UNDERSTANDING THE GAP BETWEEN PHYSICAL AND DIGITAL MUSIC TO DEVELOP AN ONLINE LABELLING TOOL

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This paper reports on contextual enquiry research and usability testing to support the development of an online CD labelling tool for use in conjunction with a music downloading service. The tool was developed around the hypothesis that restoring some of the tangible value of purchased CDs that is absent in home-burned CDs might encourage additional paid-for downloading of tracks and even albums. The research explored this hypothesis, identified the different ways people might want to use the tool and identified features and functionality to encourage its adoption. The findings reinforce the view that the tangibility of purchased CDs is an important aspect of the experience and that by partially restoring this online music providers can add to perceptions of value and encourage customers to pay for their music downloads.

Introduction

The music market is undergoing structural change. According to the International Federation of Phonographic Industry (IFPI) CD sales have declined by 23% between 2000 and 2006. Paid-for music downloading is increasing rapidly, up globally by 89% in the year since 2005 according to the IFPI (Sherwin, 2007). However the growth in paid-for music downloading has not fully compensated for the decline in CD sales compounded in part by the fact that albums constitute a much smaller proportion of paid-for downloads than they do of CD sales. At the same time people are acquiring music without paying, through online and offline peer networks. Research by consultancy Big Champagne estimates that over 1 billion tracks are exchanged each month (Adegoke, 2007).

Research by NPD Group suggests that customers ascribe less value to paid-for downloaded music than to CDs (The Write News, 2005). They found that only 6% of legally downloaded songs were played multiple times in the first two months after being purchased and just 8% were uploaded to a portable music player. By comparison, nearly 80% of CDs get constant attention in the first two months after they are purchased. Alonso & Keyson (2005) argue that part of the music product and listening experience is lost with digital music compared with earlier formats such as CDs and vinyl. "Consider for example the act of buying a CD or LP, unwrapping it, opening the case and placing it in the player. The information on an album cover often provides an emotional expression related to the album content".

Jupiter Research reported in 2005 that 23% of online users burn music CDs at least once a month. OD2, the world's leading white-label music downloading service powering among others

MSN Music, hypothesised that if it could restore some of the tangible value of purchased CDs that is absent in home-burned CDs it might encourage additional paid-for downloading of tracks and even albums. OD2 collaborated with Hewlett Packard to develop a concept for an online CD label-design tool called Tattoo Studio. Hewlett Packard's motivation for collaborating was to promote sales of its high-quality 'Tattoo' CD labels.

After a competitive tender OD2 appointed *new experience* to support the development of the product through user research. The principal aims of the research were to understand the differences in how people interact with digital and physical music, how the introduction of an online CD labelling tool might influence behaviours, and what the implications for its design would be if it were to encourage people to create labels that add value to the music experience. An ancillary aim was also to explore the concept of 'virtual labelling' as a means of increasing tangibility and to consider what this might mean in practice. At a later stage in the development process OD2 re-engaged *new experience* to conduct usability testing of a high-fidelity working prototype.

Method

Concept research
We used contextual enquiry as our data collection method conducting three-hour in-home interviews situated around participants' PCs. Beyer & Holtzblatt (1998) recommend contextual enquiry as a means of 'making unarticulated knowledge about work explicit so designers who do not do the work can understand it'. The interviews were semi-structured and enabled us to discuss in detail participants' creations and artefacts such as CD labels and playlists. We identified eight London-based participants fitting defined criteria through a recruiting agency. We specified that all should regularly or occasionally burn CDs, that four should mainly obtain music by downloading and four mainly on CD.

We started by creating an 'enquiry framework' schematic of the likely behaviours involved. From this we identified key questions we would seek to answer through the interview protocol.

The protocol comprised: discussion of how participants acquire, organise, play and share music, and how they burn and 'label' CDs; a tour of their music devices and CDs; a demonstration of the product concept on a laptop; and a chance to look at and handle sample labels printed on the HP 'Tattoo' stock. We videoed the interviews as a back up to note taking and took digital photos of participants and relevant artefacts such as playlists, CD collections, home-made CD labels and examples of written-on CDs.

The concept comprised a mock-up MSN Music page. Clicking on a button in the 'Now Playing' track-list section launched a smaller window for the application. The concept demonstrated how the application would instantly 'create' a label design listing the tracks in Now Playing, display album art of the albums from which the tracks were taken, and offer a choice of backgrounds and titling.

