Introduction

Although people experienced music in earlier centuries by performing at or attending live musical events, the ways in which people interact with music are changing rapidly with the new technologies of the twenty-first century (Nill & Geipel, 2010; Sloboda, Lamont, & Greasley, 2009). Digital devices and the internet require us to change the ways in which we think about the 'consumption' of music (Molteni & Ordanini, 2003). Today, the availability and ubiquity of music is unparalleled in history (North & Hargreaves, 2008) and the advancements in technology are not slowing.

Individuals still react passively to music in retail and commercial settings, but, to an increasing degree, they are also able to control what they hear in many environments beyond the home (North, Hargreaves, & Hargreaves, 2004; O'Hara & Brown, 2006). With advances in mobile devices (e.g., mp3 players and mobile telephones), people are more able to determine how, when, and where they experience music (Heye & Lamont, 2010; Juslin, Liljestrom, Västfjäll, Barradas, & Silva, 2008). With the growing popularity of digital files, the ways in which individuals are able to store, access, and acquire music have also changed (Kibby, 2009; Sloboda, et al., 2009). As Gaunt and Hallam (2009) emphasized, it is important that research studies account for these technological changes.

Moreover, research should be conducted under conditions that relate to real life. The 'everyday' context is large and varied, but it is important to consider how people experience music in naturally-occurring contexts (Lamont & Greasley, 2009). Since experiencing music is no longer confined to auditoriums and conservatoires, research can help explain how individuals interact with music in daily contexts, especially in relation to the use of technology. The ways in which we consume music are not simply about listening, but involve the ways it becomes integrated into our personal and social lives. This is determined by the technologies through which we experience it: 'how music is distributed, rendered, purchased, organized, shared, chosen, listened to, interacted with, and repurposed' (O'Hara & Brown, 2006: 3). With this in mind, it is important to explore how individuals use their digital music collections.

Collecting, storing and categorizing

Digital technology and the internet are firmly embedded in our daily lives (Ogan, Ozakca, & Groshek, 2008). Rideout, Foehr, and Roberts (2010) assert, for example, that adolescents spend more than a full time job's working hours each week with media and advanced technology, and that the increase in cellular telephones and mp3 players is causing an increase in media consumption. Along with media multi-tasking (the simultaneous use of multiple forms of media), the result is that users are increasing their rate of media consumption. For example, the Kaiser Family Foundation demonstrated that youth 'pack a total of 10 hours and 45 minutes worth of media content into those 7½ hours' (Rideout et al., 2010: 2).

More and more music collections exist not on shelves, but on hard drives and mp3 players, which affects how users handle them (Giles, Pietrzykowski, & Clark, 2007; Kibby, 2009). A music collection can be seen as both an archive and participatory practice (Kibby, 2009). People speak of mp3 collections just as they do CD or book collections, but digital music files do not take up physical space in the same way (Sterne, 2006).

Giles et al. (2007) question the effects of 'soft' digital formats on the psychological function of collections, arguing that displaying one's 'hard' record collection strongly reflects a display of personal identity. Those whose collections have grown using mp3 technology may have a different relationship to the format, however (Kibby, 2009). With the ubiquity of various technologies, individuals still have plenty of opportunities to 'display' their collections, albeit in novel ways. The organization of collections is facilitated by the digital format because attributes such as artist and title are embedded in digital files (Vignoli, 2004). Furthermore, the ease with which digital files can be renamed, altered, moved, and sorted offers many options (Cunningham, Jones, & Jones, 2004; Kinnally, Lacayo, McClung, & Sapolsky, 2008).

Categorization is highly personalized. In contrast to the recording industry's methods of style categorization, personal preferences cannot simply be sorted by genres or subgenres, as the boundaries between these are blurring (Greasley & Lamont, 2006; Hargreaves & North, 1999). Greasley and Lamont (2006) found that participants who were more engaged with music made categorizations on the basis of how they used music, of time periods, contexts, or in other ways more complex than simply by genre. And while the participants in Kibby's (2009) investigation reported that their file collections were 'highly organized,' what was meant by 'highly organized' varied widely.

