

ABSTRACT

Title of Document: **PLUGGED IN: A QUALITATIVE ANALYSIS
OF THE WAYS IPOD USERS PRODUCE
AND EXPERIENCE SOCIAL CONNECTION**

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Various science and technology studies (STS) scholars argue that users are active agents who provide insight in the uses of a technology. While researchers describe the effects of technologies like the Apple iPod as isolationary, few focus on how users form social connections. In this study, I argue that contrary to assumptions surrounding iPod usage, the ways personal technologies are used and the cultural impact usage has on everyday interactions allows for the formation of social connections in practice. Drawing upon fifteen in-depth interviews and four observations, a modified grounded theory approach was used to analyze the meanings users gave to interactions with the iPod. Findings indicate that users experience social connection through file sharing, ownership, and collective usage, which coexist with processes of creating isolation. This demonstrates that the meanings given to the use of a particular technology are not stable, but interpretively flexible and contingent on social context.

PLUGGED IN: A QUALITATIVE ANALYSIS OF THE WAYS IPOD USERS
PRODUCE AND EXPERIENCE SOCIAL CONNECTION

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Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Master of Arts
2007

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Introduction: Users and the Social Shaping of Technologies

Various Sociologists and Science and Technology Studies (STS) scholars argue that users are not passive recipients but are active and important actors in shaping technology (e.g., Pinch and Bijker 1984; Cowan, 1987; Douglas, 1987; Woolgar, 1991; Akrich, 1992; Oudshoorn and Pinch, 2003). Users, who are predominately framed as patients or consumers, provide insight in the interpretations and uses of a technology. In practice, the use of a particular technology produces multiple and even contradictory meanings about social life. By examining how the meanings associated with usage are produced, maintained, and altered, this research examines how practices with technology impact everyday social interactions.

Conceptions of media technologies as isolationary have dominated the findings of scholars examining the use and effects of portable media technologies like the Apple iPod (Hosokawa, 1984; Chen, 1998; Henderson, Taylor, and Thomson, 2002). Little research, however, has focused upon how users through their interactions (i.e. practices) with technologies also form social connections. The recent popularity of personal technologies like the iPod provides an opportunity to examine the ways users produce social connections.¹

This research begins with the following three questions: How do users shape and reshape the meanings associated with iPod usage? In what ways do users counter or reinforce popular notions of the iPod as a socially isolating technology? How are social connections or isolation produced with the iPod in practice? I explore these

¹ In this study I define *social connection* as the social and cultural links, commonalities, and meanings that bind a group of people together and determine their social interactions. For example, this may be facilitated through an individual's identification with others through the ownership of commodities, participation in activities, or common cultural interests.

questions though an examination of the meanings users give to their everyday use of the iPod.

By uncovering how users form social connections, this research aims to reveal the multiple and sometime contradictory ways users maintain or negotiate various meanings associated with iPod usage. Influenced by Science and Technology Studies (STS), feminism, and post-structural approaches to user-technology relations, I argue how, contrary to assumptions surrounding the use of portable media players (PMP), the *ways* personal technologies like the iPod are used and the cultural impact usage has on everyday interactions, allow individuals to also actively produce social connections in practice.

Background: The iPod, Technology, and Sociality

Innovations in media and communication technologies over the past thirty years raise the question of whether, and in what ways, these technologies have altered how music and media are consumed. In contrast to the orchestras of the 19th century, for example, most music today is listened to individually through technologically mediated devices, such as portable media players (PMPs) or stereos. PMPs are electronic devices that are capable of storing and playing files in one or more media formats including music and video. Over time changes in design and other technological innovations have altered the ways users interact, consume, and understand music and media.

Introduced in mid-October 2001, the iPod was Apple Computer's first brand of PMPs capable of storing and playing music, video, and other electronic media files. Manufactured in three models, including the iPod Nano and Shuffle, devices in

the iPod family have an interface designed around a central scroll wheel that allows users to organize, listen, and choose from various media files, there by actively shaping their music experiences². In practice, iPod users can have their entire media library with them at all times. Attachments like armbands for jogging, car-stereo devices and attachments, recorders, and fashionable cases also demonstrate how iPod users shape the device even as it in turn shapes their daily experiences through sound, music choice, and portability³. What remains significant is not the design and features of the iPod alone, but the portability of various media that represent a major innovation in media technologies.

The iPod represents an innovation in media technology and in doing so raises various sociological issues around user-technology relations. Specifically, examination of iPod usage provides a way of probing often taken for granted norms and values surrounding social interactions (Pinch and Bijsterveld, 2003), including debates about the social impact of personal technologies. As Oudshoorn and Pinch (2003) explain, interactions between users and technology recursively shape designs, meanings, and ways of experiencing everyday social life. This is important because understanding the ways users actively shape a particular technology provides insight into the use and cultural impact of personal technologies like the iPod.

Increasingly a diverse set of research is devoted to the impact of user-technology interactions on sociality. Investigations into how users negotiate

² This study focuses specifically on the practices and meanings associated with the iPod and not its development. For more on the development of the iPod see Kahney, *Cult of iPod*, pgs 31-41. See also Levy (2005), *The Perfect Thing: How the iPod Shuffles Commerce, Culture, and Coolness*

³ It is important to recognize the wider configuration of businesses, industries, communication platforms, services, and networks that have made the iPod possible. The iPod is reliant on ownership of a computer and, in most cases, Internet access for obtaining music and media.

sociability through online journals (Hodkinson, 2007), the Internet and phone⁴ (Fischer, 1992; Kiesler et. al, 2000/2002; Wakeford, 2003; Wei and Lo, 2006), and handheld devices⁵ (Grinter et. al, 2002) demonstrate that while the iPod is often classed as a PMP or MP3 player, it is also a technology, among the many other technologies that surround and constitute everyday social interactions. For example, sociologist Keith Hampton's investigation into the use of e-mail, mobile telephones, media players (i.e. iPod), and Internet groups reveals how various technologies enhance the formation of larger and more diverse social networks, community organizing, and public participation (Hampton, 2004). Thus interactions between users and a wide range of technologies including the iPod continually shape everyday social relations.

Analysis of usage in the formation of online communities also highlights how users produce and negotiate social interactions (Preece, J. 2000; Glogoff, S. 2001; Riviere and Licoppe, 2003). In an ethnographic examination of the massive multiplayer online game (MMOG) *Everquest*, T.L. Taylor (2006) reveals how players construct on- and offline spaces, identities, and communities in practice. In her analysis, Taylor argues that dismissals of video games as a negative new medium that creates passivity and detaches players from social interactions misses how user interactions are dependent on social context. For example, offline elements, like

⁴ Various studies of the telephone and cell phone examine issues of sociability, isolation, and community (see Keller, 1977; Wellman and Tindall, 1993; Dimmick et. al, 1994; Ling, 2000; Goggin, 2006).

⁵ An extensive amount of ethnographic research on sociality and user-technology interactions has come from Xerox Palo Alto Research Center (PARC) including: e.g. the role of social networking, wiki, and blogging in the construction of online knowledge communities (Chi and Pirolli, 2006), email as a form of sociability (Ducheneaut and Bellotti, 2001), and cell phone communication (Aoki and Woodruff, 2005).

player conventions and gaming clubs, “show that the very notion of being able to bound off what is game and not game is not a particularly fruitful way of understanding spaces” that create connection and isolation (Taylor, 2006: p. 18). Similar to this study’s approach to the iPod, Taylor’s move beyond the ‘design of the game’ to examine the actual uses, exemplifies the notion that users actively produce meaning in practice.

Some scholars have been critical of the impact of personal technologies in shaping social interaction in everyday life arguing that use produces social isolation (Chen, 1998; Kim, 2003; Yoon 2006). Drawing upon entries from the journals of 40 college students, Chen (1998) argues that Walkman listening is a reflexive act that increases social segregation and decreases social interaction through kinesthetic and sensual experiences, which he terms ‘electronic narcissism.’ Chen argues that “the power of electronic media rests, not so much on their ability to transmit ideas or facts, but rather on their ability to evoke and structure effects” (Grossberg, 1983) making the referential function secondary. Contrary to Chen, the meanings and discourses that emerge from the development and usage of a particular technology structure user-technology relations and transmit knowledge that effects social relations. It is precisely meanings, ideas, and facts that surround Walkman usage that structure its effects.

