

OBSERVING CASSETTE CULTURE: USER INTERFACE IMPLICATIONS FOR DIGITAL MUSIC LIBRARIES

by

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ABSTRACT

Many people keep their collections of music on cassette tape even if they rarely listen to them. Images of these collections are online on photo sharing websites. What can we learn from such collections and what might they tell us about designing interfaces for new digital music libraries? The author conducts an online ethnographic study of over two hundred cassette tape collections, and over sixty participants with the aim of guiding future design of music collections. The author presents design heuristics and guidelines for interfaces of digital music libraries.

Keywords: Compact cassettes, Digital Music, Music Library

Subject Terms: Interaction Design, Online Ethnography

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Vive la cassette!

Peace.

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GLOSSARY

affordances	The types of actions an individual perceives are possible given a specific object or environment.
album	Used for the distribution of music, an album is a concept that refers to a packaged, collection of songs traditionally sold on a physical format such as a vinyl record, cassette tape or compact disc.
analogue	An analogue signal is characterised as continuous in both time and amplitude. It is characteristic of the sound quality of magnetic tape.
archive	Typically, an archive is a collection of records such as books, files or media, which is being stored for a lengthy period, or indefinitely. References to the locations of these documents are a part of the archive, such as a filing system.
burning	Burning describes the process of recording digital audio files onto a compact disc (burning) from music players such as iTunes.
compact cassette (tape)	Released by Phillips in 1963, the compact cassette was the first recordable music format for consumers. It became widely popular for the portability and customizability of music.
compact disc (CD)	Available in 1998, a CD is an optical disc encoded with digital audio information such as music. It is the standard music format in a physical medium today.
Del.icio.us	Del.icio.us is a 'social bookmarking' website. Members save the URLs of their favourite websites to a personal account page, adding 'tags' for organizational and sharing purposes.
digital rights management (DRM)	DRM refers to technologies embedded in hardware or software that is used by copyright owners to control access to data.

digital	A system that uses discrete values such as 'on' and 'off' for representing analogue, or 'continuous signal' information.
ethnography	A research methodology in which the researcher situates himself or herself within the culture or community they are studying.
Flickr	Flickr is a photo-sharing website where members upload photos onto publicly accessible web pages. The site is well known for its large and active community, as well as the online 'photo album' services it provides.
heuristic	A broadly stated characteristic of a good user interface.
Hip Hop	Hip hop is a music genre and cultural movement, from the 70's which took advantage of tape cassette technology to distribute recordings.
iPod	The iPod is a portable music listening device (MP3 player) from Apple. It was the first of which to popularize the idea of taking an entire music collection with you everywhere.
iTunes	The software used to playback, organize and create CD recordings on your computer.
lossy	A lossy format describes the quality that audio files like MP3s are compressed and that some of the information is lost in the digitization process.
magnetic tape	A thin plastic strip with a magnetic coating, magnetic tape can be used to store audio, video or digital data.
mixtape	A sequence of songs recorded (originally) onto a compact cassette and often decorated with custom artwork.
MP3	Short for MPEG-1 Audio Layer 3, an MP3 is a popular compression algorithm used to digitized audio recordings. The amount of data is greatly compressed yet retains a faithful reproduction of the original.
music format	A medium for storing music in a physical or digital form.
playlist	A list, or sequence of songs, often recorded onto a physical medium such as CD or tape. .

ripping	The process of copying audio information from a compact disc, to files on a computer hard drive. Once a CD has been 'ripped', the individual songs can be stored, copied, or shared independently of one another.
social software	Tools for computer mediated communication that allow people to collaborate or interact and are often used to form online communities on any conceivable topic.
sortable lists	A now standard computer interface convention that displays textual information in a vertical list. These lists are 'sortable' across as many dimensions as there are columns, for example alphabetically, from A- Z or in reverse from Z - A.
tagging	The process of adding descriptive keywords to a digital document such as a URL or image. Tags classify the document in a spontaneous, broad manner, and have been popularized in many current websites such as Flickr and Del.icio.us.
vinyl record (LP)	The first available recorded music format, vinyl (Long Playing) records were wax disks that spun flat while a needle dragged across groove on the surface.
visualization	Graphics, displays and animations, used for the abstraction of data, and the presentation of the specific details within an information space.
Walkman	The first portable audio device from Sony was available in 1979. The walkman played a large part in making tape cassettes a popular recording medium.
Winamp	Winamp is free media playing software that replicates many the conventional features found in other music libraries.
Windows media player	Microsofts' media playing software that globally, is the most widely used media player due to the ubiquity of the Windows operating system

INTRODUCTION



Figure 0.1 What to do with two shoeboxes of tapes?: Uploaded on May 22, 2006 by draggin

The daily experiences of people often incorporate recorded music. It is used individually to alter or compliment one's mood, and in social situations to form bonds amongst those participating in the rituals associated with music playback (DeNora 2003). In groups or alone, people construct their music listening experiences using the technology that is readily available, and the collection of audio recordings they possess, their music library. Although broadcast forms of music listening such as AM/FM radio are often available, the personal music library is within direct control of the individual. The ability to manipulate this archive is paramount to a positive music listening experience.

In the past, a typical music library has consisted of a collection of objects designed for the packaging and distribution of music, generally known as 'albums'. During the first one hundred years of recorded music, these artefacts have taken three dominant forms or *formats*: the vinyl record, the compact cassette, and the compact disc. Recently, in consumer society the attention to physically recorded music has shifted to digital recordings. With the introduction of new technology, older collections of media have at least two possible outcomes. They run the risk of becoming obsolete if they are too cumbersome to store, or a new format becomes ubiquitous in an individual's life. What can sometimes save them from this fate is their association with an individual's music listening history as a record of previous times and places. The music archive or library can endure long after its practical use. As is shown in the current thesis, many people have kept their collections of tape cassettes regardless of whether they are used to playback music anymore or not.

Compact cassettes or 'tapes', hold a special place in media history. Highlighted by reports in this study, they have contributed to popular culture primarily by introducing the practice of making mixtapes, (a customized sequence of songs recorded to a blank cassette) and offering music enthusiasts unprecedented mobility for music listening due to the portability of the medium. Devices such as portable tape decks and the Walkman freed music from the confines of the home and gave people new ways to customize their music listening experiences. The affordances of analogue media are unique because of the physicality they possess, and tape cassettes are no exception. Like other

recorded media, they can be stacked on shelves, filed in archives or displayed in collections. Tapes can be easily distributed, shared, customized and 'impressed' with personal significance. They can define an individual's personal taste.

Tape cassette players originated many conventional interface affordances that persist to this day, including the ideas of buttons for “Play”, “Fast Forward”, and “Rewind” (BBC 2004). In recent years, interest regarding cassette culture, has been growing on the Internet, and has been documented by several websites. (Wired, BBC, New York Times, Cassette Jam,) The mixtape particularly is enjoying a renewed interest as models for new ways to distribute music are being sought (Tiny mixtapes, mixtape collective, finetune). The intrinsically social nature of the mixtape experience is being merged with present day Internet environments which specialize in building communities together on topics of personal interest. Although vinyl records or LP's (Long Playing) have been, and still are a popular means to access music, they have been avoided in this study for two reasons. First because the playback technique was so limited: remixing and distributing personal mix of songs was impossible with the exception of the professional radio or dance floor DJ. Secondly, due to limited mobility, the format demanded a stationary music listening experience, most commonly in the home. The tape cassette on the other hand was the first means by which people had to create their own personal soundtrack that could be taken anywhere. This personal soundtrack remains a central issue to music listening today.

The focus of this thesis is to examine some of the old tape collections that people have kept, and explore their motivations for doing so. By documenting these practices and comparing them with details of current listening habits, new considerations for the design of digital music systems are explored. The study analyzes qualitative and quantitative data gathered by ethnographic methods conducted over a six-month period from July to December 2006. Participants were asked to contribute images of their existing tape collections, and include any associations that came to mind when considering their old analogue library. It was discovered that a large number of these images had already been posted to one photo sharing website called Flickr (www.flickr.com/). This community was used for data collection and as the central means to interact with the group of participants. To gain further insight, a detailed survey exploring the present day listening habits of respondents was distributed. The images gathered in this study provide insight, into the personal behaviours for handling, organizing, and personalizing customizable media. The images and the survey highlight interactions that have been overlooked in the design of present day music players such as iTunes, Windows media player, and Winamp. These players emphasize the tasks of sorting and retrieval in a manner similar to the way these tasks are done on the personal computer. The issue is that they are restrictive when it comes to sharing, browsing and customizing.

Three propositions are put forward as a means to guide the data gathering and analysis process.

Proposition 1: There are more effective ways to document digital media. These methods need to track an individual's music listening habits over long periods of time in an aim to create a musical history.

Proposition 2: New means to visualize the contents of a library would greatly improve the access and selection tasks that are involved in browsing a music collection.

Proposition 3: Methods need to be developed to personalize music collections. Personalization can be done through individual activity such as coding, or through a social process such as a network that shares music.

This study is informed by the research and methodologies of several distinct fields of inquiry including Human Computer Interaction, Computer Supported Collaborative Work, and Interaction Design. A scarcity of research that can inform the design of new music technologies has been noted across these disciplines, particularly research that documents how people interact with the simple artefacts of recorded music. A thorough examination of the social behaviours demonstrated while interacting with the many objects and devices that are used for music listening is needed. This study was conducted to contribute to the discussions regarding the effects technologies have on the use of music, and how new tools can create richer, more meaningful music listening experiences. Online social research methodologies are explored as a means to study people's behaviours in online settings.

The analysis of research data maps a wide variety of user behaviour in relation to the artefacts of recorded music. The heuristics put forth at the end of

the paper consider interfaces at the level of the personal computer as the prime target of design consideration, and include music player software such iTunes, Windows Media Player and Winamp. These heuristics based on the propositions mentioned above, deal specifically with the music library component of the player software, where the collection of music is accessed. There were several found relating to each proposition, but some of the highlights are as follows.

Heuristic 1 (Digitization): “Snapshots” of the music library contents and activity could be taken at various times and saved by the software. More extensive music charts could also be tracked over time and contribute to the music history recorded in the library.

Heuristic 2 (Organization): There appear to be opportunities for designers to provide alternative visualizations of a music collection such as in loose ‘piles’ instead of aligned lists. This may improve browsing activities if the piles retain properties people use to locate music such as, favourites or recently played.

Heuristic 3 (Personalization): Making customized sequences of songs such as with playlists is still a popular activity with this study group. Better ways to combine music with graphics or images could make a digital playlist more sharable, and enhance the sociability of music players. Many participants could use these artefacts as tokens of affection or friendship as has been cited a desirable activity if there were some native email functionality in the player.

Although alternate ways to consume music, such as the Internet, Satellite radio, and Cable, are becoming more popular, it is the personal computer that is central to the act of managing and accessing a digital music library. As music

collections continue to grow with advancements in distribution and storage for digital music, new ways access these libraries will be increasingly important.

CHAPTER 1: THEORETICAL FRAMEWORK: ISSUES WITH MUSIC COLLECTIONS

An overview of the issues

In the past century, the experience of music has been influenced by recording technologies. Magnetic tape, vinyl records, and compact discs, brought music to the masses. These are the artefacts by which music is bought and sold, collected, shared and displayed in the home. Any quantity of which can be referred to as a music collection or library. The study of recorded music and the technologies that provide its playback have undergone little academic scrutiny (Connell 2002). As a result, observations about the way people use music have been overlooked. Given that an increasing amount of music listening is now being done through the use of personal computers, it is important to study the methods people have to organize and personalize their audio collections, so that the solutions can be incorporated into the design of digital music interfaces. One of the central questions explored in this thesis is, what can we learn from the storage of analogue media that can be applied to the design of digital music libraries?

This is not to say that the digitization of music has not greatly benefited the experience of listening to music already. It has. This is particularly true in the areas of accessibility, (duplication and distribution) and storability. It used to be that recording music was done in real time, meaning you could create a copy of

that music in the same amount of time it took to playback the original. Using the computer, music has been reduced to a series of ones and zeros, a digital file that can be copied much faster than analogue recording formats, and with greater reliability in terms of sound reproduction. With the introduction of Napster in 1999 (Michel 2004), peer to peer file sharing and a grassroots means of music distribution have been proven to be effective and desirable. In the past, the music industry controlled profits by packaging a series of songs onto an album as the sole means of music distribution. Since the development of online methods of distribution, CD sales have continued to fall, (The Associated Press, 2007) and new business models such as iTunes music store have quickly stepped in to fill the gap. Popular recording artists are rethinking how they are represented online, and have had to come to terms with the fact they are on a more equal footing with up and coming musicians than ever. For example, anyone can post their own original music compositions on a mySpace (<http://www.myspace.com/>) page and can make it available to be purchased. This simultaneously creates a direct link to the audience, and removes the intermediary, the record and distribution companies, from the supply chain altogether.

Storability has also improved with the digitization of music. Whereas in the case of physical media, space within the home would need to be allotted for its storage, whether it was on display in a prominent location such as beside the stereo, or archived out of site once it became outdated. The only limitations to the storage of digital files are restrictions of available memory on your computer, which continues to increase. An important drawback however is the relative

instability of these files. Computer hardware and software is often upgraded, and new systems do not always integrate the conventions of the former. Furthermore, there are no technical standards for music libraries, allowing that information to be imported and exported across library software or operating systems. The risk of data loss on personal computers is always present and large collections of media are no exception.

On the Internet, people are more likely acquire new music just to sample (try before you buy) and MP3s can be easily copied from friends, or sent over email. The low cost of finding and storing music in this way contributes significantly to the growth of an individual's collection, as there is little reason to delete the music once it has been obtained. Respondents within this study have verified that the increased accessibility have led to much larger and more diverse music collections, qualities highly regarded by the group. There is less need to discriminate about what to add to the library as individual tracks, whole albums or entire discographies are added on a whim. The digitization of music has led to larger but less stable music libraries that introduce a series of usability problems given the state of the interfaces that are used to access and manage these collections such as iTunes, Windows Media Player and Winamp (Wired, 2006). With so many choices to acquire new music on the Internet or from within a personal collection, the implications for digital music library affordances must be reconsidered.

This research considers interfaces for music players on personal computers. Although alternate ways to consume music have always been

popular, the personal computer has become central to the act of managing and accessing a personal digital music collection. In looking at the older musical artefacts that persist in people's lives, the author argues that a greater understanding of the dynamics between users and these collections is needed to shed light on the problems facing the designers of the next generation of music listening interfaces. The a priori knowledge regarding the digitization of music has resulted in three main propositions. How music libraries are organized and the personalization methods developed by people to create their music listening experiences.

The first proposition involves the effects of digitization of music. A music collection is a constantly evolving archive of an individual's music history. It is an account of their musical taste, habits and experiences. Digitized music is stripped of all conventional, physical clues as to what it is. It becomes an intangible file on the computer, and is represented much the same as a digital photograph or any other type document, which can be displayed as a list, or stored in a folder. To the detriment of users, these common desktop metaphors, textual representation of songs and sortable lists, have been carried over to music players. Moreover, due to many problems that can occur with digital technologies such as hard drive crashes and software failures, the music collection must be managed separately from the player itself. Important music must be backed up or run the risk of being lost altogether. The rapid changes in technology compounds this problem as computers are upgraded frequently. This means information must be transferred from system to system or discarded. The transfer erases some of the history.

One of the great things about tape collections was how by even simply looking over them they can take a person back to the time that the tapes were used and like a time capsule or photo album the collection itself becomes a significant personal memento. Present day players leave few trails of an individual's music listening habits over time. The affordances that do exist, such as the "recently played" feature in iTunes, are potentially fleeting and easy to lose with computer software and hardware failures or upgrades. The proposition then is for there to be better ways to handle the digital media files themselves, and for some considerations be made for an individual's music listening habits over longer periods of time even so far as to take into account all the music one has listened to in a lifetime.

Proposition 1: There are more effective ways to document digital media. These methods need to track an individual's music listening habits over long periods of time in an aim to create a musical history.

Pertaining to the organization of a music library, strategies for doing so are often employed to make the task of search and retrieval easier. The increased capacities for storing and amassing digital music has led to the growth of collections to the extent that it is no longer possible to view the entire contents at a glance. Instead, various search functions must be performed to locate specific items. Although this is desirable, it does not account for the act of browsing which has also been highly regarded as an activity music enthusiasts wish to engage in (Brown 2001). The default interface affordances in present day music players may present a quandary for users in that the list of music is organized by default.

In terms of the motivations behind organizing habits, it has been discussed in recent archiving studies that people put effort into systematizing a collection because of a fear of loss of information and items the collection contains (Kaye 2006). This fear of loss has also been cited as one of the main reasons people keep their collections of tape cassettes: the fear that they will not be able to find that particular music later. It follows that there may be better means to support the music browsing activity in particular to those that prefer not to organize, with a more organic method of browsing a music library.

Proposition 2: New means to visualize the contents of a library would greatly improve the access and selection tasks that are involved in browsing a music collection.

Finally, the personalization of a music library involves many activities such as seeking out new music, sharing it with friends and customizing the playback of the current collection. Currently there are few if any affordances for sharing. Although some programs allow users of the same network to share their music library with each other, this capability does not extend to the Internet where a majority of an individuals' social network may have access. As well, there are few if any means to customize or personalize particular items in the collection by colour or other means which may be meaningful to users.

Proposition 3: Methods need to be developed to personalize music collections. Personalization can be done through individual activity such as coding, or through a social process such as a network that shares music.

Musical things: becoming digital

The affordances of recorded music are determined by the technology on which the music is encoded; in other words, the format of recorded media and the devices used to play the recordings together, can be seen as an interface to music playback. These devices are used as a means to an end.

“Music technology asks us to take it for granted. The intoxicating magic of sound reproduction springs from the transparency of the mechanical process. Means of delivery fades as the music plays. It's so sleek and efficient that you don't notice the technical marvel on display, by design.”

(Coleman 2003)

However, listening is not all people do with recorded music but rather is the result of a complex interplay that occurs between themselves, the music and their daily lives. One hundred years ago, listening to music was a special privilege for those fortunate enough to be privy to a live performance. The phonograph introduced by Edison in 1877 ushered in a myriad of recording technologies that offered the first opportunities for music to be brought into the home and played back on demand. This was a highly sought after luxury initially, but eventually became common to most households in industrialized countries. Almost as soon as music was able to be recorded, there was an opportunity to sell it which has been the roots of the music industry today. This industry has been able to capitalize on the sale CDs records and tapes, and has leveraged the many social and cultural activities that have evolved as a consequence of recording music. From broadcast radio and top forty singles to LPs and the latest hits on the dance floor, the relationship between people and music has been

influenced by the technologies of music recording and by the means they have been deployed.

As mass reproducible objects, recorded music fits into a larger class of media including photographs, books and documents, and shares with them some common affordances. Observed in this study for instance, tapes were stacked in piles, spread out on a table, floor or desk, and arranged carefully on shelves or in specialized tape storage units. They can be systematically grouped into larger categories such as genres (types of music), or sorted alphabetically. As well, they take up space, an increasingly precious commodity in urban households. Time and energy must be given to keeping them organized and some participants take great pleasure in the attention given to these objects. People's lives are experienced through the many objects they interact with daily. Some objects have a utilitarian value such as tools, while others are kept for reasons that are more personal. In 'The Meaning of Things' (Csikszentmihalyi 1981) the common household items are studied, and a view of what is important to people and why it is illustrated. The book warns of the effects of consumerism on the environment, yet it highlights the emotional relationship between people and their material possessions. Personal collections of media like photographs, musical instruments, stereos and books, were amongst the top ten most prized objects in the home according to the study. Although not mentioned because the study began in 1974 at a time when the tape cassette was just beginning to gain prominence as a source of recorded music, it can be argued that tape cassettes

would be highly valued because music and music making objects such as instruments and stereos were highly regarded amongst participants.

Shelving and other “storage solutions” are a means for people to organize treasured objects in the home, where priority placement is given to the most prized possessions (Gladwell 1998). Early music enthusiasts found that enormous collections of records became problematic to manage and particularly burdensome when they needed to be moved. As media formats became smaller and more portable, the mobility of the collection increased and larger libraries were the result. Even so, there does seem to be a natural threshold for most people as to the size of a collection that can be comfortably stored, and managed. The storage of compact disc racks, old tape cases or milk crates of vinyl records, come at a cost of the time and effort invested in the organizing activity, and the space that is allotted to the objects in the home. A benefit of digital media is that it occupies far less physical space beyond the computer itself, but this ends up being a drawback. In addition, the persistence of the collection over time is less likely, and a history of one's musical tastes more difficult to track. Brown et al (2001) elaborate on the importance of tangibility of physical media.

“Files on a computer do not have a persistent physical presence which can be arranged to create an aesthetically pleasing display. Browsing through these on-line collections is also very different from browsing through physical collections with their accompanying artwork and sleevenotes.”

The introduction of cassettes offered a means of reducing the physical size of a music collection while increasing the variety of content thus creating a

more manageable and customized library. Physically they were less cumbersome, but more importantly they offered the means to record whole albums or specific songs from third party sources such as the radio or a friends' collection, thereby avoiding the expenditure of purchasing an entire LP. These personalized recordings became a big hit for a generation of tape users who claim today that the experience is not the same with today's digital tools.

“...i think they have soul, that cd or mp3 doesnt have. also when using cassettes for mixes.. it has more warmth, and depth, knowing how painstakingly it was done, cued, recorded etc.”

(Appendix 2 response 10)

Physical formats such as vinyl records, tapes and CD's have historically been the way popular music has been accessed, but these are giving way to digital music formats, managed through a central device, the personal computer. Digitized music becomes free from the constraints of the physical, at the same time becoming subject to a completely new set of boundaries and restrictions. As music recording technologies evolve, people transition their music archives from one technology to the next and in so doing, continually revise their music library by choosing which albums, artist or songs to acquire in the latest format, and when to adopt the new format altogether.

Today, music is more accessible and portable than ever. Music players like the iPod make it possible to carry an entire music collection around in one small convenient device, which for some has supplanted the need for maintaining a physical collection of music at all. For many however, this capacity for storage exceeds the immediate demand. People can only listen to one song at a time

and only a limited amount of time can be dedicated to music listening overall.

This means a new challenge is faced by the listener: what should I listen to right now? A popular playback feature called 'shuffle' - the random playing of songs from a digital library or play list has emerged as a partial solution to this problem. Shuffle removes the burdensome act of choosing for the listener, which when faced with thirteen gigabytes or more than twenty four hundred songs to select from (a relatively modest library these days), becomes critical for some to manage music listening. This alone fails to satisfy all the possible ways people want to listen to their increasingly diverse music collections and brings with it the drawback of creating unpredictable juxtapositions that can cause people to use the 'skip' button more frequently. Even so, the amount of music in personal libraries continues to rise and as it does, the tools, interfaces and devices must evolve so we can more easily manage and navigate these collections. It is becoming more common for music enthusiasts to amass significantly large libraries, in the area of thousands of files.

"Mike Calore, one of our editors, pitching a story about new software designed to help aficionados store their vast troves of music, collections so enormous that, without help, the iTunes library would collapse under the sheer volume.

"Nine thousand songs?" I interjected incredulously. "Who the hell has 9,000 songs?"

Mike shot me a withering look. "Ninety-thousand songs. I said 90,000 songs. And, I do."

(Wired Oct, 26, 2006)

The Wired article touches on the issue of software needs to handle the increased volume of music in some music libraries that is beyond the capabilities of iTunes. A threshold may have been reached in popular music libraries of this type, and if iTunes cannot handle the amount of information it has to present, there is a good chance that the capabilities of the interface are lacking as well.

Whereas with physical formats, the transition to new technologies are relatively straight forward, in the case with digital media it becomes more complex due to the many variants that exist in digital recording and distribution, not the least of which is the compression algorithm used to encode the music. One of the most common formats at the present time is the MP3, or MPEG-1 Audio Layer 3. The MP3 is known as a 'lossy' compression format, that although it greatly reduces the amount of information needed to store the file it does reduce the quality of the original recording. The loss in sound quality is a problem for some music enthusiasts, but in general is a faithful enough reproduction to be useful to most listeners. In the case of iTunes, music is sold in the AAC (Advanced Audio Compression) format which is incompatible with certain systems and subject to Apples Digital Rights Management (DRM) regulations. These regulations greatly restrict the musical uses of the song.



Figure 1.1 iTunes Music Library Interface

Within this study group, iTunes, is currently the most popular music player in use. There are many features and interface elements in iTunes that are similar to both Windows Media Player and Winamp. Using such players, people are expected to “Rip, mix and burn”, play, organize and otherwise maintain their music collection. The players are central to all digital music experiences create MP3s from CDs, move music to and from portable music devices and to a limited extent subscribe to Internet radio. The layout of these players divides the program window into separate 'panes' for the display and control of their various features. Besides the playback of songs, they also include components for sorting your collection of music (the library), subscribing to online radio stations, creating and saving play lists and, to a limited extent, providing additional information about the music such as album art. Most common amongst the different players is the library component, which displays the contents as a series

of sortable lists in the large centre pane of the player. Due to the fact that the differences between players are subtle, and that iTunes is substantially more popular, it will be the focus of design heuristics and guidelines put forth in this thesis.

