SOCIAL DISTANCE AND LONELINESS AS THEY RELATE TO HEADPHONES
USED WITH PORTABLE AUDIO TECHNOLOGY

by

Robert Morrison Crane

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Abstract

Humans have employed music to entertain themselves for a long period of time. The phonograph, radio and audio players (tape and disk) have contributed to the desire in people to make music machines portable enough to be taken everywhere. Once headphones were introduced, individuals could take music machines anywhere and not disturb others. However, in the process of employing a means of not bothering others, it can be assumed that psychological separation from others may have occurred as well. Portable radios begat portable cassettes, portable cassette players begat CD players and CD players are now considered by some to be outdated with the advent of MP3 players (such as iPods and other data players). In this thesis, all of these devices used with headphones (or earbuds) are referred to as portable audio technology (PAT).

It has been suggested that the use of headphones may impede interactions with and feelings of being connected to others. The basic theory employed in this study was Attachment Theory. There are two important contradictory aspects to this theory: (1) proximity seeking, closeness or feeling connected to a significant other while at the same time (2) using this connection as a safe haven to separate or become autonomous. Several attachment theorists believe headphone use tends to alienate those around the user who are often put off from making conversation. In addition, several researchers have theorized that a “portable audio device” may serve as a “transitional object” (TO) as one moves from close relationships. In separation transitional objects may serve to replace the person the child has formed an attachment to when they are not available. As such, the

TO serves to eliminate any fear, anxiety or discomfort the person might experience. PAT use, then, may be a source of comfort to individuals when separated from those they love. PAT devices may serve an additional function as well. They may separate individuals from others in life situations. The result of this separation from others may be feelings of isolation (i.e. social distance and/or loneliness).

This thesis examined the relationship between PAT use and social distance and loneliness. The participants were 58 college students, consisting of 30 males and 28 females between the ages of 18 and 29, who were queried as to their hours of use per day as well as their days of use per week. Social loneliness was found to be significantly higher in the high users of PAT in comparison to low users. When gender differences were examined with social loneliness in terms of high and low users a significant difference was found for female participants but no significant difference was found for males. Emotional loneliness did not reveal a significant difference between high/low users and age of the participants. Again, gender of the participants indicated a trend toward emotional loneliness but was not significant. There was no significant difference found between high and low male users; however, high female users reported significantly more emotional loneliness than did low users. Furthermore, no significant differences between high and low users of PAT and social distance were found. Additionally, age of the participants (younger and older) revealed no significant differences in social distance. Finally, no gender differences were found in social distance.

The major finding of this study was high PAT users report more social loneliness than low PAT users. This may be important information for parents, educators and counselors/therapists. An awareness of PAT use may aid in assessment and treatment for clients reporting loneliness or depression. It was concluded that further empirical evidence and observation is needed in order to better understand the impact of portable audio technology with headphones on individuals and society.

Dedication

This thesis is dedicated to the memory of John M. Thompson (August 1922—November 2005), a fine man who, along with his wife Dickie, knew in his heart that I could finish this program. I will be eternally grateful for his faith, encouragement and financial support in helping me complete my education.

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Introduction

Technology is becoming an important part of a modern daily lifestyle (Moebius and Michel-Annen, 1994; Kracauer, 1995; Tenner, 1996; Dertouzos, 1997 & Rosen, 2004,) and, as such, it may have introduced a negative byproduct (i.e. more social distance or a lack of close face-to-face connections to others). As young adults spend more time engaged in using computers, playing video games, watching television and DVDs, they are spending less time interacting with parents, siblings and friends (Bandura, 2002). Even if these activities are performed in the presence of others, the focus of the individual appears to be the digital screen. The quality of social, face-to-face interaction is impaired (Kraut, Patterson, Lundmark, Kiesler, Mukopadyay, and Scherlis, 1998). It has been suggested that this lack of face-to-face contact may result, not only in a sense of social distance in relationships, but also in loneliness—especially in young adults (Bandura, 2002, Venkatesh & Vitalari, 1987, Watt and White, 1999).