Troubling the operation of assumptions that surround the use of a particular technology remains an important aspect of studying iPod usage. Chen notes that by “Putting on a headset allows one to build up invisible musical walls segregating oneself from others...The individual becomes ‘the world’, and ‘the world’ becomes

the individual” (Chen, 1998: pp. 273-274). This argument provokes one to ask whether users do or do not actively shape their social surroundings with portable media devices. This should not suggest that social isolation is not an effect of PMP usage, but that focusing only on the isolationary aspects of the Walkman, or any device, ultimately fails to take into account how users actively shape technology.

Agreeing with Chen, Hosokawa (1984) argues that the Walkman provides users with the opportunity to “seek the perfection of their ‘individual’ zone of listening” (Hosokawa, 1984: p.167). In another qualitative study of mobile phone use by college students, Henderson, Taylor, and Thomson (2002) argue that cellular phones are an individualizing and isolating form of technology that places young people in the center of social networks. While cell phone usage may be an individual act in and of itself, the meanings attached to usage may not be that of isolation, but connection. Like Chen, both of these arguments only address the production of isolation and individualism that results from PMP usage discounting how users may forge social connections. Focusing on the isolationary aspects of personal technologies minimizes or suppresses alternative effects. As a result, such deterministic representations of usage reinforce arguments that the development of technology itself follows a path largely beyond cultural or political influence, and that technology in turn has ‘effects’ on societies that are inherent, rather than socially conditioned.

In contrast to deterministic arguments, Michael Bull’s (2005b) analysis of PMP users shows that use of iPod technology allows users to “construct meaningful and pleasurable narratives out of the routine linear and cyclical practices of their

everyday movement” (Bull, 2005b: p.346). Meaning is created through the ways people use the iPod, allowing the “user [to] struggle to achieve a level of autonomy over time and place through the creation of a privatized auditory bubble” (Bull, 2005b: p.344). While Bull remains concerned with the use of PMPs as tools in the individual management of time and space, his analysis also begins an important analysis into collectivity, highlighting the interpretive flexibility of PMP usage. For example, Bull notes that through pod-casts⁶, using the iPod to provide entertainment, or even connecting to a car radio users can also share and experience music and media in groups. This highlights iPod usage in collective situations, yet does not fully develop an analysis into the iPod’s ability to form social connections through its auditory and non-auditory functions. By downloading music and media, sharing information and documents, and even utilizing the iPod as a phone⁷, portable media technologies allow for various types of social connection between users. Discussions surrounding the multifaceted use of mobile technologies ultimately must take into account various functions and effects, including the impact of technologies on social interactions, in order to “inform us about how users attempt to inhabit the spaces in which they move” (Bull, 2005b: p.345).

Addressing the use of PMPs to create sociability, ‘Sound studies’⁸ scholar Marc Perlman (2004) argues audiophiles or consumers of ‘specialty’ or ‘high-end’ audio equipment like the iPod to “construct their own community of meaning around

⁶ A digital recording of a radio broadcast, music, video, or similar program, made available on the Internet for downloading to a personal audio player.

⁷ Unveiling of the iPhone from: Martell, Duncam. “Apple introduces svelte multimedia iPhone.” Reuters. January 9, 2007. The device was released in July of 2007.

⁸ “Sound studies” incorporates a wide range of interdisciplinary work addressing the material production and consumption of music in a historical and social context (see Johnson, 1995, Bull, 2000; Sterne, 2003).

their equipment” through personal experience, the formation of vocabulary, and ideas about technology (Perlman, 2004: p.783). In doing so, users privilege personal experiences and resist claims that usage is detached or dispassionate. Thus, users actively control and manage their experiences with sound, and also develop social connections through their passion for measuring and evaluating the quality of sound and sound technologies.

Research regarding fads or trends in fashion, hairstyles, or other cultural forms also suggest that the iPod and other PMPs may allow for social connections through group identification (Berger, 2000; Suzuki & Best, 2003). On college campuses, students share music and video via online networks, file sharing, and through the examination of the ‘playlists’⁹ of other users, and judge one another’s taste in music and technology – ‘playlistism’ (Kahney, 2005: p.130). Even the iPod’s distinctive white ‘earbuds’¹⁰ have come to serve as a type of “Masonic handshake to other users that they’ve got ‘the right’ mp3 player” (Kahney, 2005: p.46). As a cultural icon, the iPod’s power to produce social connections through group identification demonstrates the cultural impact of technology and the presence of various effects that come from usage.

Spaces of Culture

As a social and cultural force, technology strongly influences the ways individuals interact with, frame, and negotiate everyday social life. One example of this is found in the extensive production of cultural artifacts, such as homemade

⁹ *‘Playlist’* refers to a listing of songs or videos created to organize music on portable media players.

¹⁰ ‘Earbuds’ are a synonym for headphones.

advertisements and videos, the formation of online clubs that exchange iPod stories, and the online sharing of music – or podcasts. Specifically, users’ homemade advertisements posted on the Internet utilize the visual imagery of Apple’s iPod advertising campaign to bring attention to experiences associated with usage, as well as contemporary social and political issues¹¹. As shown below, ‘Dancing Fool’ and the incorporation of the iconic Star Wars character Darth Vader portray the positive and negative emotions and meanings associated with usage. ‘iRaq’ utilizes Apple’s design scheme to critique contemporary US-Middle East policy and military actions in Iraq. The creation of these homemade advertisements is important because they demonstrate how the iPod cannot simply be viewed as a personal media player, but as a structured phenomenon that produces multitude effects and shapes everyday social, cultural, and political interactions. Furthermore, it demonstrates the importance of users and Apple advertisers in shaping and reshaping the meanings and practices of the iPod itself. Thus, the iPod is far more than an isolationary device, it is a socially experienced technology co-constituted in material-semiotic actions.

¹¹ It is important to note that Apple also actively influences and constructs meanings associated with the iPod such as cool design, innovative, hip, popular, and in-style through its various advertising campaigns.



While iPod usage allows for “spaces of culture to be redrawn into largely private” (Bull, 2005a: p.107) or isolationary areas, it also allows for the possibility of social connections to emerge between individuals through ownership, participation in activities, or common cultural interests. This is important because the formation of social connections demonstrates how multiple outcomes and meanings may result from iPod usage. Although users of technology may experience intentional or unintentional forms of isolation, this should not suggest that social isolation is the sole result of experiences with the iPod. Focusing only a single aspect of personal technologies and ignoring the connective or other aspects of usage would only lead to discussions that reinforce technological determinism (Ellul, 1964; Staudenmaier, 1985), and dismiss factors such as human agency or social structures.

Although recent attention has been given to personal technologies within the larger framework of STS and Sociology, use of the iPod or sound technologies is still rarely studied. Pinch and Bijsterveld argue, however, that by turning to these new

technologies “STS can contribute a focus on the materiality of sound, its embeddedness not only in history, society, and culture, but also in science and technology and its machines and ways of knowing and interacting” (p. 54, 2003). This is important because it is theorized that personal technologies like PMPs have transformed the ways individuals interact with and experience everyday social life. In this research, I analyze the iPod in its social contexts and practices. Use of the iPod and the impact of usage is not the application of technology, but a product of various social interactions and practices. By focusing on iPod users and their material practices of listening, sharing, and other social actions in context, my aim is to reveal various meanings given to usage, to document the range of uses, and to examine the ways users trouble and reinforce assumptions that portable media technology usage results solely in social isolation.

In this research, I theorize portable media player technologies, specifically the iPod, as social and cultural forces (Balsamo, 1997: p.159). This means that the iPod shapes and is shaped by practices that produce specific cultural and structural effects on social interactions. The meanings that are embedded in a technology are “flexible” and emerge in use of a technology. That is, meaning is an emergent and ongoing characteristic attributed to various social practices and processes. Currently the iPod remains the most popular personal media device in the United States and, as this paper demonstrates, is influential for social and cultural interactions.

By examining the meanings and practices deployed by iPod users, as well as critically situating those discourses in their social context, I complicate assumptions that reify social isolation as the prominent effect of PMPs by uncovering various

meanings that emerge from usage. Understanding “the meaning of an instrument in its use” (Pinch and Trocco, 2002: p.10), and the ways users maintain or negotiate various meanings associated with usage, allows for the emergence of multiple perspectives, including the presence of social isolation. Specifically, this paper aims to examine this question – in what ways do personal technologies transform the ways individuals interact with and experience social life and, to focus STS discussions of user-technology relations to incorporate and engage issues pertaining not only to the use of portable media technologies like the iPod, but also the cultural impact of this use on social belonging specifically.