Digital format media changes the way we organize and personalize our music collections and in so doing transforms the way music is played back. In this section the issues of digitization have been discussed particularly those that pertain to the presentation of digital audio files. Users see little, if any, distinction between the various media types as most data is represented in the form of files stored in folders. In present day music players these conventions continue to be the primary means by which a collection is seen and manipulated. Although digital music listening is greatly expanding the amount of music available to people at any time, it comes at a cost of tangibility and the enduring quality of physical things. Different types of encoded digital audio files such as MP3 or AAC must be managed separately from the music player itself and are likely to have many variables in sound quality inconsistent with each other. Present day players leave few trails of an individual's music listening habits over time. The affordances that do exist to support the history, such as the "recently played" feature in iTunes, are potentially fleeting and easy to lose with computer software and hardware failures.

Issues with organizing a music library

The decision to organize or not, must be made whenever things are gathered or, kept and stored in significant quantities as is often the case with

recorded music. As the quantity of things becomes greater, more time is needed to sort and arrange them, and the longer it takes to locate specific items in the set. In some cases, people delight in this activity and develop their own meaningful systems for optimizing these tasks, for others, it is a tedious and boring activity:

“some people organize meticulously, and others just throw things wherever they can fit them or wherever is convenient at the time.”
(Bentley 2006)

For those who engage in organizing activities as the basis of their daily work such as librarians or web designers, the development of tools and systems are required to assist the process. Avid collectors can take organizing to extremes by investing significant amounts of time documenting, cataloguing, indexing or otherwise representing their collections. These reference materials serve as a means to survey the collection in a more efficient manner, thus managing it for completeness or quality, the hallmarks of a well-organized collection. As has been seen in previous work, people have a range of strategies and motivations when it comes to their organizing personal archives of photos and music.

“...we found evidence that people use their own personal categorization scheme for the music in their collections, identifying certain music with events, such as “wedding songs” or emotions such as “sad,” but we also saw that they had identifiers for their music that were theme-based, such as “I hate men” or “feel good.”
(Bentley 2006)

This study suggests that these strategies have more to do with personal and emotional factors than they do technical or those derived from the constraints of the media itself.

Things can be 'filed' or 'piled' (Malone 1983) as two very different organizing strategies for files in an office environment. Because of the similar affordances with recordable media, we can discuss these as strategies for organizing musical artefacts as well. Just as some individuals choose to organize their collections of things in a systematic way, for others the task daunting. Four reasons cited in this study that cause the formation of piles of documents are:

“(1) The mechanical difficulty of creating labelled file folders, binders, etc - especially if multiple levels of classification are desired.

(2) The cognitive difficulty of creating appropriate categories and deciding how to classify information in a way that will be easily retrievable.

(3) The desire to be reminded of tasks to be done,

(4) The desire to have frequently used information easily accessible.” (Malone 1983)

The motives behind organization habits are varied but when done, may have aspects of archiving or collecting or both. An archive refers to an accumulation of documents with an intentional means to indicate the location of those documents, such as the alphabetical tabs in a filing cabinet or a folder structure used on a personal computer (Malone 1983). Archiving is of interest to the Human Computer Interaction (HCI) research community because it is a task frequently done on computers. In HCI, the topic of archiving has received

substantial attention in both the physical and digital realms. A paper presented at the Computer and Human Interaction (CHI) conference, describes an ethnographic approach that explores the question, why do people archive? (Kaye, Vertesi et al 2006) The study documents the archiving habits of forty-eight academics at Cornell University. It states that although information retrieval or “finding it later” was one of the core motivations behind participants attending to this information, it was not the only one. A spectrum of user behaviour is accounted for including: 1. Identity building, 2. Legacy building, 3. Resource sharing, and 4. Fear of loss. Although the academic documents archived in this study are quite different from recorded music, some similarities may occur due to the similar physical affordances.

People archive things for others including themselves, but collect things for more personal reasons. The motivations for collecting vary more so than archiving, and are less predictable. The most benign object can become the focus of a collector’s attention. For the avid collector of music, completeness of a discography, or rare musical artefacts such as limited edition recordings become the most prized of possessions. People with large collections develop strategies for organizing musical things to retrieve items when needed. An organized music library can improve the ability to locate specific items within it, but browsing the contents without a specific outcome in mind is also a frequently recognized activity, particularly when shopping for new music. (Cunningham, Reeves 2004)

A similar finding, in studies conducted in the homes of music enthusiasts, found that the management of a physical collection supports the activity of browsing.

“Generally people had their collection stored a short distance from their main hi-fi, with a smaller pile close by. This small pile contained either new CDs, or ones they had recently played. While this simple form of pile management helped to restrict the search space when changing the CD participants also complained that it also presented an effort barrier to listening to music from the main collection.” (Brown 2006)

When people want to choose music from their music digital library, doing so from a copious number of MP3's can be a daunting task. You cannot see all the items in the collection at a glance, there are no visual cues to assist the decision making process and you may not be able to remember the contents of your library. Libraries of a more than one hundred tapes considered large in their time, but due to a combination of the manageable size and the immediacy of their presence, choosing was a relatively straightforward task. The entire library would be in visible and the possibility existed to use visual and spatial cues, and other real world affordances when seeking, for remembering 'where you put it last.'

“Back in the days when music was stored exclusively on vinyl, tape or compact discs, finding the song or album you wanted was a snap because the music was tied to a tangible medium that was clearly marked.” (Wired – 11/28/2005)

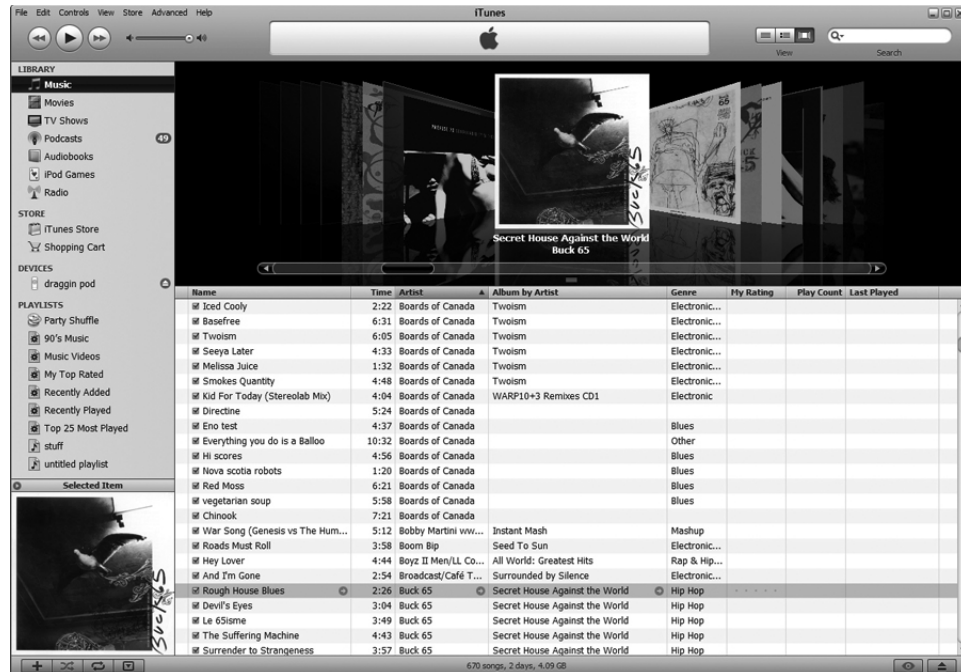


Figure 1.2 iTunes "Coverflow" view

In an effort to add visual cues, the most recent iTunes user interface has introduced a new feature called “cover flow” which renders the cover art in a collection, as an element in the library view. A person must have an iTunes account, which includes providing a detailed profile and credit card, to have these images automatically added. This convention is an example that will improve browsing a music collection.

Interfaces for listening to music on a computer seem capable of handling the increased volume of music in an average user’s collection to some extent, but they are prone to unexpected usability issues. For example, the system can add genres of a song that do not match the user’s mental model of how an album artist or song should be labelled (Vaida 2005). Browsing the collection in digital libraries becomes a matter of manipulating interface elements: clicking on sliders,

typing in search terms, and manipulating sortable lists to navigate the contents in its entirety. Although this works for directed search activity, where the individual knows what they are looking for, browsing the collection without a specific objective is less satisfying and effective. Issues of storage and retrieval may seem to be solved now that you can carry around your entire collection in a device the size of deck of cards, but as the collections size continues to increase, improved interfaces to organize music libraries are needed.

The interfaces also need to address the two types of organizing systems; “pilers’ and filers” (Malone 1983). Some people are avid organizers of their music collections others are not. The decision not to systematize a music library is an organizational strategy in itself, and has its own set of advantages and benefits. The individuals whom use this strategy are referred to here as “pilers” (Malone 1983). People who use methods of filing systematically are referred to as “filers” (Malone 1983). For both types, search and retrieval are important issues. Similar to many digital systems, the default iTunes music library does provide for a number of ways to easily and quickly locate specific items in the collection. Sortable lists and smart search capabilities are two examples. However, these conventions are less successful when it comes to browsing all of the items. Strategies for organizing are often employed to make the task of search and retrieval easier.

This section of the paper has explained issues involved in organizing a music library. The default interface affordances in present day music players may present a quandary for users in that the list of music is by default organized in

some way. In terms of the motivations behind organizing habits, the fear of loss of information and items it contains is a main motivation that people have for putting effort into systematizing a collection. This 'fear of loss' is cited as one of the main reasons people keep their collections of tape cassettes, for the fear that they will not be able to find that particular music later. Ultimately, the list has become the ubiquitous interface element for reviewing and accessing one's personal digital resources. Tracks presented in sortable lists by title, song or artists are virtually indistinguishable from one another unless the user actually reads that information. There are no affordances for the use of colour or other visual techniques to customize the presentation of items the library such as the songs or play lists. Further, as the size of music collections have grown and the ability to represent them in their entirety is not possible, the act of choosing what to listen to becomes more difficult. Although some features such as shuffle play have provided an initial means to overcome these difficulties, this author proposes that better visualizations that provide people with a more organic method of browsing a music library would greatly benefit users and create better music listening experiences.

Issues with personalizing a music library

As a person's tastes change over time, they engage in a continual process of keeping their music library up to date based on their own listening habits. Obtaining new music can be done based on a number of sources, including recommendations from friends, reviews from another media source, or through new trends and popular songs, being advertised on public radio or television

broadcasts. Music is also an important part of people's lives for the many social functions it compliments. Brown (2001) describes the significance of the physicality of music as it can be "linked with social interactions", such as gift giving. Many of the activities surrounding personalizing a music collection relate to discovering new music, but sometimes it is preferable to relinquish that responsibility to others such as broadcast radio, club DJ's, or technology as in the case of shuffle play.

Selecting, collecting and display, forming friendships and community are also important activities cited by Brown and Sellen in their interviews of active music enthusiasts (Brown 2006). These activities are shared expressions that people demonstrate while engaging with their musical libraries, regardless of the format. Music is often recommended to others as a means of making connections with another person or peer group, given as a token of affection, used to create a mood for an event or mood, but interfaces for conducting these activities on the computer are not intuitive.

Listening to music was listed as the fourth potential benefit on Edison's' list of intended uses for his phonograph which was always intended to be both a playback and recording device. The most important use he intended for the technology was as a tool for stenographers to support dictation in the office environment (Garofalo 1999). As music was often used as a means to demonstrate the phonograph, it was soon realized that this was the most compelling feature to the public. The phonograph brought music into the home, and along with radio, dominated the first half century in the history of recorded

music. Tape cassettes, and the playback devices that accommodated them such as the tape deck and the Sony Walkman, freed music from the home and allowed people to listen to music anywhere, any time. The Compact Disc's (CD's) contribution to music listening was an enhancement to the quality and reliability of sound reproduction.

The flexibility of the cassette as a medium of self-expression gave people the first means to customize and share their music listening experiences. This included the ability to record a sequence of tracks from a variety of sources including other tapes, vinyl records, and ambient broadcasts such as the radio or even one's own voice and audio from the environment. This unprecedented ability to create personal music mixes from a variety of sources enhanced the personalization of the music library significantly. It is worth noting that compact disc technology did not take off significantly until the ability to record on the disc was well established and widely available. The music library in the days of the cassette became an assortment of purchased, pre-recorded tapes, whole albums that had been copied, on blank tapes of various sizes (albums did not fit well on any of them), or mixtapes which were a group of specifically chosen songs sequenced and often embellished with personal labels or cover art.

Copying music is a subset of recording, technically re-recording copying is done for a variety of reasons. As noted by Brown and Sellen in their studies, copying is very much a social activity.

“For the teenagers we interviewed, a common social activity would be to visit friends' homes and play video games or relax together. In these settings, music would nearly always be played, providing

both a way of moderating the mood of the group, as well as a forum for finding out about new music.”

Music can be used as a means to communicate experiences and reminisce past events (Bentley 2006). Mixtapes are well suited to this use as the listener can create a list of the exact songs associated with an event. The music can then be played back so that friends can share the event. These social, music listening environments promoted the exchange of information and taste about new music. Friends acted as filters for one another and built trust relationships in the act of recommending music. This practice continues today with the format of the compact disc (CDs) that can be used for a similar purpose and include a few additional benefits. Any music currently on CD can be ‘ripped’, or converted to a digital MP3 file, then imported into the music player library. From there, the songs can be easily arranged into playlists, which can then be ‘burned’ back to a blank CD and shared accordingly. This duplicates the traditional act of making a mixtape, while overcoming the limitations of analogue technology.

“MP3s now allow me to create a "mixed tape" with greater ease because they aren't made in real time. You don't have to rifle through your collection, and you don't have to take them out of their boxes and then put them back where they belong!” (Appendix 2 response 37)

At the present time there are few affordances for sharing digital libraries or existing playlists that have been saved, with the notable exception the ability of iTunes to share music over a local area network (Volda 2005). Although this allows users of the same network to share their music library with each other, this capability does not extend to the Internet for example where a majority of an

individuals social network may have access. As well, old formats must be updated when improved technologies become available so that the music listener can continue sharing music on an equal basis with their peers.

Project outline

Like a time capsule or old photo album, a tape collection will take its 'user' back to the era in their lives in which it played a central role. In “Observing Cassette Culture”, a study on the specifics of how people organize, and personalize their tapes is undertaken and documented. Issues surrounding the methods of organizing media and the habits of personalizing music listening experiences are examined. The thesis explores the context and history of listening to recorded music from the tape cassette to the MP3 and through the propositions that have been outlined in this chapter.

As digital music formats become more ubiquitous, music listening is dramatically affected in ways that are just now becoming apparent. The personal computer has become the central device for managing a personal music library, yet the interfaces for interacting with that collection remain limited to the typical ones you would expect from any other file or electronic document. Music players that are popular on the personal computer support a minimum of affordances for choosing play lists out of a growing collection of MP3's. In addition, the players restrict greatly the mobility of music from your computer to another computer, device or person.

Related studies done on the issue of recorded music include a multi-disciplinary range of research. Some of the most important to this thesis is the work being done in the areas of Human Computer Interaction and Computer supported Collaborative Work. Recent endeavours in these areas have explored the personal music library to a limited extent and music listening technologies that may be able to improve the user's overall experience.

CHAPTER 2: RELATED RESEARCH

This chapter reviews academic works that have been done on the topic of digital music libraries with special emphasis on those that have employed ethnography as part of their methods. Much of this work has been done in Media Studies, Computer Supported Collaborative Work (CSCW) and Interaction Design. Papers in the above fields have each noted a gap in the information available on the specifics of how people use the material objects on which music is encoded, and how it can be distributed, stored and shared. As well, there is a lack of research regarding the everyday activities that people choose music to be associated with. The social aspects involved with music listening and the wider range of activities pertaining to the personalization of the music library such as organizing, or collecting are largely overlooked. What follows is a short summary of the relevant works pertaining to cassette culture, music libraries, and the critical research covered in the core areas mentioned above.

Research on cassette culture

There has been little research done specifically on the medium of compact cassettes. The few published works in this area focus on the cassette tape from a broad range of perspectives: from its influence on the underground hip hop music scene, to the cultural impact of the cassette economy in Northern India. In both cases, the commonality was that the technology was that it was easy to use

allowing for rapid dissemination and empowered media producers at the grassroots level.

Harrison's article, "Cheaper than a CD, plus we really mean it': Bay Area underground hip hop tapes as sub cultural artefacts" (Harrison 2006) recounts the activities of its author over a five year period accumulating, listening and producing cassettes of hip hop music. Using participant observation to document these interactions, the goal was to account for the popular continued use of cassette tapes within this particular community. Harrison argues "... that despite, and in fact owing to, their unique and antiquated technology, cassettes endure within particular sub cultural enclaves as a practical and symbolic barrier to cultural industry appropriation." The fact that the motivation for these tape enthusiasts is to continue to use cassettes as a "barrier to mainstream co-optation" is of particular interest. This observation points to the personalization affordances brought about by this particular analogue medium. The fact that it is disconnected from the network and from the mass production capabilities of digitization, imbues the cassette user with a distinct identity allowing for freedom of expression and convention. The ability to distribute music in an unregulated and 'sub' culturally elite manner goes against any convention that might be deliberately designed into a digital music library interface, yet broadens the understanding of the implications of cassette technology on these systems.

The idea of the cassette as a means to creating identity can be seen in India, where the technology produced impacted local economies. In the 1993 series from the Chicago Studies in Ethnomusicology, *Cassette Culture* by Peter

Manuel discusses how the advent of cassette technology in the 1980s transformed India's popular music industry by bringing production capabilities to a widespread market. The quantity, quality, and variety of Indian popular music exploded in production and its patterns of dissemination and consumption were radically altered. The new problems brought about by this change included regional and political factionalism where society's worst were able to use the cassette to spread their message and influence the culture.

Finally, the physical nature of cassettes also plays a part in culture. "Mixtapes and the Art of Cassette Culture", edited by Thurston Moore of the art rock band Sonic Youth, shows a collection of peoples' mixtapes accompanied by narratives of the contributors. People submitted photographs of their tapes to the editor for inclusion in the book which printed the artwork used for the cover in full page scale, and the list of songs the tape contained. The narratives included describe the history of the cassette and meaning it for the owner which are descriptive accounts of the early days of cassette culture. This is a rich source of historical information of how a specific and obsolete technology affected people and how they used it to construct social experiences. Although not a scientific study, from an ethnographer's perspective this study is robust documentation about how cassettes were manipulated and decorated as part of a more elaborate gift giving ceremony.

The three studies are some of the only academic works devoted strictly to cassette technology and its influence on culture and society. Although they neither inform the design of digital music libraries or systems for organizing a

personal archive of music, one can see the impact a recording technology can have on communities once the usage becomes ubiquitous.

Research in music libraries

There has been some interest in research informing designers about how people manage their digital music libraries. Because of the rapid growth of digital music, people find themselves with much larger collections of music, and less meaningful ways to handle it other than the traditional, search and play interaction that all recorded music shares. Several recent papers have proposed new ways to approach the problems associated with digital music listening experiences. People centred inquiry is an important aspect for examining browsing behaviour. Two studies that focus specifically on observing users' behaviours are Cunningham (2005) and Bentley (2006).

“An Ethnographic Study of Music Information Seeking: Implications for the Design of a Music Digital Library” focussed on observing activities such as, how people navigate recorded music artefacts in their 'native' setting. This can provide insight for the affordances that may be necessary in “music information retrieval” (MIR) systems. In this study, participants are observed in places still commonly used to find music such as public libraries and music stores. The act of browsing is observed to be an important and intuitive activity for music search. Also, the distinction is made between browsing and directed search activities for known items. The 'Journal Run' strategy is another MIR behaviour that was observed where people “are systematically working through a particular group of CD's in order to identify material of interest, much as researchers engaged in

literature research may examine a series of issues in hopes of locating one useful research article.” Known organizational systems like specific areas in the store for genres of music and alphabetical arrangement of CD's within those structures, benefits both searching and browsing. The physical affordances of the artefacts such as clearly displayed spine labels or covers were also noted as being of great benefit to individuals being able to locate and identify specific music. The study concludes by claiming that the results of studying peoples' “information seeking” behaviour in places like public libraries and music stores, has implications for the design of digital music libraries.

The second paper reports on two separate studies on photo and music use. “Personal vs. Commercial Content: The Similarities Between Consumer Use of Photos and Music” (Bentley 2006) uses ethnographic techniques such as semi structured interviews, object descriptions, and direct examinations of collections and their organization and storage methods. The researchers studied participants primarily in their own homes and with their own media. Several interesting observations are noted such as the tendency for people to be looking for a certain kind of music when browsing, as opposed to one specific item:

“In one example, a participant was looking for alternative rock among her cable TV Music channels, but when she came across a song she thought was OK on a different channel she left it at that station”. (Bentley 2006)

This behaviour is described as “satisficing” which the authors used to describe any method “that only attempts to find an alternative that is “good enough”, without regard for whether it is the best possible.” Another characteristic

behaviour that was observed in the study of photo use and was mirrored in the music results, was the tendency for people to share stories by seeing a particular photo or hearing a specific song. This was expected as a natural reaction to using photos, but researchers did not expect such event based story telling to occur during music listening: "Often, music embodied strong personal links not just to times or events, but also to other people in their lives." (Bentley 2006)

In terms of organization, the photo and music study mentions the fact that both photos and music libraries ultimately end up being archived when items in them are rarely revisited. While "favourite" music is found nearby, the remaining items stored under the bed, in shoeboxes or on shelves out of the way. This reveals the user's need to manage their collections for optimizing their use.

These two studies relate to this thesis in terms of the methodology and end goals. By using an ethnographic approach to observe how people interact with recorded music artefact's such as CDs, the authors draw conclusions to inform the design of music information retrieval systems that are commonly found in present day music players on the personal computer.

Research in the design of information technology

Another source of research in this field is, "Consuming Music Together: Social and Collaborative Aspects of Music Consumption Technologies". In this collection, authors such as Brown, O'Hara, Sellen, Volda, De Nora, Tanaka are among the leading edge contributors researching the affects of technology on music listening and vice versa. The volume from the 'Computer Supported

Collaborative Work' (CSCW) field, aims to go, "beyond reporting on current social practices of music consumption to explore what new technologies can be built and the potential new social and collaborative possibilities these may bring" (Brown 2006). The discussion of the two following papers is relevant, in that they both situate the user at the centre of the research activity and focus on results from garnered from the experiences and statements of the participants.

Brown et al, have observed the activities surrounding music media as a means to gain insight into the specifics of user behaviour towards digital music, and the implications for its use on future technologies. Some of the important questions asked in their study include the "mundane details" around music listening such as; where is music listening done? With whom? How is music acquired and how do people choose one media format over another? (Brown 2001). In this work, a group of "music enthusiasts" were surveyed and interviewed for wide range of behaviours and habits regarding their use of music technology, which the researchers fit into six distinct categories of activity; "finding out about music, copying and compiling music, buying music, listening to music, choosing and organising music, and collecting music." Of particular relevance to the current thesis was the heading of "choosing and organizing music", as it so closely relates to the intent of the second proposition, on browsing a music collection on a visual basis. In this study, it was found that many of the participants would use some form of informal organization method, whether they considered it such or not. This was often in the form of a pile of recorded music kept close by the main stereo in the home, where recently

purchased or listened to music was kept. The paper concludes with the result that physical and digital formats of music will continue to co-exist for sometime, and calling for the removal of barriers to copying and sharing music that will have the potential to facilitate the economic growth of the music industry.

Voidas' seminal work on sharing music with iTunes, called "Social Practices Around iTunes", has contributed greatly to the understanding of how people can use a music library as a form of identity creation and management. The study, conducted as a series of interviews with workers of one corporation, describes the daily activities of sharing and music listening in the workplace environment. The researchers examine a native functionality of the iTunes music jukebox that allows each individual to share aspects of their personal library such as playlists or favourites with others on the same local area network. As this activity is in direct control of the user, it applies to the current works third proposition on personalizing and sharing the contents of a music library. Voida cites the cultural practice of making mixtapes as being central to the desire for managing a shared collection of music,

"For example, dating has long been facilitated by the ever-popular romantic mixtape – a carefully crafted collection of songs given to a person as a sign of an existing or desired relationship." (Voida 2006)

As is confirmed in the findings here, people continue to practice the making of mixes and sharing them to communicate aspects of themselves or their feelings to others.

The works discussed above show that although the study of music technology has been somewhat overlooked by researchers, by observing the human aspects of how music is used via the technologies that are readily available, opportunities for improving the design and directing the creation of new technologies exist. Although the pique of cassette culture has passed, with the activity now largely remaining in the underground music scene, this medium is not as obsolete as some may believe. As the trend towards digital technologies continues to grow, researchers and designers will need to examine more closely the ways in which people interact with each other using music, and how the raw materials of music encoding in both digital and physical formats affect this behaviour.

