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MOBILE MUSIC TECHNOLOGY, COMMUNICATION ISOLATION AND
COMMUNITY BUILDING: AN ANALYSIS OF COLLEGE STUDENTS' USE OF
DIGITAL ENTERTAINMENT

BY

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ABSTRACT OF THE DISSERTATION
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This dissertation explores the social implications of MP3 use, and particularly focuses on the ways in which these technologies have the major effect of isolating users and the ways in which they facilitate sharing practices and social interaction.

This dissertation asks: why do students adopt MP3 devices, what are the social implications of use, what goals do students have in mind when using them, and do other factors such as personality, perceived technological aptitude and gender play a role in how individuals adopt and use these technologies?

A total of 43 students participated in three focus groups which were conducted at various points in February and March of 2006. A survey of 200 students was conducted during the month of April of 2007. Based on these data, it appears that social influence,

in addition to pure personal utility, play a role in adoption decisions. Dimensions affecting consumption behavior are the environmental isolation and personal entertainment factors which can be provided by the mobile players. However, a substantial minority of students also use the device not to isolate themselves but rather, to engage with other students. Additionally, the research confirmed prior studies indicating that males perceive themselves as having higher levels of proficiency in MP3 use and operation, but also more generally with technologies. The personality dimension of sociability was found to play a role in whether or not individuals physically share their devices with others. In terms of behavior and management of access to others, 87% of respondents indicated that they had, through their use, ignored someone else. A statistical relationship was also found to exist between the variables of dependency and having engaged in socially isolating behaviors. In terms of the theoretical implications of this research, it seems that Apparatus Theory (Katz & Aakhus, 2002), Domestication Theory (Silverstone & Haddon, 1996), and Uses and Gratifications (Katz et al., 1974) can all be applied to the MP3 dynamic.

In sum, this research found that students use their music technologies not only for solitary listening activities, but for sharing interactions as well.

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Introduction

MP3 and iPod technologies have gained immense popularity since they emerged on the market during the latter part of the 1990's and early 2000's, especially among college students. Scholars such as Putnam (1995) and Turkle (1996) have suggested that new technologies lead to social isolation while others such as Katz and colleagues (2001), as well as Wellman (2001) and Norris (2004) have demonstrated that Information and Communication Technologies (ICTs) have maintained, and in some cases, even deepened social bonds. This dissertation will explore the social implications of MP3 use with a particular focus on the ways in which these technologies have the major effect of isolating users and the ways in which they facilitate sharing practices and social interaction.

At the heart of this dissertation are several significant questions: why do students adopt MP3 devices, what are the social implications of use, what goals do students have in mind when using them, and do other factors such as personality, perceived technological aptitude and gender play a role in how individuals adopt and use these technologies?

To address these questions, data were gathered via three focus group sessions and a survey. A total of 43 students participated in these focus groups which were conducted at various points in February and March of 2006. A survey of 200 students was subsequently conducted during the month of April of 2007. Based on these data, it appears that social influence, in addition to pure personal utility, play a role in adoption decisions. Important dimensions affecting consumption behavior are the environmental isolation and personal entertainment factors which can be provided by the mobile players. However, a substantial minority of students also use the device not to isolate themselves

but rather, to engage with other students. These engagements include talking about and sharing their devices. Additionally, the research confirmed prior studies indicating that males perceive themselves as having higher levels of proficiency in MP3 use and operation, but also more generally with technologies. The personality dimension of sociability was found to play a role in whether or not individuals physically share their devices with others. In terms of behavior and management of access to others, 87% of respondents indicated that they had, through their use, ignored someone else. A statistical relationship was also found to exist between the variables of dependency and having engaged in socially isolating behaviors. In terms of the theoretical implications of this research, it seems that Apparageist Theory (Katz & Aakhus, 2002), Domestication Theory (Silverstone & Haddon, 1996), and Uses and Gratifications (Katz et al., 1974) can all be applied to the MP3 dynamic. Additionally, themes of identification also emerged within this study. In sum, this research found that students use their music technologies to reach their goals, create new meanings and norms for their technologies, and manipulate them in ways that fit their lifestyles.

Chapter 1

Chapter 1: Introduction: Statement of the Problem

MP3 players and iPod technologies have come to the forefront of the music and technology industry within recent years (Levy, 2006). The iPod has gained particular popularity since it first emerged onto the market on October 16th, 2001. Entering the market only a mere few weeks after the 9/11 attacks, Levy (2006) argues that the iPod provided users with an escape from the feelings of national tragedy. Levy writes,

Something odd began to happen. As the days passed and I bonded with my iPod, my spirits lifted somewhat. Maybe it was a recovery process that would have happened anyway, but it seemed hastened by the daily delights of the music that appeared on my iPod.

Without necessarily addressing the accuracy of this claim, it is nonetheless typical of the broad cultural attention directed to the technology. As further evidence, which also has generational implications, Levy notes that even President George W. Bush, is an avid iPod user. The President has said, “I’m a bike guy, and I like to plug in music on my iPod and forget how old I am” (Levy, p. 18). Could other users have similar thoughts about escapism? This dissertation explores how social construction and infrastructure work to play a role in how and why students say they use digital music technologies. It looks at the tropes of understanding and meaning that students use in interpreting technology, thus deepening our understanding of the cultural aspects of a mediating technology. A specific question which is examined is the extent to which MP3 and iPod players are used by individuals to detach themselves from society, thus perhaps leading to increased social isolation. A complementary question is to what extent these technologies can be used for social- community building in the sense that users may share, or perhaps

discuss its applications with others, thus potentially resulting in what are new and stronger social ties.

This dissertation will explore these new digital music technologies, as well as the impact they have on both users and non-users, through the exploration of a particular sect of the population whom are devoted users, college students.

MP3 players and iPods, much like mobile telephones, have allowed for the integration of public and private life which of course, has potentially innumerable implications relating to sociability. First, the technological design of MP3 and iPod players is such that users must wear headphones, or “earbuds.” In this sense, users can, in bringing this technology into the public realm, potentially segregate themselves from others. Users can also exhibit a sense of self, while simultaneously demonstrating solidarity by purchasing an MP3 or iPod player and the music to fill it.

The rapid diffusion of MP3 technologies has been especially widespread among college-aged students. As this dissertation claims, based on the research it presents, this may be indicative of the fact that digital music devices have become fashionable and cultural icons. However, at the heart of this diffusion may be the user’s need for commonality and cohesion, as well as self expression. In other words, one’s ability to download and purchase music can serve as a means not only of finding entertainment but also as a form of self-expression. Additionally, one’s ability to decide where, when and how he or she will use the device also allows users to create their own norms of use.

As to specifics, this dissertation examines MP3 and iPod use on a college campus. Preliminary data collection in the form of focus groups and an exploratory survey discovered that individuals use MP3 and iPod devices to achieve a variety of personal

goals. Such personal goals include environmental control (use at the gym), entertainment (during bus rides to and from school), to sop up surplus time (to distract oneself while waiting at the airport), and occasionally, to avoid contact with others. Perhaps surprisingly, students referred frequently to the use of MP3 technologies during “down” time----while walking to class, driving in the car, and waiting for class to begin.

Moreover, the exploratory results demonstrate that students are not only using their devices as a means of environmental control (such as to occupy their time during bus rides and trips to the gym), but also in sharing capacities with their peers. The latter is most interesting in that previous research has illuminated the isolating potentials of mobile technologies. Further, these devices are not inherently built for sharing activities which can be indicative of the fact that students are surpassing what their technologies afford to them, to create their own, specific and goal oriented affordances.

Drawing on focus group interviews and surveys, this dissertation argues that a potentially isolating technology can be used as a community-building mechanism. Central to this dissertation however, is the idea that users create their own meanings and uses for their digital music devices, as the focus group interviews also revealed that students frequently use their technologies in “sharing” interactions. Chief among these sharing interactions are such practices as loaning an earbud to a friend so that they may share a song, or during long car rides to make the travel time less tedious. In this sense, students are engaging in usage behaviors “afforded” to them (see Hutchby, 2001) but are simultaneously shaping their usage practices to fit their own needs.

Chapter 1.1: Rationale:

My aim in the following section is to provide an overview of previous research employed to understand both mobile technology adoption and use. Additionally, this section provides a rationale for why this research should be conducted at all, as well as an outline for how this phenomenon will be approached within this dissertation.

To give context, it is useful to consider a 2006 study conducted by the Ridgewood, New Jersey based, Student Monitor of 1,200 students. This survey found that iPods were more popular than several other contemporary technologies and practices including “text messaging, bar hopping and downloading music” (N.A., cnn.com, June 8, 2006). By comparison, a parallel study conducted during the previous year, found that only 59 percent of students felt that way about the iPod. As mentioned above, mobile music technologies have experienced increasing levels of popularity and college students are the most prolific of users. Switzer and Csapo (2005) also cite that “the most popular gadgets today in addition to cell phones include iPods, tablet PCs and personal digital assistants (PDA)” (p. 127). These devices have become so popular that many colleges such as Duke University are considering integrating iPods into their curricula (Switzer & Csapo, p. 128). In fact, in a two year-study of mobile technology use on a college campus, Lever and Chen (2006) found from their sample of 11,307 students, that teledensity levels increased from 12.6% in 2005, to 20.8% during 2006 and to 25% in 2007 (Chen, 2007; Chen & Lever, 2006). The Lever & Chen study demonstrates the prevalence of mobile telephone and digital music device use in public settings. Most vitally however, this study sheds light on the fact that mobile technology use has been growing.

1.2 College Students as Technology Consumers:

While college students have been enthusiastic MP3 users, previous research on technology use, such as that of Jones (2002), has shown that college students are active users of new technologies, especially, the Internet. This section will discuss some of the trends related to college students' use of technology.

Music plays an especially integral role in the lives of today's college students as is evidenced by Jones (2002). He reports that college Internet users are twice as likely to have ever downloaded music files when compared to all Internet users; 60% of college Internet users have done so compared to 28% of the overall population; and, college Internet users are twice as likely to use IM on any given day when juxtaposed with other Internet users. As Jones states "on a typical day, 26% of college students use IM, 12% of other Internet users are using IM on an average day" (Jones, 2002, p. 2). Jones attributes students' prevalent use of the Internet to it being a "staple of college students' educational experiences" (p.2). That is, the Internet is simultaneously a functional tool in which students can supplement and complete assignments, and a mechanism for entertainment.

College students have generally been at the vanguard of numerous societal changes and this dissertation will illustrate that MP3 use is indeed no exception (Jones, 2002). A long-time study of New Media maintains that college students have "been at the forefront of social change since the end of World War II" (Jones, p. 5). This sector of the population, for instance, was among the first in the United States to use the Internet for communication processes, entertainment, and file sharing. Jones argues that the Internet we experience today can be attributed in large part to college students; Napster and Yahoo! are for example, two of the various Internet applications fashioned by college

students. College students' interest in new technologies and their various applications can be seen through Pew Internet & American Life Project's study which found that when compared to the general population of Internet users, college students are three times as likely to download music "on any given day" (p. 6). Most notably however, college Internet users are twice as likely as typical Internet users to listen to music online on any given day (Jones, 2002). In a 2000 study conducted at the University of Southern California (USC) Latonero (2000) found that 69% of "all students surveyed say they download MP3s" (p. 2). Thus, not only are college students avid Internet users, but they also demonstrate a tremendous interest in music, which certainly may have implications relating to MP3 use. Also, similar to the Internet, students are now also being encouraged to use their MP3 for pedagogical reasons. Kervin and Reid (2006) discuss how teachers and instructors are increasingly searching for ways to educate children with the technologies that they are so accustomed to using. As Kervin and Reid (2006) explain some instructors have found that the iPod is a useful educational tool for some. The authors suggest that this method of learning is beneficial in that students appreciate that they can replay portions of their teachers' lessons instead of having to ask questions in front of a classroom of students. In this sense, perhaps MP3 players may act as tools for those who are less sociable or shy. This dissertation will explore how this dynamic might work.

In sum, college students are active users of technology and thus, this dissertation will look to previous research endeavors about college students' use of new media technologies. I will use these previous research endeavors to help inform this present dissertation and extend this research to the realm of digital music devices.

The next chapter will discuss the theoretical frameworks that will inform this dissertation, as well as a rationale for excluding other perspectives.

Chapter 2: Theoretical Framework

This chapter begins with a discussion of paradigms that have traditionally informed communication researchers, and more specifically, technology scholars. This overview includes a discussion of the theories that provide the framework for this dissertation as well as a rationale for excluding other theories.

2.1 Technological Determinist Perspective:

The following section will discuss the technological determinist perspective including a rationale as to why I will be using only elements of this framework within this dissertation.

Theories that use the technological determinist perspective argue that there are qualities inherent in the nature of certain media that lead to specific and immutable effects on the user and society. Through this approach to understanding technology use, one would use a particular technology and thereafter, derive specific effects. Deterministically driven theories are considered then to be positivist in nature in that they subscribe to the notion that technologies will derive “major social and historical changes at the macrosocial level of social structure and processes and/or subtle but profound social and psychological influences at the microsocial level of the regular use of particular kinds of tools” (Chandler, 1996, ¶1). For example, this perspective would argue that television and Internet technologies change society. As Chandler (1996) explains, some technological determinists may even adopt an extreme view from this perspective and say that society is *determined* by technology. In this way, users have no means

through which to control the effects of technology. That is, from this perspective, MP3 use can have very specific and intense effects on both users and those around them.

2.2 Social Construction Theories:

The previous section outlined the technological determinist perspective. As the previous section discussed, the deterministic approach argues that a given technology use will have specific immutable effects. However, in this section, I will discuss a different perspective: the social constructivist paradigm. Here I will be discussing the role that social influence plays in general technology use, as well as its potential role in MP3 use.

When applied to technological inquiry, social construction theories look beyond the physical components and structures of technologies so as to focus on the “social dynamics of the media selection process” (Fulk & Collins-Collins-Jarvis, 2001; Fulk, Schmitz & Steinfeld, 1990; Tan & Arnott, 1999, p. 7; Trevino et al., 1990). The social constructivist approach focuses on individual technology use and how it can be socially constructed. That is, individual technology use is frequently influenced by others’ use and/or their perceptions of the technology.

Fulk and colleagues (1990) sought to disentangle the social processes involved in technology use through their development of the Social Influence Model of Technology Use (Fulk et al., 1990; Fulk & Boyd, 1991). Informing the social constructivist ontology, this model argues that there is more to understanding technological impacts than just envisioning causal implications (i.e. the richness of a given media and the inevitable implications of use given task ambiguity) (Fulk, 1993; Fulk, Schmitz & Steinfeld, 1990). Working from an organizational communication perspective, Fulk and colleagues (1990) argue that media perceptions are frequently a by-product of social interactions that take

place between coworkers. Because this model focuses on how individuals come to understand their communication tools through interaction processes, this framework can indeed be extended to non-organizational settings and traditional dyadic exchanges.

Adopting several notions regarding technology use such as Salancik and Pfeffer's (1978) Social Information Processing Theory which argues that media perceptions can be a product of several learning behaviors: vicarious learning (social learning theory) and the observation of one's own behaviors (self perception theory) (Salancik & Pfeffer, 1978; Fulk & Boyd, 1991; Bem, 1972), the Social Influence Model focuses on how meanings of technology use are socially constructed. For example, one can derive meaning from their own use (self perception theory) in the following way: if a user observes him or herself frequently listening to his or her MP3 player, he or she may infer that this persistent use is due to a personal preference for the technology. One may also observe a friend using his or her earbud to share music with others, which in turn creates conceptions about normative behaviors. This creation of norms can also be facilitated through discussions of how one uses his or her MP3 player. For example, a user could tell another friend that he or she uses their MP3 player at the gym and that this use prevents others from approaching them and interrupting their workout. In turn, the friend could begin using his or her device in the same way so as to avoid social interaction at the gym. Through this system of observation and interaction, one gains a perception of how, when and why a technology should be used. Media perceptions and media use can thus be influenced through four social mechanisms: "direct statements by coworkers in the workplace, vicarious learning, norms for how media should be evaluated and used and social definitions of rationality" (Fulk & Boyd, 1991, p. 412). This dissertation will

focus on statements that friends and peers make, rather than those strictly made by co-workers.

The social constructivist perspective argues that one's perception of his or her technology is solely shaped by outside influences. However, this dissertation argues for an understanding of technology that is infused by infrastructure, as well as social influence. In this way, both the user and the capabilities of the technology help to determine how the technology should be used.

2.3 Adaptive Structuration Theory:

This section will discuss the Adaptive Structuration framework and how it incorporates both agency and structure in its framework for understanding technology adoption and use. The combination of both of these factors accounts for social influence, but balances this influence with the structure intrinsically included in the technology. MP3 players were built for individual use. However, how one decides to use his or her device may be informed by his or desire desire not to isolate others. This section will discuss Adaptive Structuration Theory and conclude with a discussion of its application to MP3 use.

Based on the work of Anthony Giddens, Adaptive Structuration Theory (AST) is a common ontological perspective that views human agency and social structure as interrelated concepts (Orlikowski, 1992). While the aforementioned technological determinist and social construction ontologies argue for objective and subjective understandings of technology respectively, Giddens negotiates between the two. As Orlikowski (1992) describes, technology acts as an “intervention into the relationship between human agents and organizational structure which potentially changes it” (p.

402). Further, as Star and Ruhleder (1996) describe, “over time, structure-agency relations re-form dialectically” (p. 111). In this sense, Giddens argues that there is an integration of human social action with larger systems, structures and institutions that are inherent in our society. And, it is this integration he argues, that allows society to consistently evolve. While rational choice theories and social constructivist theories argue that technology has a direct effect on users and that social interactions are key to understanding use, AST describes “the interplay between advanced information technologies, social structures and human interaction” (DeSanctis & Poole, 1994, p. 125).

Since AST is grounded within the organizational communication perspective, it uses Group Decision Support Systems (GDSS) in its explanation of how the paradigm works. Its central contention is that “structural properties of group support systems, tasks, leader direction and decision techniques” all act as “inputs.” The processes utilized by group members is referred to as appropriation while “outcomes” of technology and human interaction are considered to be “meeting efficiency, decision quality, group attitudes, and emergent social structures, which feed back to the influence processes” (Fulk & Collins-Jarvis, p. 644). That is, while technological inputs may be standard, the outcomes may not. In this way, AST accounts for technological infrastructure as well as human agency. For example, lack of synergy can contribute to negative outcomes as can a strict, immutable hierarchy within the group. Such differences in processes are referred to as “process gains” and “process losses” (Fulk & Collins-Jarvis). Advanced technologies are looked upon via this theory as offering “support” and “procedures” for accomplishing a task (Poole & DeSanctis, 1990; DeSanctis & Poole, 1994). Whereas

rational choice models argue that when certain technologies are employed during a given task, they have certain outcomes, Adaptive Structuration Theory accounts for the interactions and reshaping of social structures that take place during the use of technology. AST also accounts for the social processes that take place during technology adoption and consumption; however, it is not viewed as the sole factor influencing the outcomes of use.

In illustrating Adaptive Structuration Theory, DeSanctis and Poole (DeSanctis & Poole, 1994; Poole & DeSanctis, 1990) examined a small group interaction using the GDSS system and explain that similar technologies can be exacted in the same manner and still derive varying outcomes. The reasoning behind these differing results DeSanctis and Poole (1994) argue is that diverse groups utilizing this technology may experience different group dynamics and interactions. Adaptive Structuration Theory also considers the “spirit” of the technology, which is the “general intent” of the artifact (1994, p. 126). For example, a technology may have the intention of promoting democratic exchanges, but group processes may not facilitate this goal. AST also considers the structural features of the technology. For example, in having the spirit of creating democratic exchanges, a technology may also have the capacity to allow for anonymous exchanges (Fulk & Collins-Jarvis). In other words, the structure of the technology can facilitate its spirit. The spirit and structural features combine to act as the technology’s “structural potential” (p. 644) Further, Adaptive Structuration Theory includes a “structuration” component which is the process through “groups select, adapt and develop their own working structures from among those on GDSS” (p. 644). As groups adapt their structures of use, and re-use these structures, the appropriation process occurs. When

groups utilize the technology in accordance to its spirit, they institute what are referred to as faithful appropriations (Fulk & Collins-Jarvis). Cohesion between spirit and use, Poole and DeSanctis (1992) argue, will achieve more beneficial outcomes than use that is in discord with the spirit. There are a wealth of ways that MP3 devices can be used. However, not all of these are in accordance to the spirit of the device. For example, as will be discussed in the discussion of the focus group findings, several students indicated that they shared their earbuds with others; this does not match the intended spirit of the device. This does not mean however, that users are not gaining benefits from use; many users create their own uses and functions which benefit them. The potential for disagreement between spirit and use illustrates that MP3 use will not derive identical outcomes across all individuals that use it; this is the very foundation that Adaptive Structuration Theory is based.

Vital to DeSanctis and Poole's (1994) Adaptive Structuration Theory and Orlikowski's (1992) argument for the duality of structure, is the idea that although technologies may afford individuals specific use practices, the outcomes of use may be very different. This notion of affordances and the interplay between the infrastructure and spirit the spirit of technologies help to frame this dissertation. The focus groups conducted for this present dissertation demonstrated that while the infrastructure of digital music devices can presuppose isolation, students choose to use their technologies in ways that may differ from what the infrastructure intended, or allows for. That is, usage practices may indeed include isolating processes; however, as will be discussed in subsequent chapters, students are using their devices in ways that defy this isolating potential.

2.4 The Dystopian and Utopian Perspectives:

A fundamental argument of dystopian scholars is that technology use frequently results in social isolation (Putnam, 1995a, 1995; Turkle, 1996). As Putnam (1995a) explains, American society has witnessed a decline in civic engagement, as well as in social capital. He suggests that this decline may be because “technological trends are radically “privatizing” or “individualizing” our use of leisure time and thus disrupting many opportunities for social-capital formation” (§39). To explore this phenomenon of social capital and how it may or may not relate to the Internet, Turkle began researching Multi-User Dimensions (MUDs) during the early 1990s. MUDs are computer-based games that allow users to adopt a persona or character that will interact with other characters. She found that MUDs provide users with “an outlet for some people to work through issues in a productive way” (Turtle, §32). These contributions might suggest that MP3 players may, since they can be used in any location, “privatize” leisure time.

Such scholars as Putnam (1995a, 1995b) and Turkle (1996) argue that users may inadvertently or purposefully isolate themselves from their immediate environments when engaged in use. Putnam for example, has argued that technologies both old (such as television) and contemporary have isolated individuals from their families and community members. He argues that the decades since the 1960s have been marked by a staggering decrease in social interaction and civic engagement. He maintains that during previous generations, it was common to belong to such voluntary groups as the Rotary Club, or to play bridge or bowl in a bowling league. However, dystopian scholars assert that within the past 50 years, “social life has changed dramatically throughout the United States” as individually oriented activities, such as television viewing have increased (Eitzen, 2003, §1). Other scholars have echoed this claim, relating that relationships with

immediate others such as colleagues and neighbors have been on a continual decline (Putnam, 1995a; Turkle, 1996). In all, it has been argued by dystopia supporters that the “social glue” that once held our society together has been withering as more and more people have become increasingly isolated because of technology use (Eitzen, 2003).

Dystopian adherents such as Putnam (1995a, 1995b) and Turkle (1996) believe that modern technologies have continued and even exacerbated this trend of isolation (Eitzen, 2003). These scholars would argue that the emergence of increasing numbers of mobile technologies such as MP3 devices, inevitably results in social isolation. For example, Eitzen juxtaposes the years before air conditioning, when individuals spent time outside interacting with friends and neighbors against how individuals currently remain indoors with “windows shut enjoying the cool air, but isolating themselves from their neighbors” (Eitzen, ¶11). Eitzen would likely argue that the years prior to pervasive MP3 player use allowed for constant face-to-face interactions. Much like his argument about air conditioning, Eitzen argues that television, VCRs, DVDs, and video games have also fed our desires to remain at home. For example, prior to the creation of refrigerators, individuals went shopping on a daily basis and as a result, would interact with storeowners and patrons just as frequently (Eitzen, 2003). Thus, while refrigerators decreased the amount of food that spoiled, they also simultaneously “changed interaction patterns” whereby individuals were decreasing their number of interactions with others including grocers and store patrons (Eitzen 2003, ¶13; Putnam, 1995a, 199b; Turkle, 1996). Further, recent influxes of computer and telecommunications technologies have allowed an increasing number of individuals to work from their homes. Eitzen (2003) writes that in 2000, 28 million Americans reported that they worked from home. This

dynamic allows for the substitution of face-to-face interactions with computer and telephony interactions. Implications of such a working environment include, of course, increased feelings of independence, but also the absence of “rich social networks” which may serve to deprive one of lasting work relationships (Eitzen, 2003, ¶14).

In all, scholars such as Putnam (1995a, 1995b), Turkle (1996), and Eitzen (2003) argue that contemporary technologies, while improving the potential for increased levels of communicative activities, actually serve to isolate individuals. In other words, scholars who adopt this dystopian, Luddite view of technology believe that as one spends more time engaged in computer interactions, he or she has less time to pursue real time, face-to-face interactions (Putnam, 1995a, 1995b; Turkle, 1996; Eitzen, 2003). Further, these same scholars argue that these missed relationships deprive one of familial and friendly interactions, resulting in deteriorating relationships. As Eitzen explains, the use of “e-mail, voicemail, fax machines, beepers and Internet chat rooms are robbing us of ordinary social talking” (Eitzen, 2003, ¶13). Direct interactions help to foster and maintain social relationships. To illustrate this point, Eitzen asks the reader to consider how frequently he or she has “hid behind technology and sent an e-mail rather than make a phone call to avoid the live interaction” (¶ 13). Eitzen might likewise ask how many times we have opted to put in our earbuds instead of interacting with a neighbor that we may not have seen in a while.

