Methodological aspects of comparisons between Web & paper surveys

Maria Francesca Romano and Maurizio Himmelmann Sant'Anna School of Advanced Studies piazza Martiri, 33 – 56127 Pisa, Italy romano@sssup.it – himmel@sssup.it

In recent years there are many studies that compare different modes in collecting data, especially web vs paper mode. Comparisons are made between surveys or in the same survey; in some study respondents are randomly assigned to modes and in others people can choose the preferred mode. Results are often discordant, depending on type of population and/or by study's year.

We are presenting a comparison between paper and Web response mode, using data from a longitudinal continuous survey with a choice-free response mode. The survey is extended to a special population, defined as graduates at Pisa University since 1995; survey's goals are to acquire university assessment at the moment of graduation and to help graduates in finding job, collecting data for almost three years, both at successive waves and at graduate's request. Survey started as a paper survey in June 1997; since March 1998 a Web questionnaire was implemented but we decided to not force people in using a mode that could be perceived not adequate or not interesting: each respondent were, and is still, free to make a choice of response mode.

At a first glance, from our data it is evident that Web responses have a clear increasing rate during time: the following table contains respondents classified for response mode, survey enrollment year and gender. It regards a subset of respondents, and precisely those who compiled a questionnaire after Web questionnaire availability.

1997	F	М	Total	2000	F	М	Total
mixed mode	36.1	63.9	9.72	mixed mode	50.5	49.5	18.69
only paper	52.5	47.5	90.28	only paper	57.7	42.3	63.23
only Web				only Web	46.6	53.4	18.08
Total	50.9	49.1	1224	Total	53.7	46.2	2279
1998				2001			
mixed mode	29.8	70.2	11.27	mixed mode	39.5	60.5	9.91
only paper	52.1	47.9	81.72	only paper	56.9	43.1	56.28
only Web	38.8	61.2	7.00	only Web	42.2	57.8	33.80
Total	48.5	51.5	1658	Total	50.3	49.7	2594
1999				2002			
mixed mode	44.0	56.0	14.14	mixed mode	45.2	54.8	6.05
only paper	56.7	43.3	71.84	only paper	55.4	44.6	56.13
only Web	36.4	63.6	14.02	only Web	40.8	59.2	40.80
Total	51.7	48.2	1683	Total	49.1	50.9	2323

Changing in mode response from 1997 to 2002

Survey characteristics and number of respondents permit us to assess comparisons between paper and Web mode in different manners. In this paper we compare:

1. response rate over time in order to investigate why graduates choose Web vs paper mode,

and/or final vote);

- 2. mode patterns among respondents to an equal number of questionnaires (in a longitudinal way) in order to understand which variables (if any) could be able to predict choice;
- 3. questionnaires by year of compilation (or other interval of time) in a cross-sectional way: each questionnaire is treated for itself, not considering if it is the first or the nth one compiled.

References

- DM Shannon CC Bradshaw. A comparison of response rate, response time, and costs of mail and electronic surveys. *Journal of Experimental Education*, 70(2):179–192, WIN 2002.
- [2] BF Frey. Investigating moral intensity with the world-wide web: a look at participant reactions and a comparison of methods. *Behavior Research Methods Instruments and Computers*, 32(3):423–431, 2000.
- [3] RD Klassen J Jacobs. Experimental comparison of web, electronic and mail survey technologies in operations management. Journal of Operations Management, 19(6):713–728, NOV 2001.
- [4] AM Paolo GA Bonaminio C Gibson T Partridge K Kallail. Response rate comparisons of e-mail- and mail-distributed student evaluations. *Teaching and Learning in Medicine*, 12(2):81–84, SPR 2000.
- [5] C Cobanoglu B Warde PJ Moreo. A comparison of mail, fax and web-based survey methods. *International Journal of Market Research*, 43(4):441–452, 2001.
- [6] A Grimsmo E Hagman E Falko L Matthiessen T Njalsson. Patients, diagnoses and processes in general practice in the nordic countries - an attempt to make delta from computerised medical records available for comparable statistics. Scandinavian Journal of Primary Health Care, 19(2):76–82, JUN 2001.
- [7] RM Carini JC Hayek GD Kuh JM Kennedy JA Ouimet. College student responses to web and paper surveys: does mode matter? *Research in Higher Education*, 44(2):1–19, 2003.
- [8] HW Perkins, GH Yuan. A comparison of web-based and paper-and-pencil library satisfaction survey results. *College and Research Libraries*, 62(4):369–377, JUL 2001.
- [9] JF Etter TV Perneger. A comparison of cigarette smokers recruited through the internet or by mail. *International Journal of Epidemiology*, 30(3):521–525, JUN 2001.
- [10] L Kleinman NK Leidy J Crawley A Bonomi P Schoenfeld. A comparative trial of paperand-pencil versus computer administration of the quality of life in reflux and dyspepsia (qolrad) questionnaire. *Medical Care*, 39(2):181–189, 2001.
- [11] B Medlin D Whitten. A comparison of internet and mail survey methodologies. Quirkś Marketing Research Review, July 2001.