CHAPTER 3: THE STUDY: DESCRIPTION AND METHODS

The research activity described in this thesis was a six-month online study centred around cassette culture on the Internet. This chapter covers the processes and methodology of the project and begins with a discussion of ethnography, its history as a research method and the potential advantages for future researchers that would be interested in exploring online studies involving human behaviour. Data gathering, analysis, and relevant research methods in this field are discussed, including traditional ethnographic practices, and conducting ethnography as part of the design process.

The author noticed that several instances of cassette culture published on the Internet for a few years prior to the start of the study. As the era of the compact cassette had long passed and tapes were considered sentimental and nostalgic, this resurgence of interest was examined and documented. These included a news story published on the BBC website that covered the first downward trend in worldwide cassette sales (BBC 2005), and several fan sites dedicated to the cassette. It was also discovered that several artists had been using old tapes as a medium in their work such as the “Found Tape: An evolving exhibition of cast away sounds”, from Harshmedia (<http://www.harsmedia.com/Chronson/FT/>). There old tapes are recovered and digitized, their contents posted for public display online. While exploring the

photo-sharing website Flickr (<http://www.flickr.com/>), many examples were found by individuals that had retained their taped music collections and were posting images of them to the site.

Flickr, a popular online community, and del.icio.us (<http://del.icio.us/>), a site dedicated to sharing bookmarks have both been employed as research tools for this study. These sophisticated new websites, loosely termed “Social Software”, have a rich potential for online ethnographic research . The features of these sites are outlined and the ways people can express themselves, form communities and share information on them is described. In terms of an ethnographic process, the Flickr site can be thought of as the 'field', where this researcher participated in the culture of activities, and sought out participants by means of the images the participants posted of cassette tapes. Del.icio.us, was used to catalogue these pictures, by storing the web address of each image, along with additional information about the image including user generated data, and a detailed taxonomy generated by the researcher.

The following section deals with the specifics of data collection, and how an online presence was established by the author during the course of the project to build a trust relationship with existing and potential participants. The blog, or “web journal” was set up on blogger.com. (Toal, 2006) to provide an ongoing commentary about the research progress. The blog chronicled interesting images of cassette culture, provided contact information, instruction and updates. As the study was conducted, the blog, various communications tools on the Flickr website like comments, and email were used to interact with

the community, locate participants and illicit their participation. A survey was the final stage of data collection. Respondents were queried about the specifics of their associations with cassette tapes and details regarding their current music listening habits.

Online social research and ethnography

Ethnographic research aims to describe human social phenomena through a variety of qualitative and quantitative methods, and includes an analysis of data gathered from the field. It is a holistic research method based on the principle that a system's properties are interdependent and the role of the researcher must be situated at the centre of the activity under study. The principle research method for cultural and social anthropology, ethnography can also be seen in use in communications, media studies, design and has been employed specifically in the study of digital music libraries.

One such study aimed to improve the design of digital music libraries by looking at the “searching and browsing techniques in a native environment”, such as a music store or public library (Cunningham 2003). These researchers, employed ethnographic methods including focus groups, semi-structured interviews, and participant observations from these public environments to build an argument that the insights they gleaned could inform the development of searching and browsing support for digital music libraries. The 'field' in this case was the point at which music was acquired, either the music store or the library. The activity observed was referred to as “shopping”. The information seeking or “shopping” behaviour of the participants informed the researchers of what actions

people took when browsing for music options, as opposed to 'why' or 'how' the shoppers chose what they did. To add further detail, some participants were followed in their music seeking behaviour using a 'think aloud' technique and follow up interviews explored user behaviour using the Internet. The observational techniques used to document user behaviour showed that much could be learned from the interactions people have with recorded music in its natural setting. Although many of the participants in the group also used the Internet to obtain music, an understanding that these distinct methods for music consumption are interrelated and that each informed the other was significant.

A study directed at the culture of cassette tapes in the underground Hip Hop scene utilized an ethnographic study over a five-year period to examine the factors of a locally produced music scene (Harrison 2006). Participants were observed within the community, hundreds of cassette recordings were accumulated and assessed, and the researchers' own participation in the creation of these cultural artefacts was undertaken. As an anthropologist conducting participation-based research, Harrison claims that, "As a research method, participant observation serves as a gateway into the subjective experience of culture". The argument concludes:

"Despite, and in fact owing to, their unique and antiquated technology, cassettes endure within a particular sub cultural enclave as a practical and symbolic barrier to cultural industry appropriation." (Harrison 2006, pg 285)

The study accounts for how cassette tapes continue to be used in a sub cultural context. It claims that the medium by which music is encoded and

distributed could add value to the formation of an identity that is “underground”, or set apart from the mainstream music market. These two examples of ethnographic research informed the current work by focusing on the activities of people in relation to the cultural artefacts they used to consume and create music.

Ethnography online has been of interest to researchers since the earliest days of the Internet and has historically been focused on Internet based communication tools such as discussion forums, email instant messaging and the like. Primarily these have been text based communications tools, reflecting the history of discourse on the Internet to date.

“Internet research is “not only concerned with the study of online behaviour...it is also concerned with using computer-based tools and computer accessible populations to study human behaviour in general” (Mann 2000).

There are similarities between traditional ethnographic methods and the online practice. Most importantly is that the researcher be seen as part of the community in question, participating with the community on its own terms, and learning the culture from their point of view. This was the motivation for this researcher to establish a strong web presence both within the Flickr community and externally on the research weblog. One of the benefits of activities conducted online is the creation of a record of traceable events. These can be postings to discussion areas, emails threads or web page traffic that have a specific times associated with them and detailed information about the sender and receiver of the message. Online communication environments are also

conducive to visualization treatments as can be seen by the many works at the Social Computing Lab at MIT. Pioneering work from the MIT lab explored visualization of discussion fora and email usage (Donath 2004). Current research on Friendster, MySpace, and other “publicly articulated networks” (Boyd 2004, 2006), continues to utilize ethnographic techniques to understand the dynamics involved within these communities and how the networks are being used.

There is a degree of cohesiveness about groups of people online, as like-minded people tend to gravitate towards the same websites. They participate because of their common values or interests and community members expect the involvement of the researchers in this environment to be genuine. In a volume that gathers, several notable scholars doing research on the Internet, a diverse collection of online studies is documented (Chen 2003). In Part 1, a section on the methods of online social research, a study using a newsgroup and a listserv both used by a particular community of interest. Sometimes members of these sites become wary of outsiders, as was seen in this study where thought the researcher had over stepped their bounds (LeBesco 2004). Another advantage is the ability to access a much larger and more diverse participant group than could be conducted in any more traditional ethnographic study.

Critical Ethnographers attempt to bring scientific rigor to the process of qualitative interpretation of their results and examine these methods as tools for analyzing culture itself. One researcher in this area, Kathleen LeBasco in her chapter on “Managing visibility, Intimacy and Focus in Online Critical

Ethnography” describes some of the dilemmas that the critical ethnographers come across when researching online environments. These are: to navigate issues of researcher visibility; how to handle transitions from the group environment to individual interviews; how to deal with the exponential data that can often accumulate; and how to “reinvent the ethnographic notion with one's research subjects, to make room for the asynchronous, virtual communication.”

Undertaking ethnographic methods in design is an opportunity for discovery and an early part of a larger participatory design process. These methods have been helpful for designers in HCI, by revealing,

“... broader understandings of the social organization of settings of technology use” (Dourish 2006).

By observing people in their natural environments, designers obtain a sense of how people live, and how they interact with things in order to produce better products to serve the consumers needs. This method is sometimes difficult to justify in corporate settings due to the high cost of such studies, and the relative difficulty in producing a ‘deliverable’. By using more compressed timeframes and a wider range of tools such as interviews, photography and archival research, designers have developed their own approach to ethnography (Salvador 1999). Each study is a unique process of discovery and the researcher must combine the goals of the design problem with the culture in which they are situating themselves. It is perhaps in the area of the interaction design education that ethnography has the best chance to thrive. Ethnographic methods as part of

interaction design research, have benefited the study of visitors to museums and the types of technology they may wish to use (Wakkary 2005).

In this research, ethnography has played a key role in the form of data collected and the means by which it was analysed. By combining methods from various disciplines including ethnography online and as part of the design process, the author has captured a unique body of information. What follows are the specifics of the online environment in which the research took place and the means by which it was analysed.

The role for social software: Flickr and Del.icio.us

Were this study conducted in a traditional fieldwork setting, it might have involved going into the homes of people, getting them to show where and how their tapes were stored. Discussions could be documented about the participants' motivations for keeping their tapes, significant examples could be pulled out and photographed and a rich history of media usage could be revealed in a similar way that was done with the study on photo and music collections (Bentley et al 2006). During the course of this project, the author did this informally, and found a terrific response to the topic and general enthusiasm from those that were approached. To pursue an online ethnographic method, a means to have similar interactions with participants was needed, one that would allow for images to be volunteered by participants and still give the researcher an opportunity to engage in an extended dialog with them.

The majority of data for the current study has been gathered and analyzed using tools referred to as “social software” (Tepper 2003, Kennedy 2004). There has been little work done using these tools explicitly as a research environment, although some of these sites have undergone substantial attention themselves (Boyd 2004). Collectively, these sites represent a growing trend in website interaction where the storage of information online is shared amongst members of the community, and used to build relationships. While many online tools have always had social applications such as email and discussion forums, this new kind of public online representation is emerging as the dominant form of online interactions where the “one to one” is being replaced by the “one to many.” A central concept in social software is the idea of a public identity, typically manifest as the 'user profile,' which is used to represent the individual in the virtual space. Boyd's work on publicly articulated Social Networking explores ethnographic methods to understand the workings of some of these social software websites, specifically Friendster. The studies include the personal exploration of the site and active involvement within the community, tracking media and online discussions, focus groups, interviews and surveys of over two hundred users. Boyd has had access to one third of the available profiles on Friendster and has analyzed thousands of profiles and queried visible data. The goals of these methods are to.

1. “understand how people negotiate context when presenting themselves,
2. examine how the network structure of a meme spreads and connects people;

3. determine the issues involved in articulating ones social network as compared to a behaviour-driven network.” (Boyd 2004).

Boyd’s research method provides an understanding of the wealth of cultural interactions occurring on the Internet. As the use of the Internet becomes more widespread, the opportunities to observe human behaviour is expanding greatly and more work is needed to find effective ways to negotiate these interactions.

Drawing on the methods described above, this study attempts to take advantage of the loose affiliation that was formed amongst people who had posted images of their tape collections. This study has used these connections to form a participant group that is representative of the current culture surrounding cassette tapes.

Research environment: working within Flickr

The screenshot shows the Flickr homepage with the following elements:

- Header:** Flickr logo, navigation links (Home, You, Organize, Contacts, Groups, Explore), a search bar, and user status (Signed in as draggin).
- Salut draggin!:** A personalized greeting with a small profile picture.
- Printing? Can it be true?:** A promotional banner for printing services, mentioning a 10% discount for first-time users.
- Flickr News:** A section titled "22 Mar 07 - We've rolled out content filtering..." with a link to "read more news".
- Flickr Blog:** A link to "Great photos & latest news, daily!".
- Do more with your photos!:** A promotional banner for various photo services like Moo, PhotoShow, Qoop, Zazzle, and Englaze.
- Now there's even more you can do with your photos:** A list of services including Moo, PhotoShow, Qoop, Zazzle, and Englaze.
- Make your photos happy -- do something with them!:** A link to "printing preferences".
- See popular cameras on Flickr:** A link to "Check out the new Camera Finder!".
- Invite your friends and family:** A link to "Send an invitation?".
- Looking for the perfect gift?:** A link to "Give the Gift of Flickr!".
- Upload Photos:** A link to "Or, look at our uploading tools...".
- Your Photos:** A link to "Recent activity / Comments you've made".
- Photos from your Contacts:** A grid of photo thumbnails from various contacts.
- Everyone's Photos:** A link to "Hide".
- Your Groups:** A link to "NEW posts in 2 of your groups".
- Footer:** Activity, You, Explore, and Help sections with links to various features and policies.

Figure 3.1 Flickr Home page

The website Flickr was chosen as the environment because it was well known to this researcher and its main feature, sharing photos in a public online environment, well understood. In the initial stages of the project a lot of time was spent searching the Internet for references to cassettes and cassette culture. Pictures, discussions groups, and blogs were sought out. It became clear that

cassette culture was being strongly represented in a rich and dynamic way on Flickr. By using pictures and picture sharing as the primary activity, it was found that Flickr was a viable way in which to proceed. The site allows subscribers to upload an unlimited number of pictures and, by adding titles, comments and notes, a personal account can be created in each case.



Figure 3.2 The authors' collection of tapes on Flickr

Notes are short annotations applied directly to the image as rectangles with additional text that appears when a cursor rolls over that area. This has a similar effect of a pointing gesture when two people are discussing a photograph

in person. The technique allowed for more detailed descriptions to be applied to the photos which then became part of the final analysis. Images on Flickr are posted to a members personal section of the site but are typically not grouped together based on similarity, (although there are some recent tools that aim to do this). This being the case, a method for gathering and organizing these images into dataset suitable for use in this study was required. To make discovery more accurate, images can be 'tagged' with keywords the photographer wishes the images to be associated with.


del.icio.us / mycassettes /
by an interactive arts researcher
your bookmarks | your network | subscriptions | links for you | post

popular | recent
logged in as **draggin** | settings | logout | help


All mycassettes's items (439)
mycassettes is in your network, [view mycassettes's network](#)
 del.icio.us

« earlier | later » page 1 of 44


PhishBanjo/cassettes - Photobucket -
Video and Image Hosting save this
to !Al.B ... on march 04




analog love 1 save this
My fav tape collection, though I
don't own a cassette
player/Walkman anymore...
to cassette tapes analog
the.pilgrims fugazi metallica
infectious.maggots 07.02.01 *K7
*Vive.la.cassette *added #006 !008
*notes *pre.recorded {narrative ...
saved by 1 other person ... on feb
19



Cassette save this
Tapa del cassette Fuckin Versions
to sumo luca prodan musica music
argentina branda grupo cassette tapa
portada fuckin versions disco
07.01.25 *added *K7
*Vive.la.cassette !001 #001 *display
... on feb 19



Four Cassettes save this
The first four cassettes that were released from
O.R.D.U.C., it are: 1. "Pre Pink & Purple" (1981)
2. "Fast Forward" (1981) 3. The cassette
magazine "Fast Forward" (1981)* 4. "New
Cubism" (1981/1983) * by various artists, one
O.R.D.U.C. track.
to music cassette cassettes K7 orduc
one-o-seventh.royal.dutch.underground.company
07.01.22 *K7 #003 *display ... on feb 19



Three Cassettes save this
The last three cassettes that were released from
O.R.D.U.C., it are: 5. "The Beatear" (1984)** 6.
"D-Train" (1988) 7. "Schizophrenia" (1989)* * by
various artists, one O.R.D.U.C. track. **
compilation album
to music cassette cassettes K7 orduc
one-o-seventh.royal.dutch.underground.company
07.01.22 *added *K7 #003 *display ... on feb 19

!participants
participant.narrative
photo.comments
!!commented !001 !002
!003 !004 !005 !006 !007 !008
!009 !010 !015 !017 !021 !036
!067
photo.groups
photo.locations
photo.status
tapes.content *audio.books
*blank *bootleg *found
*home.recording *mixtape
*pre.recorded
tapes.quantity
tapes.storage
uploaded.before.project
uploaded.during.project
various.tags *! *adaptor *art
*diy.cover *diy.lables
*external *for.loan *for.sale
*gift *industry *innovate *ipod
*manipulated *notes *on.end
*sets *software *stored
*tape.player *tape.recoder
*trash *vehicle *video
*walkman
unbundled tags
tag options
» view as cloud | list
» sort by alpha | freq
» use minimum: 1, 2, 5
» show | hide bundles

Figure 3.3 Project Images in del.icio.us

To accomplish this, the researcher turned to del.icio.us, a social bookmarking website where a web page can be stored by bookmarking the web address (Uniform Remote Locator (URL). This information is stored along with the title of the page (description), and optional fields are provided for further notation (notes) and tags. The notes area was used to save any description

proved by the original author of the image and the tag used to construct a taxonomy of tags, or 'keywords' that were relevant to the image. Keywords were broken down into groups that included, the dates the images were posted, the quantity of tapes found in the image, and the factors relevant to the organization or personalization habits evident in the images.

Data collection: process and methods

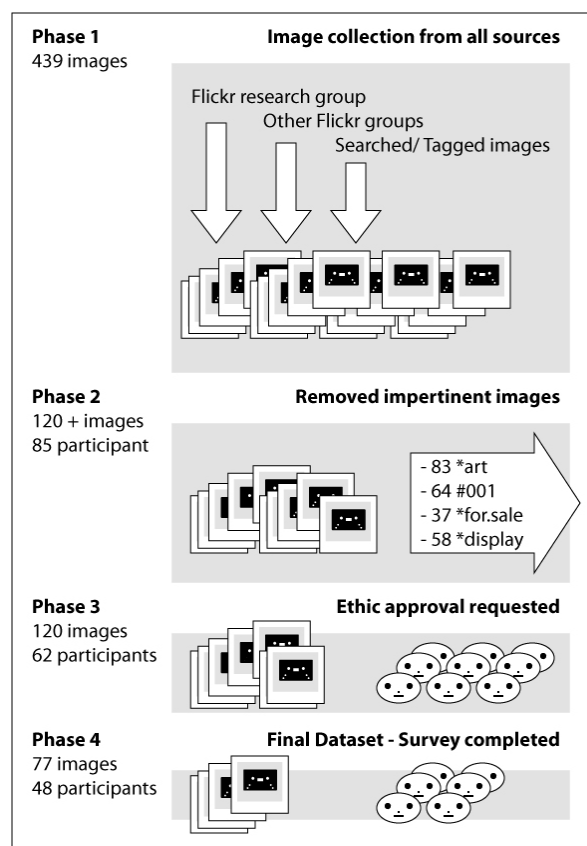


Figure 3.4 Data collection process

The process of data collection consisted of four phases; 1. Image collection, 2. Image screening, 3. Participant contact and approval and 4. Survey delivery.

Phase 1 Image collection

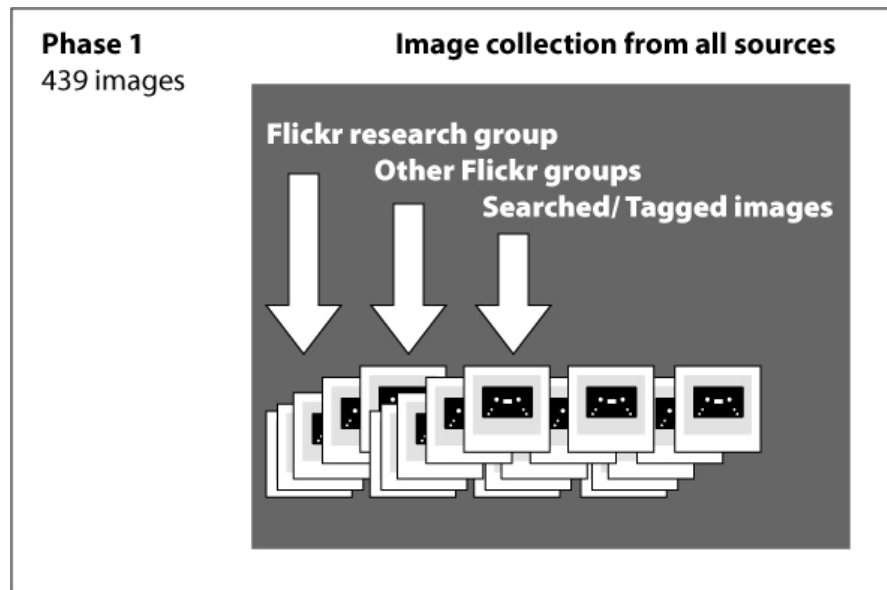


Figure 3.5 Phase 1 Image Collection

Beginning with a broad collection process, images were sought from a wide range of groups and sources on Flickr. Keywords applied to the images or 'tags', were a means of categorizing and screening for viable examples and participants to complete the study (discussed in the next section "Phase 2 Image screening"). Using the images of tape collection as a starting point, behaviours surrounding music libraries were analysed in a historical context, and compared with present day music listening habits. The catalogued images and their authors are used to form the main dataset and participant group of this study. In the final stages, the respondents completed a survey about their tape collections and general music listening habits. These observations uncovered general characteristics about an individual's relationship to their tapes including the associations the person currently held. The images of the tape collection were able to convey not only statistical information such as the quantity of tapes and

the date they were uploaded to the site, but also qualitative measures such as the orderliness of the storage method, the content of the tapes, and general upkeep of the collection.

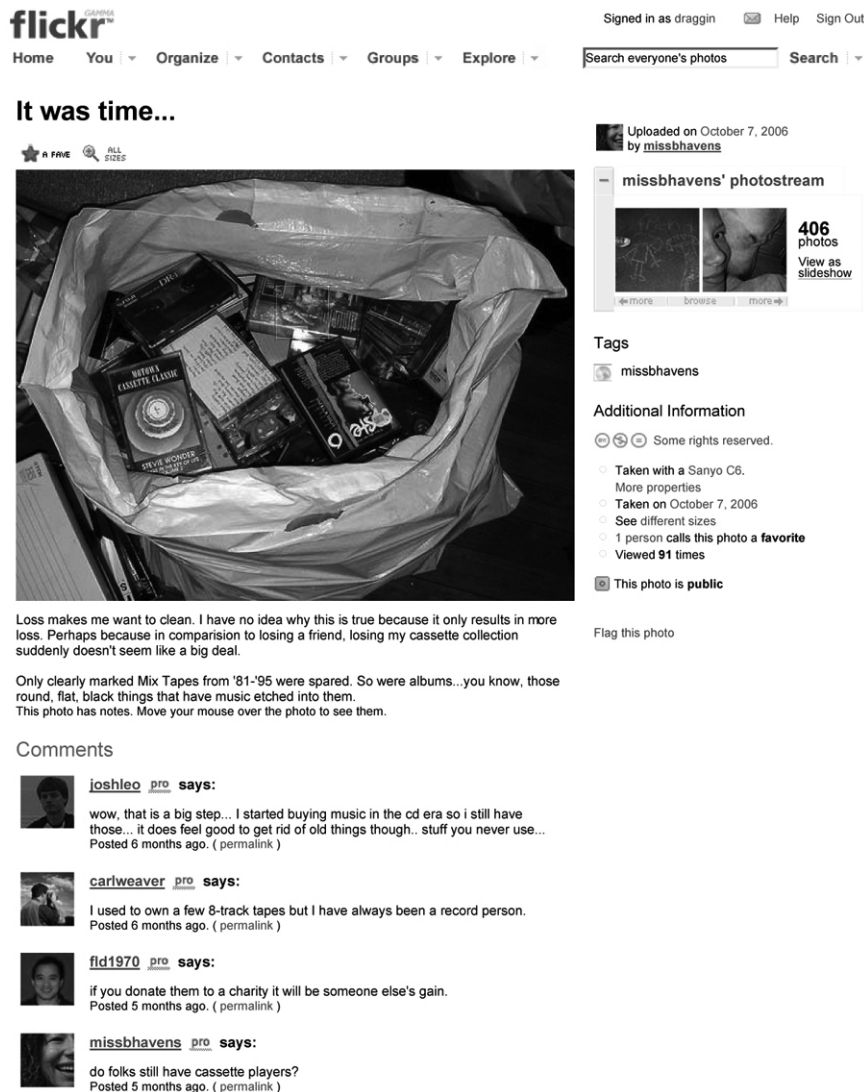


Figure 3.6 Discarded tapes

The title of the images usually gave a clear indication of how the cassettes were stored, and if they were being kept or discarded. Titles, descriptions, and notes were often used to add narrative elements, and in many cases, a short oral

history of the artefacts would emerge. Comments on these images by the individual's peer group and the greater community added further detail; and often resulted in rich discussion about cassette culture in general.