Apple's iTunes

While there are many different brands of computers, software choices, and mobile listening devices, Apple has cornered the consumer market with iTunes and its range of iPods, iPhones and iPads. Available since 2001 (Awbrey & Scott, 2001), iTunes as a program is free to download for use on any personal computer. In 2003, Apple launched their iTunes store so that users could legally purchase and download music online: with a catalogue of more than 12 million songs available for purchase along with other media, Apple has become the largest music retailer in the world (Roth & Neumayr, 2010).

iTunes creates a virtual and flexible library for users to keep track of their songs. In their marketing, Apple suggests that people can easily browse and organize their entire media collection, and emphasizes the search, playlist (compiling sequences of selected tracks), shuffle (generating random sequences of tracks), and genius (generating sequences of tracks according to the listener's previous selections) functions (Apple Inc., 2010). The program itself provides useful statistics. For example, users can choose to display user ratings and play counts; and on the application screen, library totals are displayed (including item (song), time, and size totals).

Manipulating personal music libraries

Digital music allows for more interactivity between user, device, and music (Kibby, 2009), and listeners' use of functions such as playlists and shuffle have been investigated (Molteni & Ordanini, 2003). This reinforces our earlier point that the ways in which individuals experience music are changing as a result of technological development (Hargreaves, Miell, & MacDonald, 2002; North et al., 2004). The creation of playlists, which enables users to sort and regroup files easily into different sequences, allows them to change how they listen to music. Playlists are often repeatedly used (Molteni & Ordanini, 2003) and may reflect users' attempts at mood regulation or as an accompaniment to other activities (Cunningham et al., 2006; Heye & Lamont, 2010).

Cunningham and colleagues (2006) recognized a difference in the effort needed to craft a playlist as opposed to listening to music on shuffle (which randomly orders the presentation of a user's songs). It has been suggested that listening on shuffle may be related to one's engagement with technology and/or music (Heye & Lamont, 2010); that it can be used as a way to keep one's music collection fresh by avoiding 'over-listening' (Batt-Rawden & DeNora, 2005); or that shuffle is a default mode when a decision regarding a playlist cannot be made (Kibby, 2009).

Music and self-images

These developments mean that one's knowledge and ease of use of technology may play a role in one's self image. Molteni and Ordanini (2003) identified different downloading profiles ('occasional downloaders', 'online listeners', 'explorer/pioneers', 'curious', and 'duplicators'), and Lamont and Webb (2009) classified their participants as 'squirrel' or 'magpie' listeners in relation to how they selected their favourite pieces of music. Moreover, Heye and Lamont (2010) distinguished 'technology users' from 'technology consumers' in their study of mobile mp3 use while travelling. It is clearly important to consider how technology may interact with image and identity in terms of individuals' listening habits in the current digital environment.

Music serves as an 'identity badge' for individuals (Hargreaves, et al., 2002), indicating that individuals identify and define themselves by the music that they listen to. For example, 88% of Warlick's (2006) college student participants believed that the music on their iPods was representative of their personalities, and individuals have been shown to utilize multiple mechanisms to manage their identity in relation to their music libraries when these were displayed across a shared computer network (Voida, Grinter, & Ducheneaut, 2006). Impression management was achieved by actively controlling what music was shared - via playlist availability, or by what was uploaded to their collections. Participants also made educated guesses as to the owners of the other collections based on the musical content, and they used this information to make judgments about the users themselves. Aubrey (2003) described this use of others' musical 'badges' as the basis for personality judgments as 'playlistism'.

Reviews of the many different methods available for studying responses to music (see eg. Abeles and Chung, 1996), show that relatively few studies have investigated listeners' personal music collections. These have traditionally consisted of records, tapes or CDs: the data available from such an approach is potentially extremely valuable in that it gives direct behavioural access to the listeners' real-life musical preferences. However, it is only possible to investigate patterns of individual listening to different parts of these collections by means of interviews or self-reports. For example, De Las Heras (1997) asked 82 participants to complete questionnaires about their use of records, tapes, CDs and radio, using a series of rating scales which investigated the reasons and contexts of their music use.

Whilst self-report measures are subjective, and could thus be unreliable indices of people's actual listening behaviour, the analysis of the iTunes records of people who largely or entirely listen to their own digital libraries has the potential to provide comprehensive, detailed, and valid measures of authentic patterns of listening over long periods of time. Although studies of general media consumption and internet downloading have been undertaken, there have been no previous studies of individuals' use of their digital music libraries. Since digital music has altered people's ability to collect and use their music collections in different ways, and since music listening is no longer a passive activity,

empirical exploration of individuals' use of their digital music libraries has immense potential to throw light on the nature of contemporary music listening: in effect, this approach will represent a new and potentially very fruitful direction for research on real-life music listening.

