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Technical Report

No. 461

**Sampling Mobile Opinion:
A Contextual Postcard Questionnaire Study**

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May 2006

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Abstract

Understanding requirements of mobile communities is challenging because of their geographical distribution and frequent movement. We present a study of backpackers travelling in Australia which utilizes a research method called contextual postcard questionnaires. The method uses brief, open-ended questions to solicit contextual responses from backpackers that are relevant for development of tourism and mobile communication technologies.

800 postcards were distributed via hostels and a travel agent, questioning travellers about their current situation. Questions asked how they had heard about their present location, what kinds of virtual-graffiti they would leave there, and what their greatest worry currently was, among others. Results indicated that backpackers have a great deal of practical and serious concerns to contend with as they travel. They are physically cut off from family and friends and rely on a range of communications media to stay in touch and exchange emotional support. They have a great deal of practical travel experience that would be useful to other travellers, but which is currently only conveyed haphazardly via word-of-mouth. Practical usage of the contextual postcard questionnaires is discussed and design recommendations for mobile group products are offered.

Keywords

community requirements analysis, diary studies, in situ, probes, mobile research methods.

Introduction

Designing technologies for mobile groups of travellers pose challenges for many existing mobile and group-oriented research methods. Distributed backpackers travel quickly and for long durations across large areas. It is difficult to gain an understanding of the variety of situations that backpackers experience, and the personal feelings they have about these spaces using traditional ethnographic methods. Consequently we have developed a *contextual postcard questionnaire* which allows us to contact larger numbers of backpackers in their natural environment. The postcards contain short questions which relate to the backpackers' current environment and ask them about concerns or aspects of that situation. 800 postcards were distributed to seven Australian hostels and a travel agency to sample different kinds of backpackers in different situations.

We are using the contextual postcard questionnaire method to form requirements for an electronic travel assistant for backpackers. The method contains elements of contextual interviews, questionnaires, diary studies and cultural probes. These methods and related guide research are discussed in the literature review. This is followed by a description of the method and results from

trailing the method. The discussion and conclusion sections discuss methodological concerns, the type of responses the method generates, design recommendations and future work. For more background on backpackers please see related research (Axup and Viller, 2005; Richards and Wilson, 2004).

Literature review

Most research investigating the design of tourism technologies has focused on the concept of guides. These devices help travellers and others unfamiliar with an environment to navigate, learn and perform situated actions. We first give a review of guide research, followed by methods commonly used to understand the needs of communities of users.

Guides

Research into developing technologies to support tourism has been popular with those exploring contextual awareness issues (Cheverst, Davies et al., 2000; Long et al., 1996), and virtual or augmented reality (VR/AR) (Benford et al., 2001). Additionally, researchers designing mobile devices and those concerned with mobile usability testing have used guides as a subject. A selection of the large number of guide studies is provided here. The section starts with work inside buildings, moves to work in small outdoor areas and concludes with applications designed for cities.

Development of mobile guides for museums have often focused on rule-based systems which respond to changes in sensor readings in comparison with a physical model of the environment. They also incorporate models of the user and how they would like the system to respond to these situations (Dubois et al., 2002). Petrelli et. al. propose a design which includes a short questionnaire for the user to complete prior to any usage of the system, so that their intentions can be modelled (Petrelli et al., 2001). The authors mention a convincing scenario where the device would not be able to determine whether to change its content based on the user's location. As this demonstrates, even with accurate models, humans prove to act in unpredictable ways and environmental modelling is often impractical in less-stable environments.

A study aiming to develop an electronic guidebook for a historic house used a high-fidelity prototype paired with ethnographic observation and interviews with visitors (Woodruff et al., 2001). They note that "...it is informative to observe people using the new technology in uncontrolled settings that resemble the setting in which the technology will eventually be deployed." p. 438. They also note that using informal methods allows unanticipated behaviour to be observed, unlike many formal approaches which specify objects of interest beforehand. The results of the study recommended supporting shared description of objects between collaborative users, audio presentation of information, and visual methods of selecting objects in this museum setting. This design avoided problems with implementing contextual awareness and let users choose information relevant to their current location.