Theorizing Material Use and Everyday Practice

As Science and Technology Studies (STS) scholars Nelly Oudshoorn and Trevor Pinch (2003, ix) note, “Users are everywhere gaining prominence.” Within STS there has been a concerted effort to study the people who use technology (see Cowan, 1987; Pinch and Bijker, 1984; Moore 1997). Traditionally users have been considered passive actors in the diffusion and acceptance of new technologies. However, STS scholars view users as creative agents of social change. This orientation rejects the idea that science and technology begins or ends with the actions of engineers, or that technologies have intrinsic meanings or purposes that guide their use. Instead, social actors articulate their meanings and uses within particular situations and contexts (Clarke and Fujimura 1992, p. 27). What emerges from this perspective is a critical understanding of the ways users actively shape a particular technology.

According to Pinch (2002) technologies can be thought of as technological artifacts that are engrained within various user communities and social relations. This perspective of technology not only allows for the study of how designs are shaped by social, cultural, and economic elements, but how technology also shapes such factors (Woolgar, 1991). While this definition takes into account how usage shapes social interactions, analysis must also address how “meanings of new technologies are produced by a complex arrangement of texts, narratives, institutional structures, and other material effects” (Balasmo, 1997: p. 10) that are bound to specific cultural norms. The iPod cannot be understood only in terms of social networks and practices, but also the symbolic meanings and the culturally rooted belief systems that influence

usage (Oudshoorn, 2003). Thus, the iPod is socially constituted by the meanings attached to it by users.

In this paper, I draw upon several STS theoretical approaches to user-technology relations to inform my analysis of the iPod. In the following three subsections I review SCOT (social construction of technology), semiotic, and feminist STS literature as they pertain to iPod-user relations. In each section, I highlight theoretical concepts that shape my research questions and analysis as well as emphasize the role of iPod users. While my analysis incorporates empirical research from ‘sound studies’, I remain focused on the various uses and structural effects of the iPod and not the production or consumption of sound.

The Social Construction of the iPod as Technology (SCOT)

In contrast to the view that users are passive recipients or consumers of technology, STS scholars argue that users play a large part in the various meanings associated with the construction of a technology (Pinch and Bijker, 1984). For example, in his study of the bicycle Bijker (1995) argues that elderly men and women gave new meanings to the high-wheeled bicycle as “unsafe”, and paved the way for the development of the safe bicycle. The iPod retains interpretive flexibility in that different meanings can be attributed to various social processes and actors (Bijker, 1987). Here, the emergence and eventual stabilization of a technology is linked to the meanings and problems associated with by a range of relevant groups; in this case, elderly consumers. While the iPod was originally developed by Apple and software

engineers¹², adaptations to the device, such as colors, sizes, and arm-bands for running, were all created out of response to consumer needs. While Bijker's use of interpretive flexibility focuses upon how usage effects the development of a technology, this concept can be extended to argue that the meanings formed in the use of technologies like the iPod also shape social and cultural interactions.

The impact of usage on the formation of technology also demonstrates a connection between designers and users through a technological frame or a set of shared assumptions (Bijker, 1995). For example, software engineers may develop a keyboard with the technological frame or assumption that users hands would rest more comfortably on the device if it were molded to fit the natural positioning of their wrists. In terms of SCOT, this conception is important because Bijker recognizes that technological change is not determined solely by engineers, but also by a series of managers and users. However, this approach seems to ignore how users may continually shape and utilize technological frames to modify technologies that are considered stable (Mackay and Gillespie, 1992). For example, the personalization of iPod coverings and cases by users demonstrate how relevant social groups, or "agents of social change," can always alter the device (Kline and Pinch, 1996) not only by changing music but customizing its outward appearance. The creation of iPod various user-influenced iPod accessories, based upon actual usage, demonstrates how users actively shape technology.

¹² According to several accounts, computer engineer Tony Fadwell was the creator of the iPod in conjunction with Ben Knass, a former senior manager at PortalPlayer (a small start-up company). Both men partnered with Apple to develop the device.

In relation to the development and impact of sound technologies, like the iPod, Pinch and Trocco (2002) argue that the acceptance of a new technology is dependent upon how that technology is developed not only through the media, but also by interactions among users and developers. In the case of the synthesizer, Pinch and Trocco's interviews discovered how 'shifts' between development and consumption enable the design process to be bridged between users and designers (Pinch and Trocco, 2002: p.313-314). Similar to Bijker's work, the concept of a 'boundary shifter' not only recognizes users' and developer's ability to shape technological developments and innovations, but also focuses upon how interaction between actors produces changes in technology.

Applying SCOT approach to this proposed research, reciprocal relationships between the iPod and social groups denote how users may have interpretative flexibility in defining the iPod as more than a PMP, but as a cultural icon, companion, or even distraction. Through various forms of usage, and the meanings attached to usage, Apple may decide to adapt their design, construction, and marketing schemas to users. However, user's adaptations to the device may not necessarily produce positive changes to the iPod. For example, while the development of software to override codes that block the sharing of music and media files between iPods may benefit users, Apple may 'correct' these breaches by creating more complex programs in order to prevent copyright infringement. Apple's media downloading program iTunes uses digital rights management (DRM) software to protect its music against theft by lacing files with specific codes. Though software engineers, designers, and managers may alter iPod technology to prevent users from engaging in specific

activities, the interpretive flexibility and programming skills of various users may ultimately alter the ways music and media are shared in the future. Ultimately, users will influence the development, design, and rules associated with particular technologies.

While this study focuses upon iPod usage and not its development, the SCOT approach highlights how meanings formed in practice not only effect further technological innovations, but also how the user-technology relationship is bound to social contexts.

Material-Semiotic Approaches to Technology

When addressing issues pertaining to the interface between users and iPods, material-semiotic approaches provide insight into how meanings are configured and ‘built’ into technologies. Conceptualizing the user as a reader of texts, Steve Woolgar (1991) utilizes the interpretive flexibility of technology to analyze meanings associated with design rather than the negotiations between various social groups. Woolgar found that technologies are developed with very particular users in mind, and argued that the designers’ preconceived ‘ideal user’ is *configured* into the final form of a technology. By focusing on the processes by which the meanings associated with machines is negotiated, he argued that researchers can analyze how engineers define “the identity of putative users, and setting constraints upon their likely future actions (Woolgar, 1991: p.59). From this perspective, the iconic advertisements depicting the dancing silhouette of an iPod user may configure the consumer as young and ‘in tune’ with popular culture. Here, users are represented by designers and marketers rather than as individuals involved in technological change.

In contrast to Woolgar's work on configuring the user, "script analyses conceptualizes both designers and users as active agents in the development of technology" (Pinch and Oudshoorn, 2003). Technological *scripts* are the particular meanings, norms, and representations built into a device (Akrich, 1995). The scripts associated with the iPod allow for an investigation into the negotiations between the innovators and users that delegate specific uses of the device. Additionally, feminist scholars have also extended the script approach to address how masculinity and femininity are scripted into technological devices (Mamo and Fishman, 2001; Oudshoorn, 1996, Oudshoorn et al. 2004).

While the script approach allows for an analysis of the meanings associated with the iPod, it appears to reinforce the view that technological innovation is a result of the influence of designers on users. This reduces the iPod user to an object of Apple's conceptions, which leads users to either accept or reject a technology based upon a specific definition of proper usage. Instead, iPods are socially scripted and are interpretively flexible from the point of view of both designers and users (Pinch and Bijker, 1984). Even after specific scripts are 'built-in' (Akrich, 1992), the meanings and uses attached to the iPod are not stable (Clarke and Fujimura, 1992). Thus, users' ability to modify or subvert dominant meanings associated with a technology (Moore, 1997) demonstrates how user-technology relations are constantly co-constructed in practice.

By exploring user-iPod interactions, this paper extends description to examine the meanings that emerge from practice (Oudshoorn, 1996; Petryna, 2002; Mamo, 2007).