We conducted the fieldwork over six days in March 2006 with double sessions on two days. In order to keep our clients informed on a daily basis we created one-page 'daily reports' highlighting interesting data collected in each interview. Although essentially containing raw, unanalysed data the reports included immediate impressions of the researcher. They gave our clients the opportunity to feed back into the research process.

Analysis of concept research data
During the fieldwork we collected approximately 24 hours worth of data as written notes, video recordings and digital photos. The project timescales were constrained and we had only

a limited number of days for analysis. We have found that an effective way to structure and represent such a large amount of data is to create a visual model of the experience (see Rubens, 2005). The process of model creation and analysis is a symbiotic and iterative one where analysis informs model creation which in turn directs and focuses analysis. Once we had developed the model and completed our analysis of the data we created an opportunity matrix that juxtaposed the key components in the model with the areas of opportunity that we had identified for use of the CD-labelling tool. This juxtaposition of components of experience with opportunity areas is an effective way of focusing identification of features and functions on users' requirements.

Usability testing

We recruited eight new participants for usability testing of a working prototype in our in-house usability lab. Sessions lasted 1.5 hours during which we asked participants to use the prototype to design and then print labels according to five scenarios abstracted from the concept-research findings: holiday memento for friends; compilation CD for the car; gift for someone special; compilation to take to a party; album cover for Ms Dynamite. The prototype bore a strong resemblance to the original concept but incorporated recommendations from the concept research, for example that participants should be able to import their own photos to use in CD label designs. We provided a folder of 'their own personal photos' that we had downloaded from photo websites for this purpose. We conducted the testing over three days in August 2006.

Results

Concept research

The model (figure 1) comprised four components: Acquire; Manage; Listen; Share. These components are modes rather than stages so although users may pass through them in the sequence suggested by the model this is not always the case. Within each mode users interact with music in either CD or digital format. The format through which users interact with a given piece of music can vary according to mode. For example they may acquire the music in CD format then manage and listen to it in digital format yet share it in CD format, perhaps as part of a party compilation CD. The findings suggest users experience mode-specific differences between the formats.
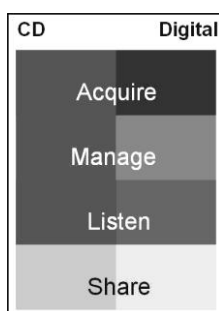
Figure 1. Model of the CD–digital music experience

Participants indicated that they prefer to acquire albums on CD, including those who mainly acquired music in digital format. They saw the CD of the album as 'the real thing'.

Tangibility was very important and the physical artefact could act as a memento of an event or time. The artwork and lyrics supported the listening experience. They also saw CDs as a means of acquiring music that was free from the risk of viruses and file corruption and not limited by digital rights management. On the other hand participants liked to acquire single tracks in digital format because they could cherry-pick the ones they wanted most and listen to them immediately. They compared the cost of downloading a single track with the higher cost of buying a single on CD.

Managing music digitally on PC offered the convenience of having all music in one place. Some participants maintained their CDs as a cherished collection to be displayed while others just saw them as back up to store without a great deal of organisation. For those who cherished their CD collection, high-quality, authentic labels were important. One participant had bought an Oasis CD in Bulgaria that had a typing error in one of the track titles. For him the error added to the perceived value of the CD; it looked authentic but was unique and related to a time and place.

We came across instances of participants burning CDs to create their own compilations and play them on the go on a personal-stereo CD player or in places relatively inaccessible to digital such as cars. Acquisition of a portable MP3 player reduced the role of CDs in these aspects of music management. The ability to create digital playlists and play them on the go curtailed participants' desire to burn compilation CDs except for use in cars and to take to parties. The ability to plug an MP3 player into a stereo and use as a proxy PC made it easier to distribute a music collection to different rooms and places.

The main advantage of listening to music in digital format was the ability to listen to playlists and to shuffle the music in that list for extra variety. Playlists can be of any length and are not constrained by the 70-minute CD limit. For a couple of participants a key benefit of a long playlist was not having to take their MP3 player out of their pocket in the street and risk robbery. Some participants preferred to listen to music on CD because they felt the quality was better and because they liked to hold and look at the case and read the lyrics. There are occasions when listening to music is only possible on CD. One participant pointed to the portable CD player in his bathroom for listening to music in the bath.

