

EVALUATING THE USE OF MOBILE PHONES FOR AN EXHIBITION TOUR AT THE TATE MODERN: DEAD END OR THE WAY FORWARD?

Silvia Filippini-Fantoni, Product Manager and evaluator Antenna Audio Ltd. ,
Nancy Proctor, Head of New Product Development, Antenna Audio Ltd
Department: New Product Development
Address: J307 Tower Bridge Business Complex, 100 Clement's Road,
City: London
Country: UK
E-Mail : silvia_fantoni@antennaaudio.com
URL : www.antennaaudio.com

Abstract – Tate Modern, in cooperation with Antenna Audio, launched a mobile phone tour pilot of the David Smith exhibition, on December 18th 2006, as part of its pioneering work in mobile interpretation. This allowed visitors to dial a local number to access recorded information about 10 exhibited artworks. An evaluation was carried out during the 5-week pilot run to determine visitor interest in this type of mobile interpretation, with a view to possible further development. In this paper, we will present the results of this evaluation; which provides an interesting insight into the pros and the cons of using mobile phone and IVR technology in museums, in comparison to other forms of mobile interpretation (i.e., MP3 players and hand held devices).

INTRODUCTION

Since the turn of the century, mobile phone usage has doubled worldwide, with developing countries leading the surge. According to the ITU (International Telecommunications Union), there are now approximately 1.5 billion mobile phone subscribers worldwide - one quarter of the human population (<http://www.infosyncworld.com/news/5636.html>).

With this high level of market penetration, mobile phone culture has evolved and the phone has become - not only an essential means of communication - but also a key social tool (text messaging, chats, dating services), as well as a practical way of accessing information “on demand” (news, banking services, internet access, etc.). Examples of this type of application are phone-based tours of cities, outdoor monuments, and museums, where tourists have to dial a phone number to access cultural information about a specific site or object they are interested in.

The North Americans are pioneers in this respect, with more than 100 museums offering these services. The rapid growth of these applications in the US compared to other parts of the world, including Europe (which has always benefited from a higher number of tourist attractions as well as more developed mobile phone usage), is mainly due to the presence of a more favourable business model. For example, in North America, most mobile phone users have contracts including free minutes, and don't pay roaming charges when travelling within the country. Most Europeans, on the other hand, have PAYG plans instead of contracts for their mobile phones, incurring higher per-minute call costs - even for local and ‘free’ phone numbers. Therefore, with higher numbers of cost-bearing visitors, European museums are less likely to see the mobile phone proposition as favourable than their North American counterparts.

Despite these limitations, some European museums have started experimenting with these types of solutions, particularly in Scandinavia, where the use of mobile phones is very high due mainly to the presence of mobile phone giants like Nokia and Sony Ericsson. For example, the Astrup Fearnley Museum of Modern Art in Oslo has offered a mobile phone based tour of its collection since 2003 (http://www.af-moma.no/?top_menu=4&sub_menu=3), whilst a series of other cultural institutions in Finland, Denmark, Sweden and Norway have developed mobile phone pilots as part of a wider initiative sponsored by governmental organizations.

WHY A MOBILE PHONE PILOT AT TATE MODERN?

Following in the steps of these pioneer museums, Tate Modern, in cooperation with Antenna Audio, launched a mobile phone tour pilot of the David Smith exhibition, on December 18th 2006, as part of its ground-breaking work in mobile interpretation. The pilot, which continued until the conclusion of the exhibition on January 21st 2007, allowed visitors to dial a local number (provided on a bookmark included in the exhibition brochure - see figure 1), and access recorded information about 10 of the exhibited artworks¹.



Fig 1: Promotional bookmark for phone tour at Tate Modern's David Smith: Sculptures exhibition (recto and verso).

¹ The pilot used an IVR phone platform provided by Plum Networks. IVR, which stands for Interactive Voice Response, is a commonly used technology that automates interaction with telephone callers. IVR solutions are commonly used to retrieve information such as bank balances, flight schedules, order status, movie show times, etc., from any telephone using pre-recorded voice prompts and menus to present information and options to callers, and touch-tone telephone keypad entry to gather responses.

There were multiple reasons for carrying out the pilot. First of all, as Jane Burton, head curator of interpretation at Tate Modern, explains; “We were particularly interested in finding out whether it could reach new audiences who wouldn’t have considered taking a traditional audio tour”. Among the audiences that Tate Modern was hoping to attain with this technology were teenagers, for whom the mobile phone is an essential part of their everyday life; young adults, curious to test the technology, and art lovers who, not interested in renting a full audio tour, might nonetheless want to use the mobile phone option to find out more about a specific work of art in the exhibition. The pilot also represented a good opportunity to test whether traditional audio tour users would feel comfortable using this new technology or would prefer the mp3 players they were used to.