Mixed reality research at the University of Nottingham explored connecting actual geographical locations around the campus with a virtual rendering of the same location (Benford et al., 2001). The design was intended to be used by museum visitors who wanted a different way to understand history of a location. This product used a high-fidelity prototype which allowed the user to collect historical objects in a virtual 3D environment while they were outside, and examine them when they returned to the lab. The prototype was evaluated by participants and resulted in feedback highly specific to the technology and interface used.

One of the original guide systems was Cyberguide, developed in 1995 at the Georgia Institute of Technology (Long et al., 1996). It was intended to guide visitors at open house events held on the campus. Cyberguide provided information about the campus and positioning information to users. Two fully-functional systems were built (one indoor, one outdoor) and used during events. Surveys and some observations of visitor usage provided design feedback. There is no mention of a user requirements analysis stage and the focus of their discussion is on technical challenges encountered during development, such as tracking location and determining context.

The GUIDE system was developed at Lancaster University as an experiment in contextually aware mobile computing (Cheverst, Davies et al., 2000). The system used a tablet computer with a browser-based interface to display tourist information. An initial requirements analysis stage included interviews at a local tourist information office. A fully-functional prototype was created which supported access to context-aware information, customizable city tours, interactive services and text messaging. The research papers on the project focus heavily on technical feasibility and system architecture. User feedback on designs occurred in the form of a field evaluation by 60 tourists after the system was fully functional. Further work looked at integration of group messaging based on social networks and community authoring possibilities (Cheverst, Mitchell et al., 2000). They use scenarios describing hypothetical user interactions, but it is uncertain how real tourists want to communicate amongst each other and how the context of their environment and activity affect this.

Researchers exploring new ways to perceive the city developed a handheld city guide (Goel, 2002). Their design process was directed by hypothetical scenarios which addressed social networks of users and the potential of community authoring. This work included no involvement from actual users, used high-fidelity prototypes and was largely technology focused. Thus it is not clear whether this type of functionality would have real utility for users or what social issues would be relevant for the design.

Another technology-led study built a city guide for the city of Vienna called Lol@ (Pospischil et al., 2002). Users were not involved in the development project because they were “out of the scope of the project.” Much of the design was structured around hypothetical scenarios of a tourist walking in the city, finding sightseeing information and arranging tours. Cartographers were used to design the interface and a medium-fidelity prototype was reviewed by management. They also discussed plans to usability test the completed product. The device uses GPS to show the user’s current location on a map surrounded by locations and information about important tourist sites. It is not clear how this would compare with more traditional tourist information products.

A study of tourist requirements for the design of a city guide was conducted by Brown and Chalmers (Brown and Chalmers, 2003). This study used a variety of methods including participant observation, video-shadowing, interviews with tourists and ethnographic observation of a tourist help centre. They concluded that “we currently have little understanding of how tourists organise their activities or of the problems they face.” p. 335. Their work explicitly noted situated reasons for behaviour, such as taking pictures for friends at home, and various tourism technologies (e.g. paper maps and guidebooks) being used in combination with each other. They recommended development of systems to allow sharing of travel experiences between travellers, and with those at home.

Goodman et. al. (Goodman et al., 2004) explored the topic of using field experiments (as differentiated from field studies) to evaluate mobile devices. They evaluated a mobile guide through tasks such as finding a post office or work colleagues. As the study’s focus was methodological, their results related to difficulty of tracking mobile interaction and recommendations for running mobile usability tests outside the lab.

Another study involving usability testing of a guide for tram-based public transport used a combination of field and lab-based evaluation methods (Kjeldskov et al., 2004). The device supported timetable lookup, trip planning, and route determination. The study concluded that field evaluations were good at determining “ecological validity, precision of data, social comfort in use and ‘system in the world’ issues.” p. 60. Serious problems identified included assumptions built into the system about what knowledge of the city users already had, and inflexible recommended paths of travel.

In summary, guides have been used to support tourist activities in a wide variety of settings from museum tours to city-wide visits. Much of this research has focused on methods of having the device change its interaction with the user based on context. Many of the studies are primarily focused on the technology being used, and use high-fidelity prototypes for evaluation purposes. Recently there have been a few studies using ethnographic methods to understand existing tourism behaviour and review prototype usage in-situ. Those doing mobile usability testing have discussed the challenges of running

studies in mobile settings and recommended in-situ user feedback. Clearly there is a need for a better understanding of tourism behaviour in order to form requirements, and more use of low-fidelity prototyping to explore basic guide concepts in-situ.

