

Mobile devices as substitute or supplement to traditional information sources. City tourists, mobile guides and GPS navigation.

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Abstract

New mobile phones and navigation devices are very powerful. In this paper an ethnographic approach is used to gain insight in how one of these devices, a multimedia-phone with GPS, maps and a mobile guide is used by visitors to the city of Philadelphia. An interesting finding is that some of the visitors seem to substitute traditional information sources with the navigation and map-tool on the mobile device. Also, the study documents point of capture archiving of personal experiences by use of a mobile multimedia device.

Keywords: mobile guides, narratives, tourist experience, location based services, city tourism.

1 Introduction

Mobile phone penetration will be close to or exceed 100% in Western Europe by the end of 2007. In the US, the penetration of wireless phones is approaching saturation. Travellers are carrying their mobile phones on vacation and even though the use is dominated by phone calls and text-messaging, more and more people have at least some experience with other applications or services. Still, the use of the mobile Internet is quite small. More and more mobile content is available and now some of the phone makers include a map or navigation software in the phone. From the travel and tourism industry, new opportunities and challenges are just emerging. Should they provide content for mobile guides, for location based services, navigation and or map services? These questions are not easy to answer.

The purpose of this paper is to present findings from a study of city tourists and how they used a new mobile device in assisting their tourism experiences. The paper addresses the following research themes:

- The use of information sources and tools by visitors' in-situ, mobile applications as supplement or substitute; and
- Point of capture archiving and sharing of personal experiences from a mobile device.

The paper is organized as follows. First the methodological approach is discussed; then, the tourist experiences as expressed through narratives are discussed, followed by the narratives reported by the observer. Analyses examining the use of traditional information sources vs. the new tools are reported followed by concluding remarks.

2. Methodological approach – ethnography and surveys

In 2007, visitors to Philadelphia were invited to participate in a study of how they experienced the city; as part of this study, the visitors were asked to use a Nokia N95 with camera, GPS, voice recorder, maps and navigation services. The participants were given the task to take photos and videos, and to use the voice recorder when answering questions about emotions, colours, smells, and sounds they experienced. The participants were informed about the navigation and map applications as well as the mobile guide of Philadelphia on the phone, but they were not given the task to use these features or applications. As part of the hourly interview they were also asked what they had experienced, what tools had used and what their plans were for the day. The visitors were asked to answer the questions on cards and talk about their experiences on a hourly basis. The photos were uploaded with the ShoZu-application to a Flickr'r website by the interviewer. The URL of the website is www.flickr.com/photos/temple-samsung. After the trip, the participants were asked to provide titles and descriptions for their photos on Flickr'r. Some, but not all of the photos were geo-tagged.

From the researchers' point of view, the mobile phone was an advanced data-collecting device that could log spatial behaviour (GPS-tracking) and record narratives and answers to questionnaires. Even though the Nokia N95 is one of the most advanced multimedia devices currently in the marketplace, it is relevant to mention that battery-life was a problem. In many cases the battery only lasted three to four hours. On some occasions, the interviewer met the participants and replaced the battery, and on some occasions the participants carried two batteries. August 2007 Nokia announced that they will upgrade the N95 and replace the battery.

In all, 47 persons participated in the study. The data-collection started in May and ended in August 2007. The majority of the participants were American citizens, some were international students in the US and four of the participants were international visitors to Philadelphia. Of the participants, 49% were men and 51% women, 30% less than 20 years old, 54% 20 – 29 years old, 13% 30 – 39 years old and 2% 40 years or older. When data are collected before, during (hourly) and after a trip, the data can be addressed and analysed from a number of different angles. In this paper the focus is on the mobile guide and navigation vs. traditional information sources and tools. All the

participants answered a set of questionnaire together with self-reports. An ethnographic observational method (Silverman, 2004) was used with some of the participants in addition to the traditional pre- and post trip questionnaires. Some of the participants were shadowed by an interviewer in order to gain a deeper insight in how they used information sources, did or did not use the mobile device and experienced the city. The observer took field notes and photos as part of the data collection. Following Jovchelovitch and Bauer (2000), the underlying argument of this study is that the visitor perspective is best revealed in stories where the informant is using his or her own language in the narration of events. Two of these observations are used in this paper in order to illustrate how observations add to and are different from traditional survey methods. The first author of the paper did the two observations. Kjeldskov et al. (2005) discuss the advantages of combining different method when evaluating a mobile guide and map application.

