

Personal Music Retrieval, Management and Consumption – A Cross-Cultural Study

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ABSTRACT

This paper reports a user study on creating, consuming and managing digital music content. We consider people's personal relationship to the music entertainment technology and content, and the typical actions carried out in and outside of the home domain. The study was carried out in two cultural environments, New York City and Hong Kong.

Author Keywords

Music, multimedia, end-user studies, cultural studies.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Music-related gadgets and services form an essential component of entertainment technologies. In recent years, there has been a strong trend towards introducing consumer electronics and software tools related to personal music consumption, retrieval and management. Technology miniaturization, available services and declined prices have enabled an ever-growing variety of products that are heavily adopted by large audiences.

The growing trend of digital music consumption has resulted in several studies related to the digital music usage culture. In [1] and [5], music downloading and sharing online and among peers has been examined. Other studies include e.g. [2], which examines the phenomena related to conventional (physical) music stores in order to improve the design of digital music libraries. Relatively much attention has been devoted to digital rights management and its relation to the existing usage culture [1], [6].

Although mobile and wearable technologies have made the consumption of personal multimedia possible without restricting the user to a certain location, retrieving, managing and storing the content is often done in the home domain. Common computer-mediated functions include such activities as online purchasing, peer-to-peer downloading, and sharing via email or personal web pages. Increased flexibility in the used storage formats and in the variation of players and tools has emphasized the role of content management. Converting and moving music files between platforms, e.g. between a PC and an MP3 player, typically requires both HW and SW tools. Thus, many

content management activities are often carried out at home.

Research so far has mostly concentrated on separate topics instead of focusing on users' overall personal task flows related to digital music. In this study, we wanted to focus on the big picture of managing and consuming music content instead of looking at individual phenomena or subtasks. To understand the underlying phenomena in personal music management, it is necessary to study the overall picture of how people retrieve, manage, enjoy and share digital music content, and what are the cultural differences with these practices. To examine the topic, a user study containing a diary study and interviews was conducted in two settings, New York City and Hong Kong. We aimed at studying the link between home entertainment technology and the general consumption of music, and people's general perceptions and practices related to digital music consumption.

DESIGN OF THE STUDY

A total of 12 music-oriented users were chosen from the New York City and Hong Kong areas, representing various backgrounds and consisting of students and working people. Participants were chosen on the basis of a screener charting their media and device usage. Throughout this paper, the participants are referred to with the identification numbers #1-6 and #7-12, for New York City and Hong Kong respectively. Each group had an equal number of males and females. The participants were from 20 to 33 years old with the average age of 27.4 years. None of the participants knew or was in contact with each other. In New York City, 5/6 of the participants lived with a roommate or spouse and one lived alone (#5). In Hong Kong 5/6 lived with their family or parents and one by herself (#7).

The participants kept a photo diary for three days, where the period had to include at least one weekend day. They were asked to take pictures of the usage context whenever they used some media device. Each picture was to be annotated with an explanation of where and of what the picture was taken, and what the participant was doing while taking the picture. Participants ended up taking from 6 to 80 pictures, the average being 22.5 pictures.

Majority of the data was collected via in-depth interviews that took place at the participants' homes. Before the

interview, the study organizers went through the photo diaries and analyzed the data. Discussion guidelines were refined based on the diary findings. Each interview lasted approximately 2 hours.

The data collected from photo diaries and interviews was used to create variable axes that acted as basis for the analysis. Altogether 56 axes were created for this study; see Figure 1 for an example. Participants were placed on the axes in relation to each other. Findings were derived from patterns that formed from clusters.

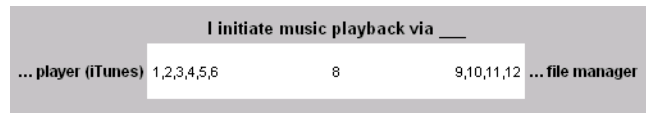


Figure 1. An example of data analysis with a variable axis.

RESULTS

Relationship to Music

New York City

The data collected from New York City revealed a strong emphasis on individualism. Music was used not only for entertainment and relaxation, but in a great deal for expressing oneself and as a means of sticking out from the crowd.

Finding new types of bands and music, and having knowledge of music were perceived as important. Music and information was constantly sought after through various channels: music blogs, websites, magazines, traditional and net radios, iTunes, independent record stores and through friends. To retrieve music, users downloaded it illegally from the Internet, purchased it from net stores or independent record stores and shared it among friends via burned CDs, iPods, email or Instant Messaging (IM). The users wanted both whole albums and single music clips.