However, the dystopian perspective fails to account for interactions that may not have taken place if it were not for technology, as well as the fact that technology use does not always derive the same effect. For example, Wellman & Quan-Haase (In Press) suggest that Putnam’s (1995a, 1995b) assertions are not entirely correct; they argue that

84 percent of American Internet users are involved in online communities. Thus, Wellman and Quan-Haase state that “such high levels of participation in online communities suggest that the Internet has become an alternative route to being involved in groups and pursuing interests” (§14). Further, the authors also cite a 2000 Pew study which found that those who belong to online communities “say that the Internet provides them with an alternative means to connect with people who share their interests” (§14). In other words, the Internet can provide a means through which new social ties can be established. Additionally, other scholars such as Katz and colleagues (2001) found that existing relationships are not damaged by Internet use as dystopian scholars might argue. For example, Katz and colleagues (2001) found that when looking at Internet users versus non-users, those who were long-term users “were the most likely to have met with four or more friends, whereas those who were not even aware of the Internet were least likely to have met with four or more friends in the prior week” (p. 413). Further, Haddon found that Internet use actually brought families together (Haddon, 2004). Katz et al. found in 2000 that 59% of long-term Internet users “agreed” or “strongly agreed” with the statement “In your social life are you frequently away from home?” whereas 34% of nonusers who had not heard of the Internet agreed or strongly agreed (Katz et al., 2001). Additionally, Wellman and Quan-Haase(2002) found that social interactions among friends living in proximate locations was prevalent. Through a study conducted in 2000, Wellman and Quan-Haase found that “email users report that 58 percent of their contact with friends and 83 percent of their contact with kin are with those living within 50 kilometers: within a one hour drive in most developed areas” (§19). Further, Wellman and Quan-Haase found that “email is an important medium to keep in touch with friends

and relatives but as the amount of email send and received increases, interactions and phone calls do not decrease” (§24). (Norris (2004) also found through analysis of data derived from the Pew Internet and American Life Project that active online users perceived that the Internet “widened” their experience of community by facilitating access to individuals that they might not ordinarily have contact with. These same users felt that the Internet “deepened” their existing social networks (Norris, 2004). Similarly, could not the MP3 player invite conversations about music such as “what are you listening to?” Such conversations would not ordinarily take place because we have traditionally listened to music in isolated places such as our cars. In this sense, MP3 players can structure and re-structure the norms of conversation and public interaction much like its predecessor, the mobile phone has done. Prior to the mobile phone, it would be highly uncommon to hear someone walking down the street alone asking “What are you doing?”

The Internet has also offered promise to those who are displaced or otherwise isolated, as demonstrated by Bakardjieva and Smith’s 2001 findings that indicated that persons who are handicapped or housebound actively use the Internet to foster connections. Additionally, Haddon (2004) argues that many studies have actually found that there is no correlation between Internet use and decreased levels of “family communication” time (Haddon, 2004, p. 65). In other words, the conception held by many dystopian theorists that technologies imminently result in isolation is not concrete.

Just as with the Internet, there have been attacks on individualized music devices for their isolating potential (Bull, 2004a). He posits that many of us desire solitude while walking and interacting among many. He states that “this solitude is an accompanied

solitude in which people walk to the personalized sounds of their personal stereo or drive to the sounds of their favorite radio station or CD” (p. 243). In other words, because these technologies provide users with a solitary listening environment, there is the potential for users to isolate themselves and others. As Bull explains, “an increasing number of us demand the intoxicating mixture of noise, proximity and privacy while on the move” (p. 243). Similar to how many drivers will get into their cars and switch on their radios “to unwind,” digital music devices allow users to escape from their immediate locations. This thus invites criticisms relating to the isolating potential of these devices. This dissertation will explore whether, and to what extent MP3 players isolate both users and non-users from social interactions. As Katz (2001), and Norris (2004) discuss, the Internet does allow for shy persons to interact with others. MP3 players do not naturally invite interaction; however, perhaps these technologies will then create different social implications than their Internet predecessors.

The next section will discuss the role that identification and fashionability plays in how one chooses to adorn themselves, not only with clothing, but with technology as well.

2.5 Identification & Fashionability:

This chapter explores how MP3 adoption and use may be influenced by one’s need to be fashionable and/or identify with others. Previous studies relating to technology, identification and fashion will be discussed, as well as how these studies influence this present dissertation.

MP3 and iPod devices have enjoyed a worldwide gain in popularity, comparable to that of the mobile phone during the late 1990’s and the earlier part of the millennium.

As Campbell (in press) notes, the number of mobile phone subscriptions had already met 1.3 billion worldwide by 2003. In fact, in a study of 25,000 radio listeners from 69 different stations, 47 percent of respondents indicated that they had an iPod or MP3 player. Another 45 percent claimed that they would likely purchase one of these devices within the next year (Smith, 2007, ¶2). Users' rapid adoption of such mobile technologies has driven scholars to look at how people integrate modern technologies into their lives. What scholars such as Lemish and Cohen (2005) have found is that individuals are identifying with their technologies to such a great extent that many describe their technologies as "extension[s] of self" (p. 191). For example, the authors report that one of their respondents in a study of mobile phone use said that the mobile phone had "become part of [their] body" and that several others had agreed with this perception (p. 191). McLuhan (1964) has addressed this very issue and argues that when looking at technology, one must consider its social implications and how they can manifest themselves on a variety of levels. These are the same questions that should be asked of MP3 devices; are they slowly becoming part of what we see on the typical body? What are the implications of this? Further, McLuhan acknowledges that technological influxes shape both society as a whole, and the individuals who consume them. It is this shaping of media consumers that McLuhan was interested in when he argues that technologies can become extensions of man.

This dissertation explores how MP3 devices shape users and how users shape them. The extension of man perspective highlights how most tools used in everyday life can act as extensions of one's self. McLuhan argues that items such as clothing can be considered extensions, as they are extensions of the skin. In this sense, a pen is the

extension of one's arm and is used to write. While many tools are powered by individuals, like in the example of the pen, the pen plays the most pivotal role in getting the job done: in this case, writing. This dissertation argues that the device that one uses to listen to music can also be an extension of self. One can use the MP3 player to not only listen to music but also as a representation of one's views of fashion. In this sense, the MP3 device is used not only to listen to music, but to play a part in one's outfit or appearance.

McLuhan (1964) argues that with these extensions of one's self, come reciprocal amputations. For example, the mobile telephone "extends" one's voice to parameters previously inaccessible to individuals, but simultaneously "amputates" society but creating excess noise, and fostering potentially rude behaviors on behalf of users. Similarly, MP3 players and iPods serve as an extensions of one's listening capacities, but may be amputating in the sense that they can alienate immediate others or inhibit the user's hearing both in immediate instances (one may be unable to hear others or crucial traffic sounds), or long-term (listening to one's iPod and MP3 at excessively high decibels has been linked to hearing loss—See Keizer, 2005). Or, on a smaller scale, a potential amputation of the MP3 player may be social isolation. In other words, some extensions and amputations can be viewed in both a negative and positive light. For example, individuals may choose to listen to their digital music devices with the sole purpose of tuning out, and not being able to hear others. This can be considered an amputation to some, but an extension to others.

The extension of man perspective was pioneered to critically analyze media consumption, but McLuhan later developed four tetrads or laws that help to more

scientifically determine the extensions and amputations of technology. The first law addresses what the media or technology “extends;” the second question asks what the tool makes obsolete; the third question asks what is retrieved via the technology and the fourth question asks what the technology reverses (Gronbeck, 1981). This last question addresses which aspects of one’s life are sacrificed as a result of the technology. For example, recent technological innovations have allowed for what Katz and Aakhus (2002) refer to as a sense of “perpetual contact.” This perpetual contact may result in users being consistently available to others, which again may be viewed in either a positive or negative light. In this way, the mobile telephone amputates a sense of solitude that, once upon a time, was much easier to achieve. This constant accessibility may result in being unavailable to immediate others, which again, may be viewed either positively or negatively. With regard to the MP3 player, perhaps users are sacrificing interactions with others. However, the potential negative amputations that can be derived from technology use have not hindered consumption as users are continually looking to media tools for information, and/or entertainment. As Katz and colleagues (1974) argue, we may look to technology to find out what is going on in the world around us, but also, to gain a sense of fitting into this world. This process of “fitting in” can be facilitated by our consumption of the technology, as well as through our derived understanding of world events. In other words, we use our respective technologies in ways that fit our needs, and for many of us, our need is to fit in.

The need to fit in is indeed a strong one and can motivate technology consumers to use their tools in ways that will meet this goal. Pre-dating this phenomenon however, is the use of clothing and garb as mechanisms for understanding and relating to others.

Individuals have been demarcating and classifying themselves via artifacts and clothing for centuries. That is, many clothing trends frequently speak to the social issues that occurred during these times (Crane, 2000). For example, as Levy (2006) previously noted, the iPod phenomenon may have gained almost immediate popularity because it helped users deal with their distress following the 9/11 attacks. Because it is so inherently and obviously visible to the rest of the world; clothing can be the voice that says “this is who I am.” For example, Pratt and Rafaeli (1997) conducted a study of nurses and patients in a rehabilitation unit and specifically analyzed how they perceived their own clothing and that of other nurses. One nurse indicated that,

Patients who wear pajamas, and see hospital garb around them think of themselves as sick. If they and their caretakers wear street clothes, patients will think of themselves as moving out of the sick role, and into rehabilitation. They will be ready for life outside the hospital. This is the rehab philosophy, and this is what makes this unit unique (¶2).

This particular rehabilitation center lacked a standard dress code and as a result, some of the nurses wore scrubs and others wore street clothes. This created a concern among some of the nurses that the patients engaged in cognitive associations regarding what certain outfits convey. In response to other nurses wearing street clothes one nurse said:

We are medical and health professionals. We do professional work. We take care of sick patients, we deal with their bodily fluids, and their slime all over us. So we should all look like medical professionals, we should be dressed in scrubs (¶).

Whether or not the nurse’s statement is accurate, Pratt & Rafaeli (1997) acknowledge that dress can manifest itself as symbolism, whereby one’s clothing can be a mark of affiliation. Conversely, lack of consistent garb can denote a lack of solidarity. Pratt and Rafaeli argue that this system of dress allows the nurses to answer the question “who are we as nurses on this unit?” In this way, dress implicitly dichotomizes the groups of nurses and establishes competing identities to which they can belong. As Katz

(2003) discusses in his “machine becoming us” framework, technological devices can also serve as a type of dress or garb. One’s method of dress and the devices that they carry can act as symbols that convey meaning to others (Katz, 2003). The meanings that can be conveyed through MP3 use can include norms, which may include what is considered fashionable and what is not.

Altering fashion trends have also spoken to changes within society and how certain groups interact with one another. For instance, many historians have argued that the United States was a “classless” society during the 19th century because many wealthier individuals realized that even those not considered wealthy were still dressing as such. The wealthier individuals of this time period thus bought richer fashions with a decreased frequency, thus eliminating any true means of distinguishing the rich from the poor. Crane (2000) argues that this lack of monetary demarcation symbolizes the path to democracy that the United States was on. Technologies certainly seem to make the same progression whereby initially, only a select few individuals will utilize certain tools until they become more and more economically feasible for the rest of the population to adopt them. Further, as Cawson and colleagues (1995) explain, innovators and manufacturers recognize that certain products will diffuse more rapidly than others simply because there is an element of fashionability to them. Clearly, individuals are more likely to choose a certain item of clothing based on fashion patterns (as opposed to other concerns such as durability), than are individuals who are considering purchasing a certain type of oil heater. One’s status or aspired status, certainly play a role in the adoption or consumerism of products. As Cawson et al. argue, symbolism and pleasure are certainly motivating factors when consumers are considering purchases. For instance,

individuals may consider what others may ascertain their social status to be based on the purchase that they are making. For example, individuals whom are in the market for an MP3 player may consider what carrying around this device conveys. They may also consider what age group is usually associated with a certain purchase. Cawson and colleagues explain that originally, the Walkman was associated with a younger generation and that it was not until it had been on the market for several years that it became more “widely socially acceptable” (p. 49). This may shed some light on why college students are currently the most active digital music technology consumers. Also, the prominence of digital music technologies may serve as a sign that individuals in today’s society do not perceive that they need constant face-to-face interaction and in fact, at times prefer isolation that is only accompanied by the sound of music.

Davis (1992) argues that our sense of whom and what we are is derived through our sense of time, nature and culture. This sense is frequently represented in our attire and as mentioned previously, can also serve as a demarcation representing one’s sense of self. Pacifici and Girardi (2003) add that individuals also derive a sense of pleasure through being noticed by others and that we often do this by displaying our possessions. In this way, MP3 use can be described as a Goffman “front-stage and backstage” phenomenon whereby individuals show the public their “face” through their use of the device (Katz & Sugiyama, 2005, p. 63). This communication of self can be facilitated by one’s adoption of a mobile phone or an MP3 device and the “aesthetic statement” that one’s use can make about its owner (p. 64). This phenomenon has come to be referred to as the “machine becoming us,” and speaks to how individuals can issue smaller representations of themselves simply by purchasing a certain type of mobile telephone,

blackberry or MP3 player (Katz, 2003; Katz & Sugiyama, 2005, p. 64). In this sense, the technologies that individuals use can act as communication tools on many different levels (Katz & Sugiyama, 2005). In fact, one's fear of losing his or her identity, Pacifici and Girardi (2003) argue is frequently alleviated through the presentation of personal artifacts.

A common theory within the communication field is Berger and Calabrese's (1975) Uncertainty Reduction Theory, which argues that individuals dislike ambiguity and uncertainty, and in turn, strive for consistency and balance. In instances of ambiguity, Pacifici and Girardi (2003) contend that individuals may look to technological devices or other "prostheses such as eyeglasses" or "a pen-telephone, a watch, a personal computer-a car driven by voice commands" to ameliorate feelings of ambivalence (Pacifici & Girardi, 2003, p. 143). The MP3 could likewise serve as such a device based on what Levy (2006) conveyed about the aftermath of 9/11 and the role that MP3 players had in it. Such tools can act as stabilizers and can provide the sense of belonging that identification scholars argue is pivotal in one's understanding and achievement of self-concept (see Hogg & Terry, 2000; Stryker, 1968; Turner, 1975).

One's need to achieve balance and mitigate feelings of ambiguity is addressed in Tajfel and Turner's (1985) social identification theory which maintains that individuals have an innate desire to categorize themselves and others. This process provides one with a sense of self definition, which in turn, feeds self-concept (Hogg, et al., p. 259). Furthermore, when one subscribes to a certain social identity, he or she thereafter strives to adhere to the prescribed norms of that group. These prescribed norms serve to govern how one should essentially think, behave and interact (Hogg, et al., 1995). The

establishment of these norms creates a dichotomy between those who comprise the in-group and conversely, those that comprise the out-group and the prescribed norms for each of these groups.

As stated previously, self-categorization and self enhancement are key to the identification process (Hogg, et al., 1995, p. 260). The concept of categorization is borne out of the self-categorization theory put forth by Turner (1987) which argues that individuals tend to accentuate the characteristics that most aptly place them within a group (Albert, et al., 2000; Turner, 1987). It is this categorization which devises the dichotomy of “in-group verses out-group,” that allows an in-group member to compare or herself to those comprising the out-group. An individual may engage in this process several times as he or she may consider him or herself a member of various groups. However, it is saliency which determines how much one chooses to affiliate with a certain organization or group. An identity usually becomes more prominent within an individual when it most intricately matches his or her own sense of identity and values (Dutton, et al., 1994, p. 239). When individuals perceive that they can categorize themselves within a certain group, they then adopt similar belief systems and guidelines for interactions as their cohorts (Hogg & Terry, 2000). Feelings of collectivity are paramount within this dynamic. Put simply, one can identify him/herself with a certain religious affiliation, gender, age category and derive a sense of belonging and being through this classification (Ashforth & Mael, 1989).

As discussed previously, the identification process, while promoting feelings of collectivity, also helps to alleviate feelings of ambiguity and ambivalence. As Davis (1992) explains, one of the infinite ways in which individuals can experience

ambivalence and ambiguity is about their sense of self. Because individuals come from different cultures, worldviews and geographic locations, they are innately heterogeneous (Davis, 1992). It is this heterogeneity that can leave individuals in a flux created by the ambiguity resulting from these diverse experiences and perceptions. However, as Davis explains, we strive to balance this heterogeneity so as to fit in with society; this is done through aligning oneself with an identity that is most salient. We may convey our sense of self and our group alignment by speaking in certain language codes, or, as Davis explains, through more “corporeal” means, such as dress. Or, in a more modern sense, carrying a specific type of device such as the mobile phone or MP3 player. Individuals may speak in certain mannerisms or discuss certain issues that convey their sense of identity. However, physical conveyances of identification through the use of objects are frequently more successful at demonstrating alliances. In this sense, one’s way of dressing or accessorizing acts as a “visual metaphor for identity” and frequently “resonate(s) within and among identities” (Davis, p. 25).

As discussed in the above sections, one’s need to categorize is innate; however, this need is also a constant one (Lemish & Cohen, 2005). In other words, a person’s identity is never fully constructed and is thus, consistently under negotiation. Arguably, the advent of new technologies encourages individuals to establish, and re-negotiate their identities. As the authors suggest, changes within society can place one’s identity into a flux. New trends that become available and certainly, innovative technological capabilities that arise can also feed this flux. For example, research on mobile phone adoption and use has indicated that the technology does not just serve as a practical object, but also has “a high degree of symbolic significance” which plays a large role “in

the constitution of one's personal identity" (Lobet-Maris, 2003, p. 87). As Lobet-Maris explains, this dynamic has been particularly evident within the "tribe of the young" (p. 88). Can the same identity negotiation be at play through MP3 use? When a youngster is choosing a phone, it is neither quality nor functionality that influences or motivates his or her choice, but rather the image or identity of the brand associated with the phone (Lobet-Maris, 2003). Lobet-Maris argues that in this way, new groups are created and as such, feelings of social belonging are fostered. Once these groups are created, both implicit and explicit codes for behavior are also initiated which may include times when one must be available for calls and/or private language codes when using the mobile telephone (Lobet-Maris, 2003). This dissertation strives to understand the norms that have been established for MP3 use. For example, do students ignore others through the use of their MP3 device? Are they aware that others are ignoring them? How often are they using their devices? In turn, the creation and fulfillment of norms thus feeds one's sense of identity. Ling's (2003) research on Scandinavian teens and mobile phone use has echoed this theme of tribal belonging. For example, one respondent in his study, when asked about why he/she needs a mobile phone replied "It is in. It doesn't matter if you need it or not. Just that you have it" (Ling, p. 93). For teenage users, the "ownership and display" of the mobile phone is paramount. Much like Lobet-Maris, Ling (2003) also found that there exists specific norms related to how exactly mobile telephones should be consumed or utilized. He maintains that teenagers consume mobile telephones in the same manner in which clothing artifacts are communicated as fashion trends. As Ling (2003) explains, clothing provides one with a defining sense of identification that further imparts an understanding of how he or she fits into a certain culture and society as a

whole. In turn, individuals use artifacts as clothing and technologies to present a sense of self (Goffman, 1959; Ling, 2003). MP3 players can also present a sense of self, as will be discussed in subsequent sections of this dissertation; in fact, several students communicated that they had purchased their MP3 player because their friends had one.

This dynamic of identity and self construction via mobile technology use also emerged in Lemish and Cohen's (2005) study of mobile phones. They explain, "commodities or objects can be used by consumers to construct meanings of one's self, in addition to one's social identity and social relations" (Lemish & Cohen, 188). One's "ownership and display of commodities or object," whether they are brand-name jeans, or an MP3 player or iPod, express a sense of self, or a "social face" (Lemish & Cohen, p. 188). As time and trends pass, individuals incorporate a variety of different artifacts into their lives that express different feelings of self. For example, Lemish and Cohen argue that the mobile phone has shaped the identity of many Israeli users. As Lemish and Cohen explain, the security that mobile phones provide in the face of terrorism encourages adopters. The mobile phone thus acts as an identifier of "Israeliness" (Lemish & Cohen, p. 190). Many of the respondents utilized "us versus them" terminologies when discussing Israeli mobile phone use and non-Israeli use. They discussed how Israelis specifically, "have the most advanced technologies" because "[Israelis] want to try everything new" (p. 198). Lemish and Cohen's respondents voiced that they are "extroverted" by nature. They juxtaposed this description with that of other countries, such as the United States, who they claimed were more "introverted and shy" and thus, had mobile phone practices that differ from their own (p. 198). What role then, if any does personality play in MP3 use? .

As previously mentioned, Ling (2003) argues that social inclusion is a motivating factor for many Scandinavian teens when using a mobile phone. However, Lemish and Cohen explain that male and female adults operate similarly; several of their respondents said that “someone who gets less calls is less popular” (p. 192). Lemish and Cohen’s respondents said that “how many called you?” is a common question among the Israeli population. In this way, the categorization process that takes place during identification can indeed be applied to the processes of technology use and adoption. Similar processes may be at play through MP3 adoption and identification. Students may ask one another “what songs have you downloaded?” or, “what songs would you like to download?” These questions may help to not only bond users, but also to create cohesion in the face of a technology that has the potential to be isolating.

Looking beyond the superficial level of artifacts, one might recognize certain pieces of clothing and accessories symbolize an ideology. However, one can also look at certain technologies and recognize that certain types and/or brands are frequently used by persons of certain age groups and interests for example. For example, it is now fashionable to wear technology and communicate that one is trendy, current and high-tech. As discussed in previous sections, preliminary studies of digital music devices have demonstrated that college students are heavy users of digital music devices. However, urban 20 something’s are also active users of these technologies (Bull, 2004b). Could this be because listening to these devices communicates meaning to others?

In these cases, fashionability may indeed play a role in one’s decision to adopt and use these digital music devices. For example, Calefato (2003) argues that the modern body no longer simply wears clothes and traditional accessories, but also, objects such as

“mobiles, Walkmans, global positioning systems, digital barometers, watches controlled by space stations, ski-gloves with a microchip ski-pass” (Calefato, 2003, p. 164). These objects serve two purposes, as Calefato explains, to communicate communicability, and as fashion symbols. However, Calefato refers to technologies that allow for communication, so then what would a technology such as an MP3 communicate to others about communicability?

Sitkin and colleagues (1992) also argue that media technologies, much like clothing, can be symbolic. They maintain that technologies can have dual functions: the functionality of the device and the symbolic meaning carried by it. Additionally, media can manifest meaning whereby the technology can demonstrate “core values, shared beliefs, or tacit understandings” (p. 565). For this reason, Sitkin and colleagues argue for a dual-capacity model of understanding communication media choice. This framework relies on Shannon and Weaver’s (1949) model of message exchange, while incorporating McLuhan’s (1964) notion of messages in and of themselves, carrying meaning (Sitkin, 1992). In this way, the model looks to both the structure of communication, as well as to the idea that the process can simultaneously create and facilitate meaning. Thus, it does not confine itself to a social information processing (see Salancik & Pfeffer) mode of understanding adoption and use, nor a media richness (see Daft and Lengel) way of understanding these processes. Instead, this model looks at how and why users may adopt certain technologies based on their practical application, as well as at how using them may convey certain meaning/s to others.

Indeed, elements of identification and tribalism may be at play when it comes to MP3 adoption and use. For example, Latonero (2000) found that 70% of MP3 users say

they learned about MP3 technology “through close social networks of family and/or friends” (Latenero, 2000, p. 2). The dual-capacity model can be applied to this current dissertation in that MP3 devices may communicate shared meanings, cultural norms, styles and behaviors (Calefato, 2003). As discussed in this section, technology users may look to their devices to provide stability; users may feel unsure about where they fit and who they are and simply wearing the MP3 player, or listening to a certain song that they feel that they identify with can provide them with the grounding that they need. However, perhaps it has also become part of the culture to isolate one’s self through public use. This too can be considered a constructed norm.

2.6 Uses and Gratifications Theory:

As discussed in the previous section, individuals may choose to use technologies for a wealth of reasons, including their desire to fit in or to construct a sense of self. This dissertation explores how individuals put MP3 players to use in ways that fit their own needs. Katz and colleagues (1974) touch upon this desire to “fit in” or identify with certain groups as opposed to others in their Uses and Gratifications Theory and maintain that individuals use communication mediums to “satisfy their needs and to achieve their goals” (p. 510). Further, using this approach, researchers can delve into a person’s media practices simply by asking him or her how and why he or she uses the technology. As Katz et al. (1974) explain, this theory is structured so as to include a five-part model, which includes the following tenets: first, the audience is an active one and thus, goal directed; second, researchers cannot expect to see a “straight-line effect of media content on attitudes and behavior” (Katz et al., p. 11) as the audience chooses a media based on their goals; third, individuals have varying needs, some of which cannot be met by media;

fourth, the goals of one's mass media use can be determined through self-reported data and last, researchers should refrain from imprinting their own perspectives on their respondents (Katz, et al., p. 511). Individual media use and the reasoning behind it is the cornerstone of this theory in that it argues for an understanding of one's desires when putting a technology to use.

McQuail, Blumler and Brown (1972) believe that media consumers may have a myriad of reasons for using technologies. For example, they maintain that technology may allow users to facilitate " [the] escape from the constraints of routine and the burdens of problems and emotional release; personal relationships (including substitute companionship as well as social utility); personal identity (including personal reference, reality exploration, and value reinforcement); and surveillance" (p. 515). Simply put, individuals use communication tools to connect with, and sometimes disconnect from others. Such actions can be aptly classified as personal gratifications. Further, audience gratifications can be achieved through three varying sources "media content, exposure to the media and the social context that typifies the situation of exposure to different media" (p. 514). As Katz et al. (1974) explains, one's desire to "kill time" can be satisfied by watching television for several hours at a time. Similarly, MP3 players may act as a means to kill time.