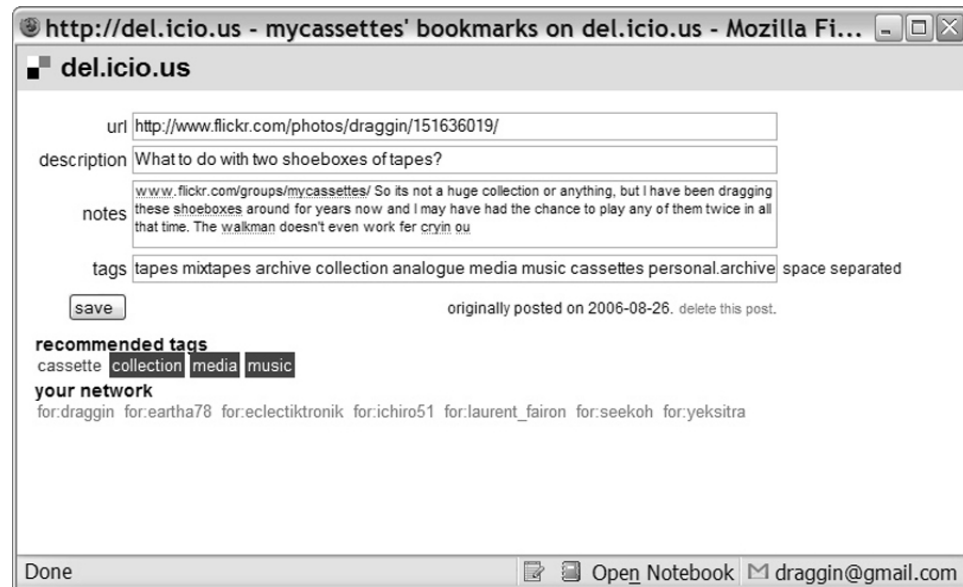


Figure 3.7 Tagging fields in del.icio.us

A process of 'tagging' was used to categorize and order the data. Tagging, or the process of adding multiple keywords, addressed the need for the study to build a descriptive framework of terms representing the propositions of the study. The tags added by the researcher helped to browse the collection for patterns of behaviour, to group participants by these behaviours, and cull the list of potential participants based on the relevance of their images. The taxonomy is also representative of the three propositions put forward at the outset of the study. Quantitative information, such as the upload dates images, the number of images and comments were included in the total tag sets. Eventually, tags were included describing the narratives (digitizing), storage methods (organizing), and the content of the tape collections (personalizing). These were represented in the

analysis as ‘tagclouds’. Essentially these are lists with visual properties, namely that the font size of the image is a factor of the quantity of times the tag has been used in a given sample. Tag clouds are more appropriate for the research presentation than a chart, as there are no quantitative claims made from the statistics they represent. Rather, a visual representation is formed that guides the reader to the more relevant information. The complete list of research tags sets are grouped in clusters (below) representing tag sets for research administration, system data, research tags and user-contributed tags. The research tag sets pertaining directly to the propositions of this study are discussed in Chapter 5 to follow.

- Research administration tag clusters
 - participants
 - photo.status
- System data tag clusters
 - photo.comments
 - photo.groups
 - uploaded.before.project - uploaded.during.project
- Research data tag clusters.
 - various.tags
 - tapes.quantity
 - Digitization
 - participant.narrative
 - Organization
 - tapes.storage
 - Personalization
 - tapes.content
- User contributed tags

Research administration tag clusters

Tags used for administrative purposes of the research project, such as documenting which participants had been contacted, and when they had submitted their ethics approval forms were helpful to manage the large collection of images being analysed. The “participants” tag set included the Flickr user names and a summary of the status of communications between researcher and participant. The researcher contacted eighty-eight people of the estimated two hundred who contributed images via the Flickr internal email to request permission to publish their photo. These participants were responsible for one hundred and thirteen images in the collection. Of them, seventy-seven individuals replied in the affirmative, and fifty would eventually follow up and complete the survey instrument. The “photo status” tag set was used to track where each image had been acquired, if it was still available on the system (since some images could be deleted or made private), and what copyright restrictions the image was bound to. Deleted or private photos were not included in the next phase of data collection. The numbers for this group are as follows: favorite¹ (323), added² (122), notes³ (78), cc⁴ (70), blogged⁵ (27), deleted⁶ (6), private⁷ (5)

¹ Images can be saved in Flickr by adding them as “favourites.” In this way, the researcher identified images of tapes, and the owner of the image would be notified.

² Images of tapes that were added to the group set up for the sakes of this research.

³ Images could be annotated with notes, or texts applied to specific portions of the image

⁴ Copyright is controlled by the members individually, and some use the “Creative Commons” permissions to manage their photographic work

⁵ Images of tapes that were blogged by this researcher

⁶ Over the course of this research, some photos, or accounts were removed from the system

⁷ Due to the users’ management of privacy permissions, some thumbnail images were not available when bookmarked

System data tag clusters

Information that resulted from the activities going on within the flickr 'system' such as the number of comments per image, what other groups the image had been submitted too, and when the images were uploaded.

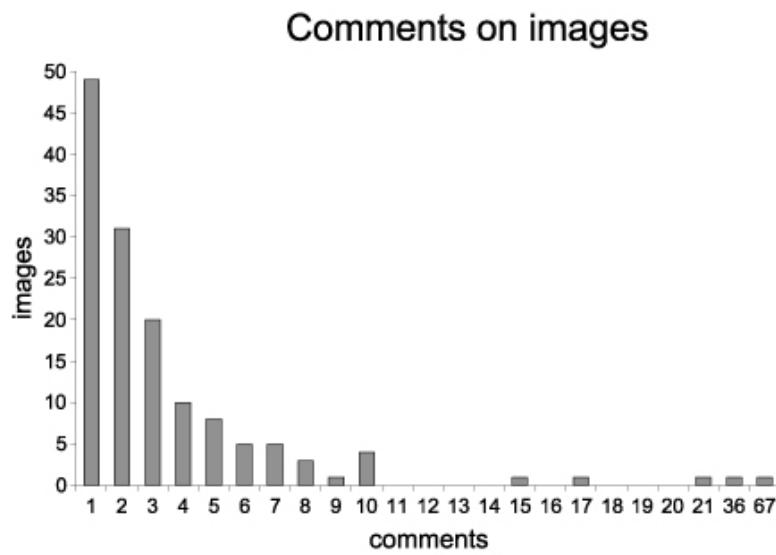


Figure 3.8 Number of comments on images

The “comments” data shows that most of the images had at least one comment and four hundred and ten comments had been counted across the entire data set. Often the images were added to one or more of the other groups in the Flickr system. It was of interest to see which communities the participants chose to share their tape collections with, although mostly it was the other groups directly related to cassette culture. In addition to the cassette culture groups, the other most popular groups where participants added images are: K7⁸ (58), Vive.la.cassette⁹ (55), Mixtapes.&.cds (9). This reveals the fluidity by which

⁸ K7 is a French term for cassette with the letter “K”, and the French numeral for the number seven, “sept”.

⁹ A French phrase celebrating the cassette tape.

images can be shared in the community across groups and topics. Exploring these groups was equally beneficial to the research in seeking out images of tape collections.

The system records and displays the date the image was uploaded. Upon searching, the researcher was able to find many relevant images that had been uploaded before this project began. It was not necessary for images to have been uploaded during the course of the project. These tags show that only a relatively small increase in the number of images was seen over the course of the project. In the final data set, almost twice as many photos were chosen that had been uploaded during the course for the project although a significant number were drawn from images that had been posted before that time.

Research data tag clusters

Specific tags reflecting the researchers' analysis of the images by counting the number of tapes that were in each image, what labelling techniques had been used and if the tapes were part of an art project, kept in the car or were being thrown away. Each

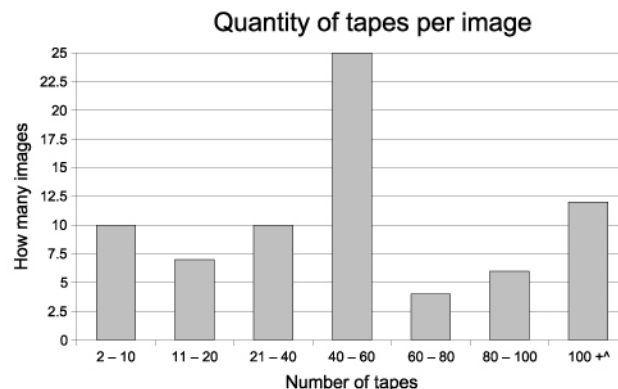


Figure 3.9 Quantity of tapes per image

The number of tapes tag set describes the quantitative information regarding the number of cassettes clearly visible from the perspective of the image. In many cases, these numbers would not represent accurately the quantity of tapes in the original collection as the method of storage and presentation would show a limited quantity. The forty to sixty cassette ranges was the largest, with twenty-five images in total. Twelve images had tapes of one hundred or more. The sample shows a broad but balanced perspective of collection behaviour from the sentimentalist hanging on to those precious last few audio artefacts, to a more dedicated tape enthusiast whom maintains and regularly uses their audio cassette collection. Many of the images were not representative of music libraries and in phase two (the image screening), some of the various tags helped filter out such images such as “art” and “trash”.



Figure 3.10 Tagcloud representation of keywords

The “various tags” tag set was as a catch-all cluster and is seen in the above rendering as a “cloud”. These “tag cloud” visualizations are used in the coming chapter on the data analysis of images, and give a quick means to review the most commonly used keywords at a glance. As the frequency of a tags use

go up, the number is recorded, and becomes a factor of the font size used to display the word. In these examples, the greater the number of keywords used, the larger the font size is that displays the word.

User contributed tags

Participants had the opportunity to add their own tags to the images they uploaded. All keywords participants added to their images were documented and form the 'folksonomy' (Vander Wal 2004) for the project, discussed further in Chapter 5.

By including images from the research group specifically, and seeking out others from various groups or individual areas, a final data set of over four hundred images were catalogued and tagged in this way. Chapter 5 discusses in greater detail those tags that pertain to the three propositions put forward by this study on digitization, organization, and personalization. The above taxonomy of images on the del.icio.us-bookmarking web site is easily sorted across a wide variety of qualities, and the gestalt of the collection can be seen. Since both the data base tool and the data itself are online, direct links to each image are available allowing verification and updating of the data at any time. This iterative procedure was useful when it was time in the research to examine a representative sample of the images for a final analysis.

Phase 2 Image screening

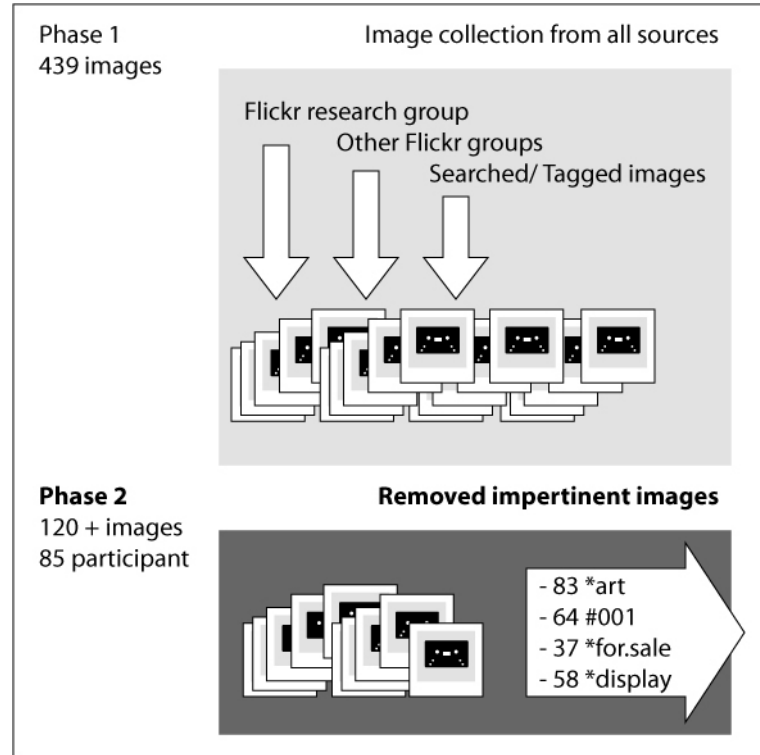


Figure 3.11 Phase 2 Image Screening

With a rather large collection of images documented and tagged, the next step was to identify a representative sample that was clearly an example of a music library. As the intent of this research was to focus on the organization of a music library, many of these would not be useful in the final analysis. Images were not considered usable as a representation of a collection included: artistic renderings of cassettes, images containing only one cassette, images that showed cassettes in a commercial setting and those that were set up in the image for the aesthetics of the photo rather than to capture the collection as a whole. From this, a shortlist was generated and an initial group was contacted to request permission to use the images in the current publication. Eventually 88

participants that had contributed over one hundred images were contacted for further participation in the project. An ethics approval form that would allow their images to be published in this thesis was distributed.

Phase 3 Participant contact and approval

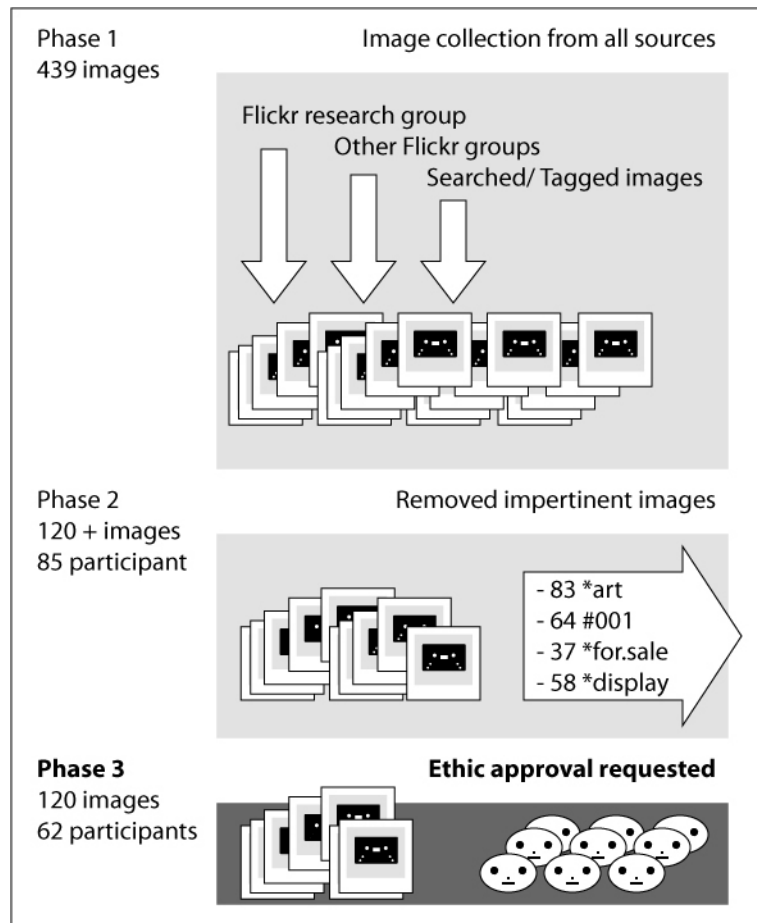


Figure 3.12 Phase 3 Participant contact and approval

Using the shortlist of images, participants were contacted to request approval to use their image in this publication and to participate in the final stage of data gathering for the study. Eighty-two participants representing one hundred and seventeen images were contacted for these requests, of which sixty-two

responded in the affirmative. Forty-nine of these respondents would go on to complete the survey instrument that would be the final stage of data collection.

Phase 4 Survey delivery

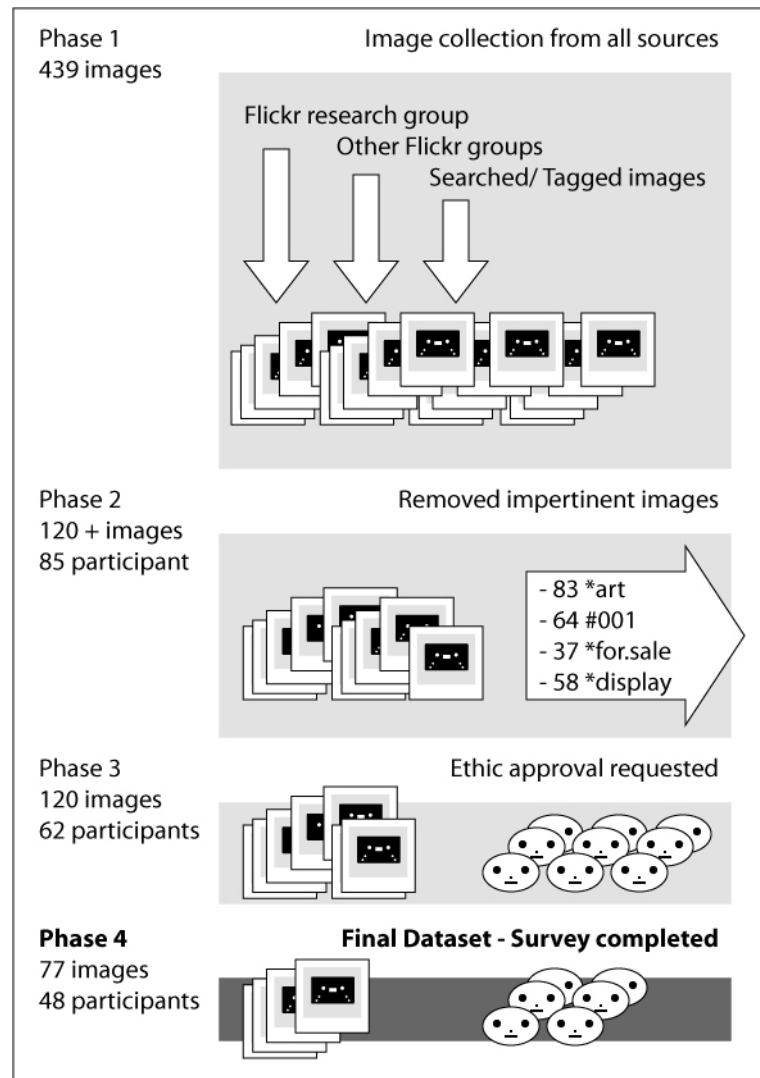


Figure 3.13 Phase 4 Survey Delivery

A survey containing twenty-six questions was designed to explore the music listening habits of the respondents and the ways in which they organized and personalized their music collections, both physical and digital. The

questions were in two categories. The first category was specific to the tape collections themselves and queried the current associations people had with their tapes, if they were commonly used, and why they were being kept. The second part of the survey sought further details about participants' current music listening habits on the computer. This included the preferred software for managing their digital music library and if they employed any special techniques for organizing the collection or creating personal music listening experiences. Together, the image and survey data were reviewed to determine if they supported the propositions put forward earlier in this thesis regarding the issues of digitization, organization, and personalization based on a priori knowledge of the culture of recorded music.

Goals of the study

The six-month study documented in this thesis gathered images that reveal some of the practices people take up in managing their old cassette tapes, and delves into the reason people keep these collections. This chapter has covered the processes and methodology of the project and reviews relevant methods upon which it was based. Several examples of ethnography in both a traditional sense and the practices that have informed the research being done on the Internet today were highlighted. Sophisticated new websites for interacting within a community context have evolved that promise social researchers rich new opportunities to explore.

Using an online ethnographic approach, data in the form of publicly posted images were sought out, stored, and catalogued. These images were assessed

for quantitative and qualitative information that described individual organizing and personalizing habits. Images were assessed using tagging, a method of adding descriptive keywords to build a taxonomy that could be used to create a representative list of participants, and identifying images based on their unique characteristics. A description was given of how data was obtained, catalogued and tagged. This process is ongoing as images continue to be added to the group or bookmarked by the researcher. An open-ended format is established allowing the research to be easily be pursued. A survey was the final stage of data collection that queried participants more directly about their usage of the tapes.

CHAPTER 4: ANALYSIS AND RESULTS

The results of this thesis form the basis of interface guidelines for music players on personal computers. To accomplish this, three propositions are put forward based on a priori knowledge regarding the digitization of music, how music libraries are organized, and the personalization methods developed by people to create their music listening experiences. Each proposition is evaluated in terms of the results from two distinct data sets, taxonomy results from an analysis of the images and the responses by those participating in the research survey. In this chapter, the propositions are reviewed and the results of both the image and survey data are presented.

Proposition 1: There are more effective ways to document digital media. These methods need to track an individual's music listening habits over long periods of time in an aim to create a musical history.

Proposition 2: New means to visualize the contents of a library would greatly improve the access and selection tasks that are involved in browsing a music collection.

Proposition 3: Methods need to be developed to personalize music collections. Personalization can be done through individual activity such as coding, or through a social process such as a network that shares music.

The image data presented here is comprised of the seventy seven images from phase three of the study (unless otherwise noted). The images represent sixty two contributors who agreed to the ethics approval form sent in phase two. An analysis of these pictures follows with the goal of identifying patterns in organization and personalization techniques related to the propositions above. Where applicable, 'tagclouds' have been used to represent the tagging information presented in this thesis.

Survey: The survey data presented here includes responses from forty-nine of the sixty-two aforementioned participants. Detailed information about how their tape collections were now regarded and their current music listening habits was collected.

Analysis of digitization results

Proposition 1: There are more effective ways to document digital media. These methods need to track an individual's music listening habits over long periods of time in an aim to create a musical history.

The first proposition involves the effects of the digitization of music. A physical music collection serves as a living document of musical experiences. When music is digitized, it becomes an intangible file on the computer, and is represented much the same as a digital photograph or any other type document. These files can be displayed as a list or stored in a folder. Old audio collections can function like a photo album by reminding us of our personal music history. This is less likely to occur with digital media. Although digital music is

increasingly available, present day players leave few trails of music listening habits over time. The proposition is for designers to consider better ways to handle the digital media files themselves, and for some considerations to be made for an individual's music listening habits over longer periods of time - even so far as to take into account all the music one has listened to in a lifetime. It was found in the study that many of the respondents have retained a substantial quantity of other forms of media as well as their tapes, and report them being still useful and valuable. People still use their tapes as a means to listen to music, to reminisce about their past, and, because they are afraid that the music will be lost, they hang onto them.

Image tagging results: digitization

The digitization tags used to describe the images focussed on the personal narratives that were included with each contribution. Forty-three of the images contain some substantial narrative elements in the descriptions, comments, or notes related to these themes.

- Digitization
 - Narrative
 - Tape review
 - Old music
 - Making mixes
 - Old relationships
 - Cleaning up



Figure 4.1 Participant Narratives tag set

A wide range of stories are shared using the image of the cassette collection as a reference, including tales of old relationships, high school days, making mixes and road trips (driving music). The stories included with these images all speak to the ability of physical media collections to represent a musical history. Most common, are thirty references to the contents of a particular tape, or a 'review' of its music. Related to these, are statements about 'old music.' These stories reminisce about previous music and contain accounts of where the musics' origin and the time the individual was at in their life. Stories about 'making mixes', 'old times' and 'old relationships' also have occurred frequently in the online discussions surrounding these images. The following examples and survey responses illustrate how tapes were considered memorable, and suggest affordances that can be considered for digital music players.



Figure 4.2 cassette culture - Uploaded on August 23, 2006 by pale spectre

“so i was cleaning (trying to) my room earlier. hehe and i opened 1 of my cassette drawers.. hehe instant flashback. i havent listened to them for ages. maybe last time was when i was in college? cassette was the way to go...” - pale spectre

The description that goes along with this image describes a typical case of a participant's reaction to their tape collection. Several notes have been left on

this image describing the musical tastes and relationships that were recalled. “oh this was from a german penpal! early early internet dayz! i forgot his name! hehe ace mix of 60s garage though!”



Figure 4.3 Cassettes for the Car and Walkman - Uploaded on June 30, 2006 by BlazerMan

“My cassette collection. Definitely some history here. I don't listen to some of this music any more. Growing up and having kids changes you.” - BlazerMan

Specific events are remembered and documented on several of the tapes in this image using notes. “Dio: The Last In Line. I remember, way back when, having a discussion with one of my friends where we figured that if there ever was music that would try to turn you to the devil, this was what it would sound like.” The collection in this case recalls the participants younger days, when their music listening habits were quite different from the present day. Considering such reflections twenty years from now, it is difficult for this author to conceive of what will be the form of media used to reflect on the present digital age where all my information lives in the form of files on a disk or server.

Survey results: digitization

In terms of the technologies used for music listening today, two broad categories can be discussed: music from a library (either physical or digital) and broadcast technologies such as radio. Twice as many responses were given for listening from a personal library and not a single participant relied on one technology as the sole means of their music listening options. Over half of the respondents had four or more means to listen to recorded music including tapes, LPs, and online streamed services. Compact discs and MP3s are the most popular formats used by the participant group, cited by almost every respondent. Nearly seventy five percent of participants reported that they listened to music in this way “Almost Daily”, signifying the importance of the computer as the central interface for managing ones digital music library. The portability of music is seen as one of the main advantages to tapes and so too is the case for digital music. Although many indicate the personal computer is used almost daily, it can be seen that music listening is indeed distributed around the home and outside of it. People report to listening to music more outside of the home than within it, a vehicle being the most common place.

iTunes was the preferred music player for nearly three quarters of the group and in almost every case only one music player was used. The three options presented in the survey (iTunes, Windows media player, Winamp) are dominant in the market and have very similar capabilities and features when it comes to the library component.

“I was about 12-14 years old when I bought them. Back then, shelling out \$10 for an album was a big deal. I guess I still think of

them as a worthy investment, even though I don't play them any more. They've outworn their use, but they're still valuable to me.”

