Available online at www.sciencedirect.com

ScienceDirect

Transportation Research Procedia 11 (2015) 289 – 296

Transportation Research Procedia

www.elsevier.com/locate/procedia

10th International Conference on Transport Survey Methods

Workshop synthesis: Respondent/survey interaction in a world of Web and Smartphone apps

João de Abreu e Silva [a,*] and Mark Davis [b]

[a]*CESUR/CEris, Instituto Superior Técnico, Universidade de Lisboa, Portugal*
[b]*IPSOS , Melbourne, Australia*

Abstract

Web and smartphone surveys are increasingly being used to collect travel information. This workshop explored respondent interaction with these tools, covering a range of research concerns. While smartphone surveys facilitate real-time passive collection of continuous data, thereby reducing respondent burden, their use raises many issues common with those present in web surveys. These include survey design, sample representativeness, privacy, respondent burden, data quality and validation. Workshop participants considered possible areas for future research on these issues and others such as provision of feedback to respondents, linking with big data and focusing on attitudinal and behavioural motivations.

Peer-review under responsibility of International Steering Committee for Transport Survey Conferences ISCTSC

Keywords: web based surveys; smartphone surveys; respondent interaction; respondent burden

1. Introduction & Scope

Recent developments in information and communications technology have seen the growth of internet access and increasing penetration of smartphones. Together these developments present an innovative opportunity for use when surveying people on their travel activity.

The use of Web based surveys for this purpose continues to grow, driven by perceived advantages including: reduction in application costs and possible economies of scale (Roztocki, 2000; Deutskens et al, 2004; Bonnel and Madre, 2006; Alsnih, 2006; Bayart and Bonnel, 2008); error reduction and faster data processing (Roztocki, 2000; Bayart and Bonnel, 2008); and the increase in customization possibilities, which allow for instantaneous checking, dynamic program based controls and skipping over irrelevant questions (Hess and Rose, 2009; Alsnih, 2006; Bayart and Bonnel, 2008; Bonnel and Madre, 2006).

Peer-review under responsibility of International Steering Committee for Transport Survey Conferences ISCTSC
doi:10.1016/j.trpro.2015.12.025

Although more recent, smartphone surveys are gaining acceptance and novel applications of smartphone transport surveys have been reported in the literature (e.g. Pereira et al. 2011; Safi et al., 2013; Nitsche et al., 2014; Rehrl et al., 2007; Chen et al., 2010; Beckor et al., 2013). Smartphone surveys share several characteristics of web based surveys with additional advantages including continuous real-time data collection and an associated reduction in respondent burden. However, this comes at a cost; namely, the need for complementary surveys for data enrichment and validation. In parallel to the development of research oriented survey applications there has been an emergence of Smartphone apps that collect travel related data, with several tracking physical activity (e.g. MOVES, S. Health) or more general data (e.g. funfinabox).

Both web and smartphone surveys suffer from limitations due to access and penetration. According to the International Telecommunication Union (http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx), worldwide internet penetration for individuals using the internet was 38% in 2013 and estimated to be 40% in 2014. The penetration rate varies greatly by country, and in the developed world these levels are 76% and 78% respectively. Smartphone penetration is lagging behind, but is also increasing rapidly. In 2014 smartphones represented 37% of the total sales of new mobile phones (http://www.statista.com/statistics/218532/global-smartphone-penetration-since-2008/). In many countries smartphone penetration estimates are considerably higher; for example Delloite estimates the current smartphone penetration in Australia to be 81% (http://frontieradvertising.com.au/homepage/deloitte-australia-media-usage-preferences-2014/)

As a result, limitations associated with the availability of these technologies are quickly diminishing, explaining the increasing attractiveness of these modes for collection of travel behaviour data.

However, this embrace of technologically driven data collection still faces methodological challenges. These are related to sample representativeness (Bayart and Bonnel, 2008; Roztocki, 2000; Alsnih 2006; Bonnel and Madre, 2006, Manfreda et al., 2006); data confidentiality and quality (Alsnih 2006; Roztocki, 2000); low response rates (Bonnel and Madre, 2006; Marta-Pedroso et al., 2007); dropout rates (Bayart and Bonnel, 2008); and, particularly acute in smartphone surveys, privacy and ethical issues (Safi et al., 2013).

Usually both internet users and smartphone users tend to be younger, richer, with higher education levels and technologically savvy (Alsnih, 2006; Nitsche et al., 2014). Inevitably, there appears to be a bias in smartphone survey participants towards individuals demonstrating these characteristics (Nitsche et al. 2014). It is possible that this group of people might be less conscious about their privacy and more willing to share data about their behaviour.

Therefore, the potential presented by these technologies to collect travel behaviour data naturally raises research issues related to the interactions between these tools and survey respondents. These include:

- Identifying important challenges in the design of web and smartphone tools;
- Issues associated with the moving respondents from one interface to the other to provide the full range of responses required;
- How other functionalities from these tools can be provided to simplify and improve user experience;
- Identifying the types of support that can be provided to respondents;
- How to provide respondents with information on the correct use of the interfaces;
- Identifying the possible ways to exogenously validate the results from these surveys;
- How respondent interactions with the interface can be monitored to assess the level of quality of data.

Each of these topics was discussed during the workshop which was focused on respondent / survey interaction in web and smartphone surveys. The discussion was also anchored by the presentation of the following papers and posters:

- “A Web-Based Diary and Companion Smartphone app for Travel/Activity Surveys”. Stephen Greaves, Richard Ellison, Adrian Ellison, Dean Rance, Chris Standen, Chris Rissel and Melanie Crane (paper);
- “The Netherlands Mobility Panel: An innovative design approach for web-based longitudinal travel data collection”. Sascha Hoogendoorn-Lanser, Nina Schaap and Paul Van Beek (paper);
- “Design and usability concepts in a web-based prompted recall survey”. Inês Dias, Francisco Pereira, Caitlin Cottrill, Fang Zhao, Chris Zegras and Moshe Ben-Akiva (paper);
- “Patterning Web Respondent Behaviours from 10 Web-based Origin-Destination Surveys”.Catherine Morency and Pierre-Leo Bourbonnais (paper);
- “Household Survey of Intermodal Trips – Approach, Challenges and Comparison”. Jörn-Ole Schröder, Martin Kagerbauer and Peter Vortisch (poster);