Some scholars have argued that Uses and Gratifications theory is tautological in nature (Ruggiero, 2000). LaRose et al. (2001) explain that "uses and gratifications may yield weak predictions of media exposure because they ignore important incentive categories that motivate behavior" (p. 399). Uses and Gratifications theory does not heavily emphasize other potential reasons aside from gratification that serve to drive use

and fails to acknowledge that media consumers may have multiple motivations for use. More recent theories (many that are cited in this dissertation) have incorporated the assumption that individuals' usage practices are shaped by a number of factors including vicarious learning through others and perceived self-efficacy. For example, in their study of Internet use, LaRose and Eastin (2004) found that use was motivated by incentives including monetary and social status which are "underemphasized" in Uses and Gratifications research (p. 360). Uses and Gratifications Theory does however, account for a user's intentions and desires when putting a technology to use, which can indeed include the construction of self. This dissertation considers the very questions central to Uses and Gratifications Theory: how and why do students use MP3 and iPod players? Is it the desire to identify with peers that drives one to use these technologies? Or, does one's desire to achieve goals such as isolation or sharing with others inspire use? Or, are students simply killing time through use? Katz and colleague's (1974) theory can shed some light on this phenomenon by going beyond practical implications of technology use, such as use at the gym, to focus on why students want to use their digital music devices there in the first place. In other words, Uses and Gratifications Theory asks scholars to consider the underlying reasons for technology use. A Uses and Gratifications approach can provide for a more in-depth understanding relating to motivations for use, as opposed to superficial reasons for use that merely impart functional explanations.

2.7 Apparatchest Theory:

Coined from the stem "aparatch" and the term "geist," "Apparatchest" refers to "the spirit of the machine that influences both the designs of the technology" as well as the meanings given to, and created by both users and non-users (Katz & Aakhus, 2002, p.

301). Katz and Aakhus's (2002) *Apparatgeist* Theory examines one's relationship with his or her technology, as well as the relationship that the two have with society. This theory devotes particular attention to the meanings that individuals assign to their technologies, as well as to the social consequences resulting from use (Campbell, in press). For instance, as Campbell explains, even physical attributes of the mobile phone such as size affect one's perception about, and how they think about a technology (Campbell; Katz & Aakhus, 2002). New and updated versions of the MP3 player have been continually released with size continually being the altered factor. In this sense, one could surmise that appearance does convey symbolic meaning. As discussed above, this theory also highlights how technologies can come to affect society. For example, As Katz and Aakhus explain, "whenever the mobile phone chirps, it alters the traditional nature of public space and traditional dynamics of private relationships" (Katz & Aakhus, p. 301). Since mobile technologies can be used in basically any location, they encourage users and those surrounding them to renegotiate perceptions of personal space versus private space (Katz & Aakhus, 2002). Prior to the advent of MP3, Walkman and Boombox technologies, music could only be transported to the car. The newer Walkman and more recently, MP3 technologies allow users to experience their music independent from others. This can create a range of implications involving social interactions.

As Katz & Aakhus explain, conceptions of public places such as train stations and cafes are altered due to the fact that they are shaped by "the presence of and response to the mobile" (p. 302). Presumably, a similar alteration has taken place due to the MP3 player. Through the *Apparatgeist* perspective, users can modify preconceived notions concerning how a technology should be used and may do so on a continual basis. As

Katz and Aakhus (2002) highlight, this modification process is two-pronged, whereby users can modify their use of the technology, while their technology use may alter their social existences. These are the components that serve to create what Katz and Aakhus refer to as the “spirit” of the technology. Katz and Aakhus demonstrate how this theory departs from some technological deterministic perspectives in that they compare the influence of media attributes to a cafeteria menu. They advance:

Technology does not determine what an individual can do; rather it serves as a constraint upon possibilities. Much as a cafeteria menu will not offer infinite meal choices, but rather presents a finite selection of meal choices, so too historically bound technology offers us a flexible menu of extensive, but not infinite choices. (Katz & Aakhus, 2002, p. 307).

Underpinning Katz and Aakhus’ argument is the idea that individuals shape their own perceptions about technology; however, these perceptions are frequently shared and discussed among individuals. That is, Katz and Aakhus argue that technologies can alter the interactions that take place within relationships. For example, Katz and Aakhus maintain that mobile phone use among teenagers and parents alter the components of the relationship, similar to the way in which organizational structures may be altered by technology. Society as a whole can also be shaped in the face of technology to the extent that “even the struggle for hierarchy and status is shifted to a new ground: people compete based on who has the smallest and classiest-looking mobile device” (p. 301).

Our physical landscapes have also been altered so as to include individuals talking on their mobile phones in grocery stores, department stores, libraries, and even movie theatres. For example, it is common to see people standing in certain areas, where they might not have before, to talk on their phones. As the physical landscape changes, so does the language that we overhear users incorporating. For example, we now hear

individuals walking down the street asking alone asking “Where are you?” Prior to the inception of cellular technologies, such a question would be deemed as ridiculous. Similarly, it has become more common than ever to see earbuds covering the ears of many of those surrounding us on the train, on the bus or while walking on the street.

Katz and Aakhus’ (2002) Theory of Apparategeist highlights how use is facilitated by both the infrastructure of the technology, and the meanings associated with it. Similarly, MP3 players and iPods offer users extensive storage space and the capability of listening to music on-the-go. However, as discussed in previous sections, their usage practices may also be influenced and infused by the meanings associated with these digital music devices (i.e. it is trendy or fashionable). For example, one’s use may be motivated by his or her perception that usage is trendy, thus driving one’s desire to fit in, or identify with a group. Meaning can also be created through one’s sharing his or her device with others. He or she may be prompted to share their device because they have seen others sharing or have been involved in experiences that promoted sharing. Apparategeist theory allows scholars to explore how technological meanings are constructed through both interactions with others and individual thought processes. Thus, this theory allows for practical and symbolic assessments of technology and lends itself to an understanding of how one may integrate and appreciate a technology based on both its practical and symbolic uses.

Apparategeist theory will serve to inform the focus group and survey questions pertaining to the meanings that users construct for digital music devices. Questions of whether individuals perceive these technologies to be isolating in nature, (and if using these devices in ways that may isolate has become a norm) and how and why students use

these technologies in the ways that they do will also be addressed through the integration of this theory.

2.8: The Domestication Approach:

While many scholars have sought to examine how technologies are used, many others have focused on adoption processes. This dissertation asks respondents to consider what influenced their decision to purchase an MP3 player and how they have integrated this tool into their lives. One such theory that addresses this phenomenon is Silverstone and Haddon's (1996) Domestication Theory. Originally proposed to provide a greater understanding of how individuals bring technologies into the home, Domestication Theory now incorporates mobile technologies. Silverstone and Haddon argue that we as users "tame" our technologies by deciding just how they will fit into our lives. For example, Bakardjieva and Smith (2001) found through semi-structured interviews, that Internet use depends on how one "domesticates" the technology. One respondent discussed how through her Internet use, she was able to release herself from a authoritarian husband who did not allow her to have friends (Silverstone & Haddon, 1996; Bakardjieva & Smith, 2001). However, the likelihood of all users having this same experience with Internet is certainly improbable. Underpinning this framework is the belief that in order to understand the social impacts of technology, one must examine the "negotiations and interactions" associated with the consumption of the artifact (Silverstone & Haddon; Ling, 2004). These negotiations may include self-talk with ourselves, or interactions with other individuals whom we may approach for advice about the technologies. For example, a student may mention to his or her parent that they think that the iPod is "cool" in an attempt to have the parents purchase the device for them. Or,

they may ask other students' advice about which device to purchase. Negotiations may also involve questioning whether, and/or "the degree to which we really need the object," and the financial cost of purchasing the artifact (Ling, p. 27). Silverstone and Haddon argue that it is common for users to consider just how much time they will devote to their technologies (Ling, 2004; Silverstone & Haddon, 1996). These considerations and discussions with others frequently continue even after the technology has been bought and integrated into the home. Such discussions may include the placement of the object. For example, many parents can relate to discussions about whether a child should have a television or computer in his or her room. With the advent of MP3 players, parents may now have to engage in discussions about when and where the MP3 player should be used. For example, parents may need to remind their children that walking alone at night and listening to the MP3 player may not be wise. Likewise, students discuss with others their feelings about sharing their devices with their friends, thus negotiating the role that they will play in a user's life. These discussions are so vastly common because users are acutely aware of how technologies may influence everyday life and the interactions that take place regularly.

The domestication approach integrates several steps that serve to describe the adoption process: imagination, appropriation, objectification, incorporation and conversion (Ling, 2004; Silverstone & Haddon, 1996). Imagination describes how a technology "enters our consciousness" (Ling, 2004, p. 28). Appropriation includes how an object departs from the commercial realm and enters our personal lives. This step encompasses our awareness of an object and considering whether, and to what extent, it can be included in our everyday lives. Our friends may participate in some "advertising"

on behalf of the technology through which they may argue its benefits or the artifact's value (Ling, 2004; Silverstone & Haddon, 1996). The objectification stage describes how we think a certain technology will fit into our lives, as in the object's placement within our homes and how frequently or infrequently we will use it. Parents often decide where personal computers will be situated within the home so they may monitor their children's use of the technology. Likewise, parents may have discussions with their children about not using their MP3 devices during dinner, or during family gatherings. Or, students may choose whether or not they feel comfortable using their MP3 device while walking to work or class.

The incorporation stage depicts the integration of a technology within one's life. In other words, during this incorporation stage, one begins using the technology on a regular basis. This may involve buying a transmitter so that one could use their MP3 player in the car, or purchasing an arm band for use at the gym. During the conversion stage, one communicates that he or she is a consumer of a specific technology. Such communication may involve individuals advertising on behalf of their newly-found technology, as the communication tool was advertised to them. However, their advertisements may include their own perceptions of how the technology should be used. For example, an iPod user may tell a new user that it is not "cool" to use the belt clip while working out at the gym.

This theory regarding ICT adoption holds that media and ICTs "are not just material or functional objects but have a powerful symbolic charge" (Silverstone & Haddon, p. 59-60). The theory suggests the importance of considering social interaction when exploring how technologies are used and how this may be related to symbolic

meaning. While the design of MP3 devices is inherently isolating, users may communicate with one another about how they use their device, thus creating and re-creating new ways to think about and use the technology.

Since digital music technologies are marketed primarily to younger generations, this advertising approach may not only create a niche market of users, but also symbolic meanings relating to what it means to be an MP3 or iPod user. Since they first emerged onto the market, MP3 and iPod users have been shown in advertisements (see appendices) apart from other individuals. However, more recent digital music devices such as the “Zune” now show users interacting with others (see appendices). These depictions of interpersonal interactions may stem from the Zune’s ability to allow users to transmit songs to others whom are standing nearby and also have the device. This will be discussed at greater length in Chapter 8’s discussion of future research directions.

I have integrated Domestication Theory into this present dissertation to help explore how and why students come to adopt and use MP3 devices. As Silverstone and Haddon (1996) explain, many of us engage in negotiations about how our technologies should be integrated into our lives. These negotiations may include discussions with others about how to use our technologies, or whether we should purchase one at all for example. This theme of negotiation will be addressed within the survey and asks users to consider whom, if anyone, they looked to for advice when they were considering purchasing an MP3 device. Such discussions can signify a type of sharing interaction which I suggest in this dissertation, might be a community-bridging activity.

2.9 Personality & Technology:

This section will discuss previous studies on personality and how personality factors may influence MP3 use. This section will also look to previous studies of ICT use and the role that personality plays in this use.

Scholars such as Birnie & Horvath (2002) and McCroskey (1978) have questioned the role that personality type plays in technology use. That is, how heavily does personality play a role in one's decision to adopt, and use technology? Because the use of MP3 devices has the potential to isolate users from others, could being shy versus sociable lead to increased use? In a study of Internet use and personality, Birnie and Horvath (2002) question whether shy individuals are more likely to "use the relatively greater privacy afforded by the Internet for social contact and expression" (Birnie & Horvath, 2002, ¶2). They suggest that such questions derive complex and unclear answers since socio-economic status may be one of the many factors that may influence one's usage practices. Similar questions can be raised when considering digital music technologies. As previously mentioned, MP3 and iPod players have the potential to isolate individuals; however, focus group discussions indicated that these devices may also facilitate conversations, as well as foster feelings of belonging. The question thus becomes whether such sharing or isolating activities are influenced by one's personality.

Birnie and Horvath (2002) advance that the Internet may have a more significant impact on society than television did. Likely this is due in part, to the many social implications that the Internet offers: creating and solidifying social bonds, or facilitating the deterioration of existing bonds as many dystopian scholars might argue. Many scholars argue that the Internet can affect many facets of one's life: "personal, family

school and work” (§3). However, as will be discussed in subsequent sections, just as many scholars argue the contrary: Internet use does not result in the diminishing of social bonds, but rather creates new ones and strengthens existing ones. For example, Katz and colleagues (2001) found that friendly methods of communicating were associated with computer mediated communication.

When considering the implications of media use, one must consider the motives for use. Birnie and Horvath (2002) isolate two different social motives for Internet communication: sociability and shyness. As Birnie and Horvath explain, sociability can be defined as the “tendency to affiliate with others and to prefer being with others to remaining alone” (§4). Shyness is defined as “one’s reaction to being with strangers or casual acquaintances: tension, concern, feelings of awkwardness and discomfort, and both gaze aversion and inhibition of normally expected social behavior” (§4). Shyness can thus manifest itself in social avoidance, while sociability can facilitate interaction. Sociability has also been mentioned as being a “subfactor” for shyness, and as such can have implications relating to the formation of social bonds (Asendorph & Wilpers, 1998; Birnie & Horvath). For example, Birnie and Horvath predict “more traditional social contacts, higher social support and satisfaction with social networks” (Birnie & Horvath, § 6). Conversely, shyness can impede on one’s ability to formulate friendships. For example, Livingood (1995) argues that technology provides introverts with a new means through which they can access the outside world. Typically, introverts “prefer an inner world of concepts and ideas,” while extroverts prefer “to interact with people and the outside world” (Livingood, §3).

Birnie and Horvath (2002) discuss how the link between sociability and online communication has been heavily explored within recent years. Some of these studies have found that individuals with “unsatisfactory traditional social contacts use the Internet” with greater frequency than others (§8). These unsatisfactory social contacts may be the result of personality factors, but in many cases, may be the result of imposed isolation. However, other scholars have argued that the anonymity of the Internet may provide those who are prone to shyness, with an avenue through which to overcome their social anxiety. However, clear relationships between shyness and online communication are difficult to establish. Other research such as that of Katz and Aspden (1997) suggests that individuals who foster friendships online had higher levels of extroversion and sociability (Birnie & Horvath; Katz & Aspden).

This question of whether or not there is a relationship between sociability and technology use can relate to Uses and Gratifications Theory (Katz, Blumler, & Gurevitch, 1974). For example, some technologies may be used with the intended gratification of being social or conversely, for seclusion. As Birnie and Horvath (2002) discuss, “high sociability and low shyness have been associated with increased traditional social behavior” (§11). Previous research has also demonstrated that “high sociability would be associated with increased Internet social communication” (§11). This phenomenon is at the heart of Birnie and Horvath’s study; they questioned the relationship of traditional social behaviors to Internet social communication. In their study of 115 undergraduate students, they found that shy individuals do not increase their number of contacts, but that they do engage in more intimate social interactions online. Notably, however, Birnie and

Horvath found that “sociability and the frequency of traditional social behaviors were positively associated with the frequency of Internet social communication” (¶1).

Birnie & Horvath (2002) have also questioned the role that communication apprehension may play in one’s decision to not only engage in interaction, but also to use tools that may facilitate communication such as the Internet. This dissertation is interested in exploring the influence that communication apprehension might have on one’s desire to use MP3 technologies. In this particular dynamic, those with greater communication apprehension may have a higher propensity to use digital music technologies in public settings. McCroskey (1978) suggests that individuals who experience oral communication apprehension do so on a regular basis. This assertion presupposes that individuals will then engage in many of the same behaviors on a regular basis. They may avoid others, or engage in other behaviors that do not invite communication. As McCroskey explains, “it has long been known that people seek to avoid situations which cause them anxiety. Thus, it would be expected that people who are apprehensive about oral communication would try to avoid circumstances that would require them to communicate orally” (p. 194). This brings to bear an interesting question regarding MP3 use: since MP3 use can invite isolation, might this be attractive alternative to interaction for shy individuals? In fact, previous studies have demonstrated that “high communicative apprehensives” opted for housing situations that require fewer interactions with others (see McCroskey & Leppard, 1975). As McCroskey and colleagues (1976) explain, a nationwide survey of adults conducted in the 1970s indicated that “the number one reported fear was fear of communication” (p. 376). They suggest that this fear is one that forces those afflicted with it to alter many aspects of their

lives such as where they would sit when situated in small groups (p. 376). Other studies have also shown similar patterns in how individuals situate themselves on a daily basis. For example, Weiner's (1973) study on small group communication showed that those who were more apprehensive about communication even picked specific seats that previous research has identified as not requiring as much interaction as other seats. This desire for lower levels of interaction can also extend to the job front whereby those with communication apprehensions seek jobs that require less frequent interactions, while those with minimal or no communication apprehension chose in the opposite manner (McCroskey, 1978). The propensity for those with communication apprehension to opt for situations that call for less interaction even extends to the classroom. As McCroskey explains, "students with high communication apprehension would prefer large lecture classes over small classes which permit (or require) extensive participation on the part of the student, while the preference pattern for students with lower communication apprehension would be reversed" (p. 195). Students with higher communication apprehension also tend to situate themselves in places throughout the classroom that do not invite being called upon. These students would choose seats closer to the back of the room while students with lower communication apprehension would opt for seats closer to the front of the room.

McCroskey and Sheahan (1976) have also examined the social behaviors of students outside of the classroom, with a particular focus on communication apprehension. They found that those with higher levels of communication apprehension were less inclined to accept an invitation on a blind date, interact with strangers, and were more likely to involve themselves in exclusive dating relationships. An individual with a

higher level of communication apprehension is more likely to shy away from situations that repeatedly invite potentially new and awkward interactions, such as that which would be involved in casual dating.

In general, McCroskey (1978) suggests that high communication apprehensives avoid situations that invite oral interaction. For example, McCroskey argues that persons with high communication apprehension avoid small group communication. Research has suggested that there is a clear distinction between introverts and extroverts. As McCroskey explains, “one of the distinctions that is commonly made is that the extrovert tends to seek social contact with other people while the introvert tends to withdraw from such contact” (p. 198). Since social contact usually presupposes communication, introverts tend to avoid circumstances that would invite social contact and thus, communication. However, McCroskey argues that this correlation should not always be expected.

MP3 players allow users to listen and create what one student in this dissertation’s focus group called a “sound track to life.” For individuals that are shy, this soundtrack may serve as a promising alternative to interaction. It is for this reason that portions of McCroskey’s (1978) PRCA survey, Eysenck’s (1991) Personality Inventory Scale and Zuckerman and Jost’s Popularity Scale were incorporated into this dissertation’s final survey. The PRCA is a Likert-type, measure that relies on self-reporting. It asks respondents to indicate how they feel in various social situations. With the aid of these three instruments, this dissertation explores whether personality characteristics such as introversion and extroversion influence MP3 and iPod player use. Birnie and Horvath (2002) found that traditional social behaviors were positively associated with frequency

of Internet social communication. More shy individuals could potentially use their MP3 or iPod players to intentionally curtail face-to-face communication interactions. It could also be argued that more extroverted individuals are less likely to engage in isolating behaviors such as MP3 and iPod use because of their predisposition to engage in interaction processes.

2.10 Perceived Technological Aptitude:

This section will provide an overview of previous studies relating to technological aptitude and discuss how MP3 use can be affected by one's perception of self-proficiency.

Perceived technological aptitude may indeed play a role in one's choice to adopt, or not adopt a digital music device. The general concept of self-efficacy was first discussed by Bandura through his social learning theory and "refers to the belief in one's ability to successfully complete a task" (McDonald & Seigall, 1992, ¶3). This belief may be fostered by one's own experiences or through social learning, meaning that individuals can develop perceptions about their ability to complete a task based on the experiences of others. Indeed, the concept of self-efficacy has been applied to technology use, especially within most recent years. Many of the studies addressing self efficacy have emerged from the organizational communication realm. Two variables have been demonstrated to influence perceived technological aptitude: perceived usefulness and perceived ease of use. Perceived usefulness has been traditionally defined as "the degree to which a person that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Within an organizational context, employees are commonly rewarded for behaviors with incentives such as pay raises, bonuses and vacation days. Another concept

that plays into the overarching notion of perceived technological aptitude is that of “perceived ease of use” which Davis defines as “the degree to which a person believes that using a particular system would be free of effort” (p. 320). If an individual perceives that a technology is too taxing to use, he or she may be deterred from use. If, for instance, an individual thinks that a computer application such as “Microsoft Outlook” is difficult to learn about and operate, he or she may be inclined not to use the application. As Davis (1989) explains, “a system that does not help people perform their jobs is not likely to be received favorably in spite of careful implementation efforts” (p. 320).

As McDonald and Seigall (1992) explain, perceived self-efficacy can have an effect on behavior and performance. With their specific focus on job task outcomes, the authors found that self-efficacy does play a role. However, when examining any type of technology, it is also important to consider the role that self-efficacy may play in use. With the ascent of the Internet in recent years, many scholars have studied use and the many factors that may influence it. Barbeite and Weiss (2004) have for example, focused on computer self-efficacy which can be characterized as “a belief of one’s capability to use the computer” (§6). Previous studies have shown that self-efficacy has been positively related to computer performance during training. For example, as Barbeite and Weiss found self-efficacy “predicted several use and comfort variables” (§31).

One of the chief questions that this dissertation asks is why individuals use digital music devices in the ways that they do. As discussed in this section, self-efficacy has been found to play a role in computer use outcomes. This dissertation will examine how perceived MP3 and general technological aptitude may influence how users engage their devices.

2.11 Gender & Technology:

In an effort to provide an overview of the literature relating to gender and technology, this section will discuss some research studies devoted to this realm.

The potential for technology to be gendered was first called into question by western feminists during the 1980's who argued that technology inherently "embodied masculine values" (N.A., 2001, p. 291). In fact, Venkatesh and Morris (2000) suggest that "gender will moderate the perceived usefulness-intention, perceived ease of use-intention, subjective norm-intention and perceived ease of use" (p. 117). Other scholars such as Moores (1993) suggest that differences in usage practices may reside in the varying ways that the two genders use technology. For example, Moores (1993) demonstrated through his historical examination of radio within households that men were the main listeners and that they enjoyed listening because of their appreciation of radio's "technical aspects" (p. 292).

One model that has examined user behavior is Davis's (1989) Technology Acceptance Model (TAM). This model seeks to explain user acceptance and behavior (Davis; Venkatesh & Morris, 2000). TAM suggests that user acceptance and behavior is determined by perceived usefulness and perceived ease of use. As Venkatesh and Morris explain, perceived usefulness is one's perception of how beneficial a technology will be in completing one's job. Perceived ease of use relates to the degree to which one believes that a technology will not require a great deal of effort to use. As Venkatesh and Morris explain, TAM is rarely used to discuss gender differences in technology use. They thus pose the question of whether gender moderates perceived usefulness and/or ease of use. This question stems from prior research which has showed that men and women

have different levels of identity saliency and that this can impact technology use. For example, research has pointed to the idea that men may place a greater emphasis on work and exhibit more “masculine traits” (Venkatesh & Morris, p. 118).

Gefen and Straub (1997) also agree that studies are lacking which explore the diffusion of technology as it relates to gender. The Technology Acceptance Model, Gefen and Straub also argue, has traditionally failed to account for gender differences. However, they also argue that gender has generally been missing from Information Technology (IT) research. However, more contemporary research has identified that the potential reasons that men and women may adopt and use technology are various. Many of these explanations emerge from cultural dimensions studies which “offer insight into how sex differences in thinking and behavior arise” (Gefen & Straub, 1997, p. 391). Through a survey of 116,000 individuals in 40 different countries, Hofstede (1980) found that four factors influence why males and females may adopt and use technologies in different ways: “acceptance of unequal power distance distribution, uncertainty avoidance, acceptance of individualism, and dispositions toward masculine attitudes and behavior (Hofstede, 1980; Gefen & Straub). The concept of masculine attitudes and behaviors (MAS) and its counterpart, femininity, have various implications in terms of behaviors. For example, Hofstede found that “the MAS dimension affects whether the organization will be people-oriented, emphasizing the quality of life and the environment (low MAS), or task-oriented (high MAS)” (Gefen & Straub, p. 392). These gender roles govern how men and women should behave and teach men to be “assertive and women nurturing” (Gefen & Straub, p. 392). However, Gefen and Straub suggest that gender differences are evident even in how men and women communicate. Women generally

communicate to create intimacy while men seek respect and assert independence. These differences in communication goals and tactics may indeed have various implications for MP3 use. Further, Bimber (2000) found that a central differences between how males and females use the Internet is that “somewhat fewer women than men use the Internet and the gap appears larger where more intensive use is concerned” (¶3).

As discussed previously, differences in behavior between men and women are also evident in their media consumption habits. For example, Bimber (2000) cites that women watch more total hours of television than men do; however, men spend more time watching television news. These differences extend to print media as well; for example, 45% of men and 40% of women report reading a newspaper on a daily basis (Bimber, 2000). When looking at talk radio and MTV, the audiences are comprised of 60% men and 40% women. Men and women also vary when it comes to political communication, where men are more likely than women (by an 8% margin) to have written a government official (Bimber, 2000). Many scholars have also extended gender differences to the Internet. For example, Bimber argues that conceptions of gender may be at the heart of differences in Internet use. Traditionally, technology has been viewed as a field cornered by men. This may in turn influence, whether or not women believe that they “should” use technologies. Bimber thus argues that “male values have been institutionalized in the technology through its creators, embedding a cultural association with masculine identity in the technology itself” (p. 3). In fact, research studies have demonstrated that men enjoy the informational purposes of the Internet and “feel more positive about the Internet in general” (p. 3).

Ono and Zavodny (2003) explore the potential differences in Internet use among men and women and whether these usage practices have changed throughout the years of 1997-2001. Traditionally, initial adopters of new technologies have been “young, male, better educated, more affluent, urban, and not members of a racial or ethnic minority group than the population as a whole” (¶2). A clear gap in usage has clearly existed between males and females; however, does the gap remain prominent? Ono and Zavodny suggest that during the 1980s, the gap between male and female users was especially pervasive. However, they argue that since 1993, men and women have had similar computer usage practices. Other scholars (see Katz, Rice & Adspen) have demonstrated that women constituted the majority of new Internet users between the years of 1997 and 2000. Ono and Zavondny found in their study of 50,000 households that once women are online, they are less frequent and intense users when compared to males. Notably, however, they found that there is little concern for gender inequalities on the Internet.