Another important reason for the pilot was the need to find out if and how many visitors would use it, considering, as Jane Burton underlines; “the impossibility of telling them how much their call was going to cost, and with pay as you go and roaming charges for foreign visitors, that could be a significant amount of money”. If, despite these limitations, visitors would still be willing to take the tour, mobile phone technology, as Jane Burton suggests; “could represent a possible solution to provide audio interpretation for those small to medium size exhibitions for which mp3 players or PDAs are too expensive”. Mobile phone technology, in fact, can reduce infrastructure and staffing costs for audio tours, making it possible to provide tours for exhibitions that a museum would not have been able to afford previously.

THE EVALUATION

In order to find proper answers to these questions, Antenna Audio and Tate Modern carried out a joint evaluation of the mobile phone tour, which produced both qualitative and quantitative data.



Fig 2: Phone tour at Tate Modern’s David Smith: Sculptures exhibition

First of all, we collected direct feedback from both mobile phone and non-mobile phone users via a standardized questionnaire, which was distributed to the exhibition visitors between December 18th and January 21st. In order to carry out an accurate

statistical comparison between the two demographic groups, we collected 220 surveys from non-mobile phone tour users and 170 surveys from mobile phone users. These data are based on a total visitor population of 19,000 visitors over a 32-day fieldwork period, resulting in a final 6.5% margin of error².

In addition to the data collected via the questionnaire, the IVR solution, provided by Plum Voice, incorporated real time access to usage statistics, including the total number of calls and unique callers, as well as the origin of the call, which helped us enormously with the analysis.

TAKE UP RATES

By combining usage statistics and questionnaire data, we were able to determine that at the end of the 5 week run, 694 unique visitors had taken the tour over a total visitor population of 19,000, which corresponds to a 3.6% take up rate³. This represents quite a low percentage, if compared to take up rates of other temporary exhibitions at Tate Modern (e.g. Frieda Kahlo, Kandinsky, Gilbert & George, around 10%), where multimedia guides were distributed instead.

However, despite the obvious differences in take up rate between David Smith and other previous temporary exhibitions at Tate Modern, we cannot conclude that this is due solely to the different type of audio interpretation provided. Other factors such as the subject matter of the exhibition might have also played an important role. David Smith is, in fact, not as well known as Frieda Kahlo or Kandinsky among the general public and therefore attracted a more specialist audience, one which was older (the majority were over 46yrs of age), less familiar with technology, highly educated, and quite knowledgeable about modern art (an average of 4.4 out of 7) - in other words, the type of public that would not normally take an audio tour in a museum anyway, regardless of its type.

As a matter of fact, the take up rates for the David Smith tour are pretty much in line with experiences in other modern and contemporary art museums, where mobile phone tours have been trialled or are commonly used. For example, the Mathew Barney exhibition at SFMOMA (23 June – 17 September 2006), had the exact same take up rate of 3.6%. However, an exact comparison between the two in this regard is not possible, because in the case of the Barney show, a \$3US audio tour and a free downloadable tour from the website were also offered. We can only speculate as to what the cell phone tour take up rate at SFMOMA would have been if that had been the only audio tour option available (Korn, Randi and Associates, 2006).

Among the visitors that took the tour at Tate Modern, we can distinguish two separate audiences: those whose primary aim in taking the tour was to learn more about the artist and his works (66.1%), and those who tried the tour out of curiosity (53.6%). Curiosity is always an important factor in projects where new technology is involved. This prompts the question of whether usage will taper off as the novelty of mobile phone tours wanes or, on the contrary, an increase in comfort with using the mobile phone platform in the museum will see it rise (Proctor, 2007).

² The **margin of error** is a statistic expressing the amount of random sampling error in a survey's results. The larger the margin of error, the less confidence one should have that the poll's reported results are close to the "true" figures; that is, the figures for the whole population.

³ Percentage of visitors to the David Smith exhibition that took the tour.



Fig 3: Phone tour at Tate Modern's David Smith: Sculptures exhibition

WHY DID VISITORS NOT TAKE THE TOUR?

Given the relatively low take up rates, it is important to understand why visitors did not take the tour. This could help us determine if there is a margin of improvement for future projects.