2.1. Narratives by the traveller

Humans tell stories as a way of sharing experiences. The listeners interpret both the stories and the person, what's important to him, his identity (Noy, 2002), while the story tells the listeners something about the person telling the story. Polkinghorne (1998) writes that "*Narrative is a form of "meaning making." . . . (and it) recognizes the meaningfulness of individual experiences by noting how they function as parts of the whole. Its particular subject matter is human actions and events that affect human beings, which it configures into wholes according to the roles these actions and events play in bringing about a conclusion* (p.36). It is important to notice the terms "meaning making" and what it leads to, that it 'configures into a whole'. A life story is one example.

In a tourism context, the tourist experience (Uriely, 2005) is a key concept. McCabe & Foster (2006, p. 195) argue that:

"the natural attitude of touristic experience is a narrativistic attitude, that an account of touristic experience requires the development of a story, to define, describe and give reasons for touristic events. As such stories are intrinsic to the development of touristic accounts, and understandings of touristic experience must take account of the story-telling quality and narrative structure of accounts in order to fully understand what tourists do when they talk about the experiences."

Furthermore, the authors' argue that tourist experiences are essential stories about events and circumstances, places and people, and experiences that take place outside of a person's normal community.

The data collection method that was used in this study, the combination of questionnaire, self-reports and observations, allows the research to explore and analyze tourist on-site behaviour in a number of different ways, including tourist movements, information search, use of the mobile device and sharing activities between the visitors. Moreover, the question of what type of experience characterises the trip, is there a theme (like exploring culture heritage), and what is the meaning to

the visitor can be addressed based on the collected data. On an hourly basis, the participants reported what they had been doing, with whom, the plans for the next hour, to describe their experience since their last report, and answer questions about emotions, colors, sounds and smells. The stories reported can be characterized as small stories (Bamberg, 2004), fragmented and not necessarily containing traditional narrative elements, the elements of a narrative schema (Labov & Waletzky, 1967, Jovchelovitch, & Bauer, 2000, Escalas 2004).

2.2. Narratives by the observer

For seven of the participants, an ethnography approach (Silverman, 2004) was used. An observer followed the visitors, took photos and field-notes describing what the visitor did. Moreover, the observer listened to what the visitor wanted to tell about the trip, about himself, and what else he wanted to talk about. The observer did not start any of the conversations. The only exception was when having lunch together. During the day, the observer did ask questions to clarify, but played the role as the listener. Two of these observations are used in this paper.

3. The tourist experience and the narratives

In the exit survey, the visitors were asked to discuss the most interesting experiences they had that day in Philadelphia. Philadelphia is known for its rich heritage and historical role. For instance, Liberty Bell is a symbol of freedom and the Independence Hall is called “the birthplace of our nation.” Hence, it was no surprise that experiences that could be labeled heritage, came out as number one with 28%. The next was museums with 19% and then shopping with 17%. Still, when taken into account the young age-groups that the participant belonged to, this result might be somewhat surprising. Young travelers are normally not as cultural oriented as older travelers.

The visitors were also asked to give a recommendation: *Based on your experience, what would you recommend for others about Philadelphia?* The majority of the participant just listed places they recommended and that they enjoyed walking around in the city. The longest recommendation was this:

“Philadelphia is a great city with many historical sites. It is compact, diverse, and a decent town for all kinds of people with varied interests. It is in Philly where one can see people enjoying life while they are at the heart of working and making a living. People here seems open minded but also mindful of their subcultures and ethnic expressions.”

In the hourly activity the participants were also asked about the experiences since your last report? The questions were: *What have you been doing since your last report? How would you describe your experience since your last report?* This is an example from visitor #33, from the voice recording:

I have been walking mainly to the historical section of the city now that I finally reach the national constitution center and I guess this is my first stop for my own tour. I've also been at the City Hall, I've seen love park and number of other monuments, Fairmount park also. My experience has been ok, it's pretty interesting, I guess there's room for improvement but other than that it's fine.

(One hour later). Since my last report I've got a lot of information about the historical site of Philadelphia, I have walked around seen many sights, I am currently at the Liberty Bell center, I have seen the national constitution center I have looked in to the US mint, the independence visitor center, and... that's it. I'm at the liberty bell center right now. Overall it's pretty interesting, very nice.