Questionnaires

Questionnaires are a standard method of collecting data for many research disciplines. For example, they are commonly used in marketing to gauge consumer opinions about future products or services. Questionnaires make it possible to question large samples of target demographics and enable statistical analysis of responses. They are often filled out privately and then returned to the experimenter. They can be cheap to produce and resulting data is structured, frequently allowing automated analysis. They are also relatively easy to distribute via paper or electronic media. Electronic questionnaires provide the option of dynamically changing questions based on previous answers or user characteristics.

Despite their strengths, questionnaires suffer from a variety of weaknesses including lack of open-ended responses, feedback on perceived instead of actual behaviour, and individual differences in understanding the intent of questions (Conrath et al., 1983). For these reasons, questionnaires are not only widely used but also received with a level of healthy scepticism (Higgins et al., 1985). Researchers following user-centred methods or conducting ethnographic studies often prefer to directly interview a small number of people rather than use questionnaires. Smaller form factors such as postcards are not commonly used for questionnaires due to the limited amount of space for questions and answers.

Diary Studies

Diary studies are a longitudinal method which allows self-recording of specific aspects of behaviour, usually using a small notebook. They were originally used in a variety of applications including early social network research (Conrath, 1973). Diary studies are often capable of operating in environments which would be difficult for an observer because of social or physical reasons. The method also removes many effects on data due to the presence of an observer, potentially leading to more personal accounts and natural behaviour. However, diary studies frequently suffer from a number of problems including an understatement of frequencies of actual behaviour and selective revealing of different types of behaviour (Higgins et al., 1985).

The method has recently been used in a number of mobile device studies. Grinter and Eldridge first applied diary study methods to mobile device research. Their study recorded the time, content, location, recipient and other aspects of communication by teenagers (Grinter and Eldridge, 2003; Grinter and Eldridge, 2001). Ito and Okabe followed this with another diary study of Japanese teenage conversation habits (Ito and Okabe, 2003) and a diary study of mobile discussions while on transport (Ito and Okabe, 2005). Around this time another study requested university students to record their actions and various usability measures while engaged in rendezvousing activities (Colbert, 2002).

Diary studies typically require regular sequential logging of target data. Consequently participants often provide feedback via small notebooks which are often prepared with columns or fields beforehand. To our knowledge, postcards or other individually mailed media have not been used for diary studies.

Cultural Probes

Cultural probes are a method to determine design issues in environments that are commonly challenging to observe. Typically participants are given a variety of objects such as disposable cameras, notebooks, audio recorders, maps, photo albums, or postcards to record aspects of their life and environment. The method was originally developed by Gaver et al. during a project involved with designing art for the elderly (Gaver et al., 1999). In addition to other media, they used postcards to ask questions about what seniors disliked about their city, personal advice and things they enjoyed. They mention the informality of the postcard and using "oblique wording" to gain a wider range of answers.

The method was used by other researchers to inform the design of technologies to support former psychiatric patients. Among other methodological challenges, the participants tended to be paranoid about being watched (Crabtree et al., 2003). These researchers also used postcards and other media to discuss daily problems and activities.

More recently the notion of probe has been widely expanded upon. Technology probes have been developed, which are functional products with open-ended functionality that supports invention and records interactions. Technology probes have been used in domestic and workplace settings (Cheverst et al., 2004; Hutchinson et al., 2003). More recently Paulos and Jenkins developed urban probes which have been used to explore design issues relating to people's perception of technology in the city (Paulos and Jenkins, 2005). One of their studies used postcards to examine city dwellers' attitudes towards lost property. A selection of different types of postcards masquerading as personal mail were "lost" around downtown San Francisco. The return rates, locations, and added comments on the cards were used to gauge public interest in trash and observing others communications.

Postcards have thus been used both as an informal way to gain feedback from participants about their perceived behaviour, and as a way to observe actual behaviour. The ease with which participants can return postcards, validation procedures performed by the postal service, and their frequent anonymity help to make postcards a useful method of interacting with participants.