Firstly, the questionnaire revealed that the main reason for not taking the tour (42.1%) was that most visitors were not used to, or interested in, renting an audio tour in museums - confirming our previously defined assumption that this exhibition had a pretty specialized audience, who did not feel the need to rely on any additional form of audio interpretation.

Secondly, and most surprisingly, 24.5% of the respondents did not take the tour because they were not aware of its existence. This shows that the bookmark distributed within the brochure, despite being the most popular means of communication about the tour, was not enough to reach all the visitors. Most of them, in fact, would not notice the brochure until after exiting the exhibition. Moreover, and inadvisably, object labels on the tour included a telephone symbol with the stop number - but not the phone number - for 'aesthetic reasons'. This meant that visitors who had not noticed the bookmark or the message prompting them to use the tour at the beginning of the exhibition had no way of knowing, subsequently, what the symbol meant or what number to dial to use the service. As for any tour on any platform, good marketing and visibility through a wide range of outlets is key to raising take up rates (Proctor, 2007).

Thirdly, and perhaps most expected, was the fact that people did not want to pay or use their minutes for the service (23.5%). This was particularly true of foreigners and PAYG users, confirming the museum's initial fear that these categories of visitors would be more reluctant in using this service because of the costs involved, and especially because of the impossibility of knowing beforehand how much they would be charged.

Finally, 18.5% of the visitors did not take the tour because they did not feel comfortable using their mobile phones in a museum. This is not surprising, especially since museums have been asking visitors to switch off their mobile phones inside the building, for quite some time. Now that things are changing, it will take a while for people not only to feel comfortable using a phone in a museum but also - and especially -

to remember to take it with them when visiting an exhibition (15.5% of the non-mobile phone users did not have their phone with them during their visit).

As Kate Haley Goldman underlines in one of her papers about the use of mobile phones in museums (Haley Goldman, K, 2007); “In the current media-rich environment, the delineation between public and private spaces itself is being redefined. There are certain rules or norms of acceptable behaviour within public spaces - both physical and virtual - and these norms are being negotiated and renegotiated as the applications and implication of technology change.” Only time will help museums remove the existing barriers to greater adoption of these offerings among the public; “Some of those barriers may be removed through tweaking the exhibition signage, providing better explanations of how the project works and more strongly communicating a sense of added value.” (Haley Goldman, K, 2007)

MOBILE PHONE USERS VERSUS NON USERS

So far we have analyzed in detail the pilot take up rate as well as the reasons why people took, or did not take, the mobile phone tour. One of the main issues that remains to be discussed is whether or not there are any statistically relevant differences between mobile phone users and non-users, in the hope of determining if cell-phone tours appeal to specific categories of visitors, while keeping others away. Not surprisingly, by cross-referencing (see table 1) the demographic data of the two groups obtained via the questionnaires, we realized that mobile phone users are more likely to be:

- younger,
- slightly more educated,
- local,
- repeat visitors,
- visiting alone,
- with a contract,
- visiting the museum specifically to see the Smith exhibition.

Moreover, visitors that used the mobile phone tour seemed to appreciate the exhibition more than non-users, confirming the assumption made by various museum professionals that audio interpretation has a significant impact on the level of understanding and appreciation of the exhibition.

	MP users	MP Non-users
Age		
Between 18 and 25	10.6%	14.5%
Between 26 and 35	25.3%	19.5%
Between 36 and 45	15.3%	15.9%
Between 46 and 55	30%	22.3%
56 and older	18.8%	27.7%
Education		
Primary school	0%	0%
Secondary school	3%	4.5%
College	17.2%	20.5%
Bachelors degree	36.1%	43.2%
Masters degree	33.7%	23.2%
PhD	10.1%	8.6%

Residence		
Greater London Area	65.3%	42.7%
Rest of the UK	21.8%	30.9%
Foreign	12.9%	26.4%
Knowledge about Modern Art		
Average	4.43	4.46
Frequency of visit		
First visitors	7.1%	16%
Repeat visitors	92.9%	84%
Context of visit		
Alone	33.5%	17.5%
With one other adult	50%	56.7%
With several adults	12.4%	12.4%
With adults and children	4.1%	13.4%
As part of a tour group	0%	0%
Reason for visit		
See the David Smith exhibition only	51.2%	39.3%
See all temporary exhibitions	24.4%	26.5%
See the whole museum (permanent collection and temporary exhibitions)	19.6%	26.9%
Attend a program/event	1.2%	0%
Other (please specify)	3.6%	7.3%
Exhibition rating		
Interesting	Average 5.96	Average 5.89
Meaningful	Average 5.56	Average 5.35
Enjoyable	Average 6.01	Average 5.81
Type of mobile phone		
Contract	76.9%	47.4%
PAYG	23.1%	52.6%

Table 1: Comparison of demographic data and responses between mobile phone users and non-users. Highlighted in red are the most noticeable and statistically relevant differences between the two groups.