The present study has two main aims: to develop the analysis of patterns of digital music use by developing different indices of listening behaviour, and to investigate the relationships between some of these indices and aspects of musical self-image. We formulate the second general aim with the following specific research questions:

1. Does the size of people's digital music libraries and the proportion of those libraries listened to vary by their level of musical experience or music engagement?
2. Are there significant correlations between the characteristics and usage of people's music libraries and their self-images?
3. Do listeners who have a 'technology user' self-image tend to be collectors rather than listeners: i.e. will they be likely to possess large libraries, yet listen to them less frequently?
4. What constructs are used to sort items in users' libraries? Do people use categorization/sorting labels consistently, or does this vary by use/needs? If this use is consistent, are the categorization labels that they use, and their sorting habits, related to musical experience or self-image?

Method

Participants

Sixty-nine university students aged 18 to 35 (53 females, 16 males) took part in this study. All participants attended a London-based University and were regular iTunes users. Individuals were recruited via email as well as through University-specific communities on the popular social networking website, Facebook©. Participants did not receive any compensation for their participation.

Procedure

This study was conducted electronically, with participants communicating via email. Participants first received an email message that included the participant information sheet, consent form, and questionnaire. It instructed them to read the participant information sheet and complete the consent form prior to completing the questionnaire (see below). Participants returned their completed consent forms and questionnaires as email attachments. Upon receipt of their attachments, participants received an email in response thanking the participants and a debriefing sheet.

Questionnaire

There were three sections in the questionnaire. The first asked for information about the participants, including their age, gender, musical experience, and musical preferences. Following previous research on musical engagement (Greasley & Lamont, 2006; Lamont & Webb, 2009), participants were also asked to rate 'How important do you consider music to be in your life?' on a 10-point scale ranging from 'not at all' (1) to 'extremely' (10), and also to rate 'How much do you listen to music daily on a 3-point scale ('less than 1 hour', '1-3 hours', 'more than 3 hours').

The second section asked the participants to complete the Musical Self-Images Questionnaire (MSIQ: Hargreaves & Rowe, 2010). This scale examines people's self-images by asking the participants to express their 'actual' and 'ideal' selves on 1-10 scales. The participants rated their actual and ideal selves on the following scales: 'musician (overall)', 'performer', 'composer', 'teacher', 'critical listener', 'fan/enthusiast', and 'technology user'. 'Technology user' was added to the original measure because of the technological aspect of digital music collecting.

The final section addressed the specific use of iTunes in relation to participants' digital music collections. These questions covered the size of participants' libraries; how their collections are displayed and sorted in the program; and how much of their libraries they had listened to. Additionally, participants rated how often they used the iTunes 'genius', 'shuffle', and 'playlist' functions.

Results & Discussion

Participants

Sixty-nine of 125 individuals who were approached completed the questionnaire, yielding a 55% response rate. Participants' written responses regarding their musical experience and education were categorized into 3 levels of experience. 22 individuals reported having no musical experience/education ('low'), the reports of 17 led to their categorization as having 'high' levels, and the remaining 30 were classified as 'intermediate' (representing 31.9%, 24.6%, and 43.5% of the sample respectively).

The majority of the sample reported that music was important in their lives. 6 people—8.7% of the sample—rated the importance as 6 or less, while 91.3% rated it as between 7 and 10 (10 = extremely important). Similarly, concerning daily listening, 6 individuals listened for less than one hour, 28 listened between 1 and 3 hours, and 35 people listened for more than 3 hours daily (8.7%, 40.6%, and 50.7% respectively), indicating that this is a major daily activity. Positive correlations were found between the participants' musical background levels and their musical engagement rating (r (67) = 0.29, p <.05), as well as between participants' musical background levels and their amount of daily music listening daily (r (67) = 0.45, p <.001).

The correlations between background and engagement and between background and daily listening seem straightforward: if individuals have devoted time to learning and/or experiencing music, this should relate to how important they consider music to be, and how often they might listen to music. However, the sizes of these correlations reveal a more complex pattern of relationships: for example, the correlation between musical background and daily listening is higher than that between musical background and engagement. The engagement questions did not rely on having musical education or experience—they addressed music listening very broadly: listening is often seen as an enjoyable hobby or daily activity, which might produce high ratings. Additionally, as the previous literature suggests, a college sample represents individuals with more free time and access to media (Kinnally et al., 2008); their engagement levels could therefore be higher than those of other age groups.