(One hour later) I have gone to the food court here I've eaten I finished watching... I finished the self tour of the liberty bell that was very interesting and right now I'm at Liberty Hall... so that's it. My experience has been gone really well I've been seeing this parade its very interesting I'm even enjoying it a lot more now.

This report shows a typical pattern. The visitor is telling where he or she has been, what she did (sightseeing, eating, shopping), and whether or not it was a positive experience or not. There are examples of visitors emphasizing more the social aspect, who they are with and the interaction with others. In general, the reports reflect fragmented narratives or small stories (Bamberg, 2004). Moreover, it is hard to find examples of visitors telling about a unique experience, an interesting incident something, a story that the listener can tell to others. This is one of the reasons why it is relevant to look at the visitors experience from the observers' point of view.

4. The narratives reported by the observer

The two observations took place May 16 and May 21, 2007. Visitor # 8 was a male international visitor from Austria, while visitor #12 was a male American that is living in the state of Pennsylvania, but not in the city of Philadelphia. Both are approximately 30 years old.

4.1. The International Visitor

The visitor says:

"Today I just want to walk around and to go to the historic district (because) I prefer old buildings to the newer buildings.... I am primarily interested in old stuff, old buildings and I compare (what I see) two my home-country, Austria since "I am a European" and Vienna has a beautiful old buildings....

The visitor points at the Austrian flags and he talks about how USA is different from Austria...*I know most of the flags, I learned all the flags as a kid.* He talks about his childhood and when having lunch he commented: *People from Japan, the Japanese, they talk photos of food, the meals, it is different from what I do.....*At Elfreth's Alley, a street in the historical district he says. *I am disappointed; it is not like in Europe. It is this mixture of old and new, both nice and ugly. It is not as I expected probably because I had Europe and Vienna in mind...*

(When the trip is over, the interviewer asks) *In your view, what could be the title of the day, the visit to the city of Philadelphia?* He answers: *Maybe a mixture of old and new. To me, a lot of the areas (of the city) are of no interest to me. Today, I look at the city from a distance I think."*

What is the story this visitor is telling? This visitor compares what he sees with his home-country and the country he was a student. The story is as much about another place as it is about Philadelphia. It is about context and about himself, how he sees, gazes and makes comparisons.

4.2. An American visitor

This visitor also talked about himself while walking in the city.

He said" *I am very interested in American history and I will start graduate school a PhD program, fall 2007.I like the older buildings in Philly.* He points at City Hall and explains that: *in the early 1900, the buildings had to be shorter than City Hall. It had a good effect; the city is much nicer than many other cities in the US.*

He then continues to talk about the city planning of Philadelphia and other cities like New York. Later, inside the Free Library he commented that *the new section of the library looks great, it is designed by an Israeli architect from Boston (and) On this old map of Philadelphia we can see* When visiting the section with rare book collections in the Free Library, he tells the curator *I am going to start grad school in history...* The curator is a historian and he shares his experience as student, they continue discussing American history. When leaving the Free Library, he says *It was a good conversation, I might choose (he mentions a topic) for my dissertation* (the ethnographer can see that he is excited. He says. *I want to become a professor.*

What is the story he is telling while visiting the city of Philadelphia? He is telling a life-story, a story about his future, his goal of getting a PhD and be a professor. In the voice recording there is nothing about studying history and his goals, but he makes a comment that the visit to the Free Library was nice. The only comment that addresses history was this "(I) have (today) been thinking about the general connection to Philadelphia what made Philadelphia to the city it is."

The stories of the two visitors were very different. Both visitors carried the same multimedia device. One of them was not interesting in using the device besides for the explicit tasks give to him. The other visitor used the Nokia N95 and the mobile applications available for him.

5. Traditional information sources vs. the new tools

An important task asked of the participants was to use the voice recording to describe their experiences using the mobile device. Table 1 summarizes a selection of the comments given by the visitors regarding the use of the Nokia N95. Interestingly, the majority of comments refer to the camera and making phone-calls.