In general these results seem to confirm a common trend in museums; that early adoption of a new technology is normally influenced by important factors such as age, familiarity with the equipment outside of the museum context, familiarity with the institution, specific interest for the subject matter, social context of the visit and - in the specific case of mobile phone tours - financial reasons (whether the visitor has a contract or is using a PAYG option).

HOW DID VISITORS USE THE MOBILE PHONE TOUR?

Both the statistical data as well as the questionnaire responses confirm that very few visitors listened to the whole tour. Visitors who used the tour listened typically to 3.7 stops for an average of almost 8 minutes per call. Also, because of its linearity, the Smith tour witnessed a steady drop off in numbers of visitors listening to the tour as they progressed through the gallery (Proctor, 2007)

Those that used the tours were, in general, quite satisfied with the overall experience (average 5.15 out of 7) and in particular with the content developed (5.38 out of 7), which helped them understand the exhibition better (5.08 out of 7). This is a very positive result for the pilot, as Tate Modern had deliberately chosen to experiment with content designed for the mobile phone platform, by selecting shorter messages and a more casual approach

to accessing information a la carte, rather than the in-depth information usually provided by traditional, linear format mp3 players.

Jane Burton commented; “Knowing that people would be aware they were paying for each stop, I felt it important to take quite a different approach to content from the usual tour. We made no attempt to offer a comprehensive survey of the show; instead, we anticipated people dipping in and out, and produced a series of short, off-the-cuff conversations, each one self-sufficient and anecdotal – more in keeping with the notion of a friendly phone conversation than a scripted tour.” The success of this approach to content is confirmed by the fact that the majority of the visitors thought the length of the messages was ‘just right’ (73.1%), and only a small minority expected longer stops (23.1%).

Being already familiar with the device, most mobile phone tour users found it quite easy to operate (5.86 out of 7). However, despite the general ease of use, 26.1% of the respondents who took the tour still encountered some difficulties with the system, particularly when it came to following instructions (31%). To encourage visitors to view other non commented works in the room before moving to the next audio stop, the tour instructed visitors to hang up after each call, which some users found difficult and tiring (16.7%). Tiredness would also result from holding the phone for too long (for an average of 8 minutes per call). Finding the objects that were on the tour was also problematic. Considering that there was only one object on the tour in each room, visitors had to look hard to find the next stop.

Some respondents reported problems with the network connections and signals (30.9%), which are fairly typical of a historical building with thick walls such as Tate Modern, and which have represented so far another obstacle to the widespread use of mobile phone tours in museums. The poor audio quality of the overall experience (31%), was also a problem, more frequently mentioned by visitors who deemed it inferior to that of more traditional, mp3 player audio tours.

AUDIO VERSUS MOBILE PHONE TOURS

The last issue to address is that of the comparison between mobile phone tours and more traditional audiovisual tours distributed on mp3 players or PDAs. Although there was no other audio tour platform in the exhibition to compare it to, the majority of the respondents (mobile phone users who had previously experienced a traditional audio tour only), seemed to prefer the mp3-based audio tours (43.4%), while 33.8% declared themselves neutral, and 22.8% preferred the mobile phone option.

Familiarity and comfort with the device were the Tate visitors’ most-cited reasons for preferring the cell phone tour (93.5%), while the superior quality of the experience (51.9%) was the reason most cited by visitors choosing the museum MP3 player option (see table 2).

Of those whose main motivation in taking the tour was learning, most said they preferred the traditional audio tour platform over cell phone delivery (46.8%; 18.1% of this group preferred the mobile phone tour, while 35% had no preference). This feedback suggests that the dedicated MP3 technology is more suited to an in-depth, educational audio tour experience. Among those who took the tour out of curiosity about the new tour technology, there was no clear winner among the platforms: 32.4% preferred the audio guide handset, 31% preferred the mobile phone tour, and 36% had no preference (Proctor, 2007).

Tate Modern, David Smith Tour: Visitors' reasons for preferring...	
The 'traditional audio tour'	The mobile phone tour
The quality of the experience is better (51.9%)	I am familiar and comfortable with the device (93.5%)
Other reasons (38.5%), including: more detailed, better sound quality, better with headset and cheaper	It enables me to get info as I need it (54.8%)
It is easier to use in a museum (34.6%)	It is easier to use in a museum (48.4%)
It is cheaper/free (21.2%)	It is cheaper/free (38.7%)

Table 2: Reasons for preferring each audio tour platform at Tate Modern. Visitors could choose more than one reason.