Self-images

Participants rated their 'actual' (A) and 'ideal' (I) selves on the 7 MSIQ scales. 'Self-esteem' (SE) scores were computed by dividing their 'actual' scores by their 'ideal' self scores in each case. Table 1 shows the significant correlations which emerged between these two measures of self-image and the measures of musical background, engagement, and daily listening on each of the 7 MSIQ scales: we can see that musical background was positively correlated with 4 A scales (musician, performer, composer, and teacher), and with 2 SE scales (musician, and teacher). This makes obvious sense, as these activities are typically those involved in learning to be a musician, including those associated with learning general and instrumental music at school. Musical engagement was positively correlated with A scores for the 'listener' image, and this makes obvious sense: if music is considered to be an important part of one's life, then listening is one way in which to interact with it on a daily basis. Finally, regarding daily listening, positive correlations were found with A scores for performer, and with SE scores for performer and teacher.

-Tables 1 and 2 about here-

Table 2 shows the significant intercorrelations amongst the 7 scales for A and SE scores separately: 12/21 of these were amongst the A scores, and 14/28 amongst the SE scores. A factor analysis was carried out on these correlation matrices: Varimax rotations of the principal components solutions for both sets of scores yielded two factors with eigenvalues greater than one. For the A scores, these two factors accounted for 64.4% of the variance, and for 59.9% of the variance of the SE scores.

-Table 3 about here-

'Musician', 'performer', 'composer', 'teacher', and 'listener' all load positively on factor 1 for both A and SE scores: 'listener', 'fan', and 'technology user' load positively on factor 2 for A scores, while those same categories load positively (along with 'performer', which has a weaker loading) for SE scores. We interpret this pattern of findings by labelling factor 1 as representing the 'musical practitioner' identity, and factor 2 as that of the 'music consumer': the self-images for the latter tend to be associated with the concept of music as a hobby.

Collections

Library size and listening

Participants reported the number of items in their libraries, as well as their libraries' running time and file size. Since individuals interact with digital music not in terms of bytes of data but by songs (Sterne, 2006), only the number of items was used as the size measure in the analyses. No significant correlations were found between this measure and participants' engagement, experience, daily listening amount, or age. Regarding library size and self-image, only one correlation was significant; there was an unexpected negative correlation between library size and 'actual' teacher image (r (67) = -0.28, p <.05), such that those who rated themselves higher had smaller libraries.

Previous research on collecting behaviour (Giles, et al., 2007; Kinnally, et al., 2008), prompted us to add the 'technology user' scale to the MSIQ in an attempt to address the technological aspect of collecting digital music. However, there were no significant correlations between the listening percentage and any of the A or SE scales. Listening percentage was also uncorrelated with engagement or participant age. Since no correlation was found between library size and the technology user image (A or SE), we are unable to

say that a technological self-image plays a role in collecting. Similarly, our findings show no relationship between collecting and self-image as a 'fan'.

Categorization

Visual presentation

Users elect how they display their digital collections visually. While the 'cover flow' and 'grid' options attempt to replicate a physical collection, the majority of users (79.7%) chose the 'list' view, presenting the collection as a dynamic spreadsheet (as opposed to 11.6 % for cover flow and 8.7% for grid). While album artwork can still be displayed, if desired, with the list view, physical display arrangements may not translate to digital collections.

Attributes

There are 38 possible attributes that can be displayed for each item, which can be used to sort a collection. 'Name' is the only required attribute and refers to the name of each individual item (song). Our participants actively used 25 of the 38 possible attributes. The number of attributes used per individual ranged from 2 to 11, with an average of 7. Table 4 displays the frequencies of use of the attributes which were utilized, as well as their percentage use in the sample.

As a default, iTunes displays name, time, artist, album, genre, and rating attributes. Predictably, those 6 (along with play count) are the top 7 attributes utilized (in excess of 59% of the sample). In fact, some of the participants stated that they had kept the default settings. No correlations were found between the musical self-image scores and the number of attributes employed by participants. The popular attributes do not require particular music knowledge, and they also correspond to the ways in which record stores display and catalogue music: users are clearly comfortable with these attributes.

-Table 4 about here-

Sorting

Any attribute can be used to sort one's collection. 'Artist' is by far the most common sorting attribute, utilized by 52.2% of the participants. Table 4 also shows the percentages attributes that participants used to categorize their collections. This choice can remain constant or can easily be changed, depending on a user's needs. Regardless of which attribute participants chose, 72.5 % of the sample said their choice was consistent, whereas 27.5 % said that it was not. The main reason offered for consistently using a specific attribute was efficiency: in fact, 18 participants used the word 'easiest' or 'easier' in their reasoning.