There are five main themes reported for why respondents keep their tapes. Nostalgia and sentiment are mentioned prominently. The tapes hold significant meaning to participants which alone, seems to be reason enough to hang onto the collection. The next most frequently mentioned theme is that the tapes are still being used as a source to listen to music. In some cases, tapes are the sole means available for doing so, such as in a vehicle. For others, tapes still provide a pleasurable listening experience in general.

I still have tape decks at home to listen to them. I only have much of that music on cassette, so I won't get rid of them until I update my media. (Appendix B)

There were a high number of comments regarding the fact that the music held on the cassettes may be the only existing source for the music that was available: an alternative (either CD or MP3) had not able been found. Collectors hang on to the tapes for fear of losing the music forever. This is similar behaviour to professional archives where the motivation for keeping an item archived because of a “worry about an upcoming move, distrust of computers and the fear of a hard-drive crash, appearing unprofessional, or losing something important” (Kaye, Vertesi 2006). Aspects of the physicality of recoded music were also mentioned.

“Opening the plastic wrapper the moment I walked in the door, pulling out the liner notes and reading the lyrics while I listened to the tape in my ghetto blaster. If the cassette didn't come with a lyric sheet or a multi-panel fold-out of some sort, I'd feel ripped off.”

Most respondents report being happier using digital technologies for recorded music, but still have fond memories of tape cassettes.

“Accessibility has improved greatly, but the experience of listening is much the same or perhaps less special. I enjoy music itself every bit as much and more than I have in the past, but the act of scrolling, pointing and clicking to access a song is in no way as special as physically getting up, going over to your collection, leafing through it to find the record, tape or CD to play to specifically fit a moment or mood. This is also one of the good things about working in a 2nd-hand record/cd shop. We still have to physically pick what album we're going to play next and the employees take turns doing so.” (Appendix 2)

This section has sought to explore options for digital music players to capture the music listening experiences of people. Of all the data collected in this study, this by far seems to be most important aspect about tape cassettes in their present context. If a participant 'came of age' during the time of cassettes, their fondness for the technology is that much greater. With the development of new information technologies, it is possible to consider the day when the entire content of one's music collection can be recorded and reviewed in multiple ways. Since digital media has no tangible form that lingers in a space, some affordances to create associations between music and people and events will be needed.

Analysis of organization results

Proposition 2: New means to visualize the contents of a library would greatly improve the access and selection tasks that are involved in browsing a music collection.

Strategies for organizing a physical music library can make the task of search and retrieval easier. Increased capacities for storing and amassing digital music have led to the growth of collections to the extent that it is no longer possible to view the entire collection at a glance. The result is that browsing, highly regarded as an activity music enthusiasts wish to engage in (Brown 2001), is more difficult. The results of the study show that people are almost evenly split in terms their preferences for organizing a music library or not.

The organization tags focussed on the storage methods taken up by participants to keep their tapes. Each image was grouped into either 'filed' or 'piled' categories, with the various options grouped below that.

Image tagging results: organization

- Organization
 - Filed
 - boxed
 - shelved
 - tape storage
 - Piled
 - Stacked
 - bagged
 - Display



Figure 4.4 Storage methods tag set

In some images, a clear effort to file the tapes was evident either by using a tape case or by arranging the items on a shelf. However, in others, collections were piled in a variety of ways, stored in boxes, bags and drawers. In total, forty-one out of seventy-seven images of tapes were in a form that could be considered filed, while twenty one were piled. Although the images submitted by participants show people are twice as likely to use a storage method that allows for filing, the responses in the survey indicate the same relative number of 'pilers' as 'filers' (Malone 1983).

In addition, many of the images found in the photos were tagged 'display.' This indicates that the tapes had been taken out of their natural storage environment and presented in some fashion for the sake of staging the photograph. Such examples show the versatility by which physical media are arranged, sorted and customized, and the extent people are willing to do so. It was found that staging was often done to highlight specific examples within the collection such as bringing attention to the particulars of the tape contents, important historical records, or customizations such as labels or covers created by the owner.

organizer, this individual may benefit from tools designed to record a musical history over time and present contextual groupings of music that were related by virtue of the time they were listened to in the respondent's past.

Alphabetical methods were the preferred means by which people keep their physical collections of music organized. Five respondents reported to having a strategy that was more complicated than either alphabetical or by genre systems. According to observations of the image data, one-third of the participants used no apparent method of organization when storing their tapes, or to organize by 'piling' as can be seen in contribution from 'lush*life' (Figure 4.7).



Figure 4.6 tapes from my high school era - Uploaded on July 22, 2006 by lush*life

The choice not to organize a collection of MP3s is more likely in the present day as directed searches for music within a digital player are effective, given that the seeker knows what they are looking for. However, it should be

noted that perusing a cluttered box of tapes such as this will still provide a means for a musical identity to be conveyed and specific music to be located. Two of the comments added to this image of an 'unorganized' collection show an interest in the collection and relate personally to the contents as shown.

“lisa ici says: Heh, that could be my tape collection.”

“aoneko says: Hee! I have a crate like this too. Lot of the same tapes in there.”

Such connections based on similar music histories may be considered useful interactions to intentionally design for in digital media players. With little or no effort on the part of the owner of the collection, the haphazard presentation of these cassettes highlights those on the top of the pile or with a distinctive visual contrast. As well, recognition of familiar album art also plays a role in browsing. To accommodate this task, new ways to visualize a large collection of digital media may consider less orderly presentation methods other than those found in the typical lists that dominate most players.

Survey results: organization

How do people define the quantity of their digital collection in present day terms? The results indicate approximate values, even though iTunes provides detailed information on the interface. For iTunes, the amount of music in a given collection is displayed at the bottom centre of the window in terms of the number of songs, the total playing time (days, hours, seconds) and the total amount of hard drive space the collection takes up in memory. It is interesting to note the diversity of responses to the question size of collection given this information is

available and given that the majority of the participants were using this interface. Typically participants would choose one of the information formats available to report the size of their music collection with “Songs” and “Gigabytes” (GBs) being equally used terms. The collections ranged from two hundred to thirty thousand songs, or three to three hundred gigabytes, respectively. Only three participants used the number of albums in their collection to quantify this information and only one used the default iTunes option of the overall playing time as the means to respond to this question. Finally, two respondents did not know how to provide this information at all, or it was not relevant for them.

In summary, it seemed like there was little evidence for improved organizing techniques stemming from the study of tape collections. This could be due to the fact of the powerful search and sorting methods found in digital music players such as iTunes accomplish the primary searching goals of users. What is highlighted is the importance of unorganized methods of storage and presentation of media. Although browsing is not accounted for in most music players, no references to this activity have been documented or observed. It is evident that not all participants in this study undertook the same means to store and organize their old audio archives, and in fact, some preferred no readily apparent system of organization whatsoever. This may suggest alternative display modes for digital music libraries. Moreover, although participants have larger collections of CDs and MP3s than either tapes or LPs, the diversity of media reported is significant enough to suggest that no single technology for music listening alone will dominate music libraries anytime soon. This can only

be expected to become increasingly so with the diversity of means to encode and compress digital audio. Given this diversity, another suggested consideration for the design of digital libraries would be a means to include media or references to media from other sources; or media not in the collection itself but associated with it such as borrowed, recommended or related items.

Analysis of personalization results

Proposition 3: Methods need to be developed to personalize music collections. Personalization can be done through individual activity such as coding, or through a social process such as a network that shares music.

Although a great deal of music listening is done alone, there is a predominance of social activity surrounding music collections, even in terms of adding music to a personal library. Recommendation systems are among the leading research topics in information retrieval (Fox 2001) and with the growth of personal music libraries, the choice of what to listen to in the present moment will become more difficult. Currently, there are few, if any, affordances for sharing music in interesting and novel ways. The technical restrictions in current music players seem artificially conceived. Although these tools are web enabled to draw on music information databases and proved a commercial vehicle for the company such as the iTunes Music Store, there no communications tools built in such as email or chat. Additionally, there are few if any means to customize or personalize particular items in the collection by colour or other means. This could potentially add meaning for users.

The personalization tags focussed on the various types of content that were seen in each of the examples. Tapes were assessed on observations of covers seen in the image to determine the extent to which customization had occurred through intentional recording.

Image tagging results: personalization

- Personalization
 - Prerecorded
 - audiobook
 - Blank
 - mixtape
 - home recording
 - bootleg



Figure 4.7 Cassette content tag set

Purchased cassettes, home recordings, mixtapes, found tapes, bootlegs and blank cassettes were some of the different 'content types' reported in the data. The distinction between tapes that had been purchased and those that were more personalized either by means of copying, mixing, or home recording has been noted. Of the seventy-seven approved images, thirty-three of them, (43%) contained some pre-recorded cassettes while twenty-nine (38%) show

some blank media that the contents of which had been recorded personally. Similarly, it was found that both streaming Internet services and websites for purchasing music were equally used to acquire new items for the participants' collections. Multiple strategies for doing so are needed as one participant notes:

"Since I got the ipod, I've been listening to a lot more music. Having my own personal soundtrack when commuting has been a life changing experience. Also, because I'm listening to so much more music, I need to buy it more regularly to keep things interesting."



Figure 4.8 mix tapes - Uploaded on May 28, 2006 by newrambler

"This is probably about 75% of all the mix tapes I made for myself from 1991-present. (I don't have a CD burner, so I still make tapes, though in recent years I've also made a few iPod playlists.) It's kind of surprising how many of them still survive.

babyfishfel says:I still remember the mix you made that had 6'1" and Sunday, Bloody Sunday on it. I listened to it all the time when I borrowed your Volvo that summer we lived together."

The image above (Figure 4.9) is interesting for several reasons. In terms of the personalization of the music library, it shows a variety of labelling techniques used to identify particular tapes, and the participant describes their early experiments using the digital play list as a method for sharing mixes. There is no mention of a positive or negative result in that regard, but the respondent notices the durability of the medium. More significantly perhaps, is a statement made by an acquaintance in the comments area, which recalls an earlier mixtape that had been a shared experience between them. This speaks to the enduring quality musical associations have with past events and the role social interactions play in recounting them. The mix in this case, was both a means to customize a sequence of songs for portability and a unique musical experience; and much more because of the shared experience.



Figure 4.9 Napa Valley crates - Uploaded on August 25, 2006 by AI B.

This image from 'AI B.' shows a sophisticated means of custom labelling that occurred in a collection of tapes. The image demonstrates the extent to which some personalize the presentation and display of their personal collection.

Although the evidence found here suggests this would not be the case for the majority of respondents, the customization of music listening experiences is highly desirable and continues to drive user behaviour in their consumption of music. This customization seems to occur most specifically around the acquisition, sequencing and playback of music such as in the case of mixtapes. Although music players today have some limited means of rating, music such as the 'stars' function in iTunes, only eleven participants (20%) report using these tools. This finding is somewhat lower than expected possibly owing to the fact that other software features, such as 'shuffle play', removes most of the participant's need to develop their own personalization strategies.

Survey results: personalization

Most participants reported to using some online service. Twenty-eight unique music services were mentioned with only six respondents reporting that no online services were used at all. Almost half of the results indicated at least one service was used while seventeen people reported to using two or more services. Equally popular to streaming services were music-purchasing sites, predominantly the iTunes music store. Websites providing free downloads of music, or peer-to-peer file sharing were mentioned by less than ten percent of the respondents. This was a peculiar finding and very interesting in terms of its implication for a music library. However, there is the possibility that respondents were not completely honest in answering this question. Since so much music consumption and interaction is done from the personal computer, music libraries should provide more affordances for people to organize and personalize their

streaming and purchasing activities. Only four respondents indicated to using peer to peer file sharing as an “online music service”, but fully half of the group reports to downloading music as one of the ways which it can be acquired. Friends were an important means to obtain music, although it is not clear if the respondents were indicating music recommendations or actually copying files. Equally distributed results were found for buying music at a retail music store, and buying it online. Over three quarters of participants reported to using more than one of the means listed in the question.

Digital technologies afford for new ways to listen to large music collections such as shuffle play, or the random selection of songs by the music player software. The respondents were split evenly on how they preferred to listen to music. Fifty percent of them chose only one preferred method, while the other half chose two or more different ways. The distributions across the options were also split, particularly between listening by album and customized play list. Shuffle methods of one kind or another were the dominant choice of playback in this group with almost thirty respondents choosing to listen to music on shuffle at least part of the time.

Music listening is a dynamic activity that can occur in a social context or alone. “Alone by myself” was an activity reported by nearly all the respondents, emphasizing the importance of the music listening experience on an individual level. Many people reported to music listening with others, such as friends, family and their partners, yet there are few affordances in music players for managing libraries in social settings with groups of two or more people.

The analysis of data on the personalization of digital libraries is somewhat ambiguous. Clearly, making music mixes and sharing them continues to be a common activity engaged in by most participants. However, the music players are less than well equipped for doing so. Given that most common software for listening to music on the computer such as iTunes, already have the advantage and capability of Internet access and all the resources a digital environment brings, why are these capabilities not taken advantage of in the interfaces themselves? The designers of such systems seem limited or restricted from opening up the full potential of a web enabled music player. Taking advantage of digital capabilities is one of the general recommendations stemming from this study.

High level findings

In general, most respondents report to being happier with present day music listening technologies, but still have fond memories of tape cassettes and the role they played in their musical histories. The two most cited reasons were for making mixtapes and portability, but included many respondents that were afraid that they would lose music on the tapes or not be able to acquire it in a digital form. Making mixes is still a common activity that nearly half of the respondents reported doing within the week prior to completing the survey. Listening to music on the computer is a frequently occurring activity with over 90% of the participants reporting to do so “almost daily”.

Old tape collections were found to be more useful than originally anticipated. Although they were often kept for sentimental or nostalgic reasons, a

large percentage of respondents reported still to use them as a means to listen to music. Two thirds of participants reported playing a tape within the past year, and most plan to retain their collections whether they play them or not. Even if respondents did not listen to the tapes specifically, all but five reported having valuable music contained in the tape collection that had been acquired again in a new format. For example, CD's and MP3s are both used to access music that was once on a tape, and in this way the music can remain a part of their current music library. This behaviour shows the versatility of the music consuming population to adapt to new technologies, yet also shows the varied means by which this is done. While fifteen people responded that they used one main media choice, twenty nine others chose two or more technologies to use when listening to their older music.

analog₍₉₎ april₍₅₎ art₍₁₅₎ audio₍₁₃₎ cameraphone₍₅₎ car₍₅₎ collection₍₁₃₎
 home₍₁₀₎ macro₍₇₎ media₍₇₎ mixtape₍₁₂₎ **music**₍₈₆₎ musica₍₅₎
 old₍₁₀₎ radio₍₅₎ retro₍₆₎ scan₍₆₎ sony₍₁₂₎ sound₍₆₎ tdk₍₆₎ vintage₍₅₎ vinyl₍₈₎ walkman₍₅₎

Figure 4.10 High level findings tag set

A participant-generated tag set emerged from the entire data set of four hundred and thirty nine images and their associated keywords collected over the course of this study. These tags represent a “folksonomy” (Vander Wal 2004), or user generated taxonomy of over twelve hundred unique keywords showing the participants labelling strategies for the images they posted. This folksonomy informs this research by highlighting the prominent associations that people have with their collections of tapes including; music, art, collection, mixtape, and home.

The high occurrences of “art” “collection” and “mixtape” in this tag set point to the importance of personalization behaviours people have with cassettes and the personal nature of the media.

Summary

Framed by three propositions, the results of the image analysis and participant survey indicate that there are opportunities to reconsider the design possibilities of present day music players for the computer. There ought to be more effective ways to document digital music and track an individual’s music listening habits over long periods. The associations people have with their old collections are predominantly social and experiential. As musical tastes changes over time, some people may benefit if these previous experiences were somehow recorded or transmitted to be shared with others.

New means to visualize the contents of a library would greatly improve the access and selection tasks that are involved in browsing a music collection. Although there was little evidence to support this proposition in the current study, it was found that many people prefer not to organize a collection. There can be great benefits from less than organized presentation methods. The orderly lists and columns typical of most music players today may be useful in some contexts, but there may be more novel and interesting ways to present a collection based on ‘piling’ tendencies. Personalization of a music library is done when parts of it are accessed for a secondary use such as to share with others.

Given that a large amount of music listening is done on the computer and it is the central tool for managing a music library, a more robust set of features such as email recommendations and social networking would greatly improve the music listening experiences done in this environment.

CHAPTER 5: IMPLICATIONS

The implications and design recommendations are put forward here, as well as some of the limitations and the scope of this thesis. The tape collections studied in this research were found to be more useful to participants than originally anticipated. Although they were often kept for sentimental or nostalgic reasons, a large percentage of respondents reported to still use them as a means to listen to music which speaks to the diversity of music media in many collections. This researcher not only expects the size of personal music libraries to increase, but also the sources by which music is obtained, listened to and managed. The results of this study indicate that people will retain their old collections much longer when meaningful associations accompany them and it is in this light that the following propositions have resulted in potential design heuristics.

Heuristics: digitization

Proposition 1: There are more effective ways to document digital media. These methods need to track an individual's music listening habits over long periods of time in an aim to create a musical history.

Many of the respondents have retained a substantial quantity of old media including cassette tapes, and report them being still useful and valuable. People keep their tapes as a means to listen to music, to reminisce about their past, and,

because they are afraid that the music will be lost, so there is an opportunity to develop better ways to track individual musical histories that are easy to use, and compelling for users. There should be affordances for reviewing a personal music history, and storing it in a way that it cannot be easily lost, such as an integrated web service or standardized file format. 'Snapshots', or specific instances of the music library at a particular time could be saved to be reviewed later. These could take the form of detailed music charts, tracking the most popular music at different times, potentially over the course of a lifetime. These histories should also be able to link with other forms of media such as photos and documents that can be associated temporally and automatically. Finally, looking at the trends in social networking on the Internet, a personal music history should have capabilities similar to a contact list in an email application, that will both record musical interactions between people and allow those interactions to occur. The simplest form this could take would be to have an email or chat application built right into the music player.

Heuristics: organization

Proposition 2: New means to visualize the contents of a library would greatly improve the access and selection tasks that are involved in browsing a music collection.

Visualization of personal media collections are currently the focus of several studies. Historically people are adaptable to new music formats and technologies as required, but often only go so far in their attempts to systematize their collection. Therefore, there appears to be an opportunity for designers to

develop new visual methods to browse and manage a personal media collection. Although sortable lists are useful for the activities of directed search, organically arranged display options may provide users with beneficial views of their collection. These would take into account the practical matters associated with organizing musical artefacts such as 'most recently played', and also take advantage of algorithmic functions found in recommendation systems like Pandora (www.pandora.com) and Last.fm (www.last.fm) to bring. Playback features like 'shuffle' in part do this now, but may one day be seen as a cumbersome way to listen to music. It would be useful if future music libraries could also track physical musical objects in a collection as well as the digital versions. It is doubtful that any single technology for music playback may ever rise to dominate the listening experiences of all potential users. Given this continuing diversity of media, the design of digital libraries would greatly benefit from incorporating tools to look up and manage complete music collections of both the digital and physical components of a personal music library. As well they would take into account past items from the collection that are no longer accessed and potential future items such as those recommended from friends.

Heuristics: personalization

Proposition 3: Methods need to be developed to personalize music collections. Personalization can be done through individual activity such as coding, or through a social process such as a network that shares music.

The creation of music mixes continues to be a common activity engaged in by most participants. Music players need to be equipped with better tools to

both create these mixes and share them with others. Mixes are also useful on a personal level as can be seen by the trend to assemble songs for specific purpose or experiences such as music to “take to the gym” or for weddings. Designers should look into the common uses people have for creating such mixes and design tools in music players that may accommodate them. Related to proposition two, affordances that allow for customization of the display of playlists may also be taken up by designers. By combining music with images or graphics, a more compelling presentation of a playlist may be achieved; thereby enhancing the users desire to share. The practice of making mixtapes in cassette culture shows a strong desire for some people to create these objects as tokens of affection or friendship. Although the act of gift giving represent enormous challenges for designers of digital systems, the ways people exchange digital artefacts such as playlists should continue to be explored.

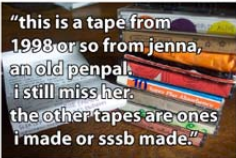
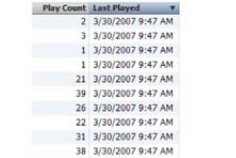

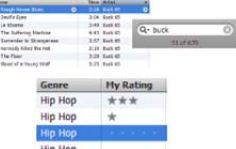


framework	cassette collection	digital music library	heuristics
digitizing musical history & memories			Music Charts Library “Snapshots”
organizing browsing & search			Visualizations Browsing ‘piles’ of music
personalizing playlists & sharing			Tagging “Email this”

Figure 5.1 Heuristic framework

Scope and limitations

The scope of the thesis is bound by several factors including the socio-economic state of the industrialized societies in the present day, and the differing roles of music across cultures and demographics in society. Although music is more accessible than ever due to the growth of personal computer use and network capability, this access is not spread evenly across the world but enjoyed primarily by people in countries with the greatest wealth and technological capabilities.

For the sake of this paper, the term 'music' will be seen as meaning the range of musical works that have been most affected by recording technology, those of 'popular music.' The researcher acknowledges that many more forms and styles of music exist but due to the demographics of the population in this study, the reader should situate this work within the bounds of western, popular music, and its culture.

Although this research aims to look at patterns in participants behaviour using tape cassettes, it relies solely on the photographic evidence and voluntary reporting from participants. Lacking further demographic information we can say few things about the group of participants. What we can say is that they are definitely computer users since the researcher/participant relationship was conducted solely online via a social software environment. It should be of no surprise then that this group listens to music on the computer, "Almost Daily" a situation that is most likely not observed in general.

Conducting research when your 'fieldwork' is the online has other drawbacks. The first was the context of being situated in the Flickr site. In the initial stages of this research, an attempt was made to get 'regular people' to join the site and contribute images of their tapes. This seemed a non-starter as even with some substantial attention in the media and online, only one participant that was not already a member of Flickr was seen to join the site and participate in the project. Even friends and colleagues of this researcher were not easily swayed as to the benefits of this tool. The site itself may have caused confusion for some potential participants for when arriving at the project group page, it seemed unclear to some exactly what they were looking at. Although I did try and supply some instructions for joining Flickr, I did not go to great lengths to pursue that and it may have become a barrier to participation. People that use Flickr are most likely technically sophisticated individuals who own or have access to a computer and the Internet. The data will accordingly be skewed toward implications for this group.

CHAPTER 6: CONCLUSIONS

It seems clear that music will continue to be an important part of daily experience and as the trend towards digital music grows, the computer will be central to the act of managing a personal music library. The heuristics put forth here consider interfaces at the level of the personal computer as the prime target of design consideration. The design of improved interfaces for the software that manages these libraries will increase the overall enjoyment of interacting with a music collection by making lasting records that can be shared and reviewed later, or provide enhanced visualizations of the collection to assist browsing. This thesis has reported on the results of an ethnographic study observing old collections of tape cassettes, and found that there are discoveries to be made in doing so that would benefit this process. By using three separate instruments, both researcher and user generated taxonomy, (or tagsonomy) and a survey tool, the images were analysed based on three propositions pertaining to the digitization, organization and personalization of media. The design of more effective methods to document digital music and track listening habits would give better feedback and a lasting record for reminiscing and reflection. As musical tastes change over time, it may be a benefit if these changes were recorded and shared with others. New means to visualize the contents of a library would also greatly improve the access and selection tasks that are involved in browsing a music collection. Methods to personalize a music collection through coding, or

social networking could give users a means to create personalized documents that could improve music listening by providing ways to recommends music to friends and create playlists quickly and easily.

As music collections continue to grow it will become increasingly difficult to manage and access them and new ways to so will be needed. This study was conducted to contribute to the discussions regarding the effects technologies have on the use of music, and how new tools can create richer, more meaningful music listening experiences.

APPENDICES

Appendix A: Survey questionnaire

Welcome to the cassette survey, and thank you for your participation!

This short survey (Only 26 questions) should take no more than 10 minutes to complete.

None of the questions are 'mandatory' so you can skip any that you do not want to answer, or are not relevant.

The first batch of questions (1-10) pertain specifically to the tape collection you took a photo of, and uploaded to Flickr.

There are some general music and technology questions that will follow. (11-26)

Question 1

My Flickr screen name is...

Question 2

Did you know about this research project before you took the picture of your tape collection?

Responses

Yes/No

Question 3

When was the last time you played one of your tapes?

Question 4

Do you still have the tapes pictured on your Flickr account, in your possession ?

Responses

Yes/No

Question 5

If yes, what is your main reason for keeping them? If no, why not?

Question 6

How many of the tapes in the image were given to you by someone else?

Responses

None

One (1)
Some (2 ? 5)
Quite a few (6 ? 20)
Most of them (20+)
All of them

Question 7

Did you own a portable tape player (Walkman) for listening to these cassettes?

Responses
Yes/No

Question 8

Do you ever listen to any of the music shown in the picture of your tapes?