The research we present below demonstrates a method for understanding existing behaviour and needs of a mobile tourism community for the purpose of informing design. It draws on the above methods to help address the lack of requirements analysis and explorative prototyping in existing guide research.

Table 1: Open-ended Postcard Questions
Version A
<ul style="list-style-type: none"> • How did you find out about your present location before you decided to come here? • Think back to the last group of strangers you talked to. How did you meet and what did you do with them? • If you could have any travel question answered for you, what would it be?
Version B
<ul style="list-style-type: none"> • If you could contact anyone right now, who would you contact and why? • Based on your recent travel experience is there something you would advise other backpackers NOT to do? Why? • If you could leave a message for a future backpacker in the place you are in now, what would it be?
Version C
<ul style="list-style-type: none"> • Is there something in this city that you want to know more about? What is it? • The last time you contacted someone (payphone, mobile, Internet, SMS, chat, email, etc.) who did you contact and why? • What is your greatest concern or worry about travelling at the moment?

Method

We conducted a study which was intended to canvas backpackers in a range of Australian cities and determine design issues relevant for a mobile travel assistant. A primary research goal was to

determine relevant usage situations and use these to elicit design problems that are situated in terms of what backpackers were experiencing at the time. Backpackers move rapidly, and consequently research methods that are mobile and distributed are often appropriate.

The contextual postcard questionnaires are similar to questionnaires because they use a pre-determined set of questions and offer some potential for quantitative analysis. They are like diary studies because they ask respondents to self-report on a particular situated phenomena. They are also similar to cultural probes in that respondents are given them and choose what to share from their lives. They also encourage diverse and playful responses.

Short questionnaires with open-ended design questions (see Table 1) were printed on 700 postcards, which were distributed to seven Australian backpacker hostels. Two hostels were in Brisbane, two in Sydney, and one each in Adelaide, Melbourne and Cairns. These hostels were selected from a group of 13 well known hostels. Hostels were originally contacted by e-mail to determine if they were interested in supporting the study. Those who responded positively were sent a package of 100 postcards and instructions on how to distribute them. Hostel staff were requested to hand out one postcard to each incoming guest, until all postcards had been used. They were also given an information sheet outlining the purpose of the study. Backpackers were requested by staff to fill out the postcard where they wished and place it in any post box for free delivery back to the researchers.

After this phase of the study was completed, an additional 100 postcards were sent to a Melbourne travel agency which has a large backpacker clientele. At this location, the travel agents have distributed the cards directly to backpacking customers. This portion of the study is still underway and initial results are reported here.

Postcards and Questions

The postcards are roughly business size (21 X 10cm) and were post-paid; meaning that backpackers didn't need to purchase stamps, and the researchers were only charged for returned cards. The front of the cards contained a description of the study, instructions on using the postcard and contact information for the study organizers (see Figure 1). The reverse side contained seven brief questions and a code indicating the card version and hostel number (see Figure 2). Four of these were the same on all cards and concerned current city, current place, gender, and travelling alone or in a group.

The remaining three questions on each card were designed to elicit free-form feedback. Nine questions were used in total, with three questions assigned to each of three card versions. The three card types were evenly distributed at each hostel.

The postcards were designed to be brief and simple to complete in order to increase response rates. The questions focused on prompting backpacker's situated responses to relevant design issues. It was expected that postcards would be completed in a variety of locations and that the respondents' context might affect their answers. Consequently the questions asked about present location and what current travel issues were being experienced. The forms were similar to cultural probes in that participants chose which details to divulge to researchers about their personal lives and were done in a natural travel environment.