We found four ways participants used CDs as a format for sharing: to loan music to others or to bring to parties; to create a memento of events or experiences, as likely to involve pictures and video as music; to create a compilation as a gift for a friend or loved one, and to promote one's own work or compositions. Some digital sharing applied to the first use case but for the latter three only CDs were used.

In the first use case of burning CDs to loan music or play at parties we found that labelling was very rudimentary and usually involved no more than a handwritten title such as 'Party mix 3'. This is similar to the way participants labelled CDs they created to play in the car or on their personal stereo CD player. Participants indicated that ideally they'd write the list of tracks onto the CD, but frequently didn't because it was fiddly. They reported a common problem with this form of rudimentary labelling that CDs could easily be confused.

In the latter three use cases participants indicated a strong desire to create unique, professional-looking labels. One had used printable DVDs to create a memento of a recent ski holiday involving video, pictures and music. Some of the pictures featured in a montage on the label. Another, a voice-over artist, had commissioned a designer to create a label for his voice-over demo CD. Other participants expressed dissatisfaction with the quality of the home-made labels they'd created for compilation gifts and mementos.

We did not come across any instances of people wanting to burn albums to share on CD as a gift, precisely because they would not have been able to create an authentic label. The

gift would have seemed cheap and unimaginative and the recipient would not have known whether the giver had even paid for it. This ties in with the finding that participants were unwilling to download albums partly because of the lack of authenticity and physical artefact.

The concept demonstration was attractive to all the participants. It appeared to make it very easy to produce a high-quality label listing all the tracks, and the images lent some authenticity. Several participants felt it would be easier and quicker to use the labelling tool than to hand write on to the CD. Participants requested two key modifications: to be able to import their own photos and to re-create album covers.

Usability testing
In most instances relating to the latter three use cases participants opted to import 'their own pictures' to use in the label design validating this recommendation from the concept research. Usability findings with implications for the final design of the product included: participants failing to notice the link to Tattoo Studio from MSN Music; templates not giving sufficient freedom to site the title or tracks on a place where they would not obscure an important part of the picture; the *Order labels* button not being noticed because it was in the *Print* screen; and the absence of artists names next to tracks being seen as a critical omission.

Discussion

The findings implied three opportunity areas for online CD labelling: simple identification and listing of contents for personal compilations and party mixes; re-creation of the authentic cover for albums but with the opportunity for personalisation; and creation of unique designs for mementos, gifts and promotional CDs. Identification of these three areas was fundamental to understanding how the introduction of the tool could affect and influence behaviours, and for understanding how to develop and refine the tool.

The opportunity matrix (figure 2) enabled us to identify and consider ways of enhancing the product and overall experience with design recommendations aimed at supporting specific usage contexts for the labelling tool. It also helped us to consider the concept of virtual labelling where the created label can be viewed virtually on screen in association with the burned-to-CD playlist. It became apparent that participants would put a lot of care into compiling a CD for a close friend or loved one and in creating the label for it. One talked about playing the playlist to think about the person they had burned it for. Here a virtual label would add an extra dimension to this vicarious association.

Figure 2. Opportunity matrix

Our findings support Alonso & Keyson's assertion that part of the music product and

listening experience is lost with digital music. However our findings also indicate that there may be ways to replace some of the tangibility lost with digital music. There are reasons to believe that a tool such as Tattoo Studio could encourage paid-for downloading at the expense of illegal downloading. All our participants voiced fears about illegal downloading especially in relation to viruses. If some of the perceived value of CDs is restored people could be more prepared to pay for music than take the risks of illegal downloading. Furthermore there is reason to believe that people may be more inclined to download complete albums if they could create and apply authentic labels. The notion of virtual labelling is important here and it is interesting to note that since we conducted the research the latest releases of Windows Media Player and iTunes now incorporate album art in their library views. There are other ways to enhance the tangibility of digital music that paid-for downloading services should seek to exploit. One example is users' desire to read information and lyrics normally contained within the jewel case of CDs. Potentially this could also be provided with the music files.

Contextual enquiry proved an effective method for uncovering unarticulated aspects of participants' 'work' and gave us insights that would not have been available through market research methods. The usability testing was more valuable for being informed by the earlier concept research, in particular the development of the testing scenarios based on stories and experiences described by participants.

Tattoo Studio went live on MSN Music on 11 January 2007.

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