Roger’s (1962) diffusion of innovations discusses the reasoning behind why some innovations flourish while others fail. He suggests that this contingency rests on three questions. First, he asks “what processes and contextual factors affect innovations’ rates of diffusion?” He also asks “what characteristics differentiate earlier from later adopters?” And third, “how does the structure of networks of adopters affect the sequence in which adoptions occur during diffusions?” (Abrahamson, 1991, p. 586). One contextual factor that may influence rates of diffusion is that of gender. As Bimber (2000) and Hofstede (1980) suggest, technology consumption among females has traditionally been hindered due to the construction of sex roles and the behaviors associated with these roles. As Van Slyke and colleagues (2002) posit, “men have long

been associated with technology while women have often been depicted as somewhat passive users” (¶5). It is this belief that prompted the authors to explore web-based shopping and whether both genders equally engage in it. They found that women view web-based shopping less favorably than their male counterparts. Van Slyke and colleagues argue that this may not be a surprising finding to some scholars in that “as early as during the high school years, females students have been under-represented in computer application courses and have been “noticeably less interested in technology” (¶5). However, recent years have shown that women are not shunning away from technology but rather, are using them in different ways than their male counterparts. They are visiting websites that are specifically targeted towards women such as [ivillage.com](#) and [oxygen.com](#). Women also comprise 40% of home-based email users.

Vorderer and colleagues (2003) also explored differences in use across gender lines, with a particular focus on female’s dislikes in computer games. While the study found that females did not appreciate games that were violent or overtly sexual, the authors most notably also found that females disliked video games that lacked social interaction. However, a recent study conducted by the Massachusetts General Hospital showed that video games can be a means through which young males formulate and maintain friendships (N.A., *Science Daily*). This study of 1,254 teens from two different states indicated that a third of male teens and one in ten female teens play video games. Most notably however, the study found that boys’ friendships frequently revolve around video games. This is an interesting finding in that as Vorderer and colleagues found, females tend to dislike video games because by nature, the games lack social interaction.

Vorderer and colleague's (2003) finding is worthy of notation as it may have several implications for this dissertation. Similar to how video games do not invite interaction, MP3 devices are also designed for solitary use. Thus, will females be deterred from MP3 use? This dissertation will also explore this dynamic to see where usage patterns might diverge when looking at gender, and where they might be similar.

As this chapter delineates, several theories and frameworks will help to inform this dissertation: Uses and Gratifications Theory, Apparageist Theory, the Domestication Approach, Absence Presence Theory as well as themes derived from Identification Theory and concepts of tribalism. Additionally, the MP3 dynamic will also be explored through a lens which is conscious of potential gender differences in use, differences in perceived technological aptitude, and various personality factors, all which may or may not influence use. To reiterate and create clear distinctions among each of the above mentioned theories—Katz and colleagues (1974) suggest in their Uses and Gratifications Theory that we use media in ways that satisfy our needs and achieve our goals. Silverstone and Haddon's (1996) Domestication Approach proposes that we tame our technologies through an ongoing process of domestication, while Apparageist Theory holds that we, as both users and non-users, create meanings about technologies, as well as norms for use. Gergen's Absence-Presence Theory argues that by virtue of our technology use, we can be simultaneously physically present, but emotionally absent. This dissertation also invites the question of whether tribalism and identification play a role in MP3 adoption. Uses and Gratification Theory then looks at how goals and needs govern use, while the Domestication Approach posits that we are continually negotiating our technology's role within our lives, thus suggesting that our goals and needs are also

constantly changing. Absence-Presence Theory suggests that we can potentially isolate proximate others by our technology use. This is an interesting contention if one also considers Uses and Gratifications Theory in that perhaps isolation can be a gratification. Similarly, reflection on Katz and Aakhus' Apparatchest Theory may also lead one to consider how one's use of a technology to isolate another might also be a created norm. Similarly, sharing one's device may also be both a norm and a goal. The roles that tribalism and identification may play in MP3 use then can perhaps become more evident: perhaps students use technologies in the ways that they do because norms are created that govern use (Apparatchest Theory), but also because it is trendy and "cool" to do so.

Chapter 3: The Prominence of Digital Music Technology

Scholars such as Bull (2004b) have examined the realm of music and earlier transportable music technologies such as the Sony Walkman and how these tools have blurred the distinction between public and private space. This section will highlight some of this research and discuss its implications.

Personal music technologies have been a focus of study since the emergence of the Walkman in 1979 (Bull, 2001; Bull, 2004a, Levy, 2006). Walkman technologies enjoyed immediate popularity when they emerged on the market due to their portability. They allowed for use in any location and as a result, demanded a “reorganization of public and private realms of experience” (Bull, 2001, p. 180). As Bull explains, this blending of public and private space can be recognized as early as the emergence of drive-in movie speakers. These speakers allow one to be inside his or her own car or “bubble,” while concurrently being part of a media culture. This blurring of public and private space was initiated, as Bull (2004b) explains, with the placement of cassette players in cars during the 1960’s, and was continued through the creation of the Walkman which resulted in the sale of 340 million units (Levy, 2005). Bull suggests that modern technologies allow users to transport themselves to private spaces although they may still be in the public realm. In fact, many have referred to the iPod as the “Walkman of the twenty-first century” (Levy, p. 27). The critiques that the iPod receives are very similar to that voiced by adversaries of the Walkman: “the device[s] rip the social fabric” and “rewards self-involvement” (Levy, p. 27). This same phenomenon is also common when considering individuals’ uses of the mobile phone. As Bull (2004b) explains, individuals frequently complain about others’ use of mobile phones in public places.

However, he argues that these same individuals often engage in the same practice. Bull explains that these hypocritical sentiments emerge from one's desire to remain in their own private places. In other words, while in public, individuals want to remain in their private bubbles, whether that means, calling friends or family to derive a sense of familiarity, or maintain the silence that is characteristic of solitude.

The Walkman and iPod have largely traveled along the same path to immense popularity. In fact, the Walkman even targeted the same audience as the iPod. As Levy discusses, the prototype for the Walkman was first introduced to Sony board members as targeting "students and other people" (Levy, p. 32). Further, the Walkman was pitched as a means of self-expression by Japanese Sony marketing executives who were the first to introduce this device to the market; they were a fashion statement that set users apart from non-users. In fact, many first generation users believed that in spite of the inclusion of a second headphone jack that enabled sharing, the Walkman was a "me" device. It allowed users to display a sense of independence and individuality through its ability to allow one to "escape" and "enhance" (Levy, 2005, p. 34). Like many of its predecessors such as radio and television, the Walkman allowed individuals to escape from their surroundings and from reality. It also allowed listeners to "enhance" their sense of independence whereby users could mold their own environments. Placing one's earbuds on can provide users with a "soundtrack," that guide him or her through the day (Levy, 2005). This ability to surround oneself with sound and remove others is not unlike those who commute via automobile. Bull (2004a, 2004b) and Levy both argue that the iPod creates "aloneness" by choice. Users are active in asserting their independence and it is their right to close themselves off. iPod users are more capable than ever to insulate

themselves in a musical world in that the Walkman, and then later the Discman, offer only limited amounts of music. The iPod allows for up to 10,000 songs and gives the user the power to decide which songs will be on the playlist.

Privacy is looked upon by many Westerners as a virtue. In fact, Bull (2004b) argues that individuals frequently feel entitled to “private space” (Bull, 2004b, p. 273). However, this desire to enjoy private space is often met with noise interruptions. This desire for private space speaks to one’s needs when using technology. Carey (2004) found that individuals between the ages of 18 and 34 appreciate technologies that provide instant gratification. He derived these findings by asking 42 individuals which “media they would use if they were only allowed to use two” (Liebeskind, 2004, ¶4). All of these 42 respondents chose television and the Internet; the radio also “received favorable comments and that was only because it could be listened to in the car” (¶4). One’s desire for instant gratification can begin to explain at least in part, why individuals have been adopting MP3 players and iPods with such great speed. During fiscal year of 2005, 32 million iPods were sold (“Notebook” in Time, 2006, p. 22). In fact, Apple celebrated the sale of its billionth song in January 2006 (Leonard, 2006, p. 54). Further, just how prolific MP3 technologies are is exhibited by the fact that iTunes is not the only digital download site available to users, as Yahoo Music Unlimited and Napster “are gunning for iTunes customers” (Leonard, p. 54). The vast majority of users are currently those that would be associated with 15-30 year olds from typically urban environments (Leonard, 2006). In fact, Vanderkam (2006) argues that “among urban 20 somethings, people sporting wedding rings seem rarer than young people walking around without iPod cords dangling around their necks” (Vanderkam, 2006, ¶1).

Despite the popularity of MP3 and iPod technologies among youth and teenagers, many scholars argue that adults whom are of the parental age are not absent from the digital music influx. However, the two age groups differ as to how they utilize the technologies. For example, Friess (2006) describes how one father recorded the birth of his daughter via his iPod and later broadcast it to family and friends through podcast utilities. Friess argues that such uses of digital technologies signify another type of birth: “that of an era in which parents are creating free radio-style shows known as podcasts for other parents” (Friess, ¶ 4). Many parents have been attracted to podcasts because they work fluidly with the hectic schedules that have come characterize many parents’ lives.

The boom of the digital music industry has allowed for the storage of vast amounts of music. As Bull (2004b) explains, MP3 and iPod technologies can currently hold up to 10,000 songs. This hard drive system allows one to transport his or her stored music to any location. Additionally, recent updates to hard drive capabilities have allowed users to store pictures, as well as movie files. The contagion of this technology has been such that Bull argues that MP3 players and iPods are “the first cultural icon[s] of the twenty first century” and as such, will alter the “way people manage their experience of music in urban space” (Bull, ¶3, 2004b). Further, Bull argues that MP3 technologies have allowed one to have an ongoing “soundtrack to the world” (Bull, ¶ 4, 2004b). In other words, because MP3 and iPod technologies can be taken to virtually any location, users can have music accompanying almost all of their daily activities.

3.1 How and Why Digital Music Technologies Might Be Used:

This section will discuss some of the places and ways in which users may incorporate MP3 devices into their lives. It will begin with a discussion of non-place and conclude with an examination of the implications of use in such places.

Certain areas and situations are more susceptible or welcoming to and of MP3 and iPod use and thus have norms that accommodate these tools. Commuters, or “metropolitan travelers” are common MP3 and iPod users. As Coyne (2005) explains, individuals, when in situations of non-place, (such as that of a train or any environment that does not feel by any stretch of the word, like home), experience the desire to cognitively compensate for these feelings of nonplace by creating a more comfortable, home-like environment (Coyne, 2005). For example, if one individual is working on a paper in the park and another is attempting the same task on a train, the park dweller is more likely to complete the task (because they are in a more comfortable scenario). Commuter environments such as the train, offer a climate of ambiguity plagued with train noise, announcements, and discussions. For the individual attempting to complete work on the train, digital music technologies provide a more stable environment.

Indeed, individuals use MP3 and iPod technologies when away from their homes and during “off” times. This may speak to the practicality component of Sitkin and colleagues’ (1992) dual-capacity model. However, as discussed throughout the previous chapter, identification may also play a distinct role in students’ adoption and use processes. In preliminary explorations of this phenomenon (as will be discussed in subsequent sections), students largely identified that they used their MP3 players and iPods even while making a short five-minute walk from their dormitories to class. Thus,

as Katz and colleagues (1974) suggest, perhaps students are using digital music technologies to kill time.

3.2: The Integration of the Public and Private Spheres

The influx of mobile music technologies, like many of its mobile technology predecessors, have blurred the lines distinguishing public and private space. As Bull (2004b) describes, mobile privatization is “a shell you can take with you, which you can fly to places that you previously could never imagine visiting” (Bull, 2004b, p. 174). The same manner in which television allows one to escape from reality within his or her home is now possible via portable music technologies. In other words, as Moores (1993) describes, technology allows the domestic sphere to be extended to public arenas. Individuals can now be physically present, while emotionally elsewhere, due to the portability of modern technologies as they can now transport their music to locations never previously feasible (Flichy, 2005; Moores, 1993).

Gergen (2002) addresses this issue of private space through the development of the absent-presence framework. Although he does not speak about MP3 players and iPods, his framework sheds light on how similar technologies can engross the user. Through the absent-presence perspective, Gergen describes how we are increasingly confronted with interactions in which our family, friends or co-workers are “absorbed by their computer screen, television, CDs, telephone, newspaper” or “even their books” (Gergen, p. 227). When we encounter such human-media interactions, we may be warmly welcomed or conversely, greeted with a forced “hello”—one that conveys distractedness and/or dismay at our very presence (Gergen, 2002). Gergen attributes this typical phenomenon to the technological expansion that has been characteristic of the

past two centuries. The increased availability of mobile technologies, such as the mobile telephone, have allowed one to be “physically present,” but simultaneously “absorbed by a technologically mediated world of elsewhere” (p. 227). A significant number of scholars have argued that the “consumption of mechanically reproduced music was increasingly used as an effective substitute for community” (Bull, 2004b, p. 176). As Adorno (1974) describes, music helps to create a superficial sense of “we-ness” in that it allows one to gain an “illusion of attending to what they tell themselves is other people’s life” (Adorno, 1974, p. 45). Further, Adorno argues that in capitalistic societies, individuals are increasingly looking to be connected to, and with others, and they find this connection through music. The inception of mobile telephones and other such digital devices has marked our transition as consumers into a society of “movement” (Bull, 2004, p. 177). For example, the availability of CD and cassette players enabled us “to transform both the experience of movement” and the spaces we “move through” (Bull, 2004b, p. 177).

Mobile technologies and applications allow users to communicate in public spaces thus resulting in a renegotiation of public space (Paragas, 2005). Public transportation areas and systems witness a significant amount of mobile communication; this results in questions of “etiquette, privacy and regulation” (Paragas, 2005, p. 113). As Gergen (2002) explains, individuals can be simultaneously physically present, and emotionally absent. This creates a flux in how individuals conduct themselves in these public spaces. In places such as trains and restaurants, individuals are situated in public spaces. However, these public spaces can also be viewed as being private spaces in that patrons are housed in seats that provide an element of temporary ownership and privacy.

Mobile technologies, including digital music devices further blur this question of the public and private realm as the user engages in private use. In effect, users are transferring space, whereby they are in one location but are mentally traveling to another.

This chapter has discussed the prevalence of digital music technologies within recent years and has discussed relevant research relating to how users are incorporating digital music technologies into their lives and some of the implications of pervasive use within both public and private spaces.

Chapter 4: Research Questions

This chapter begins with a discussion of the research questions that will be addressed in this dissertation. The theories that inform these research questions will also be outlined in an effort to show how this dissertation is framed, and what it hopes to answer.

R1: What motivates students to use digital music technologies?

This first question addresses the motivating factors for students' use of digital music devices; more specifically, however, it looks to Uses and Gratifications Theory to shed light on the gratifications that users seek when utilizing these devices. This question is designed to approach why students adopt digital music devices in the first place; however, it also explores what drives students to continue their use. In other words, what benefits are students gaining from use? As mentioned previously, McLuhan's extension of man maintains that technology use also carries symbolic meaning and that one's use can be an expression of self. Through focus group and survey questions, I will explore whether students perceive that their music consumption can be a mechanism for self-expression.

Questions of tribalism and identification are also addressed through this research question. As previously discussed, one's need to categorize him/herself with a certain group may prompt him or her not only to initially purchase a digital music device, but also to consistently use this device in a way that can demonstrate solidarity to others.

Through their theory of Apparatus, Katz & Aakhus (2002) posit that one's relationship with others and with society as a whole may be altered in the face of his or her media use.

Related to this perspective, Silverstone and Haddon's (1996) Domestication Theory examines how individuals "tame" their technologies once they are brought into the home. Such "taming" practices include introspection regarding how the technology will "fit" into one's life as well as how it will be used. These two theories provide the framework for my second research question:

R2: Do students use MP3 and iPods in "sharing" capacities?

Katz and Aakhus' (2002) Theory of Apparateist argues that both technology users and non-users establish meanings and values for media. These derived meanings can also create usage practices and norms which may allow for students to share their technologies with others. Domestication Theory also addresses this concept of meaning creation. As previously discussed, Domestication Theory argues that users tame their respective technologies and create new meanings and uses for them. While digital music devices such as the MP3 player and the iPod may be structured so as to include one listener, this dissertation will examine whether students surpass this infrastructure to overcome the isolating potential of digital music devices.

R3: Do students feel isolated by others' use?

This question emerges from a media ecology perspective in that it explores the interaction between humans and their technologies and the resulting culture that is created because of this interaction (Postman, 2000). Absence Presence Theory, Uses and Gratification Theory, Apparateist Theory and Domestication Theory all serve to also inform the third research question which examines whether social isolation is facilitated through MP3 and iPod technologies. Gergen's Absence Presence Theory maintains that through media use, users may be simultaneously present, but emotionally absent. One's

absence from interactions may however, be intended. As mentioned previously, Uses and Gratifications Theory argues that technology use is governed by one's desires. Thus, it can be argued that students may use their MP3 or iPod player to ignore others and to limit their interactions. This also can be related to Apparatchest Theory in that a users may create the assumption that when one is listening to his or digital music device, that he or she should not be interrupted by others.

R4: The fourth research question will examine whether there are differences in the way in which males and females use these technologies.

Various studies have demonstrated that there are differences in how men and women use technologies. Traditionally, technology has been viewed as a field cornered by men. This may in turn influence, whether or not women believe that they "should" use technologies. Bimber (2000) thus argues that "male values have been institutionalized in the technology through its creators, embedding a cultural association with masculine identity in the technology itself" (p. 3). In fact, research studies have demonstrated that males enjoy the informational purposes of the Internet and "feel more positive about the Internet in general" (p. 3). This research question will address whether usage differences according to gender extend to digital music technologies.

R5: How do personality factors affect usage practices?

As discussed above, personality can play a role in how people use technologies. For example, as Birnie and Horvath (2002) discuss, "high sociability and low shyness have been associated with increased traditional social behavior" (§11). Other studies have also shown that "high sociability would be associated with increased Internet social communication" (§11). This question will address how shyness might affect one's use of

digital music devices. For example, McCroskey and colleagues (1976) suggest that high communication apprehensives avoid situations that invite oral interaction (p. 376). In this way, those who are shy or who are apprehensive about communication may use their MP3 or iPod player to avoid communication.

R6: How does perceived technological aptitude affect one's use of MP3 and iPod players?

One's perceived aptitude has been shown to influence job outcomes, in that if one perceives that he or she can achieve a goal, he or she may be more likely to pursue it and achieve it. This conception has been particularly prominent in the field of technology. As mentioned above, various studies have found that one's perceived computer self-efficacy will affect computer outcomes. This question will address whether self-efficacy affects one's use of digital music devices. The survey will contain several questions that address general technological self-efficacy, as well as questions that relate to self-efficacy regarding MP3 and iPod players.

The proceeding chapters will discuss the methodologies that will be used to address these six research questions as well as the findings.

Chapter 5: Methodology

Prior research such as that of Katz and colleagues (1974), Ling (2003) and Sugiyama (2006) has highlighted that technology use can be fostered for an abundance of reasons; for example, one's interest in fashion, or the symbolic meaning that a tool carries, or goal achievement. Previous studies have also alluded that ICTs have an isolating potential (Putnam, 1995a; Putnam, 1995b, Turkle, 1996). However, does this mean that all technologies will have an isolating effect? As mentioned previously, Walkman technologies were initially built with plugs for two different ear sets. MP3 players have the capacity to broadcast through speakers, which may allow users to share their music with others. Thus, these music technologies are unlike any others in that they have the potential to be inherently isolating, but in some ways, still invite sharing. Many other factors however, may perhaps play a role in how individuals use their music technologies. For example, do personality traits influence use? Or, as mentioned previously, do users have specific goals that they are trying to achieve through their use?

The previous chapter discussed the research questions that this dissertation hopes to address. This present chapter will highlight the methodologies that will be used to answer these questions. Because this topic realm is a relatively new one, two different methodologies were necessary: focus groups and surveys. The study was completed through three different phases: a focus group, an exploratory survey and a final survey that was constructed based on focus group and exploratory survey findings. This chapter will discuss each of the methodologies used.

Chapter 5.1 The Instrument:

As Strauss and Corbin (1998) suggest, many studies can be more fruitful if they use methodologies that supplement one another. The authors suggest that many scholars adopt dogmatic positions in research by adopting either a qualitative or quantitative perspective. Since the topic realm for this dissertation has been relatively unexplored, multiple methods are warranted.

A combination of methods within scholarly research is incorporated for an abundance of reasons including supplementation and complementation. For this dissertation, focus groups were implemented to help inform the survey instruments since this topic realm is relatively new. Strauss and Corbin (1998) suggest that an “exploratory interview should precede the formulation and final development of questionnaire” (p. 28). Combining these two methodologies can more accurately tap into reality and confirm the results of one another. With statistical knowledge, as with qualitative data, it is frequently difficult for the researcher to determine whether he or she has “captured the essence of the situation” (p. 29). A combination of methods was thus used in this dissertation to address this complexity. Further, a combination of methods is particularly vital in research endeavors in sociology, “and in those areas of social science that analyze the implications of computers for society” (p. 31). It is especially imperative to use mixed methods for this study because it is not only informed by a social science, but it also has been vastly under-explored. Indeed studies relating to social implications such as this one can benefit from the creative responses that the combination of surveys and focus groups can offer.

When formulating a plan for research, the researcher considered Strauss and Corbin's (1998) recommendation that one should consider the interplay between qualitative and quantitative methods. As mentioned previously, digital music devices are previously unexplored realms of research, making it difficult to find instruments that will answer the questions at the heart of this dissertation. The best way to mitigate this difficulty was to look for existing measures that address certain components of the study, and then develop new questions that would address themes unique to the MP3 phenomenon. Additionally, the focus group questions that were developed also helped the researcher to delve into these under-examined terrains.

Lindlof and Taylor (2002) suggest that "no qualitative research project can capture every event as it unfolds" (p. 120). In constructing a research strategy, the question of who should be sampled was of course considered. As Lindlof and Taylor describe, most "sampling decisions in qualitative inquiry are not based on procedures of random probability;" frequently, samples are chosen because they are perceived by the researcher, to be an appropriate group through which to answer the questions at the heart of his or her research. For this present dissertation, college students were chosen because previous studies on technology have demonstrated that they are actively engaged in not only social change, but also technological change. In accordance to what Spradley (1979) discusses regarding focus group interviews, students were recruited from within the communication department through classroom advertisements.

The focus group discussions were designed to gain an understanding of the prevalent themes that should be explored in the survey. As Vaughn and colleagues (2005) suggest, focus groups are often best used in exploratory research. In fact, in many cases,

focus group studies are used as a first step towards a supplemental methodology. This methodology allows participants to discuss not only their own mobile music technology practices, but also, that of others. In this way, the focus groups could help to shed light on some of the relevant themes related to mobile music technology use including how individuals view their own use, motivations for use, norms of use and how non-users view users. Again, since MP3 use is a relatively new phenomenon, it was necessary to extract some of the chief themes related to use in order to formulate an appropriate survey measure. Focus group interviews, as Vaughn and colleagues (2005) describe them, are used as an informal procedure to explore relevant topics about a specific situation. As the authors explain, the goal of focus group interviews is to “create a candid, normal conversation that addresses in depth, the selected topic” (p. 4). Additionally, focus groups can be used to achieve an emotional response about a specialized topic. Such findings, Vaughn and colleagues (2005) suggest, often cannot be found through quantitative measures. The authors use the example of students who complete their homework assignments for some teachers, and not for others.

An exploratory approach to focus groups was used for the qualitative portion of this dissertation. Vaughn and colleagues (2005) describe this approach to research areas that are relatively unknown and “obtain knowledge that is pre-scientific” (p. 23). The authors argue that focus group interviews are particularly useful when very little is known about the topic. It is referred to as a pre-scientific measure because its goals are to procure ideas and later compare them with the general experiences of individuals. Focus group measures were chosen as opposed to individual interviews with the hope that group interactions would encourage a wider range of topic realms. Lindlof and Taylor (2002)

suggest that “in the group context, the members are stimulated by the ideas and experiences expressed by each others” (p. 182). In this way, the group dynamic creates what is referred to as the “cascading” effect where topics emerge out of other topics.

The focus groups were semi-structured and students were asked nine questions that resulted in subsequent questions being raised and discussions that were not previously anticipated. As Vaughn and colleagues (2005) suggest, the goal in implementing the focus groups was not to achieve a consensus in answers; instead, the questions that were asked were meant to evoke conversation and extract a variety of themes that could be explored during the survey methodology. Generality was preserved in order to facilitate genuine responses and to hamper responses which are tailored according to what the informant believes that the researcher wants to hear. This format also helped to foster a more friendly dialogue among the participants which in turn, promoted more candid conversation. As Spradley suggests, such friendly discussion also serves to help “introduce new elements” (Spradely, p. 58). The focus group sessions indicated that this was in fact the case; friendly banter helped to create a comfortable interviewing session.

A total of 43 students from three different 200 and 300 level communication classes participated in three different focus group during the spring of 2006. The students involved in these focus groups were both MP3 users and non-users. Non-users were not excluded so as to derive a sense from them about how they feel when others use their technologies. The students were asked a series of questions about their mobile music technology use and that of others. The questions asked were:

1. Do you have an MP3 or iPod technology?

2. What influenced your decision to purchase an MP3 or iPod technology?
3. When do you use these technologies?
4. How often do you use these technologies?
5. Do you ever share your MP3 or iPod technology with others?
6. How do others react to your use of these mobile technologies?
7. How do you feel when others use MP3 players or iPod around you?
8. Do you ever feel isolated when others use these technologies around you?
9. Have you ever used these technologies purposefully to ignore someone with whom you do not wish to talk?