Situating Material Users: Feminist Approaches to Technology

Feminist scholars argue that focusing on users rather than on engineers allow researchers to go beyond histories of invention and mastering technology (Cowan, 1987; Wajcman, 1991; Lerman et al. 1997) to understand the impact of a technology in the hands of users. Many argue that by giving almost exclusive attention to experts or producers, SCOT approaches to technology assume a specific form of power relations that discounts the role of users. In an early challenge of this perspective, Ruth Shwartz Cowan's (1983) historical analysis of household devices shifted the traditional focus in technology studies to focus on the "actual or potential consumer of an artifact by imagining that consumer as a person embedded in a network of social relations" (Cowan, 1987: 262). Like the SCOT approach, feminist work on user-technology relations not only shifts the conceptualization of iPod users from passive recipients to active participants, but also places the user in social context.

Cowan historically examined networks from the consumer's point of view, which she termed the *consumption junction* (Cowan, 1987). Defined as "the place and time at which the consumer makes choices between competing technologies" (Cowan, 1987: p.263), Cowan argues that focusing on the consumer and the network of social relations in which the consumer is embedded (social context) allows for a better understanding of the relations between technology and users. In her analysis of household technologies, she notes that while domestic tools, like the dishwasher, made housework easier for women the meanings associated with them resulted in the elimination of assistance from husbands and children with chores (Cowan, 1983: p.209). This key insight into user-technology relations demonstrates how the

meanings users give to the use of a technology like the iPod also has ramifications for everyday social interactions.

Feminist conceptualizations of users examine the multiple positions and types of users and the ways these variously, but actively shape the meaning and practices of technologies themselves (Clarke, 1998; Saetman, 2000). By defining users as heterogeneous, feminist scholars highlight differences in power relations among actors who design and use technology along gender, race, class, and other boundaries (Pinch and Oudshroon, 2003). Adele Clarke's notion of the 'implicated actor' reflects an approach to include "those silent or not present but affected" by the formation of a technology (Clarke, 1998: p.267). In her work on the shaping and legitimating of reproductive technology by users, activists and scientists, Clarke (1998) argues that women were 'implicated actors' in the conception of reproductive technologies – like birth control. In this way, the design of a technology by engineers and other actors impacted users, specifically women. Similarly, the design of the iPod only took into account the perspectives of engineers and designers making all potential users implicated actors. However after gaining in popularity, the interpretive flexibility and influence of users lead to changes in design, software, and usage. While users are not necessarily present at the formation of the original device, they still hold interpretive flexibility over alterations, uses, and meanings associated with the iPod.

When addressing the various perspectives of usage, Haraway's concept of the 'cyborg' provides a promising bridge between material and semiotic notions of users and technology. In STS terms, the cyborg is a co-constitutive being defined as a specific configuration of user-technology relations in which the user emerges as a

hybrid of machine and organisms (Haraway, 1985). Cyborgs blur the binary between human and machine, science and social reality, natural and artificial and male and female, and define technology as a combination between the material and the discursive. iPod usage is the result of a fusion between individual and machine in which music, media, and sound constantly reconstruct material-semiotic practices and experiences. In this sense, meaning is not solely derived from the deconstruction of texts or symbols, but also the material conditions that structure cultural, political, and economic life.

As a political entity, the cyborg is meant to subvert and “question that which is taken as ‘natural’ and ‘normal’ in social relations” (Haraway, 1985: p.149). Thus the relationship between the user and device allows for a form of interpretive flexibility that may come to subvert or challenge norms and assumptions associated with the effects of iPod usage –mainly social isolation – but also remains influenced by political and economic forces, including Apple. A cybernetic conception of the user not only allows for agency, but the constant challenging and reconfiguration of meanings associated with iPod usage.

Drawing from feminist conceptions of users, I focus this study on users rather than on engineers to understand the impact of a technology in the hands of users. As active agents users alter, contest, and reconfigure the social and cultural meanings and challenge deterministic ideas of usage associated with the iPod. It is from this theoretical basis that I examine how iPod usage alters the ways individuals experience social life, allowing for practices that enhance, develop, or lessen social connections.

Research Design

Drawing upon STS theories of users and practice, I examined “the meaning of an instrument in its use” (Pinch and Trocco, 2002: p.10) to reveal how users maintain or negotiate alternative meanings associated with iPod usage. To do so, I employed a qualitative research design combining in-depth interviews and participant-observations with fifteen college students.¹³ My goal in the in-depth interviews was to capture the various meanings and uses associated with the iPod (Clarke and Fujimura, 1992). This approach can not only reveal how users and sound technologies co-construct daily life, but how multiple and sometimes contradictory meanings can develop from the use of a technology. Additionally observations will also serve to strengthen and expand findings on ways iPod users develop social connections with other individuals in practice.

While conducting this research I remained open to contradictions and variations in the isolation/integration binary associated with iPod usage. I did not view these as either mutually exclusive, nor did I wish to overly emphasize belonging over isolation. Instead my goal was to observe and inquire about the ways iPods are rendered interpretively flexible in the hands of users.

¹³ During the course of this research three generations of the iPod Nano were introduced by Apple. While slight modifications were made to the iPod’s design during this time, the ways users interacted with the device fundamentally remained the same. The latest version of the iPod Nano, released on September 5, 2007, features a larger screen with video capability. Apple also introduced also the iTouch iPod, which features a user interface that unlike the traditional iPod has no wheel or button. Instead the iTouch has a device-wide flat touch screen with several icons corresponding to various music, video, and media applications. Additionally, the iTouch has a built in Wi-Fi connection to the Internet.

In-depth interviews were conducted to capture the reactions, feelings, opinions, and meanings that users attach to their interactions with the iPod. In doing so, I obtained a nuanced sense of the ways in which users deploy interpretive flexibility with technology by putting it to unanticipated uses, or to create their own world of meaning around it (Bijker, 1987; Perlman, 2004). For this study, I recruited participants through snowball sampling and assigned pseudonyms to maintain confidentiality in compliance with approved IBR criteria. Interviews were recorded with a digital device and conducted in cafés, student offices, and dorm rooms and lasted ninety minutes or more each.

Questions included: Could you describe how you use your iPod from start to finish on an average day? How do you feel when you're using your iPod? If you had to come up with one word to describe the iPod, what would it be and why? Can you describe to me a time or memory you had when using your iPod? Do you ever feel connected or disconnected to others when you are using your iPod?¹⁴ Additionally, self-identified demographic characteristics of those interviewed are displayed in the Appendix.

In addition to conducting interviews, participant observations were conducted with four college students to gather data on actual iPod usage. For this, I followed students around campus for one to two hours and interactions between iPods and users were recorded in detail field notes after each session. These notes (Burgess, 1982) consisted of detailed accounts of everything that I did and observed during my

¹⁴ For a full listing of questions see the interview guide in the Appendix.

time with students, but also of ongoing analysis of the meaning of, and questions raised by these observations.

When conducting this research, I drew on upon my knowledge and expertise of using the iPod in my own daily life. I recognize that as a white middle class male I am afforded a social and economic basis to not only afford an iPod, but access to the skills and knowledge to use various technological devices. As an iPod owner, I regularly use my black iPod Nano while exercising, driving in my car, and sharing music with friends. While my own iPod usage presents some limitations, such as the possibility of overlooking specific nuances, I believe that it provides me with additional insight into the specifics of iPod usage.

Methods of Analysis

For this study I analyzed data using a modified grounded theory approach (Glaser, B. and Strauss, A., 1967). In order “to make sense of, or interpret, phenomena in terms of meanings people bring to them” (Denzin and Lincoln, 1994: p. 2), I continuously drew from my research questions and literature throughout the development of this project (Maxwell, 1996). In this case, analysis and data collection occurred simultaneously as each additional interview conducted provided an opportunity to further investigate ideas formulated both during the analysis, and those developed subsequently as I reviewed the literature on the sociology of technology use in general and iPod use in particular.

After interviews were conducted, each was coded alongside observations in order to formulate categories that describe forms of experience and meaning that stem from interactions between the iPod and users. When coding interviews, I attended to

actions, perspectives, and social processes emerging in the data. For example, I looked for instances of “sharing,” “giving,” “connecting,” “isolating,” “using,” and other processes that participants regard as enhancing social connection and isolation. These included identifying moments in the interview data and observations wherein respondents use, link, send, IM, email, scroll, download, change, separate, isolate, alone, alter, personalize, and customize to identify different processes and ways users may develop meaning through iPod usage.