Reasons for choosing the 'artist' and 'album' attributes, for example, included that the resulting alphabetical listing made searching easier, grouped works by specific artists together, and that remembering song names was not necessary. Alternatively, date added or play count were chosen because they organize songs according to frequency of use, or make it easier to find the newer additions to the library.

Genre is often cited as how people and the music industry categorize music, but these findings demonstrate that it is not a popular choice among digital music users—it was only used as the sorting attribute by 4.3% of the participants. One participant said that genre presents an issue, as she needs to personally change item information to reflect what she considers them to be, rather than what iTunes automatically classifies them as. This comment

acutely expresses how music classification is a highly individual matter (Greasley & Lamont, 2006; Hargreaves & North, 1999), regardless of the specific attribute chosen.

Those participants who said their sorting was not consistent cited the flexibility that iTunes can promote (eg. alternating between two attributes, or using the 'shuffle' or search functions). Switching between two attributes depending on what music they were attempting to locate was commonly reported, and this highlights the plasticity of digital files. Without any physical organization, re-categorization of an entire library can occur with very little effort and at any time. Additionally, iTunes has a search tool that can be used, so that sorting may not even matter to a user.

iTunes functions

Listeners, no longer constrained by albums and track orders, can transform their listening experiences as active consumers (Molteni & Ordanini, 2003). The three iTunes functions described earlier ('playlist', 'shuffle' and 'genius') allow users to interact with their collections in different ways. It is clear from our data that individuals do not utilize the three functions to the same degree. Shuffle was used most often, as 72.5% of participants used it 'regularly' or 'a lot' of the time, compared with 52.2% for playlists, and 7.2% for the genius function. This reflects Heye and Lamont's (2010) finding that while commuting, shuffle was the most common way that listeners chose music. This could be because it requires less effort than playlists (Cunningham et al., 2006), which have to be created by users, although this does not apply to the automatic playlists that iTunes creates.

Genius function usage was positively correlated to both shuffle function usage (r (67) =0.26, p <.05) and playlist usage (r (67) =.25, p <.05). This could be because the majority of people do not use the genius function (84% of participants had tried it less than 5 times). If someone actually uses the genius function, they may be more likely to use the other 2 functions as well.

<u>Self-image and function use</u>

Actual (A) self-ratings on the composer scale were positively correlated with genius function usage (r (67) =.251, p <.05), which needs further explanation. Playlist function usage and three self-image scales were positively correlated, namely A and SE for 'performer' (r (67) =0.30, p <.05 and r (67) =0.27, p <.05), as well as A scores for 'fan' (r (67) =0.26, p <.05). A possible explanation for this association could be that since performers are used to crafting their own performances, their listening habits may also rely on using playlists in order to choose how songs are presented. Similarly, individuals who consider themselves as fans may like to take advantage of their ability to listen to exactly what they'd like their favourite performers to play via the creation of a playlist.

Conclusion

The rapid current changes in how we consume and use music highlight the importance of understanding people's use of digital music libraries. This involves the ways in which we manipulate, use, and categorize music, which is closely bound up with our musical self-images. This small exploratory study has shown that although listeners are active consumers of music, the traditional aspects of musicianship (performer, composer, teacher) are still seen as distinct from the linked roles of listener, fan, and technology user. Whilst this may be unremarkable, much more surprising are our findings on how people classify music.

Although the music industry continues to categorize music in terms of genres and styles, it is clear that individuals do not follow suit: our study has been able to throw some light on the wide range of different ways in which they do so.

Our study has also provided some new data on the functions of music: because digital music libraries allow users more control over their music, the study of their behaviour contributes to our understanding of what 'active music consumption' actually means. This includes investigating how users manipulate their music through functions such as playlists and 'shuffle', which enable them to use music to fulfil specific psychological ends such as mood management, entertainment, social accompaniment, and boosting motivation. The analysis of digital library records (in this case, from iTunes) can provide comprehensive, detailed, and valid measures of authentic patterns of listening over long periods of time. The empirical exploration of individuals' use of their digital music libraries thus has immense potential to illuminate the nature of contemporary music listening.

Our study inevitably has some limitations in terms of the size and homogeneity of the sample. Some of the indices of listening that we have derived could be improved upon in future studies: our measure of duration of program use, for example (based on the entry date of the earliest song in the collection) does not take into account users who have used iTunes for longer (eg, as a result of failed hard drives, new computers, changing library content, etc.), such that their content, size, and listening totals only reflect their present library usage.