Table 1 – The comments about the mobile multimedia device

#2	<i>The camera/internet/phone all in one made for having to carry a lot less, very useful</i>
#3	<i>This device allowed to take pictures, access info, and communicate with others all with one device. Saves on pocket space and the need to access different medium</i>
#4	<i>the trip recommendations & internet are useful. Its easy get overwhelmed and lost, this device provide useful information</i>
#5	<i>the mobile phone provided access to website in case we need information while touring. Also it took great photos</i>
#10	<i>The phone allowed for me to take lots of pictures. The GPS would have been helpful had it been working since I am unfamiliar with the city. The phone was also equipped with the web which would have interesting to explore more about the history of Philla. the phone was more than just a calling phone, it made it possible to take photos and record reactions without having to carry a lot of equipment</i>
#11	<i>wireless internet, directions to bonte</i>
#12	<i>mobile phones give access to a lot of information that previously you had to get ahead of time, like addresses, maps, and details about attractions</i>
#14	<i>accessibility and can obtain information as and when required</i>
#15	<i>easy to use, not as conspicuous as a regular map camera</i>
#18	<i>I think the most important features besides calling are access to maps, internet and camera</i>
#19	<i>was helpful to get exact addresses for places, didn't get lost finding obscure places, helped eliminate places that sounded interesting but were closed on Sunday</i>
#22	<i>mobile phone make it easy to record and quickly share experiences with other</i>
#23	<i>now that mobile phones have more capabilities you can use them for more interactive things, i.e. photos, videos, GPS</i>
#26	<i>When exploring, I would not want to be using a phone all the time to search, I would rather ask locals to have an experiences finding good spots. Locals are more trustworthy</i>
#32	<i>allowed me to see what others were doing, take pictures of interesting things I'd seen, find my way with GPS</i>
#33	<i>from photo and videos to navigation a mobile device has a lot to offer. But as I said before there are still problems with the operating system</i>
#34	<i>while my dad tried to figure out where we were on the paper map, the phone told my exact location</i>
#35	<i>internet wi-fi, video, maps</i>

#36	<i>it helped a lot because you can find things out like where to go if you're lost and find directions to places you might want to go</i>
#38	<i>GPS, maps</i>
#41	<i>for directions and information about the attractions</i>
#43	<i>I had access (whether used or not) to online maps, the internet, and help for travel, if needed</i>
#47	<i>taking pictures</i>

In general, it appears that the users' experiences with the Nokia N95 were positive. Even though some did report problems, many of the visitors commented about potential use or opportunities in the area of mobile content and navigation. Comments from 22 of the visitors are reported in Table 1. Moreover, only 11 answered that they did use the mobile guide of Philadelphia, a guide set as the start page on the Opera Mini browser on the phone. It is important to notice that the visitors did not have to use the mobile guide. Hence, it can be hypothesised that only the visitors that were really interested in exploring what they could do with the new multimedia phone, took the time to use the mobile guide of Philadelphia. On the other hand, since they were not asked to use the mobile guide, it is interesting to see that 11 of 47 visitors used the mobile guide. Moreover, the Nokia N95 was not their own device, a device that they know well. Travellers appear to understand (as the survey result shows) the potential this kind of new multimedia devices has for travellers. However, behavioural changes, how and when travellers start using the application available to them on their mobile phone, might take some time. However, the reports from respondents #10, #23, #32, #34 and #38 emphasizing GPS suggests that navigation and way-finding is an important issue for city-tourists.

5.1. Multiple use of information sources and tools

A second important question asked during the study focused on the information sources and other informational tools they used to assist their visit to Philadelphia. Table 2 shows that traditional information sources/tools are used more frequently. Secondly, Table 2 shows multiple usages - most of the visitors used more than one tool or information source. It is important to notice that some of the visitors did use the mobile guide and the navigation service.

Participant #28 reported the following "we're trying to use the mobile and stuff which is a little bit confusing so... you know I don't feel like it's that necessary so I didn't bother to just sitting down and figure it out but rather see more things." This is an example of either a lack of interest in the mobile tool, or a usability problem.

Participant #34 reported "I've used a few maps and the GPS system on this phone and I've spoken to people and people that working in the subway to find out where I'm going (on the next hourly report:) I finally figure out how to use this GPS thing on the phone and that's been helping because we were running on the train and stuff, we asked couple more people, buses and cabs." It might take some time to figure out how to use the application and services embedded in a mobile device like the Nokia N95. One the other hand, some will argue why not ask people; it is fast and easy.

Thirdly, and maybe most interestingly, the use of a mobile navigation system and guide (the last two columns in Table 2) can be viewed as a substitute and not only a supplement to the traditional information sources (column 3 and 4 in table 2). For some of the visitors to Philadelphia this was the case. A comparison of columns 2 and 3 with columns 5 and 6 shows that there is a group of visitors that reported that they did use the new mobile application, but not the traditional ones such as street signs, posters, and printed maps. Of the 18 (in column 5 and 6), 10 also used the traditional information sources (reported in column 3 and 4) but 8 of the visitors reported that they had used the mobile systems to assist them or search for information.