Responses
Never. this music is dead to me
Occasionally. There are still some gems in here.
Often. This music is all still regularly played

Question 9

If yes, in what formats?

Responses
The original tapes
I repurchased the music on CD
MP3's
I hope to catch them on the radio once in awhile
none of the above

Question 10

What did you like most about using tape cassettes?

General music listening today

The next batch of questions (11 - 26) pertain to your general music listening habits today and what technologies you currently use.

Question 11

When was the last time you made a music mix for someone? (any format)

Responses
Days ago
Weeks ago
Months ago
Years ago
I never have

Question 12

How much music do you have in your entire physical music collection? (Tapes, Records, Cd's)

Question 13

I like to keep my physical music collection organized...

Responses

Alphabetically by artist

By Genre

My system is more complicated

In a pile, (I do not organize my music)

I no longer maintain a physical musical collection

Question 14

What are your preferred methods for listening to recorded music?

Responses

Entire albums with songs in the order they were produced

Customized playlists of my choosing

Shuffle, my entire collection completely random

Shuffle, but only my current favorites

When someone else chooses the music

None of the above

Question 15

What technologies do you use to listen to recorded music these days?

Responses

LP (records)

Tape cassettes

Compact Discs (CDs)

MP3's

Radio (AM,FM)

Satellite Radio

Streaming Internet (Any service)

Cable Television

Other

Question 16

Do you use an mp3 player? (ipod or other)

Responses

Yes/No

Question 17

How often do you listen to music on a computer?

Question 18

What is your preferred music player on the computer?

Responses

iTunes

Windows Media

Winamp
Other

Question 19

How much music do you have in your "music library" on the computer?

Question 20

Do you "rate music" using your software's rating system? (most likely the stars)

Responses

No: 34

Yes: 11

Question 21

What (if any) online music services do you use?

Question 22

How do you regularly acquire recorded music?

Responses

I download it from the internet, by any means necessary

Through friends

I buy it at the music store

I buy it online

I don't own a lot of music, its mostly broadcast for me

Question 23

Where do you often listen to recorded music?

Responses

My bedroom

The living room

The kitchen

The bathroom

At work

In a vehicle

Outside

At friends places

Clubs, Bars, Lounges etc.

Other

Question 24

When listening to recorded music, I am often...

Responses

Alone, by myself

Alone in a crowd

With my signifigant other/partner

With my some or all of my family

With a friend or group of friends

None of the above

Question 25

Have your music listening experiences improved since the days you listened to tapes? How?

Question 26

Please add any remaining comments about your music listening habits here

Appendix B: Questionnaire results

Question 1

Did you know about this research project before you took the picture of your tape collection?

Question 2

Did you know about this research project before you took the picture of your tape collection?

No = 37

Yes = 7

Blank = 1

Question 3

When was the last time you played one of your tapes?

1. Wow, quite some time ago. it was before I sold my VW, so I would guess... 2000?
2. November, 2006
3. 2 months ago
4. 3 years ago
5. No real clue -- I haven't had a working cassette player in years.
6. a couple years
7. 2000
8. 6 months ago
9. One week ago, in my car.
10. 5 years ago in my car
11. maybe about 3-4 months ago
12. about a year and a half ago maybe, don't listening to them now
13. 8 months ago
14. 1.5 years ago
15. For the tapes in the picture, 6 or 8 months ago. But I listened to an old mixtape in the car a couple weeks ago.
16. the day before yesterday in the car.
17. Yesterday
18. about 6 months ago (my car only had a tape player, no cd player)
19. a year ago approx.
20. December 2006
21. summer 2002
22. A few months ago. My new car doesn't have a tape deck. I used to listen to tapes daily.
23. yesterday, march 2
24. a week ago...i started playing them again when I found them cleaning out my mum`s loft. I hadn`t listened to them for a couple of years (at least) before that though.

25. Sometime in January '07.
26. In 2000. Megan's sister Chris was getting married, and Megan had rented a car with a cassette player (!) in it. I hauled out the tape she made and lent it to her for the weekend.
27. Around 2000.
28. 2 weeks ago
29. Today at 6pm, central standard time.
30. 2 weeks ago
31. within last 2 months
32. two years
33. today
34. today
35. 3 years ago
36. 1 year ago
37. about four months ago
38. july 2006
39. some time around Christmas 2006.. (not sure)
40. 6 years ago
41. 2 or 3 months ago, we play tapes when we're doing stuff in the garage or working outside
42. Last night!
43. I don't really know. Within the last year I gave some to my daughter to listen to.
44. About 4 months ago, but that was a bit of an aberration. Consistent tape use has been at least 2 years ago.
45. August 2006

Question 4

Do you still have the tapes pictured on your Flickr account, in your possession?

No: 9

Yes:36

Question 5

If yes, what is your main reason for keeping them? If no, why not?

1. I dumped them as they were taking up space in the closet, and I did not even have a cassette player anymore. Some of them were 20+ years old
2. Emergency music collection in my car. When nothing on the radio was any good I'd chuck a tape on.
3. Sentiment
4. sentimental
5. Switched over to CDs many years ago. Don't even really remember when the tapes disappeared, or where they went to.
6. sentimental value. one day i'll get around to digitatizing them (mp3).
7. I haven't replaced most of them, and there's a lot of good stuff on there that I might want to listen to again.

8. I was cleaning house and decided to take a picture of my tapes, no matter how shitty, before they left me forever. (I have also done this with my t-shirts, notebooks, etc.)
9. My family collects vinyl 78's, 45's, 33's and I want to continue the collection and possibly share it with my future family like my family has done for me..
10. apart from nostalgia, i do like the bands and have not transferred most of them into cd. meaning ive not bought the cd format of most of my tapes. also i think tapes, like vinyl has soul.
11. tapes look cool, and it's memory. maybe someday i will listen to them again, if i find a new player for them
12. I still like to play them.
13. Yes, I do want to convert some of the best ones to digital media. Second reason is simply that it brings back good memories, various tapes reflect certain times in your life.
14. Nostalgia, wanting to still be able to listen to the songs since I don't have a lot of them in another format.
15. My main reasons for keeping them are nostalgia and an inability to find those same songs strung together in such a meaningful order.
16. They are mostly tapes of hanging out with friends from 1984-present. I am in the process of burning them to MP3 format but have a long way to go
17. well, now they are in storage. But the main reason is sentimental I guess (that and I'm a bit of a pack rat)
18. nostalgia, retro feel, piece of history
19. They are still useful and enjoyable. For what I can't replace I intend to digitize when time & feasibility allows. Otherwise, I will keep them until they are no longer listenable.
20. Partly for nostalgia, partly because I like the fact that I 'own' each of these cassettes. I was about 12-14 years old when I bought them. Back then, shelling out \$10 for an album was a big deal. I guess I still think of them as a worthy investment, even though I don't play them any more. They've outworn their use, but they're still valuable to me.
21. I still have tape decks at home to listen to them. I only have much of that music on cassette, so I won't get rid of them until I update my media.
22. they contain music that is important to me or is difficult to replace.
23. sentimental, and some great @which would be hard to track down
24. Partly nostalgia, partly for the sake of collection and partly because some of the songs are rarely available now.
25. sentimental. I don't have a tape player, but those all have many memories associated, and the non-commercial tapes were made with affection. Very valuable.
26. Nostalgia; fetishism; because i like them as artefacts of time gone by; lots of reasons but i suppose i consider them as objets d'art in some way.
27. Have not had the time/desire to digitize it. The music was enjoyed when I got it originlly and it still hold true now.

28. I have the tapes because some of my favorite music is included on them. There is no CD player in my car, nor do I want one. The tape format allows each song equal playing time, which has led me to rediscover songs I once dismissed. Also, mix tapes have a personal history.
29. The media was worn out. Over the years, I have switched to CDs and digital files. I still have about a dozen tapes that I cannot find CDs for.
30. Not sure, still listen to them on occasion and haven't figured out an easy way to digitize them
31. my boyfriend & I pared down the cassette collection to rare tapes and tapes with high sentimental value. everything else was given to our neighbor
32. great music that still sounds great.
33. much of it is not available in today's market and quite a bit of it is my own personal productions.
34. they are part of my history, my life and my home taping world.
35. Nostalgia. The tapes did mean something to me at one point in time.
36. I'm slowly transferring old LPs and tapes to CDs and computer storage.
37. the tapes were made for my wedding, because the church didn't have a CD player!
 - 1) I have no other way to play those albums right now.
 - 2) I just like them (and all the other cassettes I have)
38. I don't have a cassette player anymore
39. sentimentality, and to have something to listen to when working in the garage or outdoors. radio reception is not great here, and we can't wear our ipods because we're having to listen out for the kids.
40. The tapes in my picture are actually just a subset of my overall tape collection, and I still have all the tapes I've ever bought or made, except for those that I've lost. I keep them because I still listen to them. They still work, and I see no reason to spend a lot of money buying music I already own in another format (I still own LPs, too). Also, I only have a tape deck in my car, not a CD player, so tapes are crucial for driving.
41. I might not be able to find that music again.
42. I keep all my pictures. Also, my choice in tapes is indicative of a particular time in my life.
43. sentimental value: some people can't throw away books, I can't throw away tapes or records.

Question 6

How many of the tapes in the image were given to you by someone else?

None: 8

One: 4

Some: 12

Quite a few: 15

Most: 3 All: 3

Question 7

Did you own a portable tape player (Walkman) for listening to these cassettes?

No: 10

Yes: 35

Question 8

Do you ever listen to any of the music shown in the picture of your tapes?

Never: 5

Occasionally: 30

Often: 10

Question 9

If yes, in what formats?

The original tapes: 26

I repurchased the music on CD: 22

MP3's: 28

I hope to catch them on the radio once in awhile: 11

none of the above: 3

Responses/participant

0 response: 1

1 response: 15

2 responses: 17

3 responses: 8

4 responses: 4

5 responses: 0

Question 10

What did you like most about using tape cassettes?

1. I liked picking which songs from an album I wanted to record; I liked filling in the full length of a 90 minute tape as albums were shorter, and I enjoyed making some meaningful combinations of albums and/or artists. It was a creative process for me, down to decorating the label
2. Just handy for listening in the car.
3. The fact that they didn't get scratched like vinyl albums
4. Creating mix tapes for others.
5. I had over 1000 cassettes, almost all of them for voice recordings of family. So, communication, archival info now. In situ recordings of family events, like field recordings. Old radio shows, Garrison Keillor's morning show in MN.
6. sharing them with people. they broke alot though.
7. Being able to make mixtapes to share with friends. One of the reasons I hate drm.
8. The transferability of music from computer or CD into a format playable in my car; the constraints placed on a c90 cassette.

9. Tapes you are able to not just only record music but your voice..its like a portable time machine.
10. the sound, the feel... as i said previously, i think they have soul, that cd or mp3 doesnt have. also when using cassettes for mixes.. it has more warmth, and depth, knowing how painstakingly it was done, cued, recorded etc.
11. tapes sound awesome absolutely different from anything else. it's their speciality. also i remember and really like the sound of music when i just press play button and it spins not fast enough for first 2 seconds. it's nice
12. I liked the look and feel of cassettes because of the sturdiness. I liked the mini art work that came with a tape. I loved making mixed tapes for friends.
13. Compact format, rerecordable, easy to read labels in my library.
14. Portability, size, and Walkmen were a great way of listening to things portably.
15. I liked how tactile and fragile they were. They are little gears and wheels that you put in a box and it spins and music comes out. It's magic. MP3s don't make any sense to anyone. Little zeroes and ones that sound like Lead Belly? That doesn't register to me. I like how a tape can be as much for your own creation as your reception of someone else's creation. If I don't like the end of a song, I cut it off and put in a great guitar solo from another song that I like better.
16. Small, easy to transport, easy to use in portable recording
17. At the time, that you could make mixed tapes of all your favourite songs.
18. better low end
19. analog technology & limitations (hiss, fidelity, etc), making actual mixtapes is still more fun than making mix-cds, it's just no longer easier; cassettes / audiotapes for a long time used to be the way to get your band heard and there was a big cultural-social aspect to handing this small package to a dj, agent or promoter. Most bands would have cassette tapes made before they were able to afford a vinyl ep and/or cd single. Flea markets still are a great place for strange and wonderful cassette finds, and the closer something is to extinction, the more beloved it becomes (often).
20. Opening the plastic wrapper the moment I walked in the door, pulling out the liner notes and reading the lyrics while I listened to the tape in my ghetto blaster. If the cassette didn't come with a lyric sheet or a multi-panel fold-out of some sort, I'd feel ripped off.
21. Customization--both in terms of the music and the packaging!
22. convenience, the ability to record, inexpensive blank media, ease of duplication
23. physicality...I still listen to vinyl for the same reason. I never liked pre recorded cassettes but I loved that you could make your own and recieve them from others.
24. Most of it was bought when I was a student, so it was the only affordable option at that point in time. As such, some cassettes had made excellent use of the limited space for packaging and cassette casing.

25. It was simply the medium we had at the time.
26. Facility; for in-car listening and the possibility to make compilations of my favourite tracks. Also, I enjoyed putting together tapes, with their very own homemade artwork, for friends.
27. They made music portable - ie walkman, vehicle, boombox
28. Again, the fact that I don't get to automatically skip songs is a bonus, not a detriment. Additionally, I grew up in an era (the early 80's), when tapes were blossoming. There is a sentiment attached to them that I just don't have with CD's.
29. I liked that they were more portable than vinyl.
30. They were the compact and portable format of their time. The ability to record my own mixes.
31. Portability, ease of use (compared with the vinyl records that predated cassettes)
32. -great sound
-easy format to produce with, very immediate hands on medium.
-affordable
-easy to store
-fun
33. one thing? nah! recordable, portable, and at the time everyone had a tape deck so you could trade with anyone
34. I could choose the songs to put on them. I also re-equalized and compressed some CDs for use in the car.
35. I don't. I never liked the quality of cassette tape, but it was the only consumer storage format available prior to burnable CDs.
36. What I liked most about cassettes was the ability to create "mixed" tapes. As a runner-up, I enjoyed the portability; it's not like you could haul off to college with all your record albums.
37. It was a necessity, as there was no CD player.
38. it was before the CD/MP3/I-Pod era. The cassettes were THE technology to make it possible to carry your music with you.
39. The ability to make mixes. Aside from that, not much... it was the only medium available.
40. didn't have a choice in high school, really. I like that they are small, and that you can load them up without having to handle them delicately like cd's. helpful when driving.
41. The tapes in my picture are all mixes that I made (except for one, which is a mix someone else started and I finished). I loved, loved, loved making mix tapes. I had a notebook with song times in it, and I spent a great deal of time figuring out how much space I had left on a side and what songs would fit there. It was extremely time-consuming, but I don't remember that bothering me.
I loved tapes because of their size--they fit in your hand!--and because they were so customizable. You could make a mix on the tape itself, decorate the case, decorate the exterior of the tape. . . I once had a conversation with a friend about the aesthetic of the cassette tape in which

we talked about all these things and more--I wish I could remember the rest.

42. Also, of course, tapes were fairly cheap, and relatively indestructible.
43. They were cheap, portable, and easy to copy.
44. CDs weren't available to me growing up because of the cost of a cd player and the cds. So tapes were the cheapest option. Also, my siblings and I had fun recording strange productions and mixes.
45. the recordability, if that's a word. making a tape of songs was a big labor of love - one of the first tastes of crafting something.

Question 11

When was the last time you made a music mix for someone? (any format)

I never have: 1

Days ago: 8

Weeks ago: 9

Months ago: 22

Years ago: 5

Question 12

How much music do you have in your entire physical music collection? (Tapes, Records, Cd's)

1. No tapes. I have a box of maybe 50 LPs stored at my mother's house across the country; perhaps 20 CDs
2. ~100 tapes.
~200 cds
~65Gb of mp3's
3. 1200 45s/12" singles
500 vinyl LPs
1500 cassettes
400 CDs
4. ~2500 albums
5. Only a few tapes left here and there. 20-ish LPs. ~1200 or so CDs.
6. 30,000 mp3s
7. who knows. a gazillion hours.
8. I haven't counted, but it sure is taking up a lot of space, so my guess would be ~250 cds, 80 tapes
9. 600 CDs, 200 LPs, 100 cassettes.
10. Too much music to count.
11. around.... 500 tapes/records/cds
12. thousands of albums. really very much. maybe 500 gb in mp3 and about 50 cds and these tapes.
13. Tapes: over 100
Records: over 200
Cd's over 300
A lot!
14. 160 CD's worth

15. If you add up everything, there's probably over 1,000 music recordings. At least half is CDs, lots of vinyl, cassettes are probably in the order of 100.
16. Both my wife and I together have approximately:
 - 275 cassettes
 - 70 twelve-inch vinyl albums
 - 30 seven-inch vinyl albums
 - 500-600 compact discs
17. About 300 records, 400 cassettes, 100-200 CDs, 30 8-tracks, 10 Reel to Reel tapes.
18. about 300 cds, maybe 30 records (in my parents basement) and maybe 100 tapes
19. 100 cd's
- 20 tapes
- 12 records
20. Less than 30 vinyl lps / 7"s / 10"s
 - less than 70 compact discs
 - 100+ audio cassettes
21. approx. 300 CD's; 20 LP's; 10 cassettes.
22. 1000s
23. 1500 albums
24. about a thousand records, a few dozen cds, and a shoebox full of tapes
25. Tough question. On the last count
 - Vinyl Records (father's) - 25-30
 - Cassettes - 50
 - Original audio CDs - 50
 - MP3 discs - 20-25
26. hundreds..... (but that's a joint collection with my partner)
27. More or less a thousand vinyls;
 - Maybe 1200 CD's and a couple of hundred tapes. I gave away many of the latter a few years back. I originally had around 500 or so.
28. ~20,000 songs (guess)
29. About 1000 pieces total, including tapes, Cd's and records.
30. Approx. 500 CDs, 150 tapes (now), 100 records
31. 400+ albums or roughly 4000 songs
32. about...2000 CDs, 300 records, 75 cassettes.
33. aprox 350 c.d.s, 450 records, 100 tapes.
34. over 5000 cassettes, have not counted the rest. LOTS.
35. 50 tapes
 - 200 CDs
 - 20 records
36. approximately 130 tapes, 800 LPs, 800 CDs, 100 minidisks
37. I retain about ten tapes (all mixes that are either of music I cannot repurchase or that have sentimental value because someone else recorded them for me).
 - One ipod with 3800 songs on it.
 - About 400 cds that are not recorded onto the ipod.

About 50 albums that I refuse to throw away even though I no longer have a record player.

38. 250+ CDs 150+ records 50 odd tapes

39. pretty much.

(sorry, I have never counted it)

40. 120 CDs

41. 20 gigs of mp3s, about 200 cds, about 100 tapes, a few records.

42. The numbers are approximate:

150 cassette tapes

100 LPs

150 CDs

43. I have no idea. It is a lot.

44. Tapes= maybe about 200

CDs = 150

No records.

45. 80 tapes, 150 records, 1400 cds

46. ~80 tapes

~20 LPs

~15 CDs

~4 45s

47. apx. 280 CDs, a dozen records, the cassettes pictured on flickr

48. more than a thousand

49. Hundreds each of albums, tapes, and CDs.

Question 13

I like to keep my physical music collection organized...

Alphabetically by artist: 24

By Genre: 12

My system is more complicated: 5

In a pile, (I do not organize my music): 15

I no longer maintain a physical musical collection: 1

Responses/participant

0 response: 0

1 response: 33

2 responses: 12

3 responses: 0

4 responses: 0

5 responses: 0

Question 14

What are your preferred methods for listening to recorded music?

Entire albums with songs in the order they were produced: 24

Customized playlists of my choosing: 23

Shuffle, my entire collection completely random: 15

Shuffle, but only my current favorites: 12
When someone else chooses the music: 3
None of the above: 1

Responses/participant

0 response: 0
1 response: 23
2 responses: 13
3 responses: 6
4 responses: 3
5 responses: 0

Question 15

What technologies do you use to listen to recorded music these days?

LP (records): 21
Tape cassettes: 20
Compact Discs (CDs): 41
MP3's: 40
Radio (AM,FM): 25
Satellite Radio: 7
Streaming Internet (Any service): 32
Cable Television: 4
Other: 2

Reponses/participant

0 response: 0
1 response: 0
2 responses: 13
3 responses: 9
4 responses: 10
5 responses: 9
6 responses: 9
7 responses: 2
8 responses: 0
9 responses: 0

Question 16

Do you use an mp3 player? (ipod or other)

No: 7
Yes: 37
Unanswered: 1

Question 17

How often do you listen to music on a computer?

Never:1
Rarely, a few times per month:2

Occasionally, maybe once or twice per week: 3
Regularly, at least 4 times per week:10
Almost daily:29

Question 18

What is your preferred music player on the computer?

Itunes: 29
Windows Media: 8
Winamp: 10
Other: 5

Reponses/participant

0 response: 0
1 response: 39
2 responses: 5
3 responses: 1
4 responses: 0

Question 19

How much music do you have in your "music library" on the computer?

1. About 6 Gb
2. ~65Gb
3. 2614 tracks
4. 863 artists/1752 albums/19k songs
5. 11,876 items: 72 days, 18 hours, 19 minutes, 30 seconds total time, 53.90 Gb.
6. 30,000 + mp3s
7. have no idea. gazillions of hours.
8. 13gb, 2440 songs
9. 13,000 songs.
10. 4,000+ songs..and not even half are on the computer.
11. about 50gb of music
12. about 200 gbs (all hdd space) + cds with mp3 data
13. over 5000 songs
14. 530 songs
15. Just shy of 5700 songs.
16. I really have no idea. About 1000 songs? I have yet to purchase songs online, so anything on my computer I ripped from my collection or from friends' collections, or downloaded from a podcast.
17. 40-60 GB
18. all my cd's (about 300) plus bought mp3s
19. 400-500 songs
20. 30,000+ songs
21. 7800 songs (52 GB).

22. About 10 GB, not counting Grateful Dead and Phish shows in FLAC and SHN format which I burn to CD. I don't like MP3 because it is a lossy format.
23. approximately 120 gb of mp3
24. a lot of weird mash ups, and downloaded mixes. I stopped paying for music online when i found that itunes was incompatible with my iaudio player.
25. 3GB
26. less than ten albums worth.
27. Around 800 albums
28. At work ~3500
At home ~4000
29. The only music I have is some of my own, which was basically converted to MP3 in order to email them to people. But, I no longer have my computer hooked up to my stereo.
30. Approx. 35 GB
31. 750 tracks
32. I don't know. Maybe 100 albums' worth. I'm not at home, so I can't check!
33. have only just begun using one in the past few months so i only have a small collection of about 200 songs thus far. not for long...
34. I keep my masters on the computer, collaborative recordings and a perhaps 20 hours of stuff by friends.
35. 800 songs
36. 5000 songs, which is only a fraction of my physical library.
37. slightly over 3800 songs (13.8GB)
38. 18gb
39. I don't know how to check it. I think I have pretty much music on the computer, but I don't know exactly how much. I usually rip my CDs to my computer so that I have my music when I work.
40. 10 Gb
41. 20 gigs
42. 2028 songs, at the moment.
43. 32.5 gig, 6511 files
44. not sure. around 300gb?

Question 20

Do you "rate music" using your software's rating system? (most likely the stars)

No: 34

Yes: 11

Question 21

What (if any) online music services do you use?

28 unique services were mentioned

Streaming - 28

Last.FM: 10
Pandora: 6
iTunes Radio: 2
internet radio: 8 [BBC radio, CKUA radio, CBC radio. iceberg radio (2)
EPITONIC: 1
raaga.com: 1

Peer to Peer - 5
Limewire: 2
bittorrent: 2
Soulseek: 1

Purchasing - 26
iTunes Store: 5
iTunes: 11
emusic: 4
Boomkat: 2
allofmp3: 1
Connect: 1
BurnLounge: 1
Bleep: 1

Free download - 4
sonicsquirrel.net: 1
podomatic.com: 1
Podcasts : 1
Mp3sHits.com: 1

Other - 4
download.com: 1
smashits.com (video): 1
archive.org: 1
I try to listen to the Hype Machine daily XM/Sirius in the car: 1

None: 4

Sevices/participant
null: 6
1 services: 22
2 services: 8
3 services: 5
4 services: 2
5 services: 1

Question 22

How do you regularly acquire recorded music?

I download it from the Internet, by any means necessary: 23

Through friends: 27

I buy it at the music store: 29

I buy it online: 26

I don't own a lot of music, its mostly broadcast for me: 1

Reponses/participant

0 response: 0

1 response: 9

2 responses: 16

3 responses: 14

4 responses: 6

Question 23

Where do you often listen to recorded music?

My bedroom: 25

The living room: 28

The kitchen: 25

The bathroom: 8

At work: 30

In a vehicle: 37

Outside: 16

At friends places: 17

Clubs, Bars, Lounges etc.: 16

Other: 12

Reponses/participant

0 response: 0

1 response: 2

2 responses: 6

3 responses: 8

4 responses: 7

5 responses: 7

6 response: 5

7 response: 2

8 responses: 4

9 responses: 3

10 responses: 1

Question 24

When listening to recorded music, I am often...