The results gave a strong indication of a trend that people did not buy many CDs anymore. The users did not value the physical artifact for its utility value. If a CD was bought, it was immediately ripped to a PC (4 users out of 6) and the CD itself was used merely as a back-up, none of the users mentioned using CD for anything else. The reason for buying the CD was more because of its sentimental value, or because it was hard to get the music by any other means.

In New York City, people had vast and diverse music collections at home and they listened to them quite widely. The same applied to MP3 players where they also carried a big collection of music.

Hong Kong

Contrary to New York City, in Hong Kong music was more about expressing affinity with friends and belonging to a certain group than about expressing individualism. The users listened to the same mainstream music as their friends did. They sought for music only through a couple of channels: "Top 20" websites or through friends. To retrieve

music, they downloaded files by WinMX peer-to-peer software and shared files with friends via email and IM.

In Hong Kong, the participants did not buy CDs because they were perceived as expensive and futile. It was faster and cheaper to download the files from the Internet or get them directly from friends via IM or email. The participants seemed to prefer the downloading of single music clips instead of albums.

Although people in Hong Kong also had a vast collection of music, they listened to only a small part of it, mainly the new music tracks. Music was quite homogenous and not as diverse as in New York City.

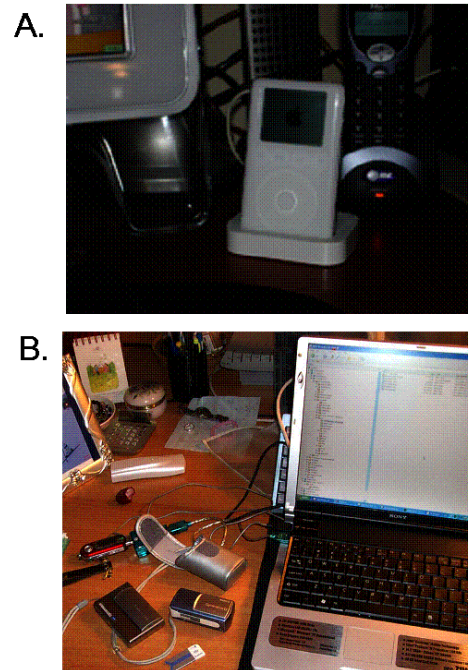


Figure 2. An example of device settings at home in A.) New York (#3) and B) Hong Kong (#8)

Devices and Tools

New York City

The device brand was found to strongly affect the practices of how music content was managed. Most of the New York City participants (5/6) had one or more iPods, see Figure 2. They were also using iTunes as their primary music application on the PC. iTunes was used for searching, purchasing, playing and managing the music, and for ripping CDs. New music files were updated to the iPod on a weekly basis. People also used the iPod as an external hard drive for transferring and storing files.

Typically, the iPod was seen as the one and only option for an MP3 player. Its brand and appearance was valued greatly, although some users thought that the iPod was not that special anymore since 'almost everyone had one'. Some of the users had replaced the original headphones for

better fitting and to get better noise reduction in noisy environments.

Music was shared via burned CDs (3/6), via IM (3/6) and with iPods (2/6). In addition, one participant (#4) would have liked to share the music via iPod, but did not know how.

Hong Kong

The Hong Kong participants used the regular file manager of their PC to search and manage files and to initiate playback at home, see Figure 2.

In Hong Kong, the participants had many different kinds of portable music players. The brand itself was not perceived as important, but the overall appearance and the size of the player were. One of the participants (#9) did not even know the brand of his MP3 player. The players typically had a small flash memory (<256MB). The memory size was seen neither as a problem nor relevant, since most users had only approximately 20 songs on their MP3 player. MP3 players were used only for music playing and not for storing data files. PDAs and mobile phones were also used as portable music players. At home, the participants used the PC's file manager to change the music on the player once or twice a month.

General

Both in New York City and Hong Kong, the home PC acted as a music hub. It was the source for discovering and acquiring new music from all over the world. All music files were stored on the PC which also acted as a replacement for the traditional stereo system. People were using the PC's own speakers or very modest external speakers as an audio output device.

On the Move

New York City

Music was listened to regularly while commuting. It was used for entertainment and especially for creating a private space in the noisy and unpleasant environment of public transportation. The player was mainly held in the bag or on the hand. A majority (5/6) of the users did not have a remote control, so the player was used with the controls on the player.

While on the move, the participants used both random play and playlists for listening to music. Mood and context of use were affecting factors for music selection. Playlists were used as a tool for grouping music to suit certain moods or contexts of use. Playlist use was divided into two groups based on usage frequency; 4/6 participants mentioned that they used playlists almost all the time, whereas 2/6 said that they never used the feature. The number of playlists varied from 1 to 10 with an exception of one person (#1) who had approximately 50 playlists in her iPod. At home, playlists were not used as much as when on the move. Easiness of playback control had changed the way participants listened to music. It had enabled an easy

and fast way of skipping tracks. One user (#6) mentioned that he was aware of the change in his behavior. Although others had not analyzed their behavior in such detail, they mentioned they frequently skipped tracks.