Data collected for this study was organized and analyzed around the ways iPod usage transforms social interactions and the cultural impact of this use on social belonging. Emergent themes included – ‘Sharing’, ‘Ownership’, and ‘Collective Usage’ as well as the nuances associated with sociability and active isolation. In addition, I also wrote memos after each interview and began my analysis with the first interview and continued until all data was collected.

Findings: Using and Attributing Meaning to the iPod

The iPod as a Personal Event

As I waited for my interview with Sandy, I watched her walk toward the Health Sciences building. Scrolling through a red iPod, Sandy Wilson's blue eyes appeared entranced by the bright rectangular screen and scrolling functions of the device as she made her way to a noon class. As she quickly moved her thumb around the flat circular scroll, a wide array of music, media, and games became instantaneously available. Like many iPod users, Sandy, a white twenty-four year-old health sciences major, was getting ready for an average day with her iPod. With her black Coach handbag at her side, Sandy explored the many functions and features of the iPod while she stayed focused on its small screen and navigated the four options its circular scroll. Moving her finger around the top, bottom, left, and right side of the scroll she controlled play/pause, forward, back, and menu functions. Most users, including Sandy, vigorously move their thumbs around to search through music and menus, while pressing down near one of the four marked areas to utilize particular functions. According to Sandy, "this thing jump starts my day."

A few moments later, Sandy was at the front steps of the Health Sciences building. Just before entering the building, her friend Liz greeted her, and she removed the iPod's white earbuds from her ears. "What are you listening to?" asked Liz. "That new song by Fall Out Boy." At that moment Liz jumped at Sandy's words and asked "Could I get that song from you after class. It reminds me of how better I felt after I dumped Tom." They both laughed for a few moments before passing through the building's archway as they made their way to their class.

On the opposite end of campus, Mark Rosenberg sat outside at a large black metal table with a copy of Dante's 'Inferno' and his white iPod Nano. Every few moments Mark, a twenty year-old computer science major, found himself "constantly touching it, changing the music, or turning certain songs up or down" (Mark). Reading a copy of the Washington Post on the opposite end of the table, I noticed that in some instances Mark became frustrated when he could not find a song or when the book he was reading became 'boring.' "I hate this book. I need the music to get me through it," he said. The iPod, in its own hidden way, allowed both of us to read while listening to our favorite songs. After quickly turning the page, he fiddled with his iPod and went back to reading. For the remainder of the time he spent outside, Mark was focused on his reading, only moving occasionally to either look at his digital watch or turn the page. A few minutes later Mark said, "I love this song. (Shows me the song on his iPod) My friend Julie gave it to me. She's really good at picking out songs." Then he went back to his readings. After a little more than five minutes, he quickly packed up his things, put his iPod in his pocket, and made his way to a two o'clock class. The white earphone buds of the iPod never left his ears.

Both Sandy's and Mark's experience with the iPod demonstrate how usage is a personal event. With every tap and scroll of the iPod, users engage in a series of activities that cultivate a relationship between human and non-human actors. As such, the meanings and relationships developed between users and iPods are co-constituted in the personal practice of downloading of music, creation of playlists, "listening to music while walking to my next class" (Sandy), and even studying. Describing her personal relationship with the iPod, Sandy noted that:

I'm *very* attached to my iPod. I take it everywhere with me regardless of who I'm around or what I might be doing. I could be listening to music on my way to class, hanging out or sharing with my friends Tom and Sam, or even studying at the Student Center. You could say the more I use it the more I am attached to it...One time I remember being so upset with myself and worrying because I thought I left it in my biology class (laughs). But, what *really* happened was that I forgot that I had put it in a different part of my backpack that day! I felt *so* stupid. I guess it's because it's stuck to me.

Additionally Mark felt that:

I used to be a terrible studier. I couldn't focus on anything because of my ADD. So I take my iPod with me to the library *all* the time when I'm studying. But even though I'm plugged into my iPod and focusing on the music, or what I am reading, I am still aware of what's going on around me. You wouldn't think that someone using their iPod would know what's going on around them at all. For me it happens when I don't feel like working or someone passes me, or I choose to look up. I guess it goes to show ya that even though people have earphones in their ears, things aren't always what they seem.

As a personal event, the iPod, and the social impact of usage, is contingent on how users choose to "listen to my music" (Sandy). In both cases, Sandy and Mark felt that they were 'attached' or 'plugged' into the device in a personal manner as they negotiated and reconfigured their daily schedules and face-to-face interactions.

However, as Mark noted, being 'plugged in' not only represented a physical connection between the iPod's headphones and the user, but also social awareness of others. It is the meanings iPod users give to being 'plugged in' that this study aims to uncover.

Being around People or with People

As Sandy's and Mark's experiences demonstrate, the meanings users attach to the iPod are not always stable (Clarke and Fujimura, 1992). From using the iPod to

share to studying near the student center to walking to a class, the meanings associated with iPod usage remain elastic making the iPod both a technological barrier to social interaction and a mediator for social interaction. Thus, the ‘interpretively flexible’ nature of the iPod enables students like Sandy and Mark to continuously modify meanings associated with iPod in a wide array of social situations and settings.

For Sean Sharara, a middle class twenty-two year-old of Arab decent, his general experience with the iPod was “random” and even “all over the place.”

I don’t just use my iPod to block out the world when I want to study or get away from things. Sometimes I like to use it when I’m commuting to my internship at 8 AM with my friends John and Sam in the car. That is when the iPod really matters. When we are dead tired after a hard night of studying or just having a fun time, it defiantly helps to wake us up. Especially, when there are a few good songs that really get us going on a playlist that we all like. So I guess how I use my iPod really depends on who I am around, what I am doing, or if I need to be awake... a whole bunch of things. You just can’t pin it down because there are just too many ways to use it.¹⁵

After a few moments, the political science major in Sean came out as we began to laugh about how “the world according to the iPod would be full of people who would be able to control their playlists with lightning reflexes, and could at any moment choose to be around people or with people.” In addition to the above quotation, the power that Sean places in the hands of iPod users to be ‘with people’ or ‘around people’ not only denotes a level of control over social interactions, but more importantly how the iPod usage also remains highly variable to social proximity.

¹⁵ To help produce clarity quotes have undergone some minor editing. In a few instances sentences have been reordered and false starts, ‘ums’, and some pauses have been eliminated.

Thus, iPod usage remains dependent upon social context, as well as the various relationships individuals have with one another (i.e. best friend, stranger, etc.).

While iPod usage remains a personal event, this research was guided by questions around social connection. In the following discussion, I demonstrate that the ways the iPod is used can enable individuals to remain socially connected. For students connection through usage was facilitated through: (a) Sharing –the electronic sharing of music, media, and information between iPod users; (b) Ownership – processes of producing and communicating cultural meanings through group identification associated with the iPod¹⁶; and, (c) Collective Usage – the ability to utilize the iPod in social situations. Additionally, I also discuss throughout this section how users utilize the iPod to actively distance or isolate themselves from their surroundings in order to stress the many nuanced and contradictory ways users interact with and shape everyday social life with technology. In this sense, users actively isolate themselves from others to “create manageable sites of habitation” (Bull, 2000: pg. 2) in various social contexts.

“Sharing part of me”: Social Connection through File Sharing

Deepa Sankar, a twenty-six year-old graduate student and avid iPod user, sat relaxed in her chair scrolling through her white iPod Nano while drinking a cup of coffee at the student center. Through her black frame glasses, her dark brown eyes

¹⁶ Consumer goods have a significance that goes beyond their utilitarian character and commercial value. This significance rests largely in their ability to carry and communicate cultural meanings (Douglas and Isherwood, 1978). A diverse body of scholars has made the cultural significance of consumer goods a focus of academic study in the area of consumption (see Appaduri, 1986; Belk, 1982; Furby, 1978; Kopytoff, 1986; Lechtman and Merrill, 1977; McCracken 1985; Soloman 1983). In this paper I do not use the term ownership to simply describe the possession of an object, but also signal the production and communication of social and cultural meanings.

remained fixed upon its small color screen as she searched for what she later called, “my jams.” Deepa, like many students on campus, not only uses her iPod to listen to music but also share with friends.

Almost everyday I use my iPod I end up showing or sharing music or pictures with my friends in someway. We mostly swap songs because we enjoy a lot of the same music. A few nights ago I was over a friend Maya’s apartment for a small party with some of our friends, and I remember hearing an Indian song I really liked. Having my iPod on me all the time, I just hooked it up to her computer, found the song I wanted, and download it. It (the iPod) literally connects us...