The focus group data was taped and with 3 separate tape recorders and was later transcribed informally by three different transcribers so as to gain a consistent and accurate report about what was said during the focus groups. Two of the transcribers also took notes during the focus group interviews in case the tape recordings were inaudible, or if they malfunctioned. These tapes were then transcribed into an electronic version after carefully listening to the tapes and reviewing notes from the discussions.

Following the completion of the focus groups, an exploratory survey was conducted during the fall of 2006. The survey consisted of 57 questions concerning general usage practices, personality factors, identification-fashionability items and goal-oriented use.

The survey was administered to a communication class at a large university in the Northeast, as well as a smaller Information Technology class at the same university. In

total, 153 completed surveys were received. The survey included both affinity scale and Likert-type questions. Several questions relating to demographics were used including the student's major, gender and what their family's income bracket is. A pilot study of this survey was conducted prior to formal data collection with a class of forty-four, 300-level communication students. This pilot study helped to uncover several questions that were awkwardly worded and some questions that could have multiple answers.

Some prominent issues were revealed during the focus group sessions which relate to both social isolation and sharing. In other words, some students expressed that they had in the past, used their MP3 or iPod players to ignore others, while others said that they had let others listen to their device and vice versa. Several questions that addressed these themes were then included in the exploratory survey. For example, one question asks, "How often have you shared your MP3 or iPod with another individual?" Another question that addressed this theme of sharing was "How often have you brought your MP3 or iPod player to a social gathering?" To explore the issue of social isolation, students were asked: "Have you ever felt that someone was ignoring you by using their MP3 or iPod player?" Also addressing this theme of isolation, another question asks: "Have you ever ignored someone by using your MP3 or iPod?" Since many students expressed during the focus groups that they had used their devices on the bus and at the gym, the exploratory survey asks them how often they have used their technologies in each of these places. Issues of fashionability and "fitting in" also emerged during the focus group and so several questions were included in the exploratory survey which addressed these themes. These questions relate to whom, if anyone influenced their decision to purchase their digital music device; whether they consulted their friends when

making purchases and how much they generally consult fashion. In general, these questions also address the meanings associated with use.

The exploratory survey also included questions which address the circumstances in which subjects use these mobile technologies, how they use them, and the frequency with which they are used. Additionally, the exploratory survey also included questions about the respondent's personality (introversion vs. extroversion), demographics, music downloading practices, and perceived technological aptitude. The exploratory survey questions also explore how students feel that others' MP3 and iPod use affects their lives, as well as how their own use may affect that of others. Students were also asked to indicate why they purchased their MP3 or iPod player. To gain an understanding of sharing practices, respondents were asked to indicate how often, if ever, they have shared their digital music device with others. The concept of sharing was explored through questions which asked users to indicate how often they have shared their device while on the bus, in the car or at a social gathering. Also, respondents were asked to identify how frequently, if ever, they have talked about their digital music device with others. The exploratory survey also integrated two questions pertaining to isolation: one that asks users whether they have ever used the technology to ignore others, and one that asks if they have ever felt ignored by someone else's use. Both questions sought to address the question of whether social isolation can be an implication of use.

The final survey for this dissertation was constructed based on the focus group and the exploratory survey and was collected during the spring of 2007. This final survey was piloted with six different communication students. The students were asked to complete the survey and answer four questions that address the wording of the

questionnaire, the survey's level of difficulty and the time that it took to answer the survey in its entirety (see appendices). As mentioned previously, the domain for this dissertation is a relatively new one. However, many of the research questions utilized in the survey speak to larger issues such as personality and the number of friends that one has. Both of these themes had been explored in previous research studies and thus, elements from three different scales were added to supplement the survey created by the researcher: McCroskey's (1978) Self-Reported Communication Apprehension scale, Eyesneck's (1990) Personality Inventory and Zuckerman and Jost's (2001) popularity scale.

The first five questions of the survey address how individuals integrate their digital music devices into their everyday lives. These questions specifically address RQ1 which asks how individuals use their MP3 and iPod players. For example, question #4 asks respondents to answer, with affinity scale measurement, the degree to which they agree with the statement: "I have used my MP3 player to "escape" from my immediate environment." Questions 12, 13, 14 and 15 attend to issues of identification and fashion, which again may play a role in why respondents use their digital music devices. Questions 47A, B and C also address questions of identification and fashion. These questions ask respondents to identify why they decided to purchase their digital music devices. The survey also integrates questions concerning one's use of their digital music device at the gym. For example, Question #48C asks users to respond to the statement "I use my MP3 player at the gym because other people are also using them." Only students who had identified in previous questions that they have used their MP3 or iPod players at the gym were asked to answer this question. This question addresses whether concerns

about identification and fashion are at play when users opt to use their devices in the gym.

Question #48D addresses one's goal orientation in that it asks users to respond to the statement "I use my MP3 player at the gym to occupy my time." As discussed in Chapter 2, users incorporate specific norms for use based on their needs and desires for gratifications (see Chapter 2.4 and Katz et al., 1974). Coyne (2005) (see chapter 3.1) suggests that one such desire that users may experience is that of wanting to remedy feelings or perceptions of non-place. The gym, and the bus (see appendices, Survey question numbers 49 and 49A) are indeed situations of non-place and so users may feel compelled to interact with their technologies during these scenarios.

Questions 39-45 address the theme of sharing practices among users. For example, question #39 asks students to respond to the statement: "I have let others listen to my MP3 player before." Questions 43 and 44, respectively ask students to respond to the statements: "I have talked to strangers about my MP3 player" and "I have talked about my MP3 player's applications with others." This set of questions addresses R2: Do students use MP3 and iPods in "sharing" capacities? Questions 50, 50A, 51 and 51A also address the issue of sharing. They ask users to indicate whether they have ever discussed songs that they have downloaded with others, and/or whether they have ever discussed songs that they wanted to download.

Conversely, questions five through eleven speak to issues of isolation, which seek to answer both research questions 1 and 2. Again, RQ1 explores how respondents use their digital music devices to fit their own needs. R2 addresses whether students feel isolated by others' use of digital music devices. Do students feel isolated by others' use?

These questions ask whether users have utilized their MP3 or iPod player to “avoid awkward conversations,” or if they have used their devices to ignore others. For example, Questions #46 and 46A asks respondents to indicate whether they have ever used their digital music devices to ignore others, and if so, how often they have done so.

Another question addressed in this dissertation is whether there are differences in the ways in which men and women use their digital music devices. This research question, R4, is addressed through question #52 which addresses demographics. During analysis of the survey, t-test analyses will be conducted to see whether there are in fact differences in the ways in which males and females use technologies.

This dissertation also explores whether personality can have an impact on one’s usage practices. Research question #5 addresses this phenomenon: R5: How do personality factors affect usage practices? Questions 20 through 34 of Survey #2 address this research question. As stated previously, these questions were adapted from scales created by Zuckerman and Jost (2001) which measure for self-perceived sociability, Eysenck’s (1990) Personality Inventory, Zuckerman and Jost’s (2001) and McCroskey’s Personal Report of Communication Apprehension (PRCA). These questions explore the degree to which individuals are introverted or extroverted. Question #23 for example, asks users to respond to the statement “I stay in the background at parties and get-togethers.” This question was adapted from Eysenck’s PI. Questions 35 through 38 explore friendships and seeks to examine whether personality and being outgoing have an influence on digital music technology use. These questions were adapted from Zuckerman and Jost’s (2001) popularity scale and asks users to respond to such questions as “I have as many friends as the typical Rutgers University student” and “I have more

friends than the typical Rutgers student.” These questions are designed to explore the personality factors that may influence one’s MP3 or iPod use.

Research question #6 “How does perceived technological aptitude affect one’s use of MP3 and iPod players?” is addressed through questions 16-19. For example, question #16 asks users to respond to the statement: “My MP3 player is easy to use,” while Question 19 asks “I am proficient with technologies in general.” The first question (#16) is designed to see whether ease of use is a factor in one’s decision to use an MP3 player or an iPod. Question #19 explores whether one’s general perceived adeptness plays a role in his or her use.

Chapter 6: Focus Group & Exploratory Survey Results

The focus group sessions shed a great deal of light on how users adopt mobile music technologies, what their usage practices are, and how they perceive their own use, as well as that of others. As discussed above, the focus group interviews, coupled with the exploratory survey, helped to provide the format and structure for the subsequent survey.

Achievement of Personal Goals:

The most prevalent theme that emerged during the focus group discussions was that college students use technologies in ways which benefit them, or rather in ways that match their goals. Because this theme emerged during the focus group interviews, this concept was addressed this question in the exploratory survey. Specifically, Question #13 on the first survey asks users what motivated them to purchase an MP3 player or an iPod. It asks: “Whom/what of the following influenced your decision to purchase an MP3 or iPod?” The respondents could answer:

- A) Family
- B) Friends
- C) Colleagues
- D) Advertisements/The Media
- E) None of these
- F) Other source. Please list: _____

Students indicated a variety of goal-related reasons for acquiring a digital music device such as occupying time, a desire to use the technology in certain circumstances or place, or their love for music. For example, Respondent #41 wrote in “Option F” that he or she: “wanted the iPod for working out.” For this same question, Respondent #27 echoes Respondent #41. He or she writes that the “Gym influenced the [my] decision to purchase an MP3 or iPod.” Respondent #95 reported similarly that he or she “just needed it for the gym.” Other students indicated that it was their love for music that motivated them to get an iPod or MP3 player. For example, Respondent #137 noted that: he or she was driven to get an iPod because: “My love for music, want to listen to it everywhere as often as possible.” Respondent #62 echoed: “I love music.” Respondent #80 indicated that he or she was driven to get an iPod because of “audio production (sic) purpose.” Respondent #70 reported similarly; saying that because of his or her job as a deejay, he or she was motivated to purchase an iPod. These responses all illustrate that students are driven by their desire to listen to music and/or to incorporate it into the many facets of their lives.

As Domestication Theory alludes, and as the focus group discussions demonstrated, individuals actively “tame” their technologies beginning at the time when one first considers integrating the technology into his or her life, through its final days in one’s life. This is done through a variety of ways; as Silverstone and Haddon (1996) discuss, Domestication Theory is interested in the negotiations that take place as result of one trying to integrate his or her technology in their lifestyle. As mentioned previously, the MP3 player is not inherently designed for sharing. However, some students within the focus groups conveyed that they had indeed been sharing their devices. Thus, this can

be considered a negotiation or “taming” of the device. One way that students seem to be taming their technologies is through their sharing of their devices. For example, during the focus group interview, one young woman said that she shared her iPod earbuds with her boyfriend while they were on vacation. Another female respondent then added that when her car radio broke, she and her passenger decided to share the earpieces to one iPod. One male student added that his fraternity house had iTunes music applications linked so that all of the members of the house could listen to each others’ music. He added that this system allows individuals to share new music that they find interesting with others. Another female student’s quote demonstrates how students are not only sharing their technologies with others, but are becoming increasingly dependent upon their digital music technologies:

“My best friend and I walked out of our house together to go to [another campus] and I forgot my iPod. When we were walking out, I just made her give me one of the ear things and we walked to the bus stop just like that and we sat next to each other just like that we looked really cool.”

This quote is not surprising; the creators of the first generation Walkman initially included two jacks for headphones so that users could share their device with others.

Similar sentiments were also evident during the exploratory survey. Question # 22 asks:

“If you have ever shared your MP3 player or iPod with another person, what motivated you to do so?”

- A) I have never shared MP3 or iPod with anyone before
- B) Wanted to share a good song with a friend
- C) Long bus/car/train/airplane ride
- D) Boredom
- E) Other. Please list: _____
- F) Not Sure

Several students utilized the write-in option for choice “E.” These responses showed that several of these students had shared their device because their friend had “needed” it. For example, Respondent #136 indicated that “a good friend needed it.” Respondent #11 indicated that he or she shared their device because a “friend was going to the gym and [their] CD player broke.” Respondent #21 was “motivated to share because roommate didn’t have hers.” There also seemed to be an element of attachment to one’s MP3 or iPod and sympathy for those who had to go without theirs. Respondent #41 said that he/she allowed their friend to borrow their iPod because “he didn’t have one and is a close friend.” Similar sentiments could also be found in the focus group sessions.

For example, one female described the level of dependency that she felt towards her iPod during a recent spring break trip:

“I was really upset. I went to Florida on winter break and I forgot my iPod and my flight---it got delayed an hour. It was the most painful and uncomfortable thing to just sit there staring for like an hour and a half waiting for the flight to take off and I felt so lost without my iPod on the beach and by the pool---it wasn’t fun.”

This level of dependency Bull (2005) suggests, may be fueled by one’s “desire for company or occupancy” while still maintaining “intimacy” when navigating through daily life (Bull, p. 345) One’s dependency on their digital music device may begin to explain the phenomenon of sharing. One member of the focus group recalled sharing their iPod headphones with friends while eating at the Rutgers University Student Center or while waiting at the bus stop. Another student indicated that he frequently shared his iPod earphones with friends so as to share new songs with them. Several students indicated that iPod technologies are beneficial for long car trips, and one student responded that she was aware of the fact that her sister frequently listened to her iPod

while taking the train to work. Bull argues that in this sense, MP3 players allow users to foster feelings of proximity while still maintaining autonomy. Because MP3 players and iPods can store up to 10,000 songs, Bull suggests that these devices may also provide one with a feeling of spontaneity, in that he or she can be surprised by the ordering of their songs and the situations in which they hear them. Thus, this may allow users to experience excitement by hearing a song that they were not expecting, or they could choose to tailor their music according to the scenario or mood that they are in.

With iPod and MP3 player use becoming so pervasive, as demonstrated by students' use in the gym and borrowing devices from others, one would ask whether this prominent use isolates others. During the focus group interviews many students argued that they do not perceive that they are isolating others. For example, one female stated:

“I always put one earphone in, so you can do two things at once.”

Another female said that she was not perturbed by others' usage of MP3 and iPod players:

“I don't know—I don't listen to music a lot. The only time I listen is when I'm in the car driving. But all of my friends have it. They listen to it and I'll just read a magazine. It's not a big deal to me because I'm not a big music person.”

In general, students seem to shape or mold their own music technologies. Again, although MP3 players may not have been created so as to allow for sharing, users are in fact engaging their devices in this way, as was described above. Additionally, students are using the device in ways that fit their needs. These needs may include occupying one's time, or trying to mitigate boredom as the following quote about Walkman technologies illustrates:

“Do I always have to be accountable twenty-four hours a day? If I’m on a boring walk to the bus stop for the hundredth time and want to make it into something interesting, why should other people be concerned with that? I’m not walking on the street to be accountable! The secret theater is annoying to the other guy because you always want to know what other people are doing, and he doesn’t have the slightest idea” (Levy, p. 38).

In this way, users create their own realities and meanings regarding how digital music technologies should be used. The focus group discussions did lend themselves to discussions of meaning, and in that sense, address Katz and Aakhus’s (2002) Theory of Apparategeist. For example, one student in the focus group even indicated that he felt as though his iPod served as his “soundtrack to life.” This comment is similar to that of one of Bull’s (2001) respondent’s who said:

“The music leads you to something and then you go back to the music. It leads me to different thoughts. Sometimes it gives me other ways. Other directions for my thoughts but it doesn’t change my mood. I feel stronger. Not because I’ve got music. If I feel stronger it’s because the music gives, like a frame for my thoughts and with my thoughts I feel stronger. It’s not the music because anyone can have the same tape on their Walkman, but not my thoughts. Sometimes I like not to think at all. I just listen to the music and feel good. I just follow the music” (p. 182).

As Bull explains, this quote demonstrates that the Walkman can at times, allow one to withdraw from the public, and at other times, allow the user to “confront the social spaces of the city in a confrontational or aggressive manner” (p. 182). Another student in the focus group indicated that in climates such as that of the airport, he would use the iPod during a “boring day,” while one of his colleagues added that she enjoyed listening to music while sick. In one of Bull’s (2005) interviews with commuters about their iPod experiences, a 35 year-old bank executive said that while commuting to work in New York City, she would “scroll through her suite song titles looking for a particular song to listen to that would suit her mood at that particular moment” (p. 344). Bull explains that many avid iPod users spend hours creating play-lists that will be used during a wide

variety of activities. In this way, students are creating their own norms for when MP3 devices should be used. As discussed previously, at the nucleus of Katz and Aakhus' (2002) Apparatus Theory is the relationship between a user and his or her device, and the relationship that the two have with society. The focus group discussions showed that students are creating their own usage practices by: using their devices when they are ill and creating long play lists which they intend to use during specific activities and/or moods. Once these practices are integrated into students' lives, they can then be referred to as their norms of use.

Another implication of spending hours creating play lists is that spending hours creating play-lists might imply that one would in turn, spend hours listening. The exploratory survey addressed the frequency with which MP3 and iPod users engage in use: 73% of the students surveyed said that they use their MP3 or iPod player more than once per week. These high levels of usage may point towards the idea that students are becoming, or already are, dependent upon their devices. Further, a student in one of the focus groups had indicated that when she was having a bad day, she would use her iPod technology in public arenas, thus allowing her to "escape" from her environment. Again, this quote may be indicative of dependency upon the device, but it also may signify that students are creating norms of usage by escaping from their environments. Also, as mentioned earlier, personality may indeed play a role in usage practices. Perhaps those who are shy would be more inclined to "escape" from their environments when having a bad day. However, this particular female's response can serve as an example of how individuals may be in uncomfortable situations which they remedy through their use of

digital music devices. Bull's (2005) respondents also made similar claims. One iPod user said that she can gain a sense of control of her life through her listening habits:

“Well, I think I’ve come to the conclusion that overall, I feel pretty out of control in my life. Stores play music to get me to buy more. Work tells me what to do and when. Traffic decides how quickly I get from here to there. Even being in public places forces me to endure other people and their habits (the guy slurping his soup, the brat crying for a piece of candy.) I didn’t realize how much I yearn for control and probably peace and quiet. Strange since I’m blasting music in my ears. I think I’m really tired of living on someone else’s schedule. The MP3 digital music revolution has given me some control back” (p. 346).

The above-described uses, such as use on the bus, while walking to class and at the gym, support Gergen's (2002) notion of absence-presence, whereby one can be in an unpleasant or unnatural situation, and look to his or her technology, and in this case, his or her MP3 player or iPod to escape. However, one of the implications that Gergen mentions of being simultaneously present and absent is that one can potentially isolate immediate others. The exploratory survey did show that a significant number (56%) of students had at least once, felt as though they were being ignored by another MP3 or iPod user. Interestingly, the exploratory study showed that gender did not make a difference when looking at this phenomenon; 55.6% of females, and 58.9% of males indicated that they had felt ignored by someone else's use.

During the exploratory survey, students were also asked to indicate if they have ever ignored someone through use of their MP3 or iPod. Notably, 57.2% of the 145 surveyed indicated that they had used their digital music device to ignore someone else. Females also showed a greater propensity to ignore others through their use; 62.5% of females indicated that they had ignored someone through their use, while 42.2% of males reported similarly.

Adoption Practices & Identification:

This dissertation is also interested in the process of adoption and how students come to know about new technologies and subsequently adopt them. During the focus groups and the exploratory survey, social influence seemed to play a noteworthy role in how students come to adopt music technologies. For example, one student discussed how when she initially arrived on campus as a freshman, her roommate had an iPod and it was upon being introduced to this technology through interactions with her roommate, that she developed an interest in the technology. When asked “where did you first learn about the MP3 or iPod?” this female answered:

“From my roommate freshmen year. I remember moving in and she was listening to it. I thought that it was so cool. I asked for one and I didn’t get it. I asked for one every holiday and still didn’t get one.”

Levy (2005) explains that in part it is this “cool dynamic” that drives people to adopt music technologies such as the iPod. However, as Respondent #61 mentioned in the exploratory survey, for many it is their love of music and the iPod itself that explains their rationale for adoption. Levy argues that the iPod has been able to sustain popularity because people “truly, madly, deeply loved the iPod” (p. 61). In other words, a significant number of users (12 percent as indicated by the Diffusion Group), have simply jumped on the iPod bandwagon, while many others demonstrate a true commitment to music and the device itself. The Diffusion Group found in 2005 that “iPod users groove on rock and roll 20 percent more than the average music consumer—and they listen to hip-hop 50 percent more” thus demonstrating iPod users devotion towards music itself (Levy, p. 61)

Another student echoed this theme of social influence and tribalism when he indicated that he would not have been as apt to purchase an iPod technology if his friends had not promoted it so heavily. One female student acknowledged that it was the physical attributes of the iPod that attracted her:

“I’ll be totally honest---it’s pretty. I only got it because it looks better than the other ones.”

As Levy (2005) discusses, based on a study conducted by the “Diffusion Group,” such comments about aesthetics are not uncommon among iPod users. He cites that “a full 13 percent of iPod owners interviewed reported that its aesthetic design was the primary reason they had bought it” (p. 64). Levy proposes that “the aesthetic has left the object—the record sleeve—and now the aesthetic is in the artifact: the iPod, not the music” (p. 64). Aside from aesthetic reasons, students also gave reasons for adoption that pointed to elements of tribalism. For example, one female student mentioned that her interest was piqued while exercising at the gym and seeing other patrons using the technology. Levy explains that “there was a time early in iPod history when owners felt a kinship to fellow travelers, making silent eye contact or giving some other sort of high sign to anyone showing those telltale white earbuds” (Levy, p. 45). Levy quotes the self-named “Professor of Cool” who says that owning an iPod “gives you the feeling you belong to a tribe” (p. 62). It allows one to feel as though he or she belongs to something bigger than his or herself.

Increasingly, however, owning an iPod has become a standard thing for people. As Levy (2005) explains, as this standardization began to occur, “the tribe was as likely to include your grandmother as it was Kate Moss” (p. 62). This is very common for products when they are making the migration from a niche market to a popularized one.

However, since the gap between user and nonuser is rapidly narrowing, do these categorization processes still exist? A female student in one of the focus groups said that she felt as though she was the last person who did not own an MP3 or iPod player. Perhaps this dichotomy has been strengthened since more and more people are becoming users. Several of the survey questions in the exploratory study were in turn designed to address these issues of social influence and identification. For example, one question asked users to identify how heavily they weigh fashion when making decisions about purchases. A t-test was also used to test whether gender influences one's desire to consult fashion before making a purchase. This test was significant $t(142) = -4.47, p < .01$, demonstrating that males do not consult fashion with as high a degree as females do. Students were asked to respond to the following Likert scale statement: "I pay attention to fashion trends when making purchases." The responses were coded so that "Strongly Agree" was a "1," "Agree" was a "2," "Agree Somewhat" was a "3" and so on. Female students ($M=2.90, SD=1.10$) on the average, agreed more with the statement "I pay attention to fashion trends when making purchases" than males ($M=3.90, SD=1.58$). The 95% confidence level for the difference of the means was notable, ranging from -1.44 to -0.52.

Another test of identification was conducted during the exploratory survey to determine whether students account for their friend's perceptions when making purchases. An independent samples t-test showed that females were more likely than males to take their friend's perceptions into account when making purchases. This test also showed a pattern, $t(142) = -1.80, p = .073$. Notably, 49.7% of the total number of respondents responded to the statement "I take into account my friends' perceptions when

making purchases” with an answer ranging from “Agree” to “Strongly agree. 53.4% of females picked an answer within this range, while 44.6% of males answered similarly. In other words, women comprised 67% of the individuals who answered within this range, while men comprised the rest with 33%.

Many of these findings helped to inform the final survey which further explored the dynamics of adoption, use, perceived technological proficiency and differences in usage patterns across gender lines. The next chapter will discuss the findings of this final survey.

Chapter 7 Survey Results:

The balance of the dissertation will include chapters that focus on the following: data results, limitations, and a discussion and interpretation of the findings. This chapter will discuss the survey results.

Demographics:

The final survey included 55 questions with a variety of Likert-type affinity scales and incorporated elements from McCroskey's (1975) PRCA scale, Eysenck's (1990) Personality Inventory and Zuckerman and Jost's (2001) popularity scale. As mentioned previously, the survey was conducted during the spring of 2007 and was given to students (n=200) in two different communication classes. The sample was comprised of 123 (61.5%) females and 75 males (37.5%). Two individuals did not specify their gender. A variety of races were represented: 8.5% (n=17) of the respondents identified themselves as African-American, 56.5% (113) identified themselves as being Caucasian, 10% (n=20) Hispanic, 11.5% (n=23) Asian, 1.5% (n=3) Middle Eastern, 1% (n=2) Pacific Islander, 3% (n=6) Southeast Asian, 3.5% (n=7) Bi-racial, and 4.5% (n=9) identified themselves as "other."

The vast majority of respondent were second (47%) or third-year (33%) students (see table 1) and identified that they were from suburban areas (see table 2)

Table 1: Class Year

Class Year		Frequency	Percent
Valid	1 st	11	5.5
	2 nd	94	47.0
	3 rd	66	33.0
	4 th	19	9.5
	5 th or more	6	3.0
	Missing	4	2.0
	Total	200	100.0

Table 2: Geographic Area

Area		Frequency	Percent
Valid	Suburban	150	75.0
	Rural	14	7.0
	Urban	32	16.0
	Missing	4	2.0
	Total	200	100.0

Personality

As mentioned previously, this dissertation is interested in examining the role that personality traits play in MP3 adoption and practices. Because 14 different items relating to shyness and extroversion were used in the survey, a factor analysis was conducted to reduce the number of variables (Table 3 shows the extraction analysis). The eigenvalue of 1.0 was set for factor extraction and a Varimax rotation procedure was employed in the process. The test yielded two determinable factors: shyness and sociability (see Table 3). The first factor accounted for 37% of the variance and the second accounted for 12%. Reliability tests were run on both the factors yielding an alpha of .834 for the shyness factor and .655 for sociability (all of the means for the survey can be found in Appendices 2). The first reliability level is considered satisfactory (see Cohen & Cohen)

and the second number, while it is by no means as high as one would like, will be used in this study due to the preliminary nature of the research. For the first factor (shyness), its variables included one's self description of being an "outgoing person," "being a shy person," being afraid to express oneself in a group, not being afraid to express oneself in a group and talking less because one was shy. The second factor of sociability included variables related to being social and being around others: "I stay in the background at parties," "I like mixing with people," "I would rather be home than at a party." Again, the first factor relates to one's level of shyness and the second addresses more, how one handles or faces interactions with others. As the below table (3) shows, the most variable responses were to these questions and this is what allows us to measure which factors would be best to measure the elements of personality. For example, the answers for "I am an outgoing person" and "I am a shy person" are vast, showing that the measure is strong. To further test these factors, a correlation test was run between the variable of identifying one's self as being shy and having let others listen to their MP3 device. These two variables were found to be related, $r_s = -.149$. Another correlation test was then administered on the variables of one liking to mix with other people and having brought one's device to a party or a social gathering. This test showed that there is a relationship between these variables, $r_s = .220$

As discussed in the literature review as well as in the chapter on research questions (Chapter 4), this dissertation is interested in exploring the relationship between one's personality traits and patterns of usage. Thus, a correlation was conducted between the shyness and sociability factors against the variables of having physically shared or talked about one's devices with others. The Spearman rank

correlation showed that those who were shy were less inclined to physically share their devices, $r s = -.253$ ($p < .01$) (see table 9). A correlation test was also run on the factor of sociability and physically sharing one's device. This relationship was strong, with a correlation of $r s = .203$, indicating that those who are more sociable would be more apt to physically share their devices with others. Another correlation test was also conducted which showed that there is no relationship between shyness and talking about one's device, $r s = -.044$. Further, there was also no correlation found between sociability and talking about one's device, $r s = .063$. To confirm the accuracy of this finding, another correlation test was then run on the factors of not being afraid to speak in front of an audience and talking to others about their device's application. This test was found to be non-significant.