Hong Kong

In Hong Kong, too, music was frequently listened to while commuting. However, the main function of music was entertainment, and people did not report a need for creating a private space like in New York City. The player was typically hanging on the user's neck. Thus, there was no need for a remote control, but the appearance and size of the player were emphasized.

The participants used the random play setting to some extent, but playlists were not used at all. The fact that the number of songs on their MP3 players was only a fraction of what the participants in New York City had clearly indicated a difference in behavior. Sometimes people skipped the track they did not like anymore, but mainly they listened to the music clips in the order the clips were placed on the player.

New York		Hong Kong
Internet, Friends, iTunes, Record stores	Discover	Internet Friends
Independent record stores, iTunes, Illegal downloads, Friends	Acquire	Illegal downloads IM & Email
iTunes	Manage	File manager
iTunes, iPod	Consume	Windows media player, portable mp 3-player

Figure 3. Summary of cultural differences.

DISCUSSION

In our study we found several similar phenomena that existed in both cultural environments, Hong Kong and New York City. The home domain functioned as the key node for music-related activities. Home could be seen as a central point where activities related to content editing, ripping and transferring between platforms is conducted. Music retrieval happened increasingly at home, as music was not only downloaded and purchased online, but also shared via email and instant messaging. Home acted also as a central storage for music and content backups. With music-orientated participants, the role of portable music players was important.

The study revealed several differences in the user behavior between the cultural settings of Hong Kong and New York City. The differences found in this study relating to the ways people discovered, managed and consumed music in the different cultural settings are summarized in Figure 3. Previous research has also reported that there are differences in music consumer behavior in different countries. In [4], this has been found to occur in the criteria people use when selecting mobile music services and rating the importance of their functionalities.

Creating private space with music among crowds was a central phenomenon, as reported also by Mainwaring et al. [3]. In our study, this was evident especially among the New York City participants. Moreover, a strong trend towards individualism and expressing it through music was emphasized in New York City. This phenomenon occurred both in content search and retrieval, as well as in personal music selections at home and on the move. Another cultural difference was found with portable music players: owning a device of a specific brand (the Apple iPod) was seen more important in New York City than in Hong Kong. In the latter location, the style and industrial design of the player in general were perceived as more significant than any given brand. The findings also show that adopting iPods had a strong effect on music sharing and especially on the practices of retrieval. These findings are consistent with Volda et al. [5], who report how iTunes has created a music consumer subculture in itself.

Buying a physical artifact (CD) for music consumption was not perceived as important in either cultural setting, although the participants discussed the topic from different viewpoints. In Hong Kong, CDs were mentioned mostly because of their high cost in comparison to illegal downloads. In addition, single music clips were preferred to albums. In New York City, the participants often justified the occasional purchasing of CDs with sentimental values. Similar findings have been reported in [6], where the desire of owning a tangible object for sentimentally important music was often perceived as more important than owning the artifact for actual listening. A surprising finding from both studies was that people were using computers not only as players, but also as audio sources when listening to the music at home, as the majority of users used either the laptop's own speakers or very modest external computer speakers as the output device.

CONCLUSION

In this paper we have presented a study on retrieval, consumption and sharing of digital music content in two different cultural environments, New York City and Hong Kong.

A finding common to both cultural environments was that the Internet and one's friends play an important role both in discovering and acquiring music. In both cultures, the home

domain functioned as the central point when operating music devices, and the home PC acted as a music hub. Content editing, ripping and transferring between platforms, as well as online downloading and sharing, happened at home.

Moreover, the reluctance to pay for music was common in both cultures, although the New York City participants were more willing to pay for music if they felt it provided them with extra value. Another common finding was that owning a physical artifact, i.e. a CD, was not perceived as important for consuming music. Music was acquired preferably in the electronic format, e.g. as MP3 files, whereas CDs were kept merely as a back-up system for the PCs and MP3 players. The results also showed that owning an iPod has a strong influence on the used tools when retrieving, managing and sharing music.

The study found several cultural differences in consuming and managing music. In New York City, music was used for emphasizing individualism, whereas in Hong Kong an affinity with friends was highlighted. The New York City participants retrieved a greater variety of sources and carried a larger selection of music with them when compared to the Hong Kong participants. When commuting, listening to music with a portable player in order to create a private space was an important function in New York City, whereas the entertainment value of portable music devices was highlighted in Hong Kong.

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