Through processes of sharing, users like Deepa are not only ‘swapping songs’, but cultivate relationships with the iPod. Practices associated with sharing music and media become tightly associated with the development of interpersonal relationships that, as Deepa notes, “literally connects us.” In this way the sharing music and media is a way for students to “connect with friends and even people who might like the same kinds of music.” In a small surge of excitement, Deepa continued, “I definitely like that I can personalize my iPod! I enjoy making it my own. [smiles] But, I also think it’s really cool that I can share music with people, listen to music I might have never heard, or even bring back memories using it.

For Michelle Baxter, a twenty year-old Jewish sociology major, sharing music that she finds on her friend’s iPod is also a way to share memories.

One of my favorite television shows growing up was ‘Full House.’ Well the one character, Uncle Jessie, had a fictional band called ‘Jessie and the Rippers.’ My little sister Kate and I used to love this fake band when we were little. We would sing the songs they would play out loud and dance around the living room all the time. So a few months ago my friend Samantha got a hold of one of their songs, and showed it to me on her iPod. When I heard it I knew I had to have it. So I downloaded it from her and put it on my iPod. Naturally when I shared it with my younger sister when I was home on winter break she

got very excited. That exchange reminds me of how things bring people together. We used the iPod to do that.

According to Michelle and many of the other students, the iPod not only facilitates a physical connection between devices through the exchange of files and information, but also the sharing of memories. Using the iPod as a way to “connect to share my past experiences” (Michelle) or “exchange pieces of myself” (Sean) with others denotes how in usage iPod users shape and reshape the meanings they associate with the iPod with others through file sharing. In practice users retell, recreate, and connect to a shared cultural past about when they “danced around the house like wild women” (Michelle). In this context, usage is a social act that counters popular notions of the iPod as a socially isolating technology.

While the cultural texts shared by Michelle and Sean were popular, I found that other students used the iPod as a cross-cultural mediator. Ahmed Nesin, a thirty year-old graduate student from Turkey, described his experience:

I like it when my Taiwanese friend Susan has me listen to her music and I have her listen to my music. Once she let me borrow her iPod and I found a few songs from Taiwan and China that I really liked. I found out that these were also some of her favorite songs because they reminded her of being home. Using the iPod in that way allowed us to get to know each other’s cultures and likes, even though we don’t understand all the words that some of the singers are saying that well.

Ahmed also noted that:

The iPod means more than the music on it because I can shape it to who I am as a person. Even though I am new here, it is nice to have something that I can use to remind me of where I am from and who I am even though I use it to become accustom to American life.

Thus, for Ahmed and other students, the ability to share music allowed for a wide-array of experiences between users ranging from the retelling of shared memories to the establishment of new connections between cultures.

The iPod was also understood as being more than a music device. Tyrese Williams, a twenty-one year-old black psychology major and student athlete, described it as being able to “do so much more than just play or share music.” While Tyrese regularly made new playlists of his favorite rap and hip-hop artists, like Ludacris and 50Cent for when he exercises or studies, he also revealed that:

It has flash memory so you can upload files. Ya know, for word documents or assignments for class. I do a lot of group work in school so sometimes I’ll be working on a group project and need to take a paper or two with me over a classmates place so we can edit it or combine sections of a paper before we turn it in. I probably couldn’t get my group work done without it, especially with my schedule.

Tyrese’s use of iPod demonstrates that the ability to upload, download, and transfer information allows users to make connections based on the sharing of non-music and media files. This, at times, increases productivity and assist with collaborative group work. “I think with traveling for football, everyone in the group likes that I can still contribute,” said Tyrese.

In this section, I have been arguing that one way in which the iPod is not isolationary is through the various processes of connectivity described by students. However, in contrast to the idea that file sharing connects people through music and media, Sara Collins, a white twenty year-old English major responded:

Interviewer: Do you believe that the iPod really connects people in the way your friend said it could?

Sara: I don't think that the iPod can really connect people because when you use it you are kind of in your 'own little world' or bubble. So there is some type of being alone. You might not even know if you're friend is calling out to you when you walking on the street. I know I have ignored people by accident when I have used it on campus before. [laughs] But then there is when I share music with people.

Interviewer: What about sharing music with people?

Sara: Sharing music with friends is great. I do it all the time, but I don't think you're connected. You might be more connected to your iPod because you can have your music with you more often, so now you can share it more than you might have before. But it's hard for me to think the iPod bring people together when you see people using it to distance themselves from others.

For Sara, the iPod may be understood as a technology that assists in the enjoyment of particular cultural forms and not as a tool to increase or produce social connections.

That is, social isolation may be a major effect produced by iPod usage. However, her reflection demonstrated that file sharing may also increase or enhance social connections. This connection may allow users to share memories through music or complete tasks, even though some of their experiences with the iPod remain private.

In practice, iPod users cultivate social connections through the sharing of both media and information in a wide array of social contexts. In this section, students altered, shaped, and contested meanings attached to iPod usage while recalling memories with family members and friends or new cross-cultural experiences. This demonstrates how, contrary to deterministic arguments that associate PMP usage with isolation, iPod users also produce social connections in the material-semiotic practices associated with exchange.

“It makes you feel like you’re part of something” : Social Connection through Ownership

While many students use the iPod to separate themselves from their social surroundings, others also expressed how the iPod facilitates a form of social connection through ownership. After placing his white iPod on top of a small glass tabletop, Javier Peña, a nineteen year-old Latino criminology major, picked up his cup of hot coffee, took a quick sip, and began describing how:

The iPod is a part of society now; it’s embedded in the culture. Look at all the ads, accessories, Podcasts... even talking about using it with friends. It has even been featured on popular TV shows and used by companies. I think the iPod has become that way because it gives people a way to feel connected to one another but also personal at the same time. You could call it a trend since trends bring people together, but I think it’s bigger than that because it gives people a sense of being part of American pop culture. I think everyone like’s to feel they are a part of something.

Javier’s description demonstrates that the social nature of the iPod is best characterized as ‘trendiness.’ Trendiness was described by students as “the feeling that your with people or a group” (Sandy), or that “you identify with people and have something in common” (Javier). Similar to fashion, hairstyles, and other commodities or other forms of cultural expression (Beger, 2000; Suzuki & Best, 2003), as a social demarcater, the iPod allows users to feel socially connected through ownership.

As a social demarcater, the iPod has various scripts (Akrich, 1992) attached to it that vary depending on usage and social context. This does not mean that the iPod solely has specific social codes ‘built’ into it by designers to influence usage, but that the connections produced through ownership may influence the meanings users attach to the iPod. When discussing how the iPod is trendy for some people Javier felt that:

It's all about walking through this world of strangers and seeing something you recognize. It doesn't mean that you have to talk to them at all but there is a kind of connection because you share something in common. So if I see someone wearing the t-shirt from (*stretches memory*) a Dave Mathew's concert or tour, for example, I'm going to think 'yeah, I remember that gig. That was great.' It's the same idea with the iPod. It's a similar 'gig' or feeling you get when you recognize something someone else has. It brings up memories or ideas that you associate with the iPod that reflect what it means to you like cool, or up-to-date, or into music. So when you see other people using those things it is if they are communicating those same ideas back to you. It's something you both share.

For Javier, the iPod's association with ideas like 'cool', 'trendy', or 'up-to-date' demonstrates how the device conveys particular meanings about its user. Scripts, such as these, may be 'built' into the iPod by Apple designers, but as Javier's notes, "when you see something like that it brings back ideas that give you a sense of brotherhood" that cannot be created by engineers.

When walking through campus, identifying with other iPod users also produces and reinforces scripts associated with active isolation. Most notably several students, including Josh Simmons, a twenty-one year old mechanical engineering major, described how the iPod's white earbuds serve as a barrier to interaction.

I feel that using the white headphones is symbolic. You are sending a message to everyone around you that 'I'm enjoying my iPod and I want to be alone.'" And while people can still interact with you by smiling or waving, I think most people still stay away because the headphones are such a big signal. I mean they are white for gosh sake. They stick out like a sore thumb.

Similarly, as nineteen year-old Susan Chan untangled the chords of her white earbuds from her black iPod Nano, she noted that:

I think the white headphones are what distinguish the ability to connect or not connect with someone on a personal level. When I am using my iPod with the headphones, like on plane or when I'm working out at the gym on campus, I

usually don't want to be bothered. I want to focus on what I am doing at that time. But when I'm using it without the headphones it becomes more of a social thing...something that is always plugged into speakers when I have my friends over for movies or drink, or in my car radio. The headphones really can create barriers (motions with earbuds).