An independent samples t -test was also conducted to test the means between males and females and shyness. The test was non-significant with $p = .813$. A follow-up independent samples t -test was then conducted on the variables of gender and personality. This test was also non-significant with $p = .301$.

Table 3: Sociability Matrix

	Component		
	1	2	3
I am an outgoing person	-.688	.225	.169
I am a shy person	.633	.344	-.004
I like a lot of excitement and bustle around me	-.468	.351	.536
I stay in the background of parties	.621	.385	-.285
I like mixing with people	-.606	.176	.498
I would rather be at home than at a party	.389	.316	-.596
I have no fear of facing an audience	-.649	.463	-.238
I talk less because I am shy	.764	.335	.006
I am afraid to express myself in a group	.712	.325	.241
I look forward to the opportunity to speak in public	-.525	.529	-.254
I am tense and nervous while participating in group discussions	.606	.304	.390
I believe that I am more fluent when talking to people than the average person is	-.612	.458	-.039
I have no fear about expressing myself in a group	-.631	.388	-.156
I feel self-conscious when I am called upon to answer a question	.493	.209	.500
I like to keep to myself except when around very close friends	.559	.312	.018

Goal Pursuit:

One's goal(s) in using digital music devices was also of interest to this dissertation. Analyses of when and how students use their devices were conducted. Of

the 200 survey respondents, 41% of males and 42% of females reported having used their MP3 player within the last two days. Almost exactly the same percentages--42% of females and 41% of males--indicated that they had used their MP3 player within the last week on the bus. When asked to respond to the statement "I use my MP3 player on the bus to escape," approximately the same percent--43% of females and 49% of males answered-- in the range of "somewhat agree" to "strongly agree."

Descriptive statistics also showed that 77% (154 respondents) of the 200 respondents have gone to the gym within the last year. Of that 76%, 50% (100 respondents) responded within the range of "agree somewhat" to "strongly agree" to the statement "I use my MP3 player at the gym to occupy my time." 44% answered within the range of "agree somewhat" to "strongly agree" to the statement "I use my MP3 every time I am at the gym."

To further explore this issue of goal pursuit, descriptive statistics were conducted which showed that 41% of respondents responded within the range of "agree somewhat" to "strongly agree" to the statement "I have used my MP3 to avoid awkward conversations." Crosstabs analyses also showed that 71% of respondents answered within the range of "agree somewhat" to "strongly agree" to the statement that "I have used my MP3 player to change my mood."

A factor analysis was conducted to establish a variable that would investigate how dependent users are upon their devices. Three different variables were analyzed: the role that the MP3 player plays in one's day, using the MP3 player for more than one hour per day and one's perception of being dependent upon his or her MP3 player. The eigenvalue of 1.0 was set for factor extraction and a Varimax rotation procedure was

employed in the process. The test yielded one determinable factor which accounted for 76% of the variance (see Table 4 below) and was subsequently labeled “dependency.” A test for reliability was then run which yielded an alpha of .845. This factor is indeed, quite strong and shows that that these three questions are strongly related to one another. All three of these factors relate to how much one incorporates their device into their day.

Table 4: Dependency Matrix

	Component
	1
Role in my day	.908
I use my MP3 player for more than one hour	.880
I believe that I am dependent upon my MP3 player	.835

Table 5: Correlation Table with Dependency Factor

			I have used my MP3 player to escape	I have used my MP3 player to change my mood	I have used to avoid awkward conversations	I have used my MP3 to ignore others	Dependency
Spearman's rho	I have used my MP3 player to escape	Correlation Coefficient	1.000	.643(**)	.293(**)	.362(**)	.507(**)
		Sig. (2-tailed)	.	.000	.000	.000	.000
		N	200	200	200	200	200
	I have used my MP3 player to change my mood	Correlation Coefficient	.643(**)	1.000	.241(**)	.264(**)	.363(**)
		Sig. (2-tailed)	.000	.	.001	.000	.000
		N	200	200	200	200	200
	I have used to avoid awkward conversations	Correlation Coefficient	.293(**)	.241(**)	1.000	.683(**)	.258(**)
		Sig. (2-tailed)	.000	.001	.	.000	.000
		N	200	200	200	200	200
	I have used my MP3 to ignore others	Correlation Coefficient	.362(**)	.264(**)	.683(**)	1.000	.310(**)
		Sig. (2-tailed)	.000	.000	.000	.	.000
		N	200	200	200	200	200
	Dependency	Correlation Coefficient	.507(**)	.363(**)	.258(**)	.310(**)	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.
		N	200	200	200	200	200

** Correlation is significant at the 0.01 level (2-tailed).

As the above correlation table demonstrates, there was a relationship between dependency and whether respondents had used their MP3 players to escape, change their moods, avoid awkward conversations and ignore others. Users who are dependent on their devices are more likely to use their devices to escape, change their moods, avoid awkward conversation and ignore others. Since McCroskey and other scholars have argued that those who are less sociable tend to opt for situations in which not much interaction is necessary, a correlation test was then run on the variables of shyness and dependency. There was no correlation in the data set between these two variables (Spearman $r_s=.065$). In other words, those who are shy are not more dependent upon their MP3 devices.

Isolation:

A factor analysis was conducted to create a variable for isolation. The eigenvalue of 1.0 was set for factor extraction and a Varimax rotation procedure was employed in the process. The test yielded one determinable factor which accounted for 43% of the variance (the means and standard deviations can be found in Appendices 2). A reliability test was run on the factor which yielded an alpha of .652. As the table below shows, the strongest relationship exists between having used one's MP3 to avoid awkward conversations and having used the device to ignore others. The factors "I have used my MP3 player to escape," "I feel that I have been ignored" and "My friends have complained about my use" also speak to this issue of isolation and were thus chosen to be included in this factor of isolation.

Table 6: Component Matrix for Isolation

	Component
	1
I have used my MP3 player to escape	.615
I have used to avoid awkward conversations	.842
I have used my MP3 to ignore others	.838
I feel that I have been ignored	.487
My friends have complained about my use	.330

Table 7: Correlation Table for Isolation Factors

			I have used to avoid awkward conversations	I have used my MP3 to ignore others	My friends have complained about my use	I feel that I have been ignored	I have used my MP3 player to escape
Spearman's rho	I have used to avoid awkward conversations	Correlation Coefficient	1.000	.683(**)	.240(**)	.269(**)	.293(**)
		Sig. (2-tailed)	.	.000	.001	.000	.000
		N	200	200	200	200	200
	I have used my MP3 to ignore others	Correlation Coefficient	.683(**)	1.000	.147(*)	.201(**)	.362(**)
		Sig. (2-tailed)	.000	.	.038	.004	.000
		N	200	200	200	200	200
	My friends have complained about my use	Correlation Coefficient	.240(**)	.147(*)	1.000	.182(*)	.114
		Sig. (2-tailed)	.001	.038	.	.010	.109
		N	200	200	200	200	200
	I feel that I have been ignored	Correlation Coefficient	.269(**)	.201(**)	.182(*)	1.000	.174(*)
		Sig. (2-tailed)	.000	.004	.010	.	.014
		N	200	200	200	200	200
	I have used my MP3 player to escape	Correlation Coefficient	.293(**)	.362(**)	.114	.174(*)	1.000
		Sig. (2-tailed)	.000	.000	.109	.014	.
		N	200	200	200	200	200

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

A follow-up correlation test was run between all of the variables for this factor of isolation (see Table 7 above). As the table delineates, there was indeed a correlation between several of the variables. For example, there is a relationship between having used one's MP3 player to avoid awkward conversations and: 1) Having used one's MP3 player to ignore others, 2) having had friends complain about one's use, 3) the perception of having been ignored, 4) having used the MP3 player to escape. There is also a relationship between having used one's MP3 player to ignore others and having had friends complain about one's use and the perception of having been ignored by others. Additionally, there is also a relationship between having used one's MP3 player to escape and having used one's MP3 player to ignore others, avoid awkward conversations. And again, there is a relationship between having used one's MP3 player to ignore others and the perception of having been ignored.

Descriptive statistics indicated that 53% of females and 54% of males said that they had ignored someone through their own MP3 use. In total, 87% of respondents (n=200) said that they had ignored someone else through MP3 use. To further address this notion of social isolation, the survey also asked students to indicate how much they agreed with the statement that they had felt isolated by someone else's MP3 use. 41% of females and 51% of males indicated that they "somewhat agreed to strongly agreed" with the statement. In other words, a total of 45% of students surveyed perceived that they had been ignored by another's use of their digital music device.

Table 8: Correlation Table for Isolation

			I have used to avoid awkward conversations	I have used my MP3 to ignore others	My friends have complained about my use	I feel that I have been ignored
Spearman's rho	I have used to avoid awkward conversations	Correlation Coefficient	1.000	.683(**)	.240(**)	.269(**)
		Sig. (2-tailed)	.	.000	.001	.000
		N	200	200	200	200
	I have used my MP3 to ignore others	Correlation Coefficient	.683(**)	1.000	.147(*)	.201(**)
		Sig. (2-tailed)	.000	.	.038	.004
		N	200	200	200	200
	My friends have complained about my use	Correlation Coefficient	.240(**)	.147(*)	1.000	.182(*)
		Sig. (2-tailed)	.001	.038	.	.010
		N	200	200	200	200
	I feel that I have been ignored	Correlation Coefficient	.269(**)	.201(**)	.182(*)	1.000
		Sig. (2-tailed)	.000	.004	.010	.
		N	200	200	200	200

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Sharing

A factor analysis was also conducted for the variable of sharing. This was done to create variables that would address Apparageist Theory, Uses and Gratifications and Domestication Theory. The eigenvalue of 1.0 was set for factor extraction and a Varimax rotation procedure was employed in the process. Two determinable factors were evident with the first factor accounting for 36% of the variance and the second, 21%. The two factors that emerged: were talking about one's application and physically sharing the device with others. A test for reliability was conducted and showed an alpha of .759 for the first factor of talking about one's MP3 player. This factor included: whether one has talked to people that they knew about their device, had spoken to strangers about their

device, talked about their device's applications and whether they had asked others for help with their device. All four of these factors relate to verbal communication about one's device and show a strong relationship with one another. The second factor for physical sharing had an alpha of .735 and included the factors of whether they have let others listen, whether others had let them listen to their device and whether they have brought their device to a party or a social gathering. These three factors all relate to physically sharing one's device with more than one other person. The reliability test showed that these three factors were the best measures to evaluate physical sharing, even though the reliability was not very high (Cohen & Cohen, 1977;1983).

Table 9: Component Matrix for Sharing

	Component	
	1	2
I have let others listen	.309	.824
Others have let me listen to their Mp3	.297	.843
I have brought my MP3 player to parties or social gatherings	.508	-.228
I have talked to other people I know about my MP3 player	.741	-.119
I have talked to strangers about my MP3	.787	-.164
I have talked about my MP3 player apps	.781	-.211
I have asked others for help with my MP3 player	.552	-.014

A correlation test was employed on the new variable of physical sharing and both shyness and sociability. The self-reported correlation between shyness and physical sharing was strong (Spearman rho) with a rank-order correlation of $r_s = -.253$ ($p < .01$). This test demonstrated that those who were shy typically did not physically share their device with others. The relationship between physical sharing and sociability was also strong with a correlation of $r_s = .203$, meaning that the likelihood of an individual

physically sharing his or her device with another person was greater with those who are more sociable.

Table 10: Correlations Table of Physical Sharing Factor

			Physical Sharing	Shyness	Sociability
Spearman's rho	Physical sharing	Correlation Coefficient	1.000	-.253(**)	.203(**)
		Sig. (2-tailed)	.	.000	.004
		N	200	200	200
	Shyness	Correlation Coefficient	-.253(**)	1.000	-.458(**)
		Sig. (2-tailed)	.000	.	.000
		N	200	200	200
	Sociability	Correlation Coefficient	.203(**)	-.458(**)	1.000
		Sig. (2-tailed)	.004	.000	.
		N	200	200	200

** Correlation is significant at the 0.01 level (2-tailed).

A correlation test was also run on the variables of sociability and talking about one's MP3 player. This test was non-significant, showing that there is no correlation between these two variables $r = .063$. Sociability and talking about one's MP3 device in other words, were not related. An additional correlation test was then run to test the relationship between sociability and dependency and this too was non-significant.

Technological Aptitude

A factor analysis was employed to create one variable which could measure perceived technological aptitude relating to the MP3 player. The eigenvalue of 1.0 was set for factor extraction and a Varimax rotation procedure was conducted. The test showed one determinable factor which accounted for 79% of the variance.

Table 11: Component Matrix for Perceived Technological Aptitude

	Component
	1
My MP3 player is easy to use	.867
I am proficient with my MP3 player	.915
I am very familiar with the functions of my MP3 player	.883

An Cronbach's alpha reliability test was then administered which showed an alpha of .862. This is quite an acceptable alpha (Cohen & Cohen, 1983) level meaning that these three factors constitute a reliable scale be for measuring perceived MP3 aptitude.

A correlation test was then run between the new variable of MP3 proficiency and perceived general technological aptitude (see Table 12). The correlation between MP3 proficiency and general, perceived technological efficiency was a strong (Spearman rho) rank-order correlation of $r_s = .53$ ($p < .01$). Respondents who considered themselves to be proficient MP3 users, also identified themselves as being generally proficient in technology use.

The relationship between the variables of MP3 proficiency and dependency was also tested through a correlation test (see Table 12). This self-reported correlation was again, a strong one (Spearman rho) with a rank-order correlation of $r_s = .184$ ($p < .01$). This strong relationship indicates that those with a higher level of perceived proficiency were likely to be more dependent upon their device.

The correlation test examining the relationship between general proficiency and dependency was also significant with a rank-order correlation of $r_s = .188$. Those who are

more dependent upon their devices also considered themselves to be more proficient in general technology use.

Table 12: Correlation Table for Technological Aptitude

			I am proficient with technologies in general	Device Aptitude	Dependenc y
Spearman's rho	I am proficient with technologies in general	Correlation Coefficient	1.000	.530(**)	.188(**)
		Sig. (2-tailed)	.	.000	.008
		N	200	200	200
	Device Aptitude	Correlation Coefficient	.530(**)	1.000	.184(**)
		Sig. (2-tailed)	.000	.	.009
		N	200	200	200
	Dependency	Correlation Coefficient	.188(**)	.184(**)	1.000
		Sig. (2-tailed)	.008	.009	.
		N	200	200	200

** Correlation is significant at the 0.01 level (2-tailed).

An independent-samples *t* test was conducted to evaluate the consistently posed hypothesis that there is in fact, a difference between MP3 aptitude among men and women. The test was significant for the hypothesis that there is a difference men and women's perceived proficiency with their MP3 players, $t(196) = -2.73$, $p = .007$. Males showed a mean response of 6.2 on the Likert scale which ranged from "1" for "strongly disagree," to "7" representing "strongly agree," $SD = 1.1$. Women demonstrated a mean response of 5.8 on the same Likert scale, with an $SD = .094$. The 95% confidence interval for the difference in means was somewhat vast, ranging from -.721 to -.117.

A two-way contingency table analysis was conducted to see if there are in fact, differences among males and females when considering whether they have talked to others about songs that they want to download. The variables were then, gender and whether an individual has talked to others about songs that they wish to download. The two were found to be significantly related, $\text{Pearson}\chi^2(6, N=200) = 25.61$, $p > .01$,

Cramer's $V = .36$. The test showed that females were more likely than males to have talked about songs that they want to download. A follow-up correlation was then run on the variables of gender and verbally sharing one's device which was significant, $r_s = .151$, at the .005 level. A correlation test was also run on the variables of gender and physical sharing. This test was found to not be significant, $r_s = .026$.

Fashion & Identification

The issues of fashion and identification were addressed by several questions within the survey (see appendices). 78% of respondents, ($N = 200$) answered within the range of "agree somewhat" to "strongly agree" to the statement "I believe that MP3 players are in right now."

A two-way contingency table analysis was conducted to evaluate whether more males or females purchased their own MP3 player. 30% of females and 47% of males indicated that they had purchased their own MP3 player. The two variables of gender and whether or not respondents purchased their own device were found to be significantly related, Pearson, $\chi^2 (6, N = 200) = 13.07, p = .04$, Cramer's $V = .26$. Of the female respondents who indicated that they bought their own MP3 player ($N = 36$), 39% answered within the range of "agree somewhat" to "strongly agree" to the statement "I took my friend's perceptions into account when purchasing my MP3 player. 43% of males who indicated that they had bought their own MP3 player ($N = 35$) answered within the same range. Of the females who indicated that they had purchased their own MP3 player, 28% responded within the range of "agree somewhat" to "strongly agree" to the statement "I bought my MP3 player because of a TV, radio or print advertisement." 26% of males answered within the same range.

A follow-up independent samples *t*-test was used to test whether gender influences one's desire to consult fashion trends before making a purchase. This test was significant $t(196) = 3.46, p < .01$, demonstrating that females consult fashion with a higher degree than their female counterparts. Students were asked to respond to the following Likert scale statement: "I pay attention to fashion trends when making purchases." The responses were coded so that "Strongly Agree" was a "1," "Agree" was a "2," "Agree Somewhat" was a "3" and so on. Female students ($M=4.3, SD=1.64$) on the average, agreed more with the statement "I pay attention to fashion trends when making purchases" than males ($M=3.4, SD=.223$). The 95% confidence level for the difference of the means was notable, ranging from .384 to 1.423.

Gender:

As mentioned above in the "technological aptitude" section, an independent samples *t* test was conducted to test the hypothesis that there is a difference between men and women's perceived general technological aptitude with their MP3 players. This test was significant, $t(196) = -2.73, p = .007$. Males showed a mean response of 6.2 on the Likert scale which ranged from "1" for "strongly disagree," to "7" representing "strongly agree," $SD=1.1$. Females demonstrated a mean response of 5.8 on the same Likert scale, with an $SD=.094$. The 95% confidence interval for the difference in means was somewhat vast, ranging from -.721 to -.117.

Given that the above test regarding men and women's perceived general technological aptitude showed only a small level of significance, an independent samples *t* test was administered to test whether there is a significant difference between men and women with regard to their perceptions of general technological proficiency. This test

was significant, $t(196) = -5.5, p > .01$. Males showed a mean response of 5.9, $SD=1.2$. Females had a mean response of 4.8, with a $SD=1.4$. The confidence interval for the difference in means was large, ranging from -1.45 to -.707. On average, males perceived that they were more technologically savvy than their female counterparts (please see the means and standard deviations in Appendices 2).

Chapter 8: Discussion & Implications

This chapter will include a discussion of implications of the research for communication theory, public behavior and practical experience, and public policy.

Personality & Use:

Scholars such as McCroskey (1978) have argued that personality characteristics such as introversion and shyness influence how actively individuals engage in technology use. For example, Livingood (1995) suggests that extroverts prefer interacting with others, while introverts prefer solitary activities. Further, McCroskey adds that individuals that are apprehensive about interacting with others will avoid situations that invite such situations. For example, shy students may sit closer to the back of the room so as not to avoid becoming involved in classroom discussion. This summons the question of whether students who are shy or less sociable use their MP3 technologies to avoid interaction. Thus, Uses and Gratifications Theory (Katz, et al., 1974) and Domestication Theory (Silverstone & Haddon, 2004) can both be applied to this phenomenon. This question was explored through several different approaches. First, as discussed in the “Results” section, two different variables were created by using factor analysis: sociability and shyness. As will be discussed in the “Sharing” session of this chapter, factor analyses created two variables for sharing: physically sharing an MP3 device, or talking about their device to others. A correlation test was conducted which showed that there is a strong correlation between physical sharing and shyness. The relationship between sociability and talking about one’s MP3 player was found to not be significant. This was finding was a surprising one as McCroskey has suggested that shy individuals will avoid engaging in verbal interactions, while those whom are more sociable will seek

them out. However, as noted above, a correlation test was employed to analyze the relationships between shyness and whether one has physically shared an MP3 device with others. This test was significant which points toward the notion that shyness does influence whether one has shared their device. Another correlation test was then conducted on sociability and having physically shared one's device which was also found to be significant. These findings confirm what scholars such as McCroskey (1978) have put forth: those who have communication apprehension, or are shy, will not engage in activities that invite interaction. In other words, these findings may imply that shy students may not have domesticated their technologies so that sharing is common practice. Further, the more shy respondents may not receive gratification from sharing their device with others and thus do not engage in such uses. Conversely, more sociable students may have domesticated their technologies so that sharing is a part of their normal usage practices; and they may also derive gratifications from use that incorporates physical sharing.

These findings can also have implications in terms of shyness and technology use. Previous studies have shown that those who have fewer social bonds take a greater liking to the Internet. However, because respondents for this present dissertation were asked to report on their face-to-face sharing activities, the findings may differ when compared to studies that have mediated components. The Internet imposes a sort of shield which may encourage shy users to participate in interactions who might not be so apt to engage in everyday face-to-face interactions.

Goal Pursuit:

Students demonstrated that they create or shape their own ways of using technology. As mentioned previously, individuals frequently engage in technology use in situations of non-place (Coyne, 2005). As mentioned in Chapter 4, this dissertation was interested in finding out how one's use of his or MP3 device may be related to the following: the gratifications that one receives from this use, how the technology has been domesticated by the user and the norms associated with use. This study found that students use their technologies in numerous ways and in various scenarios. For example, when the respondents were asked when they use their MP3 or iPods, one male student responded:

“Just to get through the bus rides, because without it, I think that I would go crazy.”

The researcher followed up by asking what about the bus rides makes this individual “go crazy.” He responded by saying:

“You're usually standing. It's packed and everyone is having their own conversations.”

This student was then asked if he was using the iPod to cut himself and he responded with:

“No but there are a billion conversations going on.”

This student's sentiments were echoed in the survey. As mentioned in the “Results” section 70% of males reported that they take the bus while 77% of females reported similarly. When looking across gender lines, the final survey found that 41% of males and 42% of females reported having used their MP3 player on the bus within the last two

days. Additionally, 12% of females and 16% of males indicated that they had used their MP3 device within the last week on the bus. When asked to respond to the statement “I use my MP3 on the bus to escape,” 43% of females and 49% of males answered in the range of “somewhat agree” to “strongly agree.” This finding indicates that students are indeed using their MP3 technologies in ways that match the gratifications that they seek. However, these findings also indicate that other students are not using their MP3 players during bus rides. Of the 148 students (74% in total) who take the bus, 43% of females and 49% males agreed with the statement “I use my MP3 on the bus to escape.” This may indicate that “escape” is not a gratification sought by all students. Also, these usage practices may also speak to the norms that students have established for themselves and others regarding use in public areas, thus relating to Katz and Aakhus’ (2002)

Apparatgeist Theory.

However, as Coyne (2005) discusses, being in other situations of non-place, such as walking to class also promoted use. The above percentages are consistent with Lever and Chen’s (2005) study of tele-density in which they observed 11,000 students and found that 20.8% of students used either a mobile phone or digital music device while on campus. In fact, in one of the focus group interviews, several students said that they use their MP3 or iPod while walking to class.

One female student said:

“For me, it’s sort of like a zone....[when] I go to class and in between, I put my headphones on. If someone I see tries to stop you it kind of interrupts my uh, I don’t know.”

Many of the “bowling alone” scholars would argue that this is evidence enough for social isolation. However, as Levy (2005) suggests, “maybe the question isn’t whether the iPod

cuts us off from society. A better question might be whether it's a society in itself" (Levy, p. 45). Levy's contention, and that of the female student above, may again speak to Apparatus Theory, in terms of the norms that have been developed. The young woman's quote signifies that it is not only a normal practice for her to listen to her MP3 while walking to class, but that it also defies her expectations, and even upsets her when someone stops her. Or, perhaps, use such as the young woman's above addresses needs and personal goals that which are mentioned in Katz and colleagues (1974) Uses and Gratifications Theory. During the focus group interview, the female who provided the above quote was asked if she thought that her use barred people from interacting with her. She responded by saying:

"Not anybody that I'm close with or a good friend."

The students also revealed that the gym is a popular place for one to use his or her digital music device. In fact, one young woman who was asked if she felt that she was dependent on her iPod responded,

"Like in the gym especially. I can't go to the gym without listening to music."