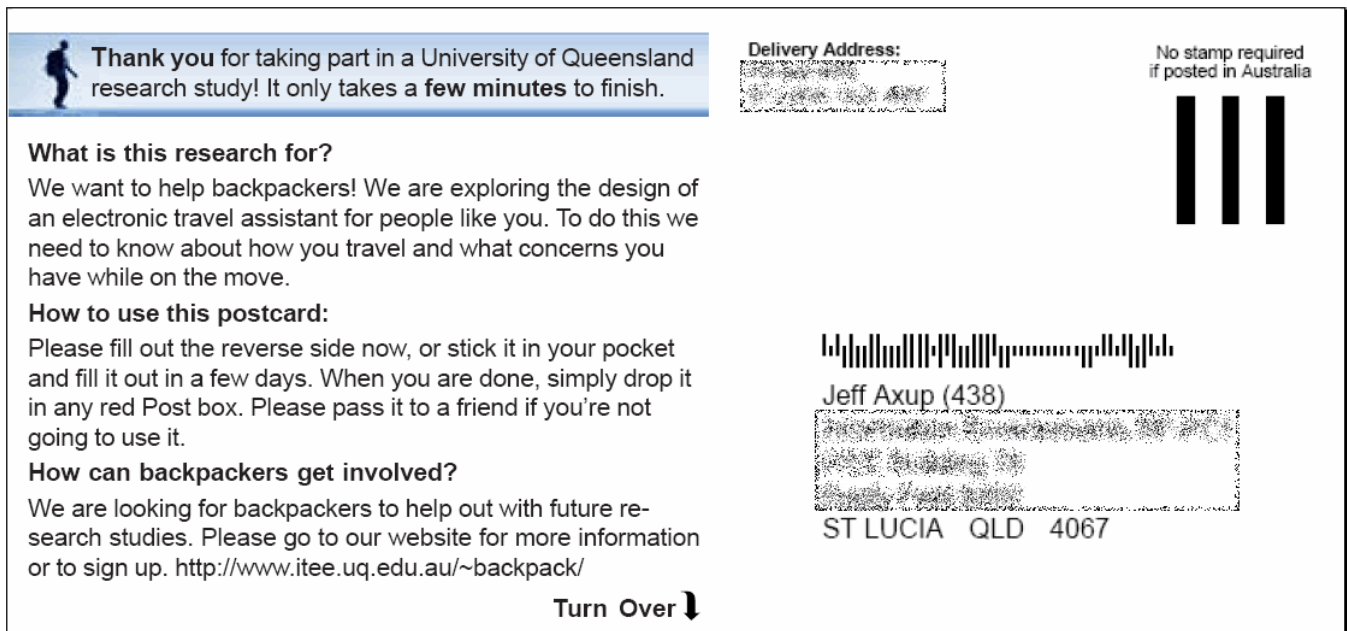


Figure 1: Front of postcard with instructions and mailing address.

Results

The response rate for the initial phase, 16 of 700 cards (2%), was extremely low. Eight respondents were female and eight male. Most respondents completed the questionnaire at their hostel, although it is not clear where in the hostel. One filled it out in her room and another in the hostel foyer. Another completed it on the street in front of the post box. Seven of the respondents were travelling with someone. This is in proportion with findings from other surveys of backpackers in Australia ("*Backpackers Uncovered*," 2003; Ballen, 2004). Responses were reasonably distributed across the three types of cards. Answers tended to refer to recent events the backpackers had experienced, current issues they were thinking about, and tended to be light hearted.

The second phase has resulted in a better return rate. So far, 18 of an unknown number of the 100 cards distributed have been returned. The returned cards are slightly weighted towards version C, (A=6, B=4, C=8). Unbeknownst to us, the travel agents initially requested backpackers to complete the cards in the travel agency and mail them via that location. While a travel agency is not an unrepresentative location for backpackers to answer the questions, we believe it has affected the results. Responses in this phase have been much more reserved and practical. They have also tended to be oriented towards travel planning issues, which were presumably discussed with the travel agent around the time that the card was distributed and completed.

The responses are listed below, organized by the postcard question topics which backpackers were responding to. For each postcard question, the two phases of the study are discussed in order.

Finding Out About Locations Beforehand - Version A

Phase 1: Several of the respondents indicated that they had heard about their location from a guidebook. "*Lonely planet said it was a good party place.*" Several backpackers cited a different location as the source of their information, implying that they had talked to others while there about their

Where are you now?	City:	Place: (e.g. cafe, bus)	Gender: <input type="checkbox"/> F <input type="checkbox"/> M	Travelling with someone? <input type="checkbox"/> Yes <input type="checkbox"/> No
How did you find out about your present location before you decided to come here?	Think back to the last group of strangers you talked to. How did you meet and what did you do with them?		If you could have any travel question answered for you, what would it be?	
A-10				

Figure 2: Back of postcard with questions for travellers.

present location. One respondent wrote “*Kings Cross, full of smut & porn shows, nuff said!*”¹, implying that there is common knowledge amongst travellers about various locations.