The big question, of course, is whether the mobile phone reaches audiences that would never normally take an audio tour. It is possible to ask this question of the Tate data, with the following conclusions.

- The majority of visitors who had never taken an audio tour before were young, almost 59% below the age of 36;
- Having taken their first audio tour on a mobile phone, 63.3% said they would take an audio tour of the permanent collection at Tate Modern if it were offered on mobile phones.

This is a particularly good result given that 22.6% of these non-audio-tour-takers were also foreign, so presumably would be facing higher call charges than locals. Nonetheless, 80.6% of these visitors had contracts rather than the higher per-minute cost PAYG plans.



Fig 4: Phone tour at Tate Modern's David Smith: Sculptures exhibition

There are therefore strong indications, backed up by other studies, including Antenna Audio's 2006 visitor survey (Discovery Communications Inc., 2006), that the mobile phone platform could be a good way to attract new audiences to the museum's

interpretation program. A note of caution is in order, however: in previous studies gauging visitor receptiveness to new tour technologies in museums, audiences have consistently predicted a higher take-up rate than has in fact materialized. In other words, just because visitors say they will try a new tour, does not mean they will in the numbers that they self-report (Proctor, 2007).

CONCLUSIONS

Despite the low take up rates, at least compared to other forms of audiovisual interpretation, the mobile phone tour pilot has been, in general, quite successful for the museum. Regardless of the roaming charges and the uncertainty of the costs for PAYG users, in fact, a small but consistent amount of visitors seem willing to use it. This means that mobile phones can represent a realistic (albeit not optimal) alternative for providing audio interpretation for those small and medium size exhibitions, for which the museum cannot afford to pay for the rental of additional hardware.

Usage in a wider context of Tate Modern's permanent collection and blockbuster exhibitions, however, is probably not recommended due to the higher percentage of roaming-charge bearing foreign visitors, as well as the presence of a less specialized public in search of a more in-depth experience.

Most importantly, Tate Modern's experience demonstrated that the new mobile phone platform can induce people who have never done so before to take audio tours, and that, as a result of their experience, they are most likely to take another one (Proctor, 2007).

This pilot, however, also confirms what museum professionals in Europe had suspected for a long time, namely that there are concerns among European museums' audiences about cell phone tour costs. Internationally, the business model for cell phone tours remains a challenge, as long as the value chain is mediated by mobile network providers. Will cell phone tours remain an overhead for museums, dependent on sponsorship and grants for funding, or can they be at once affordable for a significant population of visitors and revenue-generating for museums along the lines of traditional audio tour rentals (Proctor, 2007)?

In addition, the museum cannot assume that every visitor will own or want to use a cell phone or any other personal digital device, so we are unlikely to see an immediate end to older platforms that are already familiar and easy for the majority of museum visitors to use. The wider the variety of interpretation tools on offer, the more likely the museum is to reach a wider range of visitors. In today's information economy, customization is king (Proctor, 2007).

REFERENCES

- [1] DISCOVERY COMMUNICATIONS INC. (2006). Networks Research & Planning. Antenna Audio Global Visitor Survey, November 2006.
- [2] FILIPPINI FANTONI, SILVIA (2007). Unpublished results of visitor study on the David Smith mobile phone tour at Tate Modern, January 2007.
- [3] HALEY GOLDMAN, K., Cell Phones and Exhibitions 2.0: Moving beyond the Pilot Stage. In J. Trant and D. Bearman (eds). *Museums and the Web 2007: Proceedings*. Toronto: Archives & Museum Informatics, published March 31, 2007. <http://www.archimuse.com/mw2007/papers/haleyGoldman/haleyGoldman.html>
- [4] KORN, RANDI AND ASSOCIATES (2006). Matthew Barney: DRAWING

- RESTRAINT; Interactive Educational Technologies & Interpretation Initiative Evaluation. Study for San Francisco Museum of Modern Art, October 2006.
- [5] PROCTOR, N., When In Roam: Visitor Response To Phone Tour Pilots In The US And Europe. In J. Trant and D. Bearman (eds). *Museums and the Web 2007: Proceedings*. Toronto: Archives & Museum Informatics, published March 31, 2007. <http://www.archimuse.com/mw2007/papers/proctor/proctor.html>