During the exploratory survey, 62.5% of respondents said that they have listened to their iPod or MP3 player at the gym. Again, the gym would fall under a category of "non-place" and not surprisingly, according to the focus groups, students are putting their digital music technologies to use there. Indeed, this may be a practice that those who designed the MP3 player had anticipated. However, a vital question in this dissertation is how users domesticate their MP3 technologies. Thus, in the final survey, students were asked about their music listening habits while at the gym. These questions addressed issues of goal-oriented use, isolation and fashion-driven use. The first question asked

related to these themes was whether or not students go to the gym. 76% of respondents indicated that they had gone to the gym within the last year. Of these, 51% responded within the range of “agree somewhat” to “strongly agree” to the statement “I use my MP3 player at the gym to occupy my time.” An independent-samples *t*-test was run to follow up on these descriptive statistics and found that male students ($M=6.1$, $SD=2.4$) were less likely than their female counterparts ($M=6.7$, $SD=1.4$) to agree with the statement “I use my MP3 player at the gym to occupy my time.” 44% of the respondents who indicated that they had been to the gym within the last year answered within the range of “agree somewhat” to “strongly agree” “I use my MP3 player every time I go to the gym.”

As discussed above, 41% of respondents had answered within the range of “agree somewhat” to “strongly agree” to the statement “I have used my MP3 player to avoid awkward conversations.” This statement was designed to address the theoretical question of whether isolation is a gratification that respondents seek when using their device. Further, an overarching question is whether or not Apparatchest theory can be applied to this phenomenon. In other words, have norms been developed that encourage public use? Also, have users domesticated their technologies so that they not only isolate others through their own use, but also acknowledge that others are doing the same? 77% of students (153 respondents) answered within the range of “somewhat agree” to “strongly agree” in response to the question, “I believe that it is acceptable to listen to my MP3 player while in public settings.” While many of the “bowling alone” scholars would argue that this finding highlights the negative aspects of MP3 player use, Silverstone and Haddon (1996) might argue that this while this specific use was not intended by creators,

users mould their own technologies and their uses to match their needs and how they feel the technologies should fit into their lives. Further, this finding also demonstrates that norms are being developed regarding use.

Dependency:

Related to the notion of goal pursuit is the question of one's level of dependency on his or technology to achieve these goals. A factor analysis was conducted with three different variables: the role that the MP3 player plays in one's day, whether the respondent uses their device for more than one hour and whether he or she believes that they are dependent upon their device. After the factor of dependency was created, a correlation test was run which showed relationships between dependency and a) whether one has used their MP3 player to change his or her mood, b) escape, c) avoid awkward conversations and d) ignore others. The test showed that there was a correlation between "a" through "d" and dependency. Since these correlations were all positive, they show that one's level of dependency could factor into whether or not one has engaged in isolating behaviors.

As discussed in the "Results" section, scholars such as McCroskey (1978) have argued that less sociable individuals tend to avoid situations that invite interaction. For example, McCroskey argues that less social individuals would choose to sit in the rear of the classroom to avoid being called upon. Since this dissertation was concerned with the isolating capacity of the MP3 player, a correlation test was also run on the variables of shyness and dependency, which showed that there was no relationship between the two. This finding may be indicative of the fact that one does not have to be necessarily shy to engage in isolating behaviors. In other words, this present dissertation did not find any

indication that more shy individuals will become more dependent upon the devices that many have argued, have an isolating potential.

Isolation:

Correlation tests demonstrated that there is in fact a correlation between many of the isolating factors listed in the survey. As Table 7 shows, there is a relationship between having used one's MP3 player to avoid awkward conversations and having had friends complain about one's use. Since there is a correlation between these two factors, it is possible that students are indeed talking about the norms related to use. Further, the correlation table demonstrates another interesting dynamic: there is a relationship between one having used their MP3 player to ignore others and having the perception of having been ignored through another's use. This finding is indeed interesting and a bit surprising: students are acknowledging that others are ignoring them through their use of MP3 players, but are continuing to ignore others through their own use. As discussed in the "Results" chapter, 53% of females and 54% of males said that they had ignored someone through their own MP3 use. In total, 87% of respondents (n=200) said that they had ignored someone else through MP3 use. Again, notably, 41% of females and 51% of males indicated that they "somewhat agreed to strongly agreed" with the statement "I have felt isolated by someone else's MP3 use." When considering the whole of the sample, 45% of students surveyed perceived that they had been ignored by another's use of their digital music device. Again, as the above "results" (see Chapter 7) section discussed, male students are more likely than their female counterparts to listen to the MP3 player for more than one hour per day. The data thus shows an interesting distinction; students are ignoring others through their own use, and are also recognizing

that others are ignoring them. Again, these findings may be indicative of the fact that norms are being created regarding use. Interestingly, fewer males are ignoring others through their own use, while men and women reported similarly when considering whether they have felt ignored by others' use.

Sharing:

An indeed notable finding related to sharing was that descriptive statistics indicated that 75% of respondents (74% of females and 79% of males) had in the past, talked with others about songs that they have downloaded. 54% of respondents had talked to others within the last week about songs that they had downloaded, while 17% had within the last month. The survey also asked respondents to indicate how often they had talked to others about songs that they *wanted* to download. 77% of respondents (78% of females and 76% of males) indicated that they had talked to others about songs that they wanted to download. Of these, 55% of respondents said that they had talked about songs that they wanted to download within the last week. And, 19% of respondents had talked about songs that they wanted to download within the last month. Further, 25% of respondents answered within the range of "somewhat agree" to "strongly agree" to the statement "I have talked about my MP3 applications with others."

Two different variables were created to evaluate sharing: talking about one's device and physically sharing one's device with another individual. Since both of these types of sharing activities involve interaction, this phenomenon was also examined by looking at one's personality type to determine if it influences one's sharing practices. As will be discussed in the subsequent section on "personality & use" correlation tests showed two determinable factors related to personality: shyness and sociability.

Correlation tests showed that there is no direct relationship between sociability and talking about one's device. Many scholars have argued that the MP3 player, much like the Internet, is an inherently isolating device. However, this finding can speak to how users create new meanings and norms for use (Katz & Aakhus, 2003). While there was not an infrastructure that was built into the MP3 player itself that would allow for sharing, users are tailoring their use so as to allow for sharing. However, the results indicate that there is a relationship between being sociable and physically sharing one's device. Previous scholars have argued that the Internet acts as safe haven for those who are shy or not sociable. However, perhaps this is because there is a barrier that protects a shy person from face-to-face interaction. It is the absence of this barrier in physically sharing one's device that may inhibit those less sociable from sharing.

Fashion & Identification:

In the exploratory study, several students provided valuable insights through the "write-in" option (see Chapter 6) as to why they purchased their MP3 or iPod. During the subsequent survey, respondents were thus asked to indicate whether or not they had purchased their own MP3 player as opposed to having received one as a gift. This is of course an important distinction because knowing whether one purchased their own MP3 player can begin to address the reasons why they purchased the device. 30% of females and 47% of males indicated that they had purchased their own MP3 player. As discussed in the "Results" section, the variables of gender and whether one purchased their own MP3 player were found to be significantly related. Subsequent analyses of motivations for purchase showed that more males than females took the perceptions of their friends into account when they purchased their MP3 player. This is an interesting finding in that

it may indicate that males are striving to identify with others through their purchase of digital music devices, or that they trust their friends to provide valuable information. This finding may also indicate that social influence is at play. In fact, 76% of females and 79% of males answered within the range of “agree somewhat” to “strongly” to the statement “I believe that MP3 players are in right now.” Cross-tabs analysis showed that 28% of women answered in the range of “agree somewhat” to “strongly agree” to the statement “I bought my MP3 player because of a radio or TV ad,” while 26% of males responded similarly. To test whether students found MP3 player to be fashionable, a crosstabs analysis was run which found that 37% of female respondents answered within the range of “somewhat agree” to “strongly agree” in response to the statement “I believe that MP3 players convey fashion sense,” while 28% of males answered similarly.

In all, students seem to weigh fashion fairly heavily. As discussed previously, an independent-samples *t* test showed that females generally consult fashion trends more than their male counterparts when making purchases. However, notably, males demonstrated that they looked more towards the perceptions of their friends when they purchased their devices.

Gender & Technology:

Previous studies on gender and technology have provided mixed indications of whether or not a true gap exists in not only use, but also perceived technological aptitude or proficiency (Allen, 1995). This dissertation explores this dynamic in two ways: by looking at one’s perceived technological aptitude with regard to the MP3 player, and their perceived general technological aptitude. As discussed in the “Results” section, males demonstrated a higher perceived MP3 aptitude than the females in this study. However,

this relationship was only a slight one. This finding may speak to Van Slyke and colleague's (2002) contention that males and females both use technologies, however they do so in different ways. To follow-up on this finding, an independent samples *t* test was employed to examine the relationship between gender and perceived general technological proficiency. This test showed that the males within this surveyed group had a higher perceived level of proficiency. This finding may demonstrate that the gender gap is narrowing when considering perceived MP3 aptitude, but that differences in general perceived efficacy remain the same. Previous studies such as that of Bimber (2000) have argued that certain technologies such as the Internet cater more to the interests of males. Bimber suggests, "The Internet may appeal differentially to men and women because of stereotypes signaling that computer technology is more appropriately male than female" (¶9).

Many scholars such as Bimber (2000) have argued that male values have been designed into technology, thus creating stereotypes about who should use the technology. A possible implication of these culturally embedded norms is that a certain identity can be structured based on one's willingness to use a technology, or admit that they are in fact, adept at it. As mentioned previously, technology use can be influenced by several factors including social influence. Hiltz and Johnson (1990) confirm that technologies should be viewed through a "socio-technical" lens. The authors suggest that technology acceptance is influenced by "an interaction among characteristics of the individual users, the groups and organizations in which they were implemented" and the systems themselves (p. 557). Norms derived from society, the media or one's family can influence one's perception, and subsequently, his or her use of the technology. Female

users may be inclined, in other words, to report that they are less technologically savvy than they actually are because society deems that they should not be adept at such skills.

Gender:

Various studies exploring the Internet and other interactive technologies have indicated that females view Internet technologies in a more positive light than males do. Hiltz and Johnson (1990) argue that females “appreciate the opportunity to ‘have their say’ in a medium where they cannot be shut out of active roles by dominant males in a group decision” (p. 740). MP3 players and other technologies that do not invite interaction (such as television) however, may not have the same attributes that women seek from interactive technologies. In this way, the results of the survey may point toward the notion that women prefer more interactive technologies and may base their perceptions of their adeptness based on this notion.

Another interesting finding from this dissertation is that the variables of gender and whether or not respondents have talked with others about songs that they wanted to download were significantly related. Females were more likely (78%) to have discussed songs that they want to download when compared to males (76%). Even though this disparity is a slight one, it may shed some light on the differences between males and females regarding their communication and sharing practices. For many years, scholars have argued that females prefer social communication, while males prefer communication that is practically oriented (Kirtley & Weaver, 1999). Kirtley and Weaver (1999) suggest that the “Barbie Doll” and “Marlboro Man” stereotypes that pervade Western society might be to blame. The “Barbie Doll” stereotype is while a passive woman, also emotionally driven. She is highly talkative and self-revealing. The

Marlboro Man, however, acts as the antithesis of this female stereotype; he issues a persona of wanting to “get things done,” and with this in mind, is straight to the point and independent. The authors argue that the differences in communication styles as a result of these sex roles are often so profound that scholars often view them as being as being a cross-cultural phenomenon. However, as Kirtley and Weaver suggest, there are no fundamental differences in communication ability that would point to these differences in communication practices. The question remains however, how these stereotypes have evolved.

Chapter 9: Limitations: Considerations that limit the quality of the data and generalizability of results:

Although this dissertation has illuminated many interesting aspects about mobile music technology use, some limitations must also be discussed. This chapter will set forth some of the limitations associated with this study including the generalizability of results.

One of the key methodological limitations of this dissertation relates to the sampling method utilized. All three of the data sets were derived through convenience sampling methods. This was done due to limited resources. On the other hand, there is an advantage to using college students, even if they are not randomly sampled. This is also because as mentioned previously, college students are often the earliest and most innovative adopters of new technologies and social forms. Further, the respondents within this study were largely Communication and Information Studies students which may also affect the generalizability of this study. This subset of students may potentially be more communicatively savvy, thus affecting the sociability factors. These students may also be more technologically savvy when compared to students in other majors. Moreover, communication students may also be more sociable when compared with students from other majors. As McCroskey (1975, 1978) suggests, individuals whom are more sociable, more readily engage in situations that are conducive to interaction. For example, McCroskey and Leppard (1975) found that “high communication apprehensives chose housing accommodations (whether they be dorm rooms, trailers, or houses in suburban areas) that were in areas that had been identified through previous research as

requiring less interaction than other housing areas” (p. 194). Davidson and Etherington (1995) also suggest that personality traits are “considered to be among the key variables that influence general conduct and decisions, including work decisions and behavior” (p. 427). The authors discuss how traditionally, accounting majors have been perceived as being “introverted” (p. 427). So, while it might be tempting to want to generalize these findings to all MP3 player users, one simply cannot do so. And while it may also be tempting to generalize these findings to college students, one cannot do this either.

As Greenberg (1978) argues, many scholars incorrectly assume that their populations are in fact representative, when in many ways, they are not. However, creating standards for establishing external validity has traditionally been considered to be challenging (Gordon et al., 1987, p. 160). Further, many studies that are done within a communicative focus on organizations are in fact sectorized so as to include a small, non-generalizable portion of the population (Greenberg). Greenberg suggests that many social science studies are oriented towards “a very narrowly defined group composed of predominantly male, professional, technical and managerial employees in productive-organizations” (Greenberg, p. 157). In fact, “even if a research sample represents the population of interest to the investigator, this may not ensure that the results of the study are generalizable” (p. 157). In other words, any research sample is atypical. Differences between findings for students and non-students may simply be indicative of between-group differences. However, the sample used for this dissertation included students from various ages, ethnicities and geographic areas. For example, 75% of students came from suburban areas and 16% were from urban. 8.5% (n=17) of the respondents identified themselves as African-American, 56.5% (113) identified themselves as being Caucasian,

10% (n=20) Hispanic, 11.5% (n=23) Asian, 1.5% (n=3) Middle Eastern, 1% (n=2) Pacific Islander, 3% (n=6) Southeast Asian, 3.5% (n=7) Bi-racial, and 4.5% (n=9) identified themselves as “other.” During the fall of 2006, African-Americans represented 9% of the Rutgers undergraduate population (total undergraduate population=30,421), Asians comprised 24%, Latinos 8%, Caucasians 53%. Thus, the sample includes a large spectrum of the Rutgers undergraduate population. This sample population is also comparable to the ethnic representations reported by the US Census Bureau in 2006 which cites that 1.6 million Hispanics, 1.9 million African-Americans, 987,000 and 10.5 million white students were enrolled in college during the 2003 academic year.

Since this study is exploratory in nature, as Greenberg (1978) argues, generalizability is “an issue for future researchers to demonstrate” (p. 157). Generalizability cannot necessarily be achieved in one study, but over many subsequent ones. Using college students in a study does not necessarily argue for universal generalizability, but rather a means for understanding a phenomenon in a certain context. Future studies can shed more light on this phenomenon in a different context, and in that way, provide more of an answer regarding whether the findings can be generalized. In other words, studies that can be used for comparative means provide the true mechanism for understanding and achieving generalizability. However, it should be noted that the use of convenience sampling methods has been argued to limit the generalizability of studies.

This dissertation also utilized qualitative research methods in the form of focus groups. It should be noted that convenience sampling was also used for the focus group sessions. For this dissertation however, the use of college students was essential.

Nevertheless, the use of convenience sampling should be noted as a limitation to the generalizability of this study.

A potential limitation of focus group studies is that individuals may be fearful of relaying their own opinions, and may instead choose to align with the sentiments of other group members. Focus groups can invite what Lindlof and Taylor (2002) refer to as “argumentative interactions” which occur when the “use of certain topics or combinations of group members can result in cleavages of opinion or clashing worldviews” (p. 182). While many researchers choose to use focus groups because they can allow for a “chaining” or “cascading” effect, they must however, be cautious of interviewees who simply align with others so as to prevent the potential embarrassment that one might derive from having an opinion that varies from that of the rest of the group (Morgan, 1998). This dissertation uses survey methods so as to ascertain private and ideally, truthful responses, absent from the threat of judgment from others. In fact, during the exploratory survey, respondents were given the opportunity to write-in answers, thus allowing for even more genuine responses. An additional challenge commonly faced by media researchers using focus groups is that interviewees are charged with having to report on their most recent media usage practices. This may prove problematic for the researcher in that respondents may not be able to accurately recall their experiences. To counteract this threat, I used where necessary, questions that asked respondents to considering their usage practices within the last day, week, month, six months and year.

Another limitation of this study related to generalizability is that it examines college students in an urban, metropolitan area. As Bull (2004) asserts, individuals in

urban areas are avid iPod users. This may be for a variety of reasons: to alleviate boredom during commuting, a greater likelihood of being exposed to new technologies, exposure to new technologies and less opportunity for face-to-face interaction. In subsequent studies, studies of different geographic areas would be highly valuable. Individuals in these areas may use their digital music devices with less frequency, or in ways that differ from users in urban settings.

Chapter 10: Conclusion

The focus group interviews and surveys illuminated a wealth of reasons why students adopt and use MP3 players and iPods. As discussed above, students gave several reasons for adoption in response to Question #4, “Whom/what of the following influenced your decision to purchase an MP3 or iPod?” For example, one student (#11) mentioned that he or she “my CD player kept breaking. I thought it was more economical to buy something that would hold more music and last longer.” Another student (#62) was motivated to purchase their MP3 player because of their love for music. As Levy (2006) describes, it was these people that the iPod was built for. In fact, Jonathan Ive said, “the goal of art is self-expression , and the goal of this is for people to be able to listen to music on a device that was cared about.” (p. 80). Many others however, were drawn to the iPod because of its beauty. As mentioned earlier, one female student even voiced that she bought her MP3 player because it is “pretty.” This sentiment addresses the question of whether identification and tribalism play a role in adoption. Students weigh not only what their friends are saying about their devices (especially in the case of male users), but some others even base their decisions to adopt the device on how it looks. Other students identified that it was their love for music that prompted their purchase, or having seen others with the device. Overall, attention to goals, social influence and tribalism are all at play when students adopt and use their MP3 devices.

The theme of necessity (which was later referred to as dependency) also emerged which may begin to address issues of goal achievement, as well as identification. As discussed above, dependency was linked to a variety of isolating

behaviors. This is also a notable finding because it speaks to not only where and how the MP3 player fits into one's life, but also the implications that result in the face of this dependency.

As discussed above, 76% of females and 79% of males answered within the range of "agree somewhat" to "strongly" to the statement "I believe that MP3 players are in right now." Male students also indicated that they weighed the perceptions of their friends (43%) before they purchased their MP3 device. As mentioned previously, Latonero (2000) had found that seventy percent of MP3 users had "learned about MP3 technology through close social networks of family and/or friends" (p. 2). 28% of women answered in the range of "agree somewhat" to "strongly agree" to the statement "I bought my MP3 player because of a radio or TV ad," while 26% of males responded similarly. These findings show that there is a relationship between social influence and MP3 purchase. This was particularly highlighted during the focus group interviews. For example, one female said that she had learned about MP3 players from:

"From my roommate freshmen year. I remember moving in and she was listening to it. I thought that it was so cool. I asked for one and I didn't get it. I asked for one every holiday and still didn't get one."

This particular quote demonstrates that social influence does play a role in adoption. Further, the high percentage of students who indicated that "MP3 players are in right now" confirms what Levy (2006) suggested about there being a "cool factor" to iPod use. These statistics demonstrate that students do indeed perceive that MP3 players are fashionable. Focus group members also indicated various levels of goal pursuit and achievement, which were also reflected in the survey. For example, several students indicated that they utilize MP3 and iPod technologies during their trips to the gym in an

effort to prevent boredom. Other students indicated that they have shared their “earbuds” with their friends or significant others. Interestingly, but not surprisingly, some students indicated that they would pretend to be listening to their music technology when confronted with an individual with whom they did not want to speak. Such uses suggest that users are domesticating their technologies to fit their goals.

Focus group and survey results indicated that students do in fact use their MP3 to purposefully ignore other individuals. More specifically, as discussed above, 87% of respondents said that they had ignored someone through their use of the device. Perhaps these statistics speak to what Ling (1997) in his study on mobile phone use:

The use of mobile telephones in various situations has become an element in the definition of socially appropriate/inappropriate behavior. They are causing us to reconsider how we construct our social worlds (p. 1).

In fact, in this dissertation, 45% of respondents indicated that they either “somewhat agreed” to “strongly agreed” with the statement “I have felt ignored by someone else’s MP3 use.” These statistics indicate that while users are ignoring others through their use of their MP3 device, they are also conscious of the fact that others might be using their device in a consistent manner. These findings align with Silverstone and Haddon’s argument that technologies often take on a functional role. They suggest that this role “is not necessarily that which the designers had intended. Rather, it is through the combined display and use of the objects that the users come to understand the devices and it is through this process that the users weave them into part of their own identity” (Silverstone & Haddon, 1996, p. 58). In other words, it is unlikely that the designers of the MP3 player intended to have the devices serve as tools of isolation. However, after adoption, students may recognize how these devices can serve as a functional means

through which their goals can be achieved. This may include the goal of self-imposed solitude. The findings within this dissertation support the theoretical contention put forth in Katz and Aakhus' (2002) Appartgeist Theory which holds that ICT users develop norms and ways of thinking about their technologies. Further, the finding that 87% of users have ignored someone else through the use of their device shows that students may be domesticating their technologies to fit their needs.

While it is unclear whether ignoring others was a use anticipated by MP3 creators, this study does show that this is precisely how some students are using their devices. Katz and colleagues (1974) Uses and Gratifications Theory suggests that technology users engage in practices that fit their needs and desires. The survey findings illustrate that students are conscious of their usage patterns which often serve to isolate themselves from others and in that way, may be considered an intended gratification. Gergen's Absence-Presence Theory (2002) acknowledges that individuals can be simultaneously present and absent because of his or her use of a technology. The results of the survey demonstrate that respondents are aware of this dynamic. Further, 77% of respondents responded within the range of "somewhat agree" to "strongly agree" to the statement "I believe that it is acceptable to use my MP3 in public." This finding shows that respondents perceive that norms have been constructed regarding use. Katz and Aakhus (2003) suggest that mobile technologies have altered the notion of what constitutes public space. Norms regarding use are consistently and routinely re-negotiated in the face of one's own use and that of others. This re-conceptualization of space and norms also seems to be present in the face of MP3 use.

Similarly, this study indicates that norms have been created regarding sharing. This study indeed shows that users are not only creating new ways of using their technologies (such as physically sharing their headsets or ignoring others), but they are also engaging in interactions. These interactions come to shape the norms of MP3 use and the interactions that may result in the face of use. Again, this finding is very much applicable to not only Apparatgeist Theory, but also Domestication Theory. For example, as discussed above, 75% of respondents indicated that they had talked to others in the past about songs that they have downloaded; 54% of respondents indicated that they had done so within the last week. Further, 77% of respondents reported that they talked about songs that they wanted to download. Of these, 55% reported having done so within the last week. These findings demonstrate that students are indeed talking about their music listening habits and in this way are creating new ways of “sharing” with one another.

Technology proficiency was also explored in this dissertation and the findings demonstrated that in this particular sample, females did not perceive that they were as technologically proficient as their male counterparts. This dissertation can serve as an impetus to examine why females do not perceive themselves as being technologically savvy. Further, subsequent studies can ask respondents to individually rate each of their capabilities. For example, the survey can ask respondents to rate their own ability to download music, or their capabilities regarding uploading music to their MP3 device. This may allow researchers and marketing executives to understand where females perceive that they are not proficient.

This present dissertation has also explored personality traits and found that there is a relationship between shyness and sociability and whether one has physically shared their MP3 device with someone else. Previous studies have found that individuals who are less sociable view the Internet in a more positive light than their more sociable counterparts. Since this variable of physical sharing incorporates face-to-face interaction, it should be differentiated from other technologies in which interactions are conducted through mediated venues. Nevertheless, it does provide valuable insight as to what role personality plays in face-to-face interactions, especially those that incorporate technology in an unmediated context.

As discussed in the chapter on “findings,” a correlation test was conducted between the variable of identifying one’s self as shy and having let others listen to their MP3 device. These two variables were found to be related meaning that those who identified themselves as shy, were less apt to have let others listen to their device. Another correlation test was then administered on the variables of one liking to mix with other people and having brought one’s device to a party or a social gathering. This test showed that there is a relationship between these variables, which indicates that those who are more sociable would be more likely to bring their device to a social gathering or party. Surprisingly, however, there was no link found between sociability and talking about one’s device. Future research should explore this dynamic to determine if perhaps, as McCroskey (1978) mentions, those who are shy seek out scenarios which do not require verbal interaction.

Additionally, another noteworthy finding was that there was no relationship between shyness or sociability and gender. As discussed in Chapter 8, Kirtley and

Weaver (1999) suggest that female stereotypes place women in the role of being talkative and extroverted, while their male counterparts are more inward. The findings from this study show that at least within this group of subjects, there were no differences in perceived personality traits across the genders.

This dissertation has touched upon several important themes related to MP3 use: why students choose to adopt their devices, their goals in use, and some of the social implications of use. Surprisingly, the researcher found that a majority of students within the sample reported having ignored others through their MP3 use, but a significant number of students are aware that others are ignoring them as well. Additional research should examine whether ignoring others through MP3 use has become a norm. Focus group studies would perhaps be a good mechanism for exploring this phenomenon. Similar to how norms have been developed regarding mobile phone use, perhaps current norms for MP3 use allow for ignoring others. Such a study would help communication scholars understand trends in use and perhaps combat claims of negative isolationism.

Another finding that warrants future research is that female MP3 users did not identify themselves as MP3 proficient as frequently as their counterparts. Verbick (2002) might suggest that this is not a surprising finding given that there has traditionally been a finite difference in technology use when comparing the genders. For example, Verbick says:

The differences in viewpoints can easily be seen in any college computer lab. Men are typically seen visiting the computer labs to not only do their assignments, but also to play games and visit sites of interest on the Internet. Men can often be found writing computer programs and trying out new graphics programs for enjoyment. However, the women college students that are present in the computer labs tend to be there to complete a task or to check their e-mail accounts (Verbick, p. 242).

