hoffman, D.L. Novak, T.P. and Chatterjee, P. (1997), "Commercial Scenarios for the Web: Opportunities and Challenges," *Journal of Computer-Mediated Communication*, (1/3), <http://209.130.1.169/jcmc/vol1/issue3/hoffman.html>

Kehoe, C.M. and Pitkow, J.E. (1996), "Surveying the Territory: GVU's Five WWW User Surveys," *The World Wide Web Journal*, 1(3), pp.77-84, http://www.cc.gatech.edu/gvu/user_surveys/papers/w3j.html

Smee, A. Brennan, M. Hoek, J. And Macpherson, T. (1998), "A Test of Procedures for Collecting Survey Data Using Electronic Mail," Refereed WIP paper, *Australian and New Zealand Marketing Academy (ANZMAC) Conference Proceedings*, 30 Nov - 2 December, University of Otago, Dunedin, New Zealand, pp.2447-2452.

Steinfeld, C. Kraut, R. and Plummer, A. 1997, "The Impact of Interorganizational Networks on Buyer-Seller Relationships," *Journal of Computer-Mediated Communication*, 1(3), <http://209.130.1.169/jcmc/vol1/issue3/steinfld.html>

Weible, R. and Wallace, J. (1998), "Cyber Research: The Impact of the Internet on Data Collection," *Market Research*, Fall, 10(3), pp.19-2