As a social barrier, the iPod's white earbuds allow students to 'escape' from various social situations by "plugging myself in" similar to a "do not disturb sign" (Mark). In this sense, the meanings students like Susan and Josh associate with iPod usage involving headsets is at times private and individual. This does not mean that all user-technology interactions with PMPs are socially isolating, but that users can choose to utilize the iPod to "create manageable sites of habitation" (Bull, 2000: pg. 2) in various social contexts. In this sense, social connections and meanings are produced while students use the iPod in private or individualizing contexts.

As a cultural and social trend, the iPod not only provides a sense of group identification for some, but also produces users who seek to disassociate themselves "the rest of the iPod group" (Sara). Thus, this meaning of creating a cultural 'separation zone' was important to many students. Scrolling through his most recent playlist entitled "Get 'em Up - Hip-Hop Mix," Tyrese expressed how he believed that the iPod provided him a sense of unique individuality that kept him from being a "follower" of a trend. "I think a lot of people who have an iPod are just following the trend. I mean I tend to think that even though I have one I'm using it because of its features and not because everyone else might have one." In addition, Mark Rosenberg expressed his perspective when discussing ownership:

Interviewer: Why do you think so many people own an iPod?

Mark: Some of my friends defiantly have the iPod because it's trendy. They take it all over campus, and I mean they don't even really use all of its features. One of them barely uses it. I think he bought it just because everyone else in our dorm has one.

Interviewer: Do you have one because everyone else your dorm has one?

Mark: No. I actually use most of its features but I didn't go out and buy it because I saw others using it, and thought I should have one. I got it because I wanted to listen to music when I was on my way to class or working out at the gym. I'm not one to follow trends. Even though the iPod is a trend, and a lot of people have one, I don't think everyone buys once because they want what everyone else has. Although I would be lying to you if I said I have never bought something because of other people. We all want to be apart of something sometimes.

While Mark "didn't want to be one of the crowd", students often expressed a sense of individuality that remained coupled to group identification. The ability to personalize one's experience was central while the act of using the iPod in public provided unity.

When discussing her use of the iPod on campus, Sandy mentioned that:

I like being able to listen to my music when I'm on the go or walking to class. Most people I seem to enjoy doing that, I think. We all might be in an iPod cult of some sorts, but at least it's nice to know that you're not the only one with white earphone buds or thingys stuck in your ears.

To Sandy, the iPod's white earbuds are not only a way to establish personal boundaries, but a cultural demarcater that connects or separates users through ownership. Thus, iPod ownership communicated various cultural meanings among and between users and nonusers in a wide array of social contexts. While some users utilize the iPod to create personal boundaries (Bull, 2006), the social connections produced in identification denote how the practices associated with personal technologies are at times contradictory and multifaceted.

“It definitely got the party started” : Social Connection through Collective Usage

While iPod usage remains a predominantly personal event, social connections also take between users at home, in the car, or even at parties through use of the iPod. After searching through her overly stuffed hunter green backpack, and tying her short black hair into a ponytail, Hyon Kim pulled out a black iPod Nano with a small rectangular device –the iTrip – attached. For the nineteen year-old Korean student:

It’s great to have all you’re music with you when you’re driving with friends. I mean all you do is attach the iPod to your radio with an iTrip and it sends your music to your car stereo. Last summer I drove from Boston to Chicago with my friends Sherry, Sara, and Jen and we used it every time we were in the car. I swear we listened to Kimberly Clarkson’s ‘Since You’ve Been Gone’ almost a million times. We just kept screaming the words to that song over and over again. Sometimes so much that we would loose our voices. It defiantly made the long drive fun for all of us. I’ll always remember that trip.

Hyon’s experience with her friends demonstrates how the iPod can be used within group situations since “listening to the music you have on your iPod with other people is always fun. Isn’t that what music and technology is all about? Being with people and not being stuck in a bubble all the time?” (Hyon).

As with all instances, the iPod is highly dependent upon the context in which an individual listener is situated. Activities such as reading, riding a bus, sharing music with friends, and even “working with Angus [cattle] at the fair over the summer” as Sara Collins pointed out denotes how the iPod’s portability allows it adapt to various situations. In terms of group usage, Deepa noted that the iPod could be used for providing entertainment at parties:

Interviewer: Do you use your iPod when you’re with friends?

Deepa: Sometimes when my friends throw parties I'll bring my iPod with me so I can hook it up to their Bose stereo system and share my music with everyone else. It's nice because there are a few of us with iPods so if we all end up bringing them then there is usually plenty of good music. I remember being at my friend Tom's apartment one night last October for a Halloween party and if I didn't show up with my iPod there might have been no good music that night. We would have all been standing around in our costumes without Michael Jackson's Halloween classic 'Thriller' on. The iPod definitely got the party started.

Deepa's comments not only reveal how the iPod is used for entertainment in groups, but how sharing music gives students a level of control over various situations. In this context, users can simultaneously share, critique, create, and even change various social situations and group experiences with their device.

While scrolling through her white iPod Nano, twenty-one year old Jennifer Sampson recalled that:

At the beginning of freshman year my friends and I made a playlist together for our iPods. We called it the 'OE', which was the name we had given to the floor we were on in our dormitory. So when we would throw parties and certain songs came on from this playlist everyone would know the words, and would sing, and dance... It was great to make that playlist together because everyone was a part of making it. It really connected people in our group, gave us an identity. Now at every party we host one of us hooks-up our iPod so that we can use that playlist because it reminds us of freshman year and all the trouble we used to get into.

As Jennifer noted, using the iPod around others is a multifaceted process by which students not only share music at parties, on trips, or in other social situations, but also collaborate together to create shared playlists that encapsulate various meanings. Usage in this context is a complex and layered practice that involves interactions between iPods, individuals, and groups in the creation as well as the sharing of memories.

When using the iPod around or with friends Pat Davis, and several other students, felt that a type of 'iPod etiquette' emerges.

I mean if you're at a party and next song isn't good and doesn't keep up the energy, people will judge you and think 'oh you put *that* song on.' That's the other thing with the iPod you can't take time to pick out what you want in a party so there is definitely etiquette for it...and for picking something good fast...and not taking 10 minutes to find that one song from one obscure CD that you forgot the name of, while everyone is standing there thinking 'Come on...what song is it gonna be?'

Although iPod etiquette is often associated with individual forms of usage¹⁷ Pat, a twenty year old art major, also describes how perusing through his friend's playlists involves "a certain style. I mean you could be looking through someone's iPod and see music that you might not like. You don't want to react poorly so you have to kind of cover it up. It's the nice thing to do, since I think everyone has stuff on their iPod that they might be embarrassed by. I know I do" (Pat). Managing reactions, 'saving-face' (Goffman, 1963) and the presence of socially acceptable forms of iPod usage denote how meanings formed among social networks provide individuals with guidelines, roles, and even an established sense of group cohesiveness (Kahney, 2005). Etiquette in this situation serves as grammar for social relations with the iPod.

In contrast to student's thoughts on group iPod usage, some also believed that the iPod somewhat, if not totally, disconnected users from their social surroundings. As Javier pointed out, "It's complicated, but sometimes I'm my 'own little world' just thinking about nothing. You just get so caught up in the music that it takes you away

¹⁷ *Hey you with the iPod...keep it down*. Associated Press. Retrieved August 3, 2007 from <http://www.cnn.com/2007/TECH/ptech/08/01/ipod.pollution.ap/>

from everything.” In addition Cyndy Thompson, a twenty year-old black economics major, said:

I’ve seen people use the iPod when they’re at parties or at home listening to music. It’s usually hooked up to a stereo. Everyone once in a while someone will pick it up, scroll through it, and pick out some songs to play for everyone...but you still make your own playlist. Even when you’re walking around campus and not in a group situation many people don’t interact when they are using the iPod. I’ve tried to say ‘hi’ to some of my friends when they are using the iPod and they didn’t even know I was there until they could actually see me. I think people are more separated using it than not.