However, Verbick advances that “women like to use computers as a social tool” (p. 242). This present dissertation found that this was also the case when looking at MP3 use. I found that females were more likely than their male counterparts to have talked about songs that they wanted to download. As discussed in previous chapters, females typically enjoy technologies that allow for interaction. Perhaps it is this difference in perception that creates the disparity between males and females regarding their proficiency. Thus, future studies should specifically examine why females do not feel proficient with their MP3 devices. This dissertation has demonstrated that females have a greater propensity to engage in verbal sharing with others. Perhaps newer technologies such as the Zune which are specifically built for sharing will create different findings regarding self-perceived proficiency. Future studies should examine these new technologies and the effect that they have on proficiency.

Despite the relationship between verbal sharing and gender, there was no relationship between physical sharing and gender. This finding is indeed interesting and again, may have implications on future MP3 technologies that incorporate sharing.

Another notable finding was that males looked to their friends before purchasing their MP3 player. This is interesting in that it demonstrates the role that social influence plays in technology purchases for males. As discussed earlier in this chapter, females tend to have a greater propensity towards interaction. However, males interact for the purpose of practicality. Could this be where the difference lies? Future studies should examine why social influence seems to play a larger role among males.

Perhaps the most vital finding of this dissertation is that students use their MP3 devices in ways that match their goals. These goals can include allowing others to share

in their listening experience by sharing one's device or use that can help to avoid an awkward conversation. Thus, the findings of this dissertation can support Katz and colleague's (1974) Uses and Gratifications Theory—students are using their devices to fit their needs and desires. Students largely acknowledged that they have used their devices to ignore others. Interestingly, they also acknowledged having felt ignored by another's use. Again however, a significant number of students are also using their devices in sharing capacities. This is certainly interesting in that the infrastructure of the MP3 player does not inherently allow for sharing. Thus, students are indeed constructing their own ways of controlling their environments and in the process, the meanings associated with use.

This concept of social construction is discussed by Harold Garfinkel (1967), who is considered the father of ethnomethodology. Garfinkel suggests that we are constantly trying to make sense of the world that we live in. He believes that we create a world for ourselves that we can feel comfortable in and that we do this through understanding the patterns of our lives and creating ways that accommodate to the situations that arise. As Harris (2000) explains:

“Ethnomethodology focuses on people's methods for sustaining and enacting a sense of social order, wherever that may be found” (p. 385).

Garfinkel (1967) argues that we engage in many practical actions throughout the day which serve to manage our lives and to exact social control. It is the study of the process that Garfinkel refers to as ethnomethodology (Attewall, 1974). An important piece of the puzzle to understanding the world around us is that of what Garfinkel refers to as “indexicality.” Indexicality refers to how words may have a clear and finite definition in

the dictionary, but may have an entirely different definition when considering different circumstances. We then must examine words not only according to their literal meanings, but also within the contexts in which they are used. The same may be true of actions. This is especially important when considering MP3 use---students may perceive that using one's MP3 player on the bus or while at the gym may be acceptable means to alleviate boredom. In other words, MP3 use may not be as acceptable in other locales, different environments, cultures, or among individuals of a different age group. However, within this particular subset, students may have constructed their own realities where such listening practices are not only acceptable, but also, the norm.

Research on social control and technology has been somewhat limited. However, with the number of mobile technologies available to users continuously mounting, our ability to control our surroundings is stronger than ever; individuals can take their technologies to places that were previously off limits. These technologies allow users, as Bull (2004) found, to escape their proximate location. However, Henning and Vorderer (2001) argue that escapism has been one of the key motivators of technology use. They argue, that "perhaps the most prominent approach towards explaining causes of television exposure involves escapism" (p.101). Kubey (1986) suggests that negative experiences throughout one's day often motivate users to escape through television viewing. While escapism may serve as a motivating factor for students to listen to their MP3 players, how can we account for the sharing of MP3 players? Have traditional media also allowed for sharing practices?

Lewis (1982) suggests that “media-derived content” have made up the substance of everyday conversations since the emergence of modern mass media. As Lewis explains:

“Media content, as it enters the personal networks of everyday conversation, becomes “play” and often the stuff of subcultures, if enough people participate in the process” (p. 107).

Discussions about media can help to revive struggling conversations and provide individuals with a common ground for conversation, or a place from which to build a conversation. As Lewis explains, we can talk about the media’s report on the weather or a show that we watched the previous night. However, studies that discuss how people communicate about media are largely limited to how people talk about the media *after* they have already experienced the media. For example, water cooler discussions about TV shows have been occurring since the advent of television. Students within this study indicated that they had physically shared their devices with others while in the process of consuming the media tool. In this way, the sharing of MP3 devices can be distinguished from the sharing of other devices. Further, the implications of such sharing, Lewis argues, could include not only conversational substance, but this sharing can also act as a source of integration. For example, the findings of this dissertation demonstrate that there are feelings of belonging and association that come along with being an MP3 owner or user. As discussed in “Chapter 8,” 76% of females and 79% of males answered within the range of “agree somewhat” to “strongly” to the statement “I believe that MP3 players are in right now.” These statistics demonstrate that students perceive these devices to be trendy, which can arguably be a socially constructed perception. Further, 75% of

respondents had in the past, talked with others about songs that they have downloaded. 54% of respondents had talked to others within the last week about songs that they had downloaded, while 17% had within the last month. Moreover, 77% of respondents (78% of females and 76% of males) indicated that they had talked to others about songs that they wanted to download. Students are indeed talking about and sharing their devices in ways that are indeed unexpected.

As mentioned in “Chapter 8,” another interesting finding derived from this dissertation is that while there was a correlation between gender and perceived MP3 proficiency, the relationship was only a slight one. This may indicate that the gap between males and females in terms of their perceived technological proficiencies is narrowing. Despite findings within this dissertation that show that males perceive themselves as generally, being more technologically proficient than their female counterparts, perhaps the MP3 player provides functions that are of greater use or interest to females, thus driving their perception that they are technologically proficient. Indeed, Davis (1989) suggests in his Technology Acceptance Model, that user acceptance and behavior is frequently governed by one’s perception that the technology will be useful to them.

Another interesting finding in this dissertation is that students are using their MP3 devices in shared spaces. As Katz and Aakhus (2003) suggest in their Theory of Apparategeist, technologies are changing the conception of what is considered acceptable behavior in public places. This dissertation found that 76% of students ($M=5.56$, $SD=1.54$) agree to strongly agree with the statement: “It is acceptable to listen to my MP3 player in public settings.” This finding can be indicative of the fact that public use

of mobile technologies is becoming increasingly acceptable and is thus blurring the notion of what constitutes public and private spaces.

Levy (2006) suggests that MP3 and iPod devices have altered not only our lives as individuals, but society as a whole. The findings of this dissertation speak to this both micro and macro level change. As discussed throughout this dissertation, I found that students are taking a potentially isolating technology and sharing it with others. What drives them to do this? Levy might argue that it is their love for music. Similarly, it could be this same love for music that drives users to isolate others through their use. However, I would also argue that it is the control that users have over the device; never before have music technologies allowed users to pick their own songs and create uninterrupted play lists. Even in the age when “mix” tapes and CD’s were common, one would still have to carry around countless tapes and CD’s in order to match the number of songs that one MP3 or iPod holds. Moreover, Levy quotes musician John Mayer as saying “the linear experience is gone.” He says, “There’s a new digital etiquette. The iPod scroll bar has changed the chemistry of listening and now we’re a skip forward generation” (p.105-106). Further, the technology allows users to control their environments through their portability. Users can control when and how they use their technologies in such a way that it allows them to control many components of their environments: what they hear, when they hear it, how often they hear it, as well as when and how they interact with others, if at all.

In light of the findings of this dissertation, future research should explore MP3 users of different age groups. Such studies would help to identify where usage trends are similar, and where they differ across age lines. Additionally, this study was conducted in

an area that is in close proximity to a large, highly populated urban area. As Vandercam (2006) mentions, MP3 and iPod use has been found to be especially common among urban 20'somethings. However, there is a dearth of research that explores MP3 use among older individuals and even less research that explores these same individuals living in suburban settings. Future studies should also explore the gender dynamic with regard to MP3 use. As this dissertation identifies, there is only a slight disparity when considering gender and perceived technological proficiency. Subsequent studies might explore this finding further—perhaps through focus group discussions which may help to identify whether MP3 players encourage use that is approaching equal when looking across gender lines. Another interesting finding brought forth in this dissertation is that there is a relationship between personality and physical sharing. However, there was no relationship between personality and talking about one's device. Future studies then, might examine why there is no relationship between talking about one's device and shyness.

The capacities of MP3 players are consistently evolving; for example, the Zune technology (see Appendices 4) was recently released and Apple's new iPhone will be released within the next several months. Future research studies should examine the impact that these technologies have on interaction. The Zune technology allows users to send songs to other users that are nearby. This capacity can change the way in which users share their technology. Additionally, future research is needed which will examine MP3 use in other geographical areas and among other age groups. This dissertation has focused on college students at a metropolitan area university. As Bull (2004) discussed, MP3 use is particularly common among those living in urban areas. Thus, future studies

should examine MP3 use in suburban areas and whether there is difference in how urban and suburban MP3 users interact with their devices.

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Appendices 1: Consent Form for Survey on MP3 Players

You are invited to participate in a survey that is designed by Katie Lever, a Ph.D. Candidate in the School of Communication, Information and Library Studies at Rutgers University, USA. The purpose of this survey is to understand the attitudes and behaviors associated with mobile music technologies.

Katie Lever, the Principal Investigator of this study, is interested in studying how individuals use digital music technologies. This survey is completely **confidential** and your participation is entirely **voluntary**. You will be asked a few questions about your experience and perspective concerning your/other's use of MP3 players. The survey should take no more than 20 minutes.

Your answers will be strictly stored in a secured location and only the principal investigator has the access to it.

No reference will be made in oral or written reports, which could link you to this study. Though no discomfort is anticipated while participating in this study, **you can withdraw your participation at any time during the survey without penalty**. You can refuse to answer any questions that you are not comfortable with. In order to participate, you have to be at least 18 years old.

If you would like to have additional information regarding this study, including data processing and the findings derived from this study, before or after this survey, please contact Katie Lever at (845) 988-6710 (klever@scils.rutgers.edu). If you have any question about your rights as a research subject, you may contact the Sponsored Programs Administrator at Rutgers University at 732-932-0150 X 2104.

Sincerely,
Katie M. Lever
Principal Investigator
School of Communication Information and Library Studies
4, Huntington Street, New Brunswick, NJ, 08901, U.S.A.
1-845-988-6710
klever@scils.rutgers.edu

Signature of subject agreeing to participate

Date

With my signature I affirm that I am at least 18 years of age and have received a copy of the Consent Form to keep.

Signature of the Principal Investigator

Appendices 2: Survey Instrument

Introduction: Thank you for your participation in this study. **You must be an MP3 user to complete this survey. If you are not, there is another survey that you can answer.** With your support, I am interested in understanding your experiences with MP3 players. Your name will never be associated with anything you divulge. So please answer the following questions as truthfully and thoughtfully as you can.

Please read the following questions carefully. Some questions require that you check the appropriate line and others ask that you circle the answer.

(Please circle ONLY one)

	Strongly Disagree ↓				Strongly Agree ↓			
1) My MP3 player plays a significant role in my day. (M=4.52, SD=1.81)	1	2	3	4	5	6	7	
2) I use my MP3 player for more than one hour per day (M=4.32, SD=2.00)	1	2	3	4	5	6	7	
3) I believe that I am dependent upon my MP3 player. (M=2.97, SD=1.79)	1	2	3	4	5	6	7	
4) I have used my MP3 player to “escape” from my immediate environment. (M=4.83, SD=1.84)	1	2	3	4	5	6	7	
5) I have used my MP3 player to change my mood. (M=5.00, SD=1.67)	1	2	3	4	5	6	7	
6) I use my MP3 player in public because others are. (M=3.26, SD=1.80)	1	2	3	4	5	6	7	
7) I have used my MP3 player to avoid becoming involved in an awkward conversation. (M=3.73, SD=2.11)	1	2	3	4	5	6	7	
8) I have used my MP3 to ignore others. (M=4.17, SD=2.02)	1	2	3	4	5	6	7	
9) It is acceptable to listen to my MP3 player in public settings. (M=5.56, SD= 1.54)	1	2	3	4	5	6	7	
10) I feel that I have been ignored through others’ MP3 use. (M=4.12, SD=1.82)	1	2	3	4	5	6	7	
11) My friends have complained about my MP3 player use. (M=1.72, SD=1.40)	1	2	3	4	5	6	7	
12) The music I listen to on my MP3 player can be an expression of my sense of self. (M=5.11, SD=1.56)	1	2	3	4	5	6	7	
13) I believe that MP3 players convey fashion sense. (M=3.42, SD=1.74)	1	2	3	4	5	6	7	
14) I look to fashion in general when making	1	2	3	4	5	6	7	

purchases. (M=3.95, SD=1.82)							
15) I believe that MP3 players are “in” right now. (M=5.33, SD=1.41)	1	2	3	4	5	6	7
16) My MP3 player is easy to use. (M=6.10, SD=1.11)	1	2	3	4	5	6	7
17) I am proficient with my MP3 player. (M=5.21, SD=1.43)	1	2	3	4	5	6	7
18) I am very familiar with all of the functions of my MP3 player. (M=5.72, SD=1.34)	1	2	3	4	5	6	7
19) I am proficient with technologies in general. (M=5.21, SD=1.43)	1	2	3	4	5	6	7
20) I am an outgoing person. (M=2.50, SD=1.21)	1	2	3	4	5	6	7
21) I am a shy person. (M=2.9, SD=1.65)	1	2	3	4	5	6	7
22) I like a lot of excitement and bustle around me. (M=3.2, SD=1.27)	1	2	3	4	5	6	7
23) I stay in the background at parties and get-togethers. (M=2.95, SD=1.55)	1	2	3	4	5	6	7
24) I like mixing with people. (M=5.27, SD=1.30)	1	2	3	4	5	6	7
25) I would rather be at home than at a party. (M=3.01, SD=1.57)	1	2	3	4	5	6	7
26) I have no fear of facing an audience. (M=4.32, SD=1.68)	1	2	3	4	5	6	7
27) I talk less because I am shy. (M=2.84, SD=1.47)	1	2	3	4	5	6	7
28) I am afraid to express myself in a group. (M=2.88, SD=1.43)	1	2	3	4	5	6	7
29) I look forward to the opportunity to speak in public. (M=3.67, SD=1.58)	1	2	3	4	5	6	7
30) I am tense and nervous while participating in group discussions. (M=3.08, SD= 1.43)	1	2	3	4	5	6	7
31) I feel that I am more fluent when talking to people, than most other people are. (M=4.54, SD=1.30)	1	2	3	4	5	6	7
32) I have no fear about expressing myself in a group. (M=4.68, SD=1.344)	1	2	3	4	5	6	7
33) I feel self-conscious when I am called upon to answer a question or give an opinion in class. (M=3.91, SD=1.66)	1	2	3	4	5	6	7
34) I like to keep to myself except when around very close friends. (M=3.32, SD=1.74)	1	2	3	4	5	6	7

35) I have as many friends as the typical Rutgers University student. (M=4.60, SD=1.45)	1	2	3	4	5	6	7
36) I have more friends than the typical Rutgers University student. (M=4.10, SD=1.54)	1	2	3	4	5	6	7
37) I have fewer friends than the typical Rutgers University student. (M=3.14, SD=1.65)	1	2	3	4	5	6	7
38) It is important to engage in face-to-face interactions. (M=5.95, SD=1.04)	1	2	3	4	5	6	7
39) I have let others listen to my MP3 player before. (M=5.71, SD=1.57)	1	2	3	4	5	6	7
40) Others have let me listen to their MP3 player. (M=5.85, SD=1.36)	1	2	3	4	5	6	7
41) I frequently bring my MP3 player to parties and other social gathering so that others may listen. (M=1.99, SD=1.56)	1	2	3	4	5	6	7
42) I have talked to other people about my MP3 player. (M=3.95, SD=1.85)	1	2	3	4	5	6	7
43) I have talked to strangers about my MP3 player. (M=2.50, SD=1.70)	1	2	3	4	5	6	7
44) I have talked about my MP3 player's applications with others. (M=3.13, SD=1.83)	1	2	3	4	5	6	7
45) I have asked other people for help troubleshooting difficulties with my MP3. (M=3.26, SD=1.94)	1	2	3	4	5	6	7

46) Have you ever used your MP3 player to ignore others? **(Please check one)**

☐ **Yes (Please indicate how often below)** ☐ **No (Please continue to next question)**

☐ Within the last two days

☐ Within the last week

☐ Within the last month

☐ Within the last three months

☐ Within the last six months

☐ Within the last year

☐ Within the time that I have owned it

1=Yes, 2=No, 3=No response (M=1.53, SD=.82)

47) Did you buy your own MP3 player? **(Please check one)**

☐ **Yes (Please answer questions 47A, 47B, 47C)**

☐ **No (Please continue to Question #48)**

1=Yes, 2=No, 3=No response (M=2.08, SD=1.71)

Please circle ONLY one answer

	Strongly Disagree ↓				Strongly Agree ↓		
47A) I took my friends' perceptions into account when I purchased my MP3 player. (M=5.67, SD=2.73)	1	2	3	4	5	6	7
47B) I bought my MP3 player because of a TV, radio or print advertisement. (M=5.37, SD=2.92)	1	2	3	4	5	6	7
47C) I bought my MP3 player because of my interest in music. (M=6.77, SD=1.72)	1	2	3	4	5	6	7

48) Do you go to the gym? **(Please check one)**

☐ **Yes (Please indicate how often below)** ☐ **No (Please continue to next question)**

1=Yes, 2=No, 3=No response (M=1.31, SD=.804)

☐ **1** Within the last two days (Please answer question 48a)

☐ **2** Within the last week (Please answer question 48a)

☐ **3** Within the last month (Please answer question 48a)

☐ **4** Within in the last three months (Please answer question 48a)

☐ **5** Within the last six months (Please answer question 48a)

☐ **6** Within the last year (Please answer question 48a)

☐ **7** I haven't been to the gym in over a year, or have never been *****(Please continue to question 49)*****

8=No response (M=3.34, SD=2.69)

48a) Do you use your MP3 player at the gym? **(Please check one)**

____ Yes **(Please answer questions 48B, 48C & 48D, 48E)******

____ No **(Please continue to question 49)******

1=Yes, 2=No, 3=No response (M=2.56, SD=2.68)

	Strongly Disagree ↓				Strongly Agree ↓		
	1	2	3	4	5	6	7
48B) I use my MP3 player at the gym because other people are also using them. (M=4.77, SD=2.91)							
48C) I use my MP3 player at the gym to occupy my time. (M=6.46, SD=1.84)							
48D) I use my MP3 player every time I go to the gym. (M=6.32, SD=2.06)							
48E) I use my MP3 player every so often at the gym. (M=4.12, SD=3.19)							

49) Do you take the bus? **(Please check one)**

____ Yes **(Please answer questions 49A, and 49B)******

____ No **(Please continue to question 50)******

1=Yes, 2=No, 3=No response (M=1.53, SD=1.47)

49A) How often have you used your MP3 player on the bus? **(Please check one)**

1 Within the last two days

2 Within the last week

3 Within the last month

4 Within the last three months

5 Within the last six months

6 Within the last year

 7 More than a year ago or never

8=No response

Strongly
Disagree

Strongly
Agree



49B) I use my MP3 player on the bus to
“escape.”

(M=5.04, SD=2.40)

1 2 3 4 5 6 7

50) Have you ever talked to others about songs you have downloaded? **(Please check one)**

 Yes (Please indicate how often below) **No (Please continue to next question)**

(1=Yes, 2=No, 3=No Response)

(M=1.38, SD=1.05)

How often have you talked to others about songs that you have downloaded? **(Please check one)**

 1 Within the last two days

 2 Within the last week

 3 Within the last month

 4 Within the last three months

 5 Within the last six months

 6 Within the last year

 7 Within the time that I have owned it

8=No response

(M=6.36, SD=1.35)

51) Have you ever talked to others about songs you *want to* downloaded? **(Please check one)**

 Yes (Please indicate how often below) **No (Please continue to next question)**

(1=Yes, 2=No, 3=No Response)

(M=1.36, SD=1.04)

 Within the last two days

___ Within the last week

___ Within the last month

___ Within the last three months

___ Within the last six months

___ Within the last year

___ Within the time that I have owned it
(M=3.24, SD=1.32)

Factor Scales Created

	N	Mean	Std. Deviation
Shyness	200	3.0383	1.09178
Dependency	200	3.9350	1.63186
Talking Sharing	200	3.1950	1.47121
Physical Sharing	200	5.7800	1.30580
Device Aptitude	200	5.9300	1.06232
Sociability	200	5.0633	1.04739
Valid N (listwise)	200		

Please check the line that corresponds to your answer:

52) My gender is:

___ Female

___ Male

53) I grew up in a:

___ Suburban area

___ Rural area

___ Urban area

54) My ethnic background is:

_____ African-American

_____ Caucasian (non-Hispanic)

_____ Hispanic

_____ Asian

55) I am a:

_____ First-year student

_____ Second-year student

_____ Third-year student

_____ Fourth-year student

_____ Five-year or more

Appendices 3: iPod Print Advertisements



iPod print advertisement



iPod print advertisement

Appendices 4: Zune Print Advertisement



Zune print advertisement

Appendices 5: Pilot Test of Survey

1. How long did it take you to finish this survey?
2. Do you think this survey is manageable for other undergraduate students? Please provide some reasons to explain your opinions.
3. What do you think about those questions in the survey? Do you find that these questions are difficult to answer or confusing to answer? If so, please indicate those questions and provide reasons as to why.
4. Does any question in the survey make you uncomfortable to answer? If so, please indicate those questions and provide reasons as to why.

Curriculum Vitae
Katie Marie Lever

Academic Preparation:

B.A. in English/Rhetoric, Binghamton University, 1998-2001

M.S. in Organizational Communication, Learning and Design, Roy H. Park School of Communication, Ithaca College, 2002

Ph.D. in Organizational Communication/Mediated Communication, Rutgers University, 2007

Teaching Experience:

- Teaching Assistant, Fall 2003-Spring 2006
- Part-time instructor, at the School of Communication, Information and Library Science at Rutgers University, Fall 2005-Summer 2006
- Non-Tenure Instructor, at the School of Communication, Information and Library Science at Rutgers University, Fall 2006-Spring 2007
- Assistant Professor of Communication at Western Connecticut State University, Fall 2007-Present.

Courses Taught:

- Private writing tutor, Ithaca College (Summer, 2001)
- Teaching Assistant, Roy H. Park School of Communications, Ithaca College (Fall 2001-Fall 2002)
- Instructor for Organizational Communication Theory 357, at the School of Communication Information and Library Science at Rutgers University (Summer, 2005)

- Instructor for Mediated Communication Theory 354, at the School of Communication, Information and Library Science at Rutgers University (Fall 2005-Spring 2007)
- Instructor for Interpersonal Communication 201, School of Communication, Information and Library Science, Rutgers University (Fall 2003-Summer 2007)

Research Experience:

- Research Assistant, School of Communication, Information and Library Science, Rutgers University (Fall 2004-Summer 2005)
- Research Assistant, School of Communication, Information and Library Science, Rutgers University, (Fall 2005-2006)

Book Chapters:

- Connaughton, S., Nekrassova, D., & Lever, K.M. (In Press). Talk about issues: Policy considerations in Campaign 2004 Latino-oriented presidential spots. In F.A.Subervi-Vélez (Ed). *The Mass Media and Latino Politics: Studies of Media Content, Campaign Strategies and Survey Research*. Lawrence-Erlbaum Associates.
- Katz, J.E., Lever, K.M., Chen, Y.F. (In Press). Mobile music as environmental control and pro-social entertainment. *Handbook of Mobile Communication Studies*. MIT Press.

Journal Publications:

- Lever, K.M., & Katz, J.E. (2007). Cell phones in campus libraries: An analysis of policy responses to an invasive mobile technology. *Information Processing & Management: An International Journal*.

Papers Presented at Conferences and Poster Sessions:

- Lever, K.M., & Liberman, C.J. (2004). *Learning the Ropes: An analysis of the organizational socialization process within local police departments*.
- Liberman, C.J. & Lever, K.M. (2005). *Learning the Ropes: An analysis of the organizational socialization process within local police departments*.
- Lever, K.M. & Chen, Y. (2005). *Teledensity: Public Use of Mobile Communication Technology on a College Campus*.
- Lever, K.M. (2005). *Condom Use: A Stages of Change Approach*.

- Lever, K.M. & Chen, Y. (2005). *Relationships among mobile phones, social networks, and academic achievement: A comparison of US and Taiwanese college students.*
- Bunz, U., & Lever, K.M. (2005). *The Technological Aptitude Inventory: Laying a Theoretical Foundation.*
- Chen, Y.F., & Lever, K.M. (2006). *Teledensity: Public Use of Mobile Communication Technology on a College Campus.*
- Lever, K.M. (2007). *A Soundtrack to Life.*

Journal/Conference Referee:

- *Women's Studies in Communication*, April, 2006
- Beacon Awards, May 2007.

Honors and Awards:

- Teaching Assistantship, Ithaca College, 2001-2002
- Teaching Assistantship, Rutgers University, 2003-2006
- Conference Travel Grant Recipient, April 2005
- Conference Travel Grant Recipient, April 2005
- International Communication Association, Graduate Student Teaching Award Recipient, June 2006
- School of Communication Information & Library Science, Communication Department Teaching Assistant Award, November 2006

Professional Service:

- School of Communication, Information and Library Science, PhD. Student Committee Representative, 2004-2006
- SCILS Committee member, 2004-2006
- Student Representative, New York State Communication Association, 2004-2006
- Member of the Center for Mobile Communications, Rutgers University 2004-present
- Sole student member of School of Communication, Information and Library Science's Research Committee 2006-2007
- Panel Judge for Beacon Awards Conference, Rockland County Community College, June, 2007

Professional Experience:

- Intern, Office of Communication, Binghamton University 2002
- Projects Coordinator at Taconic IPA, 2002-2003