Our study focused on iTunes, as this is by far the most widely-used program: there are, of course, other ways to listen to music digitally. Websites such as Spotify, Pandora, LastFM, and YouTube allow users to stream music via the internet. Users of these programs may not own or pay for this music, although they are able to access a vast amount of it, and can create playlists. These new options could plausibly create new styles of listening, and even new forms of musical interaction. If users can access desired music by using free web-based platforms, possessing a personal collection may lose its value – and this takes us back to the psychological functions of music. Our study represents a promising first step in the investigation of these important new issues: it is vital for research to keep in touch with these technological developments in order to maintain its ecological validity.

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List of Figures and Tables

Table 1. Significant correlations between self image scores, and musical background, engagement, and daily listening				
		Musical background	Musical engagement	Daily listening
Musician (overall)	Actual	r (67) = 0.65, p <.001	R (67) = 0.39, p <.001	
	Self-Esteem	r (67) = 0.54, p <.001		
Performer	Actual	r (67) = 0.34, p <.01	r (67) = 0.28, p <.05	r (67) = 0.28, p <.05
	Self-Esteem			r (67) = 0.27, p <.05
Composer	Actual	r (67) = 0.52, p <.001	r (67) = 0.30, p <.05	
	Self-Esteem			
Teacher	Actual	r (67) = 0.56, p <.001	r (67) = 0.34, p <.01	
	Self-Esteem	r (67) = 0.25, p <.05		r (67) = 0.27, p <.05
Listener	Actual		r (67) = 0.29, p <.05	
	Self-Esteem			
Fan	Actual			
	Self-Esteem			
Technology User	Actual			
	Self-Esteem			

Table 2. Significant correlations among self image scores							
	Musician (overall)	Performer	Composer	Teacher	Listener	Fan	Technology User
Musician (overall)		r (67) = 0.64, p <.001	r (67) = 0.58, p <.001	r (67) = 0.60, p <.001	r (67) = 0.34, p <.01		
Performer	r (67) = 0.55, p <.001		r (67) = 0.51, p <.001	r (67) = 0.52, p <.001	r (67) = 0.39, p <.001		
Composer	r (67) = 0.43, p <.001	r (67) = 0.50, p <.001		r (67) = 0.42, p <.001			
Teacher	r (67) = 0.42, p <.001	r (67) = 0.39, p <.01	r (67) = 0.40, p <=.001		r (67) = 0.32, p <.01		
Listener	r (67) = 0.40, p <.01	r (67) = 0.47, p <.001	r (67) = 0.29, p <.05	r (67) = 0.35, p <.01		r (67) = 0.34, p <.01	r (67) = 0.35, p <.01
Fan					r (67) = 0.30, p <.01		r (67) = 0.46, p <.001
Technology user		r (67) = 0.30, p <.05			r (67) = 0.34, p <.01	r (67) = 0.34, p <.01	

Note: The top right half of this Table shows the intercorrelations amongst the 'actual self' (A) scores, and the bottom left half shows those among the 'self-esteem' (SE) scores.

Table 3. Factor analysis of self-image scores.

	'Actual' (A)		'Self-esteem' (SE)	
	Factor 1	Factor 2	Factor 1	Factor 2
Musician	0.85		0.80	
Performer	0.80		0.74	0.32
Composer	0.79		0.72	
Teacher	0.77		0.73	
Listener	0.38	0.61	0.51	0.56
Fan		0.79		0.77
Technology User		0.83		0.81
Eigenvalue	2.71	1.80	2.51	1.68
% of variance	38.7	25.7	35.9	24

Table 4. Participants' use of iTunes attributes			
Attribute	Overall Frequency	Overall Percentage	Percentage as Sorting Attribute
Name	69	100	17.4
Artist	65	94.2	52.2
Album	61	88.4	15.9
Genre	54	78.3	4.3
Play count	50	72.5	1.4
Time	49	71	
Rating	41	59.4	
Album artist	24	34.8	
Last played	21	30.4	1.4
Date added	12	17.4	5.8
Category	6	8.7	
Album rating	5	7.2	
Track number	5	7.2	
Year	4	5.8	
Composer	2	2.9	
Episode ID	2	2.9	
Date modified	1	1.4	
Grouping	1	1.4	
Kind	1	1.4	
Last skipped	1	1.4	
Season	1	1.4	
Show	1	1.4	
Size	1	1.4	
Sort artist	1	1.4	
Sort composer	1	1.4	
Sort name	1	1.4	1.4