Phase 2: Backpackers took this to mean both the travel agent as well as the city. One indicated that they had heard about the travel agent on their web site, while another that he had come to the city to play cricket. One backpacker was using a formal job placement service for backpackers which had directed them to the city for work.

Meeting Strangers - Version A

Phase 1: Respondents reported meeting other people through shared activities and locations. A bar, a bus stop, on a bus, and in shared hostel room were given as locations which fostered meeting strangers. One said, “[I] met a girl at Darwin shuttle bus. Started chatting, then spent the next 3 days with her in Alice Springs.” These meetings resulted in talking, going to a footy (rugby) game, travelling together, playing games, and smoking together. Of these activities, most would commonly be frequented by other travellers with the exception of the bar.

Phase 2: Several backpackers mentioned meeting others in the hostel kitchen and other common areas. “*In the hostel Kitchen! I needed some pepper... Will go out to a pub tonight.*” Others discussed meeting people through temporary work and meeting others staying at the same hostel. Several respondents mentioned discussing work, travel experiences and shared food, alcohol or games.

Travel Questions - Version A

Phase 1: Travel questions ranged from jokes by the respondent “*Will I regret (when I get home) having shagged so many people bcs it doesn't matter when you're travelling.*” to serious requests, “*How do I*

¹ All quotes show original spelling used by respondents.

Where are you now? City: SYDNEY	Place: (e.g. cafe, bus) HOSTEL	Gender: <input type="checkbox"/> F <input checked="" type="checkbox"/> M	Travelling with someone? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If you could contact anyone right now, who would you contact and why? THE B@*TARD THAT BROKE INTO MY ROOM AND NICKED MY STUFFS SO I CAN KICK F@*K OUT OF EM.	Based on your recent travel experience is there something you would advise other backpackers NOT to do? Why? DON'T SLEEP WITH A MALAYSIAN HOOKER WITHOUT BAGGING UP COS ME MATE CAUGHT AN STD.	If you could leave a message for a future backpacker in the place you are in now, what would it be? IF YOU CAN'T GET A ROOM TO YOURSELF, TAKE HER IN THE FIRE EXIT.	

Figure 3: A response from a backpacker that both has a jovial tone and discusses serious issues.

avoid back pain?" One person used this question to start thinking about potential guidebook features. They proposed a map showing "dodgy or unsafe areas of cities" that would be available on a PDA.

Phase 2: Backpackers had several practical concerns. They wanted to know how to get taxes refunded from their work and another suspected sexist hiring practices. "Why is it too hard for female backpackers to get a proper job over here? Why do they announce they have 1000 jobs and then still want locals?" Others wanted to know where good, cheap hostels were and nice places to visit in broad locations where they were going. "Where is the nicest place in WA near Perth?"

Ability To Contact Anyone - Version B

Phase 1: Respondents wanted to talk to people that either they had strong emotional feelings towards or organizational reasons to contact. One backpacker wanted to contact the "ba*tard that broke into my room and nicked my stuff" (see Figure 3) while another wanted to make a complaint to the hostel organization about the advertising policies. Another wanted to arrange travel plans with a friend in a different city. These answers seemed to be highly dependent on events backpackers had recently experienced or issues they were dealing with at the time.

Phase 2: This question produced varied responses. Some backpackers expressed a desire to contact a boyfriend or best friend at home that they were missing. "Best friend. Haven't talked to her for a while because it is so expensive. Miss her terribly!" Another more serious comment said "I would probably contact work and Travel Company, which is the company that I'm travelling with. They have an emergency hotline I can call to. But it depends on what situation." However, it was not clear why there was an emergency.

Advice For Other Backpackers - Version B

Phase 1: This question received a number of serious responses. They gave advice on travel planning, "Do NOT book anything from home. It is so much better to be able to be flexible and change plans depending on who you meet." and some discouraged travelling with others. One backpacker advised using condoms with prostitutes after a recent STD experience. Another traveller encouraged others to avoid dangerous townships and another advised researching public transit before booking tours. This advice tended to be practical and often related to safety issues.