Alone, by myself: 39

Alone in a crowd: 11

With my significant other/partner: 23

With my some or all of my family: 11
With a friend or group of friends: 19
None of the above: 0

Reponses/participant

0 response: 0
1 response: 12
2 responses: 17
3 responses: 10
4 responses: 3
5 responses: 3

Question 25

Have your music listening experiences improved since the days you listened to tapes? How?

1. It's hard to compare. I would say I listen to a wider variety of music as it is easier to move between them when all are at your disposal
2. Obviously the internet makes it a lot easier to acquire music.
That said, even in the tape days (80s) I'd still swap/copy tapes with friends - just as I share mp3s with them now.
3. The sheer number of tracks on an mp3 player greatly improves the diversity of material I have available. Plus the lack of mechanical noise means I can listen in bed without disturbing my wife.
4. Yes
 - I can now carry most of my music with me
 - I listen to it in the order I want
 - There's no more flipping records or rewinding/fast forwarding cassettes
5. ...
6. Like mp3s a lot, better than tapes.
7. the same.
8. Since I got the ipod, I've been listening to a lot more music. Having my own personal soundtrack when commuting has been a life changing experience. Also, because I'm listening to so much more music, I need to buy it more regularly to keep things interesting.
9. I'd say not. My habits have been atomized thanks to the ability to listen to songs, or fractions of songs, at will -- time was, I would listen to a record for weeks straight, until I mined as much as I could from it, no matter the worth. Now it's all hooks and tricks.
10. I would say the quality has improved and online music gives us the users alot of variety without commercials.
11. yes, in terms of the net and mp3s. it is easier to discover new music now.
12. i got access to all music possible. in other words i got internet and it became possible to download all. so i downloaded all and listened to all. from classic and jazz to doom metal, techno and hip-hop

13. It has broadened my listening to all styles of music. It's easier to access, learn lyrics, read about the musicians and learn who influenced them.
14. Yes, easier to shuffle, manage my library and overall have access to a wider variety.
15. Yeah, I think the fidelity of the recordings have improved a lot since the age of the cassette. But mostly the convenience of listening to music has gotten better. The listener is far more in control of how he or she listens to his or her collection nowadays.
16. Yes. I have some nicer headphones now, a little more music in my collection, and a great circle of friends who turn me on to new sounds; but half the experience is being emotionally vulnerable, and that was definitely true when those tapes were first given to me. If I'm feeling especially sensitive and really listening, I can hear beautiful things everywhere.
17. MP3 format is clearer and higher quality. Problems like wow and flutter do not exist in MP3 formats
18. yes. it's easier to have with you (ipod) and not have to cart around all kinds of bulky tapes and have to pick your current favourites for a trip, now you can take it all with you.
19. yes...pandora has exposed me to many different types of music
20. Accessibility has improved greatly, but the experience of listening is much the same or perhaps less special. I enjoy music itself every bit as much and more than I have in the past, but the act of scrolling, pointing and clicking to access a song is in no way as special as physically getting up, going over to your collection, leafing through it to find the record, tape or CD to play to specifically fit a moment or mood. This is also one of the good things about working in a 2nd-hand record/cd shop. We still have to physically pick what album we're going to play next and the employees take turns doing so.
21. I listen to a much broader range of music and am willing to try out more styles and genres that I wouldn't have considered before. I can make customized mixes and playlists instantly. If I don't like a particular song on an album, I just have to deselect it in iTunes -- no more fast-forwarding. I can tag and rate individual songs as well, which helps me keep my collection organized.
22. I like the ability of buying one song at a time--not just single releases. I like being able to make a mix CD, but recording levels can be an issue. I don't spend much time on labeling, though that technology has certainly improved. I just use CorelDraw to create text setlists for the cover. I like that downloading formats have improved (lossless formats).
23. yes. i have better equipment and access to a wider array of music.
24. no, because i have less time and more demands on that time...i used to sit with a big stack of vinyl just putting on record after record. It's a lot harder to do that with a baby, with work,
25. The quality of sound has improved. The jarry notes of the 80's are gone, thankfully. Thanks to mp3 players and iPods, the need to carry a bulk of music when travelling is eliminated!

26. Yes, I have much more music now! Also, I was younger there, and so still developing musical tastes. I listen to artists from many different genres now. And I can listen to it anywhere. I have thousands of songs on my MP3 player, so I don't have to choose one or two cassettes when I leave the house.
27. What is meant by 'listening experiences'? As far as i'm concerned, on a good deck with a good amp and good speakers, nothing is as good as vinyl.
28. Sure - greater diversity in music. More live shows with greater appreciation of what I am seeing/hearing. Nothing beats a 6 CD player or MP3 set up in a vehicle on a long trip (compared to changing tapes)
29. No, I would say that they haven't. Years ago, my friends and I would drive around country roads late at night, either listening to mix tapes that we made each other or tapes of our own jams. Sometimes, we only had one or two tapes with us, but we'd just flip the tape and hear it all again. The personal feelings sewn into those drives is something that measures far above the cold, distanced feeling I get from sitting around someone's computer listening to shuffled music.
30. My listening experience has definitely improved with digital media. The devices are a lot more portable and versatile than tape players, plus the files cannot be physically damaged. A good example is a "book on tape". People used to manipulate 16 cassettes to hear a long book. Now those days are over.
31. I grew up and got less time to listen to music, so probably not.
32. I don't know. Since the advent of mp3s, I'm definitely tend to think and listen in terms of individual songs, rather than albums. I listen to a new album maybe once when I first get it, then I only listen to specific tracks once I've ripped the disc to my computer
33. may be not improved but changed...
different styles of music which means different venues, events, life style, people.
34. first was my sony 300 cd jukebox, then came my 30gig video iPod - random play options are the ult.
35. ...
36. The ability to instantly access a particular song or artist on an MP3 player is a huge improvement. Not having to wind or rewind tape is also a big advantage, and not having to worry about deterioration of tape is great.
37. For me, the biggest bonus of the advent of cds wasn't the sound quality but the ability to fast-forward and rewind songs without waiting. MP3s now allow me to create a "mixed tape" with greater ease because they aren't made in real time. You don't have to rifle through your collection, and you don't have to take them out of their boxes and then put them back where they belong!
38. an ipod changed the way i listen to music the most, in terms of where I listen (more places, more portable) and how i listen (ie playlists) i used to make tape compilations but this was maybe 15 years ago now. So yes.

- 39....
40. Yes... more choices.
41. improved"? not sure. definitely different, as it's easier to randomize on the fly if you are listening on a computer.
42. Well, I still listen to tapes, though not quite as much as I once did, though I think that's as much a function of age as of having other sources of music to listen to. I doubt I'll ever spend as much time listening to music as I did when I was in high school and college, when music seemed crucial. I still love to listen to music, but I don't feel as intensely about it as I once did. I wouldn't say that the experience has declined or improved--it's just not as high a priority as it once was, and I am often more content with silence than I once was.
- 43....
44. Yes. My house has an intercom system (which granted was around when tapes were) that's connected to our file server, so I can listen to either last.fm's stream or my own music anywhere in the house while I work without having to worry about carrying a music playing device. Also, I've tried both pandora and last.fm and both increased my range and enjoyment of music much more than listening to the radio (or mix tapes from friends) ever did. Last.fm effectively lets me listen to any genre, group, or the music of my friends' or niches'. The variety of online music stores offers more selection than brick and mortar stores did (at least that I had access to living in a small town growing up).
45. yes, thanks to the web. tapes were so cheap where i grew up (manila) that i was able to buy a lot + check out random stuff. that became less so with cds when i moved to the usa, but i still bought a ton. now, mp3s allow for a much wider sampling - too much actually. i used to listen to the same tapes over and over; now i sit on gigabytes of music that i downloaded but don't have time to listen to. it would have been unthinkable to own a box of tapes back in the old days and not ever listen to them. but it's also about my own age and growth/regression with respect to music; i'm not 15 anymore, discovering my own favorite songs for the first time.

Yes: 29

No: 5

Same: 2

Not sure: 5

Null: 4

Question 26

Please add any remaining comments about your music listening habits here

1. Fun project!
2. Music is good! Without it, life would be hella bland.

3. I never was a huge fan of cassette tapes. They were a slightly more convenient than vinyl, but fundamentally flawed. CD players were slightly better, but mp3 has totally changed how I listen.
I have several mp3 players with different genres - reggae, chillout, dance, whatever, and I grab the player that fits my mood.
4. ...
5. ...
6. ...
7. i dont end up buying a million batteries and going through walkmans anymore (i use to kill one ever few months)
8. One thing I don't enjoy as much as when I listened to tapes is drm and its limitations. So I still buy cd's and use emusic to avoid drm.
9. ...
10. ...
11. ...
12. listening them in headphones at home and on stereo system connected to pc at home. nothing much to add. :)
13. I can't live without music.
14. Constant battle for myself personally between trying to support artists by purchasing music online and downloading free music online. However, many of my cassettes were not purchased music either, so the argument is not all that valid.
15. I'm probably not a normal listener of music. I'm a DJ so I have more of a reason to dig through crates of music and consume a voracious amount of it than your standard listener. I predominantly listen to music on my computer, followed by vinyl and CDs last. Mostly when I buy CDs I listen to them a couple times, rip the songs I like and then shelve them. I get the rest of my MP3s from eMusic, music blogs and occasional file sharing.
16. Thanks for having me.
17. I like cassettes because they are neat and nostalgic, the same way I like my 8-tracks and reel to reels
18. basically music is very important to me and I find I use it a lot to complement whatever mood I'm in.
19. ...
20. As much as I love how much access and information and unpublished live material there is for every band out there, and the quality of music I think, despite the proliferance of it, is still great, I find for me, having so much music has tended to make me forget the truly great & essential albums of my life much sooner / easier than ever would've been the case prior to internet / high speed www access. This has just as much to do with my music addiction and curiosity as is does the actual availability. So, in this light, I'm actually slowly trying to cut down my consumption, increase my knowledge and appreciation of what I have and to attempt to defy the disposability that the digital age has brought into music.
Having said that, I doubt there will ever come a time when I will again own

more than 1000 compact discs, though if finances allow, I can still see myself gradually adding to my vinyl collection.

21....

22. Because so many bands (like jambands) offer free music sharing, I don't think there's that big a need to download music illegally. If a new artist is really great, I'll buy the CD; however, due to the economy I don't buy as many CDs as I used to. I'd sooner buy a well-packaged re-release/remaster of a *great* album I already own than pay good money for a lot of the current artists being promoted today.

I was happy to see that so many other people had pictures of their tape collections on flickr.com.

23. i have wide tastes and enjoy hearing new sounds. tapes helped that by easily allowing me to trade music or sample it. now i do this via the internet, though i still find fault with the quality of mp3, and refer lp and cd for critical listening.

24. i still love music!

25. I listen to a lot of folk (Indian), movie OSTs, and Rock. Also love Ballads by Shirley Bassey, Vicki Carr, Diana Ross, etc. I am not stuck to any genre, but my preference lies mostly with the artiste, which makes me extremely partial to Elvis.

26....

27. My only comment on this should be: I don't have enough free time to listen to all that i want to listen to but i do appreciate the fact of being able to transport and listen to a huge amount of my music collection on my trusty Sony NW-HD5 mp3 player.

28. With the tapes around still have the opportunity to bring back memories - good and bad. Surprisingly enough some if it even sits well with my teenage son.

29. When I get a new recording, whether it's on disc, record, or something I have taped, I often listen with headphones late at night, when the apartment building quiets down and I can hear the intricacies of the recording. It is often my favorite time to feel, hear, and understand the mystery of music.

30. My musical tastes were developed in the age of cassettes. I would come home from school and pop a Bad Brains, Mingus, or Pogues tape in my boombox. It was before I was aware of marketing and demographics ... before I became cynical about the music industry.

For me, cassettes help me recall a more innocent time, when my biggest problem was getting to the next level in Shinobi and where I was going to get \$1.89 for a Fishbone Cassingle.

31....

32. Since the advent of CD-burning technology, I have become very active in several "mix clubs," and now I often judge new music by its "mix potential." When hearing something new, I immediately start thinking of ways in which it might go well with other music I already have in my collection.

33. silence and sound can only be appreciated in comparison to each other. I love and need them both equally....music has always led me in the right direction while silence has given me the chance to reflect on it.
34. My listening habits are all about recordings I get in trade from friends worldwide - original stuff... since 1984.
- 35....
- 36....
- 37....
38. i think i'm unusually in that I still like to buy CDs, even if i burn these for ipod/itunes listening. tapes had a magic about them, and an amateur dj feel to them, and i used to make compilations regularly. I guess the flexibility of technology means that my 'playlists' are more flexible and change more than tapes.
39. can't without music.
- 40....
- 41....
42. I have an iPod, but I've never gotten in to the habit of using it regularly. I take it on airplane trips, and I used to use it on public transportation when I lived in the city, and once in awhile I go to the gym and take it along. But I've never become attached to my iPod in the way that I was to the string of Walkmans I owned (I carried those everywhere for years, and as a result they were always getting busted). Again, though, I think that might be as much a function of age as of anything else. If I'd been a kid when iPods came out, I'm sure I would have felt about my iPod the way I did about my Walkmans.
- 43....
- 44....
- 45....

Appendix C: Image listing

1. mixtape



URL: http://www.flickr.com/photos/bobby_stokes/386957304/

User description: www.flickr.com/groups/c30c60c90go/pool/ I've been cleaning out my mum's loft and i came across a few old mixtapes. I got this one when i was about 16 or 17, from a girl i liked more than she liked me.... but she still gave me this cracking tape. Great tan

User tags: mixtape mix tape punk blur cassette a.tribe.called.quest tank.girl sony blondie de.la.soul spiral.tribe dead.kennedys stiff.little.fingers right.said.fred suzanne.vega bassomatic jamie.hewlett pantera sham.69 pogues

Research tags: 07.02.11 *favorited *c30,c60,c90.go! *mixtape #001 *diy.cover !006 {narrative !bobby.stokes {old.relationships {making.mixes {cleaning.up !!contacted !!consent.approved ... on feb 17

2. Four Corners of a Room (photo clutter)



URL: http://www.flickr.com/photos/ereiam_j_h/83430276/

User description: too hungry to contain a future

User tags: painting art music media table metal.drawers shoe.bboxes tapes drawing cd's photo.albums lamp neurosis Mike.Watt's.signature clutter

Research tags: 06.01.07 *favorited *stacked *piled #050ish *cc !001 *blank *diy.lables !Ereiam.J.H. !!contacted !!consent.approved ... on feb 16

3. Angela's tapes



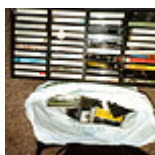
URL: <http://www.flickr.com/photos/draggin/349633268/>

User description:

User tags:

Research tags: 07.01.07 *added !angela *tape.storage *pre.recorded #050ish *bagged *piled !001 !!commented !!contacted !!personal.contact !!consent.approved ... on jan 17

4. Angela' s Tapes



URL: <http://www.flickr.com/photos/draggin/349628820/>

User description:

User tags:

Research tags: 07.01.07 *added !angela *tape.storage *blogged *pre.recorded #050ish !!contacted !!personal.contact !!consent.approved ... on jan 17

5. Tape Collection 01



URL: <http://www.flickr.com/photos/hexalyn/336575235/>

User description: I'm uploading these photos for my friend's thesis project about cassette collections. I thought I had trashed all of my cassettes a couple of years ago when my last tape player finally bit the dust. Yet I keep coming across tapes stashed away. I have no i

User tags: tape collection

Research tags: 06.12.28 *added *stacked *piled #004 *pre.recorded !hexalyn !!contacted !!personal.contact !!consent.approved ... on jan 17

6. uncertain participant's tapes



URL: <http://www.flickr.com/photos/draggin/323581475/>

User description:

User tags:

Research tags: uncertain.participant *added *tape.storage *pre.recorded *filed #018 !uncertain.participant !!contacted !!consent.approved ... on jan 17

7. Cassette Collection!



URL: <http://www.flickr.com/photos/byebyeempire/323372590/>

User Description: This is my "record collection" age 13 (or thereabouts). It's super-awesome.

User tags: cassette cassingle tape music colletion

Research tags: 06.12.15 *Vive.la.cassette *favorited *added *tape.storage *pre.recorded #041 *notes !Penningtron !001 *cc *filed !!contacted !!consent.approved {narrative {old.music ... on jan 17

8. Picture 054



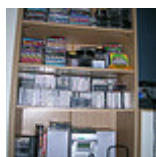
URL: <http://www.flickr.com/photos/51143464@N00/229801235/>

User description:

User tags:

Research tags: 06.08.30 *added #050ish *tape.storage *trash !theodd68 !!personal.contact !!contacted !!consent.approved ... on jan 16

9. My CD collection



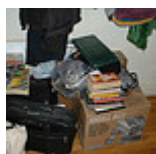
URL: http://www.flickr.com/photos/raver_mikey/282749877/

User description: Was bored at the time and decided to mess around with my camera, CD collection needs a good tidy up

User tags: home CD.collection

Research tags: 06.10.29 *favorited *shelved *filed *blank *notes #many !DCI.Gene.Hunt !!consent.approved !!contacted {narrative {old.music {old.times {cleaning.up ... on jan 13

10. hall9_atcure 10-07-06



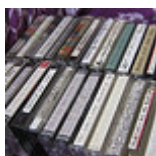
URL: <http://www.flickr.com/photos/29929156@N00/266851923/>

User Description: This is an outbox area by the front door. This stuff is being donated. The cardboard box is full of cassettes.

User tags: apartmenttherapycure cure apartmenttherapyny fallcure

Research tags: 06.10.11 *favorited *boxed #many *trash !marm !!contacted !!consent.approved ... on jan 13

11. mix tapes



URL: <http://www.flickr.com/photos/newrambler/155191253/>

User description: This is probably about 75% of all the mix tapes I made for myself from 1991-present. (I don't have a CD burner, so I still make tapes, though in recent years I've also made a few iPod playlists.) It's kind of surprising how many of them still survive.

User tags: mix.tapes

Research tags: 06.05.28 *mixtape *display !001 *cc *! !newrambler #029 *filed *diy.cover *diy.labels !!contacted !!consent.approved *personalization ... on jan 02

12. Digitize a C120 in 30 minutes



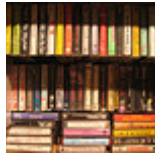
URL: <http://www.flickr.com/photos/selago/47161584/>

User description: The felt pads on old cassettes come loose and have to be glued back on. Various other things go wrong, so saved up a collection of spare parts, in the box. Digitized about 1000 cassettes last summer with a Portastudio 4-track unit, doing both sides at once

User tags: cassette tapes repair cedrella tape

Research tags: 05.09.27 *favorited *notes *blank *piled *tape.storage !aroid *boxed *manipulated !!contacted !!consent.approved {narrative {tape.fixing {tape.ripping ... on jan 02

13. scattered tapes II.



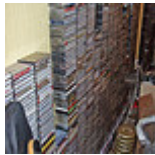
URL: <http://www.flickr.com/photos/stevenfiche/119559906/>

User description: More about nothing.

User tags: music

Research tags: 06.03.28 #050ish *display *shelved *filed !001 !narcofiche *pre.recorded !!contacted !!consent.approved ... on dec 02

14. Tapes



URL: <http://www.flickr.com/photos/cadd/71638599/>

User Description: Another small selection from the tapes.

User tags: music tapes cassettes

Research tags: 12.08.05 *added #many *display *Vive.la.cassette *stacked *filed !003 !cadd !!consent.approved !!contacted ... on dec 02

15. The music



URL:

<http://www.flickr.com/photos/88016903@N00/217993547/>

User description: Recorded on audio 'cassette'. The kids didn't know what a 'cassette' was. Long player anyone?

User tags: cassette wedding

Research tags: 06.08.17 *favorited *cc #003 *blank *home.recording *piled *stacked !DESQie *diy.lables !!consent.approved !!contacted ... on dec 02

16. It was time...



URL: <http://www.flickr.com/photos/55953400@N00/263367675/>

User description: Loss makes me want to clean. I have no idea why this is true because it only results in more loss. Perhaps because in comparison to losing a friend, losing my cassette collection suddenly doesn't seem like a big deal. Only clearly marked Mix Tapes from '

User tags: missbehavens

Research tags: 06.10.07 *favorited !004 *notes !missbhavens *trash #050ish *blank *pre.recorded *! {narrative !!commented !!contacted !!consent.approved {cleaning.up {personal.loss {old.things {tapes.keeping {making.mixes ... on nov 30

17. 100_2163)



URL: <http://www.flickr.com/photos/rizzia/302414474/>

User description: These are most of my cassettes. Some are music. A larger percent of them are recordings made with friends over the years. I had a habit of recording get-togethers with friends since the late 1980's

User tags: cassettes

Research tags: 06.11.20 *added #many *notes *K7 *Vive.la.cassette *piled *filed *stacked *tape.storage *blank *pre.recorded !SantoD !!contacted !!consent.approved {narrative {music.making {audio.recording {tape.finding {tape.gifts ... on nov 28

18. 100_2164



URL: <http://www.flickr.com/photos/rizzia/302414477/>

User description: Closer picture of my tapes

User tags: cassettes

Research tags: 06.11.20 *added *K7 *Vive.la.cassette *piled *filed *stacked *tape.storage *blank *pre.recorded #many !SantoD !!contacted !!consent.approved ... on nov 28

19. Sitting on Lead Into Gold and Big Audio Dynamite



URL: <http://www.flickr.com/photos/mediageek/275843765/>

User description:

User tags: Big.Audio.Dynamite The.Globe Lead.Into.Gold cassette tape analog k7 Bob.McKenzie

Research tags: 06.10.21 *added *K7 *Vive.la.cassette *art *display !002 !mediageek !!consent.approved !!contacted ... on nov 28

20. cassettes



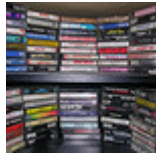
URL: <http://www.flickr.com/photos/mons/126267568/>

User description: My cassettes from college and about 3yrs back

User tags: apartment

Research tags: 06.04.10 *favorited #074 *pre.recorded *filed *shelved *walkman *stacked {narrative !Mai.Selph !!contacted !!consent.approved {old.music {college ... on nov 27

21. Heath Klipperts tapes



URL: <http://www.flickr.com/photos/draggin/245772308/>

User description:

User tags: tapes cassettes heaths.tapes

Research tags: 06.09.17 *added #090 *piled *display !heath !002 !!consent.approved !!contacted !!personal.contact ... on oct 22

22. Heath Klipperts tapes



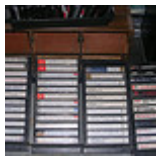
URL: <http://www.flickr.com/photos/draggin/245772106/>

User description:

User tags: tapes cassettes heaths.tapes

Research tags: 06.09.17 *added #072 *tape.storage *filed !heath !!consent.approved !!contacted !!personal.contact ... on oct 22

23. Heath Klipperts tapes



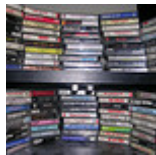
URL: <http://www.flickr.com/photos/draggin/245772164/>

User Description:

User tags: tapes cassettes heaths.tapes

Research tags: 06.09.17 *added #047 *piled *tape.storage !heath !!consent.approved !!contacted !!personal.contact ... on oct 22

24. Heath Klipperts tapes



URL: <http://www.flickr.com/photos/draggin/245772228/>

User description:

User tags: tapes cassettes heaths.tapes

Research tags: 06.09.17 *added #103 *piled *display !heath !002 !!consent.approved !!contacted !!personal.contact ... on oct 22

25. 2006_0718(006)

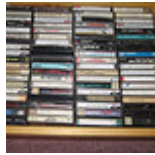


URL: http://www.flickr.com/photos/ereiam_j_h/83430276/

User tags: tapes

Research tags: 06.07.21 *added #055 *filed *drawer !nessman *cc *pre.recorded !002 !!personal.contact !!contacted !!consent.approved ... on oct 22

26. Rod McFarlands Tapes



URL: <http://www.flickr.com/photos/draggin/175099123/>

User description:

User tags: rod tapes cassettes *Mixtapes.&.cds *K7 *Vive.la.cassette

Research tags: 06.06.25 *added *tape.storage *notes *filed #080 !rod !!personal.contact !!contacted !!consent.approved {narrative {tape.review {old.music ... on oct 22

27. Rod McFarlands Tapes



URL: <http://www.flickr.com/photos/draggin/175099123/>

User description: www.flickr.com/groups/mycassettes/

User tags: rod tapes cassettes *Mixtapes.&.cds *K7 *Vive.la.cassette

Research tags: 06.06.25 *added *tape.storage *notes *filed !rod !!personal.contact !!contacted !!consent.approved {narrative {tape.review {old.music ... on oct 22

28. Shelves



URL: <http://www.flickr.com/photos/peteashton/125132176/>

User description: A small section of the pile of stuff by the desk that I thought looked interesting the other day.

http://www.peteashton.com/05/08/23/the_lost_neil_gaiman.html

User tags: shelves shelf bookshelf tapes stereo speaker books balls

Research tags: 06.04.08 *favorited *Bookshelf.Project *notes *stacked *piled *shelved #018 !006 !Pete.Ashton {narrative {audio.recording !!contacted !!consent.approved ... on oct 08

29. tapes from my childhood



URL: <http://www.flickr.com/photos/meer/118347/>

User description: A selection of tapes from my teenage years. Track listing from "Song Mix 1": (no date, prob. the early 90s) Side A Suburbia-Pet Shop Boys Do You Really Want to Hurt Me Flowers-The Clash Something So Strong-Crowded House Just Got Lucky 500 Miles-The Procla

User tags: music tapes archival teenageyears musicmix

Research tags: 04.07.26 *favorited *added !004 *blank *filed *notes #009 *display *piled *! !Meer *diy.labels !!commented !!consent.approved !!contacted {narrative {old.relationships {old.music {making.mixes {college ... on oct 08

30. Once upon a time



URL: <http://www.flickr.com/photos/kiyomi-and-the-gang/247660680/>

User description:...Quick reply to mRio. :)

User tags: music cassette tape drawer

Research tags: 06.09.19 *favorited *blank #008 !005 *filed *stacked *c30,c60,c90.go! *notes !Kym *trash *diy.lables !!contacted !!consent.approved {narrative {tape.review {tape.status ... on oct 02

31. Zan Hoffman's Cassette Obsession: K7 archive at Rubel

External
image

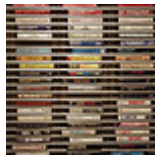
URL: <http://zhk7.blogspot.com/2006/02/k7-archive-at-rubel.html>

User description:

User tags:

Research tags: 06.06.29 *external #many *stored *shelved *home.recording *blogged *filed !zan for:draggin !!consent.approved !!contacted ... on oct 01

32. Craig's AWESOME Tape Collection!!!



URL: <http://www.flickr.com/photos/mbimotmog/92962673/>

User description:

User tags:

Research tags: 06.01.29 *favorited #100 *tape.storage *notes *filed !MBIMOTMOG *cc *pre.recorded !!contacted !!consent.approved {narrative {tape.review ... on sept 17

33. Moss's GD tape collection



URL: <http://www.flickr.com/photos/maxmsf/6037437/>

User description: View from above: moss's Grateful Dead tape collection to grateful dead tape collection

User tags:

Research tags: 05.03.06 *favorited #many *boxed *blank *bootleg *filed *cc !Maxmsf !!contacted !!consent.approved *organization ... on sept 17

34. New Kids On The Block is Love



URL: <http://www.flickr.com/photos/dagdrommare/222951720/>

User description: but we all know, those previous cassettes are just props. pffffffft. this is my true love. New Kids On the Block!! yahoooooo! from circa late 80s to their last. hahahahaahahaha my favourite was joey joe! maaaaan, i remember i had a dilemma then... i though

User tags: new.kids.on.the.block cassette

Research tags: 06.08.23 *display *favorited *notes #006 *! {narrative !pale.spectre *pre.recorded !003 !!contacted !!consent.approved {old.music {tape.review {old.times ... on sept 17

35. Cassette Collection box 2



URL: <http://www.flickr.com/photos/46333769@N00/243955848/>

User description: Old cassette tapes. Less mix tapes in this one, a few old school Public Enemy tapes and some obscure tapes like Izzy Stradlin and the Juju hounds and Mushroom Trail.