While Cyndy felt that many iPod users experience intentional forms of isolation while listening to music, this should not suggest that the iPod usage is associated with one particular form of usage or outcome. As students revealed, the ability to use the iPod to provide entertainment at parties and for “long car trips across the country” (Hyon) enables individuals to remain socially connected with a device that remains predominantly affiliated with personal usage and experiences. However, students’ ability to detach or actively isolate themselves from their social surroundings should not be thought of as a negative form of usage.

In contrast it is also important to remember as Mark Rosenberg stated earlier, being ‘plugged’ into the iPod remained contingent on how users shape their social surroundings. Findings from this section revealed how the collaborative effort of users to create and share playlists and form ‘iPod etiquette’ enabled social connections with the iPod. Thus, by listening to music at a party, on a trip across the US with friends, or alone users are socially ‘plugged’ into one another in practice.

Conclusion: Beyond Interpretive Flexibility of Users

Given the contingent and open-ended nature of technology, research must continue to take into account both the heterogeneous meanings users attribute to technologies, and the variety of ways they engage with them.¹⁸ Taking meaning and use into account can reveal how technology like the iPod shapes everyday social life. Part of uncovering the nature of that impact is analyzing the interpretations and meanings users give to their interactions with portable media devices. Similar to investigations into the social impact of the cell phone, Internet, and other ICTs (Fischer, 1992; Wakeford, 2003; Wei and Lo, 2006), this examination of the ways iPod users negotiate sociability reveals how meanings formed in practice also shape social and cultural interactions. While literature has noted that the use of personal technologies increases social isolation and decreases social interaction (Chen, 1998; Kim, 2003), analysis of the ways the iPod is used demonstrates that individuals can also experience forms of social connection. In practice users challenge, shape, and reshape the interpretively flexible meanings associated with iPod usage.

Guided by STS, feminist, and sociological theories of user-technology relations, this research extended interpretive flexibility beyond the stabilization of a technology and into practice. By broadening interpretive flexibility beyond the closure process, sociologists and STS scholars can address how the meanings users develop in practice impact larger social, cultural, and political interactions. As a

¹⁸ The awkward use or reference to the word technology in this sentence points to the limitations of our English vocabulary. While various definitions and meanings for the term exist, their attachment to a single word places limitations on the ontological and epistemological ways we speak and conceptualize various concepts associated with technologies. Theorists should work to develop boarder terminology to augment this issue.

socially scripted and interpretively flexible technology, the meanings attached to iPod usage influenced a wide range of social activity ranging from personal usage to the production of cultural norms. This is important because examining the use of a technology opens up possibilities for various epistemological and ontological investigations into the influence of larger social structures in the co-construction of everyday social life.

Qualitative analysis of in-depth interviews reveals how users develop social connection through: (a) File Sharing –the electronic sharing of music, media, and information between iPod users; (b) Ownership –practices of producing and communicating cultural meanings through mutual identification with the iPod; and, (c) Collective Usage – the ability to utilize the iPod in social situations. Additionally, the iPod also allowed students to actively isolate themselves. This is important because it demonstrates how meanings formed in usage are contingent upon social proximity and social context. Users can continuously alter the outcomes and meanings associated with the iPod depending on their decision to ‘be with’ or ‘be around’ people, making usage an ever-shifting myriad of material-semiotic practices.

As Michael Bull (2005b) notes, iPod usage allows users to construct meanings from mundane everyday interactions. Contrary to arguments that the use of personal technologies like the iPod result in only private, isolating experiences (Henderson, Taylor, and Thomson, 2002), use of the iPod and the meanings students attached to it indicate its ability to also create feelings of social connectedness. Findings from this research complicate deterministic arguments associated with the use of technology by showing how: (a) students’ ability to link with other users through *file sharing*

demonstrated that the sharing of music, information, and pictures produces meaningful and personal connections; (b) social connection produced by iPod ownership denotes how *ownership* binds students together giving them a sense of belonging and group identity and; (c) the iPod's mobility allows users to utilize its mostly private features to share music and media with others in social situations through *collective usage*.

Taken together, findings indicate that iPod users are able to remain socially connected through the use of personal technologies. However, this should not suggest that isolation does not result from usage. As documented throughout the findings of this study, iPod users also experienced intentional or unintentional forms of isolation while listening to music or watching video. In contrast to more deterministic arguments, this demonstrates that neither social isolation nor inclusion is the sole result of experiences with the iPod, but that in practice users shape and reshape, construct and deconstruct, counter and reinforce the meanings given to personal technologies.

Understanding the ways personal technologies are used and the impact usage has on everyday interactions remains an important task for sociologists. While my own experience with the iPod provided me a basic framework to understand its functions, the meanings users gave to their experiences violated many of the assumptions I held about iPod usage, including how usage impacts an individual's identity in groups situations and the role of iPod etiquette. Findings also raise numerous questions about how user-technology interactions co-construct social life in practice. For instance, how does technology shape our understanding of community?

How might theories of practice allow us to conceptualize the ways technologies produce subjectivities through various social processes? How do various social networks influence the practices associated with information and communication technologies? Overall these questions and numerous others must continually be raised to assess the multiple and complex meanings that are produced through our everyday use of technologies.

Appendix

Table 1: Social-Demographic Characteristics of Participants

<i>Student</i>	<i>Age</i>	<i>Sex</i>	<i>Race/Ethnicity</i>	<i>Major</i>
Sandy Wilson	24	Female	Caucasian	Health Sciences
Mark Rosenberg	20	Male	Caucasian	Computer Science
Sean Sharara	22	Male	Arab	Political Science
Deepa Sankar	26	Female	Indian	Graduate Student
Ahmed Negin	30	Male	Turkish	Graduate Student
Tyrese Williams	21	Male	Black	Psychology
Sara Collins	20	Female	Caucasian	English
Javier Peña	19	Male	Latino	Criminology
Cyndy Thompson	20	Female	Black	Economics
Hyon Kim	19	Female	Korean	Sociology
Michelle Baxer	20	Female	Jewish	Sociology
Josh Simmons	20	Male	Caucasian	Engineering
Susan Chan	19	Female	Asian	Undeclared
Jennifer Sampson	21	Female	Caucasian	English
Pat Davis	20	Male	Caucasian	Art

Interview Guide Open Ended Questions

Basic iPod Questions

- What kind of iPod do you have?
- Can you describe to me how it works? or Could you should me how you use it?
- Why do you own an iPod?
 - How did you get it?
- Do you use any attachments or have any accessories for your iPod? (i.e. radio attachments, speaker, cases)
 - Can you describe them to me?
 - Why do you own this?

iPod Usage

- Describe to me scene in which you were using you iPod.
 - Probe:
 - What was going on? Where were you?
 - What were you doing?
 - Were you with others? Who?
 - Where do you keep it when you use it?
- How do you feel when you are using your iPod?
- Can you describe a typical iPod use when you are with or around others?
 - Do you use it differently when you are around family? friends? In class?
 - How do you use it? Why?
- Do you use the iPod to block the world out?
 - Could you describe to me a time you did this and why?
- When might you not use your iPod? Why?
- What would you say is important about the iPod?
 - What does the iPod mean to you?
 - If you had to come up with one word to describe how the iPod is apart of your life, what would it be and why?
- Have you used the iPod in any other ways besides listening to music? Tell me more about this.
 - With friends? Family? In social situations?
 - Does it change the interaction? How?
- Can you tell me a time when you might have been embarrassed using your iPod?
- Have ever forgotten to take your iPod with you?
 - How did this make you feel?
- How might your life be different if you didn't have an iPod?
 - How would this make you feel?
- Do you share music with friends using your iPod?
- Can you describe to me how you do this?

- How often do you do this?
- How do you do this
- Why/Where/When do you do this?
- What does it mean to you that you can share music with your friends?
- Have your friends ever seen your playlist?
- What did they think or tell you about it?
- What do you think this says about you?
- Can you tell me how you might feel if your friends owned iPods, and you didn't?
- How might you feel? Why?
- Why do you think most people have iPods? Can you tell me more?
- When do you feel connected to people when you are using the iPod? How? Why?
 - When do you not feel this way? Why?
- Do you think the iPod can draw people together or apart?
 - How?
 - In what context?
- Is there anything about your iPod that is part of your life that we have not discussed?
- Do you have any questions for me that I could answer?

Demographic Questions

- How old were you on your last birthday?
- How much schooling do you have?
- If you were to describe yourself in terms of your racial/ethnic background what would you say?
- What type of town did you grow up in? Is it urban, suburban, rural?

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