Phase 2: One backpacker advised others not to arrive without accommodation booked to avoid carrying bags unnecessarily. Another vehemently advised others on travel routes in the outback (this area is known for its dangerous single-lane highways). *“Do NOT go from Alice Springs to QLD via Plenty Highway in an ordinary campervan!!! I don't recommend driving the whole way to Alice Rock to see it, it wasn't worth it.”* Others made practical recommendations about not planning ahead too much and not spending travel funds too early in the trip.

Graffiti For Other Backpackers - Version B

Phase 1: Answers to this question had a different tone and tended to be in the form of broad advice on life or travelling. One said *“You only regret what you don't do, so live it up and have the time of your life.”* Practical advice included a hostel recommendation, *“Come here! Great, clean, services very good, right in centre of great city. All facilities great and many travelling here to meet. Staff wonderful and understanding and obliging.”*, and more advice on taking tours.

Phase 2: Answers tended to be more practical than phase 1, but there were still some answers giving broad advice. *“Rock on, enjoy your time. It'll be the best time of your life mate.”* Other responses mentioned locations that shouldn't be missed and this issue of travel funds was mentioned again. *“Have plenty of money for the trip. You spend more money than you've planned to. You don't wanna travel the world around an not be able to spend any money on things you want to do.”*

Information About This City - Version C

Phase 1: Questions about the current travelling situation tended to be utilitarian. One wanted to know how to hire vehicles *“Hiring motor homes! 4-berth and cheaply!”*, while another wanted to know about public transport to nearby tourist locations. Other backpackers wanted clubs with desirable females or certain styles of music.

Phase 2: One backpacker expressed an interest in learning more about the history of the city he was in and another wanted a better understanding of Australian culture. Other respondents wanted to know about day trips, locations of good bars, and current cultural and sporting events.

Last Person Contacted - Version C

Phase 1: Responses were split between family and friends. Family was contacted *“to keep in touch”* or *“let them know we arrived.”* Friends were contacted about plans to meet up. One sent an *“SMS to meet up in Fremantle”* and the other had contacted *“My mate [John] by SMS to see if he's bringing 2 fit girls with him to Byron.”* These answers indicate a need to keep others informed of current events and to coordinate future events. Both SMS and payphones were mentioned as communication technologies.

Phase 2: This resulted in a range of responses reflecting the diversity of conversational topics. E-mail was most common, but communication media ranged from mobile phone voice calls, to text messaging, online chat and payphones. Some called friends, mothers or sisters to give them updates. *“I wrote my sister an e-mail because she miss me. I wrote her informations about my situation, my problems and my job. Email is a good device to keep in touch.”* Others used multiple methods of talking to close friends and several discussed arranging future meetings. *“Mobile, chat, e-mail. I contact my friend in Taiwan. I hope they can join me to travel.”*

Greatest Concern or Worry - Version C

Phase 1: Several backpackers mentioned money—either spending too much of it or running out of it—and time limitations. One was worried about *“Catching buses or planes on time because I try to cram in too much.”* Employment, sexually transmitted diseases, TV programming and travel planning were also topics of concern.

Phase 2: Backpackers had a number of practical concerns they were dealing with. Several wanted to find work and a few seemed desperate to do so. *“At the moment, we are waiting for a job call, because*

we've no money and money is a necessity when travelling." Others were concerned about losing possessions, making friends, storing digital camera photographs and searching for a temporary flat to rent. Another was concerned about the political situation in a future travel location. *"I'm mostly concerned about getting back and set in the hostel in Thailand, b/c of their atrocities."*

Discussion

Some of the light-hearted responses show that some of the questions that backpackers are concerned with are somewhat philosophical. These concerns are probably related to exploration of a given life stage as has been reported elsewhere (Richards and Wilson, 2004). Several of the respondents replied with jokes indicating they weren't really taking life seriously in general, or at the time they filled out the questionnaire. This is to be expected as many of them are on extended vacations.

Many of the responses did deal with important issues which would be beneficial for the backpacker community to have greater awareness of. However, some discussion topics might be uncomfortable for certain parties (e.g. hostels or tourism agencies) to support. Examples included discussions of prostitution, dating, and negative reviews of tour offerings or hostels. It is likely that backpackers will want to, and probably need to be able to discuss these topics. It is likely that technological facilitation of these types of conversations will have societal impact.