Table 2 Tools used to assist the visitor during the trip
(Self-reports, the # indicate a person)

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Nothing	Asking people	Observing (street) signs and posters	Map (including maps in guidebooks)	Navigation system (GPS, car or m-phone)	Guide on m-phone (map) Mobile guide
1	6	2	7	4	4
3	7	7	8	5	9
			9	7	
18	13	14	10	12	11
	15	17	11		12
	19		13		15
			15		
			17		
			19		
25	21	20	20	22	28
	22	24	21		29
	24	27	22		
	27	28	23		
		29	27		
	34	30	31	33	32
	38	31	33	34	35
		32	34	37	38
		33	35		
		36			
42	40	40	41	(44)	44
	45	41	44		47
	46	43	47		
		44			
		45			
		46			

5.2. Point of capture archiving and sharing of personal experiences

The visitors were asked to use the voice recorder to tell to capture (point of capture) what they experienced, to take photos and videos to and to upload photos to Flickr'r. Some of the visitors did share their experiences while being in Philadelphia. However,

most of the respondent just made phone-calls and very few used the other services on the phone.

After the visitor, the tourist added their comments (hence, not at point of capture) to their photos for the purpose of sharing and re-experiencing the visit. Some of the visitors were asked to upload at point of capture, but in order to avoid spending money on up-loading, the interviewer uploaded the photos by using the *ShoZu service* on behalf of the visitor. The mobile devices that Wu et al (2007) used for the *mProducer* did not have the same capabilities as the Nokia N95. In particular, the storage capabilities were not sufficient for the archiving. The Nokia n95 had a 1 GB memory card in addition to the built in memory. The GPS and the map applications were embedded in the phone. Hence, the system challenges that Wu et al list in their paper, has been overcome. Bamford et al (2007) also reported that the fact that the GPS was not embedded in the mobile phone was a barrier to the use of the *LocoBlog* system. Devices such as the Nokia N95 and systems providers for uploading and sharing multimedia content online or directly to the mobile device of other users are now available in the market place. There are challenges related to the user interface, small screen etc as discussed by Wu et al (2007). It is easier to edit a photo album, a text a diary on a PC interface than a mobile phone interface. When re-experiencing a visit, the PC environment has some advantages to the mobile environment. However, for the capturing, in particular with regard to photos and videos, the visitor has to do it *in situ*. The findings from this project show that the new devices are fully capable of doing this, the capturing and online uploading.

5. Concluding remarks

Bamford et al (2007) writes that “*after years of hype, location based services are at least becoming feasible due to improvements in technology, data provision, and user understanding.*” The *LocoBlog*, the space-time photo travel-blogging reported by Bamford et al (2007) demonstrated how a separate GPS unit was used together with a mobile phone via Bluetooth. This study, however, describes and documents how a new mobile device with GPS was used by visitors to the city of Philadelphia. The device, the Nokia N95 received a positive feedback by the user. The main weakness was the battery life of the phone. The majority of the visitors did not use or explore all the capabilities and features of the device besides the explicit task given to them. Besides make phone calls very few shared their experiences with others while visiting Philadelphia. However, some did use the mobile guide and the GPS based navigation application on their own initiative. A segment of the visitors did substitute traditional information sources with new information sources available on the mobile technology. This finding was documented by the comments by the visitor themselves as well as in the observations from the ethnographer.

Currently microblogging; the services or platforms such as *Twitter*, *Jaiku* and *Pownce*, are growing. The microblogs are used to share daily experiences, opinions and commentaries (Java et al., 2007). Microblogging, as most blogging on the web, takes place within a personal and social network, and not in tourism domain. An important

question in this regard is if and how this type of instant sharing will move into the tourism domain. Is it going to be integrated with mobile guides and other location based services or will microblogging continue to be a phenomenon in the private domain, to sharing within a closed group? The Nokia N95, as this study has shown, is an example of a single mobile device that can facilitate capturing, uploading, sharing, navigation and other location based services. Not all of the capabilities were used and some might only reach a small audience. However, the developments in mobile technology will continue. This creates new possibilities for research as well as providers of new services.

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