User tags: cassette tapes

Research tags: 06.09.15 *added *tape.storage #041 *notes *filed !caitlaka !!contacted !!personal.contact !!consent.approved {narrative {old.music {tape.status ... on sept 17

36. Cassette collection box 1



URL: <http://www.flickr.com/photos/46333769@N00/243955848/>

User description: Old cassette tapes from my high school years. Lots of mix tapes, and a fair bit of heavy metal/industrial music

User tags: cassette tapes

Research tags: 06.09.15 *added *mixtape *pre.recorded *tape.storage #050ish *notes *filed !caitlaka !!contacted !!personal.contact !!consent.approved {narrative {high.school {tape.review {old.music ... on sept 17

37. PICT0001_7.JPG



URL: <http://www.flickr.com/photos/whereisat/237612216/>

User description:

User tags:

Research tags: 06.09.08 *added #050ish *bagged *trash !whereisat !!contacted !!consent.approved ... on sept 17

38. digging into the vaults



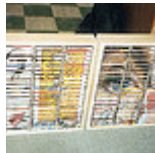
URL: <http://www.flickr.com/photos/84221353@N00/128481962/>

User description: I kinda miss cassettes. There's a hand-made quality that you just don't get with a burned CD.

User tags: cassettes

Research tags: 06.04.14 *favorited *display #013 !Rob.Cruickshank !002 *mixtape *diy.cover !!contacted !!consent.approved ... on sept 04

39. Napa Valley crates



URL: <http://www.flickr.com/photos/22658161@N00/224522575/>

User description: My cassettes form pictures when viewed together

User tags: cassettes art

Research tags: 06.08.25 *favorited *display *art #200 *! *filed !Al.B *diy.cover *diy.lables !!contacted !!consent.approved *organization ... on sept 04

40. my version of tapes



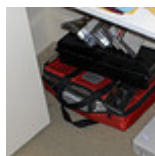
URL: <http://www.flickr.com/photos/crankbunny/55215772/>

User description: i found my old tapes. i picked the ones that had interesting labels - alot of them weren't labeled... cause i'm not known for being normally organized.

User tags: tapes old ancient WarriorInWoolworths

Research tags: 05.10.23 *added *favorited *display #012 *notes !005 !normah *diy.lables !!contacted !!consent.approved {narrative {tape.review {tape.receiving {tape.organizing ... on sept 04

41. Picture 053



URL: <http://www.flickr.com/photos/51143464@N00/229801233/>

User description: For the last 6 years this is where my tape collection has sat. This collection has followed me to every apartment I've lived in for the last 15 years. They followed me to Amsterdam where, to my dismay, I didn't have a tape player... once back in Van I fou

User tags:

Research tags: 06.08.30 *added #050ish *tape.storage *trash !theodd68 !!personal.contact !!contacted !!consent.approved ... on sept 04

42. Picture 057



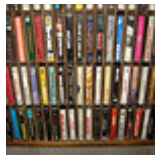
URL: <http://www.flickr.com/photos/51143464@N00/229801238/>

User description: This hurt soooo much. History in the garbage. 50 or 60 tapes. Most mixes that represented some period in my life. 4 months later I'm still having regrets. I should have buried the damn things in a time capsule. How else will I remember that Lynn made me s

User tags:

Research tags: 06.08.30 *favorited *trash *blank *added #050ish !theodd68 {narrative !!personal.contact !!contacted !!consent.approved {cleaning.up {old.music {old.relationships ... on sept 04

43. tapes 3



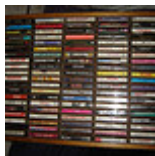
URL: <http://www.flickr.com/photos/andymal1/216357512/>

User description: One last look at my college tape collection before it goes to Salvation Army...
to 90s cassettes

User tags:

Research tags: 06.08.15 *favorited *display *trash *tape.storage #080 *filed !ghettobrooke *pre.recorded !!consent.approved !!contacted ... on sept 04

44. tapes 1



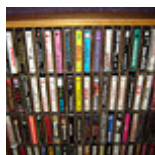
URL: <http://www.flickr.com/photos/andymal1/216357510/>

User description: One last look at my college tape collection before it goes to Salvation Army...

User tags: 90s cassettes

Research tags: 06.08.15 *favorited *display *trash *tape.storage #100 *filed !ghettobrooke *pre.recorded !!consent.approved !!contacted ... on sept 04

45. tapes 2



URL: <http://www.flickr.com/photos/andymal1/216357510/>

User description: One last look at my college tape collection before it goes to Salvation Army...

User tags: 90s cassettes

Research tags: 06.08.15 *favorited *display *trash *tape.storage #100 *filed !ghettobrooke *pre.recorded !!consent.approved !!contacted ... on sept 04

46. Looking to the Future



URL: <http://www.flickr.com/photos/2005well-wisher/176135086/>

User description: Lately, while driving, I've been reviewing old tapes full of song ideas in various stages of completion. Happily, I'm remembering numerous songs that still make me feel they are good and worthy of continued work. Now I just have to find my written music n

User tags: cassette.tapes
reviewing.old.song.ideas.while.driving.to.&.from.work Whole.Foods.bag

Research tags: 06.06.27 *favorited *vehicle *piled *home.recording #010
*bagged *blank !Well.Wisher {narrative !!contacted !!consent.approved
{driving.music {tape.listening {old.music {music.making ... on sept 04

47. Like 99% Of These Were Tossed



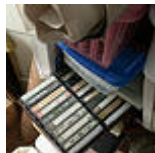
URL: <http://www.flickr.com/photos/swifty/22087459/>

User description: Oh, drawer full of cassette dross. What was in you? Thirty-six mixtapes I made full of mid-90s midwestern indie rock? Yes! Old Smashing Pumpkins bootlegs now freely available on the internet? Yes! A Mr. Mister album, for some reason? Yes! Goodbye, cassett

User tags: holland cassette.tapes

Research tags: 05.06.27 *favorited *drawer *trash *piled *notes *!
#050ish !003 !stephen.swift *mixtape *pre.recorded *blank {narrative
!!commented !!contacted !!consent.approved {cleaning.up {old.music
{making.mixes ... on sept 04

48. art shelf tapes



URL: <http://www.flickr.com/photos/carljohanson/7081963/>

User description:

User tags: art shelf tapes cassettes

Research tags: 05.03.21 *favorited *shelved *notes *filed !001
*tape.storage *blank *pre.recorded #020 !carljohanson !!commented
!!consent.approved !!contacted {narrative {tape.keeping ... on sept 04

49. old tapes



URL: <http://www.flickr.com/photos/zincink/130541210/>

User description: draws filled with old tapes

User tags: tapes cassettes sony walkman

Research tags: 06.04.17 *favorited *piled *drawer #013 *blank *walkman
*pre.recorded !zincink !!contacted !!consent.approved ... on sept 04

50. Some of my old cassette tapes



URL: <http://www.flickr.com/photos/lossless/10037509/>

User description: I still love them. Well, most of them. (Queen? What was I thinking? Plus that Alyssa Milano tape...)

User tags: 2005 april boston high.school music

Research tags: 05.04.19 *favorited *added *notes #034 *filed !007 *pre.recorded *stacked !lossless {narrative !commented !contacted !!consent.approved {tape.review {old.music {music.listening {high.school ... on sept 04

51. Who Needs the Radio?



URL: http://www.flickr.com/photos/ereiam_j_h/211458355/

User description: Every time my girlfriend gets into my car, I have to swipe away the pile of tapes that lovingly occupy the passenger seat. Often they are in three black, "case logic" tape holders, however extras always pile up as I take them to my car. These leftovers in this car comprise a handful of my favorite bands, and a couple mix tapes. The one mix tape that I can see is called "Party with Me Punker," named after the Minutemen song and it consists mostly of aggressive, noisy bands, such as Minor Threat, Crow, NoMeansNo, the Jesus Lizard, Lowassa and Big Black.

User tags: tapes audio car big.blue god.hates.us.all cassettes minutemen maxell dubbed tape.dub mix.tapes voivod mothingface party.with.me.punker nomeansno mama

User tags:

Research tags: 06.08.09 *favorited *vehicle *piled *Vive.la.cassette #010 *cc *blank *diy.lables !Ereiam.J.H. {making.mixes !contacted !!consent.approved ... on sept 04

52. my cassette pets



URL: <http://www.flickr.com/photos/japaneseforms/161580869/>

User description: Part of a huge collection of cassette tapes that I possess. Artefacts of another era. Memories of other places, other times.

User tags: cassettes minidisks artwork tapes

Research tags: 06.06.06 *favorited *piled *display *K7 #008 !japanese.forms !001 {narrative !contacted !!consent.approved ... on sept 04

53. mix tapes, another view



URL: <http://www.flickr.com/photos/newrambler/155191254/>

User description: I got more into mix tape art in the late '90s.

User tags: mix.tapes

Research tags: 06.05.28 *mixtape *display *favorited !005 *notes *cc *!
!newrambler #028 *diy.cover *diy.lables !!commented !!contacted
!!consent.approved {narrative {tape.review {old.relationships
{tape.receiving {making.mixes {tape.status ... on sept 03

54. Eternal Storage



URL: <http://www.flickr.com/photos/orangeprince/95218116/>

User description: Before my iPod, I had CDs. And before that, well, I had these. Someday someone will find them and play them. Until then, they wait patiently.

User tags: mikkor 18-70mm f/3.5-4.5G basement tripod tapes cassettes storage music audio

Research tags: 06.02.03 *display *mixtape *favorited #006 !001 *blank
!YourOrangePrince !!contacted !!consent.approved ... on sept 03

55. the mix



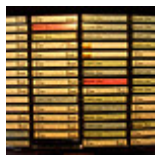
URL: <http://www.flickr.com/photos/donger/135169036/>

User description: the break up mix. in transit from the bay area.

User tags: mix tape cassette

Research tags: 06.04.25 *mixtape *vehicle *favorited *blogged *blank *cc
!donger #001 *display {narrative !!contacted {old.relationships
!!consent.approved ... on sept 03

56. Diary of a Deadhead



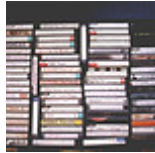
URL: <http://www.flickr.com/photos/holgalomaniac/198893676/>

User description: someone was actually throwing this out...check it out large

User tags: grateful.dead deadhead.collection 1967-1985 found.item

Research tags: 06.07.26 *notes *trash *favorited *bootleg *tape.storage
*blogged #059 !007 *filed *for.sale !e.dward *cc {narrative {tape.finding
{tape.review {old.times !!contacted !!consent.approved ... on sept 03

57. demo tapes



URL: <http://www.flickr.com/photos/venables/153116858/>

User description: A case of demo tapes I have made, or have been involved in making over the years. Live gigs, jams, 4-track stuff. Ahh...the years pre-computer !!

User tags: tapes demo idiot joy 4 track masters ivory tower

Research tags: 06.05.25 *added *home.recording *favorited #050ish *tape.storage *display *filed !Johnny.V *blank !002 *diy.lables !!commented !!contacted !!consent.approved ... on sept 03

58. cassetten



URL: <http://www.flickr.com/photos/frankai/58530908/>

User description:

User tags:

Research tags: 05.11.01 *favorited *tape.storage *mixtape *Vive.la.cassette *blogged !003 #050ish *filed :international *blank *boxed !frankai *diy.cover *diy.lables !!commented !!consent.approved !!contacted ... on aug 30

59. cassette culture



URL: <http://www.flickr.com/photos/dagdrommare/222951718/>

User description: so i was cleaning (trying to) my room earlier. hehe and i opened 1 of my cassette drawers.. hehe instant flashback. i havent listened to them for ages. maybe last time was when i was in college? cassette was the way to go... i didnt have **User description:** a cd player at my

User tags: tapes cassette cassette.tapes

Research tags: 06.08.23 *added *favorited *notes *tape.storage #038 *filed !pale.spectre *pre.recorded !006 *boxed {narrative !!commented !!contacted !!consent.approved {cleaning.up *diy.lables {tape.listening {old.music {making.mixes {tape.review *digitization ... on aug 27

60. tapes of my childhood



URL: <http://www.flickr.com/photos/suslik/126523252/>

User description:

User tags: music rock pop rap fun teen mtv tv tape shit hahaha nostalgie nostalgia nostalgia radiohead portishead rhcp my.teens

Research tags: 06.04.10 *added *notes *favorited #021 *filed *pre.recorded !001 {narrative !!commented {tape.review !soulsick !!contacted !!consent.approved ... on aug 26

61. Cassettes, Carts and 45's



URL: <http://www.flickr.com/photos/stevegarfield/211018081/>

User description: This bureau holds a lot of memories for me. Cassette tapes from when I was a kid, a college DJ, and a producer on a morning radio show in Boston. I've also got some carts in here, the things that look like 8-Track tapes, from my college radio show. Then t

User tags: cassettes carts 45s tapes collection personal.archive

Research tags: 06.08.09 *added *notes *display *drawer *home.recording !003 !stevegarfield *filed #050ish *blank *cc {narrative *diy.lables !!contacted !!consent.approved {old.times {college {old.media {tape.review ... on aug 26

62. Sonic Leftovers



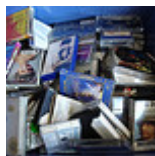
URL: <http://www.flickr.com/photos/clonpop/195884423/>

User description: A while back I photographed some of my old cassettes now inhabiting a Tupperware container in the basement. Some of them I bought used, others I ordered via snail mail during my full indie immersion in the 90's. Each saw the innards of my old truck's cass

User tags: cassettes cassette tape music oldtechnology cassettetape nikond70 nikon d70 indie

Research tags: 06.07.22 *added *notes *! *display *mixtape *favorited *K7 *Vive.la.cassette #030 !001 !Clonny *cc {narrative *diy.cover !!consent.approved !!contacted {tape.review {tape.buying {music.indie {sound.quality {cherished.object ... on aug 26

63. master set of tapes

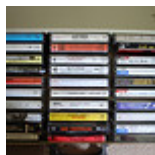


URL: <http://www.flickr.com/photos/m1k3y/117849556/>

User description: a big box of music tapes
to cassettes old.tech

Research tags: 06.03.25 *added *piled #050ish *boxed *blank *pre.recorded !M1K3Y !!consent.approved !!contacted ... on aug 26

64. my new ipod lol



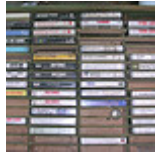
URL: <http://www.flickr.com/photos/m1k3y/117849493/>

User description: old tech way of carting music around

User tags: cassettes old.tech

Research tags: 06.03.25 *added #030 *boxed *filed !002 *blank *pre.recorded !M1K3Y {narrative !!commented !!consent.approved !!contacted {old.technology ... on aug 26

65. tapes



URL: <http://www.flickr.com/photos/whatnot/47632582/>

User description: Part of my cassette collection, from middle school through 2nd year of college, when I started buying CDs instead. Found these while cleaning out the garage last spring. The open slots indicate the ones Michael or I have pulled to listen to in the car or

User tags: cassettes 80s humiliation

Research tags: 05.09.28 *added *notes *favorited *tape.storage #050ish *filed !whatnot !008 *cc *pre.recorded {narrative !!commented !!contacted !!consent.approved {high.school {college {cleaning.up {tape.review {tape.listening {music.listening {tape.buying *! ... on aug 26

66. tapes from my high school era



URL: <http://www.flickr.com/photos/lush-life/195632576/>

User description: some junior high too

User tags: vintage skate case 80s cassette tapes

Research tags: 06.07.22 *added *piled *boxed *Corners.of.My.Home #050ish !003 !lush*life *pre.recorded *blank {narrative !!commented !!consent.approved !!contacted {high.school ... on aug 26

67. My high school music collection, Anchorage, AK



URL: <http://www.flickr.com/photos/djwudi/61662717/>

User description:

User tags: anchorage alaska music cassettes tapes scan

Research tags: 05.11.09 *added *shelved *filed *notes !!commented !006 {narrative {tape.review {high.school !djwudi !!contacted !!consent.approved ... on aug 26

68. Retired The Media



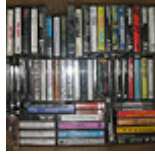
URL: <http://www.flickr.com/photos/cogdog/118629942/>

User description: I am cleaning out my home office, and in the bin today went the music of my high school and college years-- my carefully honed collection of cassette music (which has not seen light of day for the last 4 years or more). They say that media does not last f

User tags: nostalgia music tapes

Research tags: 06.03.26 *added *notes *trash *favorited #032 *filed *cc *tape.storage !cogdogblog !002 *pre.recorded *blank *diy.lables !!commented !!consent.approved !!contacted !!personal.contact {narrative {cleaning.up {high.school {college {old.music {old.relationships ... on aug 26

69. scattered tapes III.



URL: <http://www.flickr.com/photos/stevenfiche/119559907/>

User description: Something about nothing's something.

User tags: music

Research tags: 06.03.28 *added *favorited *Vive.la.cassette #050ish *display *boxed *notes *filed !004 !narcofiche *home.recording *pre.recorded *! !!commented !!contacted !!consent.approved {narrative {tape.review {making.mixes {music.making ... on aug 26

70. Cassettes found in basement

PRIVATE

URL: <http://www.flickr.com/photos/aseverson/192729222/>

User description: I don't have a cassette player anymore, so these cassettes are all kept for sentimental reasons. I also store them in a shoe box in the basement, so these were photographed on the dryer (yes, that is fabric softener in the background)

User tags: cassettes tapes music oldmedia

Research tags: 06.07.18 *added #007 *gift *display *mixtape *boxed *notes !Duckdeux *pre.recorded *blank {narrative *private *diy.cover *diy.labels !!consent.approved !!contacted !!personal.contact {tape.keeping {tape.review {old.relationships ... on aug 26

71. Old media



URL: <http://www.flickr.com/photos/murk/139080028/>

User description: Our house is full of collections of redundant and obsolete media. Vinyl albums and singles, cassettes, V2000 video carts, 3.5 inch floppy discs ... And yet, the older stuff is so much more attractive. Or is that "familiar"?

User tags: media cassettes music old obsolete outdated

Research tags: 06.05.02 *added *notes *stacked *favorited #033 *filed !murkredi !017 *pre.recorded !!commented !!contacted !!consent.approved {narrative {driving.music {mobile.music {old.media {tape.review {tape.keeping ... on aug 26

72. Cassettes for the Car and Walkman



URL: <http://www.flickr.com/photos/blazerman/178633933/>

User description: My cassette collection. Definitely some history here. I don't listen to some of this music any more. Growing up and having kids changes you.

User tags: cassettes

Research tags: 06.06.30 *added *notes *favorited *display *tape.storage #048 !003 *blank *pre.recorded *filed !BlazerMan {narrative *diy.lables !!consent.approved !!contacted {old.music {making.mixes {tape.review *digitization ... on aug 26

73. beneath the bed



URL: <http://www.flickr.com/photos/idiolector/56394129/>

User description:

User tags: K7 cassettes tapes music mixes

Research tags: 05.10.26 *added *notes *favorited *K7 #030 *cc !idiolector *tape.storage *display *filed !010 *blank *pre.recorded *mixtape *diy.lables !!commented !!consent.approved {narrative {tape.review {tape.receiving ... on aug 26

74. For Classic Ears Only



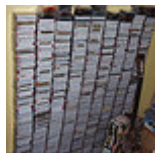
URL: <http://www.flickr.com/photos/intrigueimages/145664090/>

User description: These are old cassette tapes that I have had since the mid 1980's. I have not listened to them in years, but I thought I would put them to good use one more time here on Flickr.

User tags: tapes cassettes interesting interestingness music media jumbled analog sound sounds obsolete recording technology bands beatles clutter audio.cassette audio.cassettes magnetic.tape recordings

Research tags: 06.05.13 *added *favorited *Vintage.technology *piled #050ish *trash *blank !intrigueimages !001 !!commented !!contacted !!consent.approved !!consent.attribution ... on aug 26

75. Tapes



URL: <http://www.flickr.com/photos/cadd/71638598/>

User description: A small selection from my tape collection.

User tags: music tapes cassettes

Research tags: 12.08.05 *added #many *display *Vive.la.cassette *stacked *notes *filed !006 !cadd !!commented !!consent.approved !!contacted {narrative {tape.recording ... on aug 26

76. come see me tonight 2



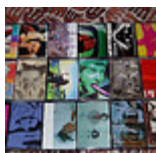
URL: <http://www.flickr.com/photos/dontbesostubborn/162365744/>

User description: this is a tape from 1998 or so from jenna, an old penpal. i still miss her. the other tapes are ones i made or sssb made.

User tags: cassette cassettes mixtape mixtapes tracklist handwriting jennastardust tampons tape tapes music

Research tags: 06.07.06 *added *display *Mixtapes.&.cds *K7 *Vive.la.cassette #009 *mixtape !002 !dontbesostubborn *stacked *piled {narrative *diy.cover *diy.lables !!commented !!consent.approved !!contacted {old.music {making.mixes {old.relationships ... on aug 26

77. MC-19959160063



URL: <http://www.flickr.com/photos/64181963@N00/164482274/>

User description: Minute Compact Cassette (Primal Scream, Bjork, Underworld, AIR, prodigy, Tricky, Daft Punk)

User tags: home cassette tabe casa musica

Research tags: 06.10.06 *added *K7 *Vive.la.cassette #018 *display *notes *diy.cover !!commented !001 {narrative {tape.review !an.ko.r !!contacted !!consent.approved ... on aug 26

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