Due to the low response rate in phase 1, all seven hostels were contacted with a follow-up e-mail asking about the distribution of the postcards, and one respondent who gave contact information was also contacted. Of the two hostels that replied, the issues of: lack of hostel staff remuneration and general apathy by backpackers was given. One also admitted to placing the stack of flyers on a counter. The backpacker we contacted indicated that he had never been handed a flyer when he checked in, but had picked it up from a stack sitting in a pile amongst other flyers.

The sample size for the study is far less than required by standard questionnaire studies and is insufficient for statistical analysis. However, the methodology used is similar to cultural probes and contextual interviews, which traditionally use small sample sizes. We have briefly sampled the opinions of 34 people in our target user group who at the time were experiencing issues relevant to our design. The total cost of materials and postage for the study was about \$60 (USD). The respondents have provided personal details which are often difficult to obtain and surprised us with some of their activities and needs. More responses would have made rapid analysis difficult and probably would have produced similar data. The results have proven useful for us to guide early product design and understand backpacker requirements.

The effect of having the postcards in phase 2 completed and mailed at the travel agent is hard to gauge. The responses are probably affected by the uniformity of the environment, activities typically engaged in there, and authority figures present. However, we also received a much better response rate in this setting. Thus there may be a trade-off between less-controlled settings and reasonable response rates. The lack of control over distribution processes may necessitate the need to distribute via multiple mechanisms.

Resulting Product Design Recommendations

The following design recommendations and requirements for tourism technologies result from the answers backpackers provided, and reasonable assumptions that can be made from them.

1. Backpackers often want to contact others for emotional reasons. It can be for assistance, to cure loneliness, or to make others worry less. Being able to quickly contact others and convey emotion clearly is useful.
2. Many of the backpackers did not respond in good English. Device designs should support multiple languages, cross-cultural conventions and translation capabilities.

3. Backpackers have serious concerns that greatly affect their lives while travelling, such as finding accommodation, finding good tours, or getting taxes refunded. They would benefit from a better medium for sharing tips with each other which avoid the bias of those profiting from running services in these areas.
4. Backpackers are using a range of communication technologies. E-mail is often used because it is relatively fast and cheap. However, other technologies could be successful if they are cheap, fast (where mobility is a factor) and effective for what backpackers want to convey.
5. The participants wanted to know about the environments they were in and had many unanswered questions. While there are certainly information sources available, there is clearly room for improvement in getting information to those who need it.
6. Location-based virtual graffiti may suffer from a similar social phenomenon commonly experienced on bathroom walls; the content may be high-level, cliché, or crude. The location and mental state users are in when they leave the message are likely causes. It may also be the anonymity and lack of clear audience which produces this. There is scope for more research in this area, but it may be helpful to couch location-based services in the context of other activities which have their own social norms to self-regulate the type of content.
7. Support collectively owned discussion media. Backpackers will need to discuss topics that are not politically correct without censorship from official bodies.

Conclusion

We have described a new method for interfacing with distributed mobile groups called *contextual postcard questionnaires*. This method uses short open-ended questions which query respondents about their interaction with, and feelings about, their current environments and situations. The method was developed to help understand the needs and behaviour of backpackers in Australia. Backpackers' travel habits and movements make it challenging to contact them at different stages of their journeys. A trial of this method resulted in far fewer responses than expected, and we have determined methodological and social reasons for this. Despite the low return-rate, the answers were of high quality for informing design requirements.

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Jeff Axup is a PhD candidate at the University of Queensland in Brisbane, Australia, with experience in usability consulting, user interface design, and ethnography. His research in mobile community design at the university's Interaction Design program focuses on the development and design of mobile devices used by groups. Recent projects have investigated the development of new mobile tourism products for use by the backpacking community. His research interests include mobile group interface design, social networks, and mobile product development processes and methods. He also runs a blog (www.mobilecommunitydesign.com) on the topic.

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Acknowledgements

This work is supported by ACID (the Australasian CRC for Interaction Design) established and supported under the Australian Government's Cooperative Research Centres Programme. Thanks to participating hostels and backpackers for their support.

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