MP3 players are smaller than a transistor radio and can hold thousands of tunes. Digital organizers have satellite e-mail capabilities and computer access. DVD players can be the size of a small notebook and can be taken anywhere, including motor vehicles, so that children can be entertained during long trips. Notebook computers, small yet detailed handheld games, noise-canceling headphones, televisions the size of wristwatches that receive satellite reception, books on CD or personal audio devices, VCRs at throw-away prices, pagers, digital players that can be listened to underwater, computer games, and the internet (e-mail, chat rooms and dating): all these and more have the potential to keep us entertained and/or distracted from reality as we progress

through our day. Regardless of the form of technology, it has been reported that these portable audio technology (PAT) devices may result in separation from interactions with people while contributing to a connection toward inanimate (yet entertaining) objects (Moebius and Michel-Annen, 1994).

In cities and factories, on campuses and public transportation, individuals are using portable audio technological devices with headphones to listen to all sorts of music, talk, and, with the introduction of silencing technology, silence. With this advent of headphone use, even greater psychological separation from others may be occurring (Moebius and Michel-Annen, 1994).

It is exceedingly rare for someone not to have a cell phone on hand—and, often, the cell phone includes an MP3 player, camera or personal digital assistant (or all three). There no longer may be a need to rely on the kindness of strangers for help when emergency services are only a 911 cell phone call away. This self-reliance may be a good thing but may also have social consequences that impact how we relate to each other and how we feel about ourselves in relation to others.

With iPods/MP3 players becoming popular, and the wearing of headphones seeming more commonplace, our social norms and availability to interact are compromised (Rosen, 2004). It is assumed from headphone use that the wearer does not want to interact with others around them (Moebius and Michel-Annen, 1994, Rosen, 2004). The presence of technology in our everyday lives is acclimating society to total entertainment all the time (Rosen, 2004). As Rosen states: “Because the iPod is a portable technology, just as the cell phone, it has an impact on social space that TiVo does not.

Those people with white wires dangling from their ears might be enjoying their unique life soundtrack, but they are also practicing ‘absent presence’ in public spaces, paying little or no attention to the world immediately around them” (p. 63).

Bowlby (1969) found that a primary attachment or connection to a significant other was necessary to make us human in a social and emotional sense. This connection generalizes to others in terms of affiliation over time. Mahler (1949) suggests that once an attachment is made, however, the separation and individuation process toward autonomy begins. Scheff (2004) integrates both attachment and separation through attunement. According to Scheff, a balance between self (autonomy) and other (attachment to) needs to be achieved. He feels the cultural bias in the United States of America, toward the self-sufficient individual, isolates us rather than supports a secure bond with others.

In this study, the focus was on whether reported use of headphones with PAT devices can result in separation from others as well as social and emotional loneliness. This is not to say that other forms of technology may not be associated with these behaviors (Kraut, Patterson, Lundmark, et al, 1998, Rosen, 2004); however, in order to better understand and interpret the results from this project, only one form of technology, personal audio devices used with headphones, was examined.

It is hoped that research on this topic will benefit our understanding of what Moebius and Michel-Annen (1994) were discussing over a decade ago. Loneliness, particularly among young college students, has been a long-time problem for counselors and therapists. Research that adds some understanding of what contributes to this

problem is not only relevant but important. PAT may distance people both socially and emotionally from others—resulting in loneliness of both types (Moebius and Michel-Annen, 1994) as well as feelings of not being connected to others (Bandura 2002; Lerner, 1986; Scheff, 2004).

Review of Literature

Humans have used music for a long period of time. The phonograph, radio and audio player (tape and CD) have contributed to the desire in individuals to make music machines portable enough to be taken everywhere. Once headphones were introduced, individuals could take portable music machines almost anywhere and not disturb others. Portable radios begat portable cassettes, portable cassette players begat CD players and CD players are now considered by some to be outdated with the advent of digital data players (such as iPods and MP3 players). Portable audio devices that are used with headphones are referred to, in this thesis, as portable audio technology (PAT).

Technological Separation

Some people use PAT to keep boundaries between themselves and others in order to maintain control of their environment (Moebius and Michel-Annen, 1994, Rosen, 2004). Separation and silence may not be the only byproduct of PAT: psychological separation from people may also be a result. Moebius and Michel-Annen (1994) used attachment theory to suggest that the use of headphones impedes interaction with others within the area of the user. They further found that headphone use alienates those around the user who are often put off from making conversation.

This “audio device” may serve as a transitional object from close relationships and, as such, separate people from others in life situations (Moebius and Michel-Annen). Audio control over the environment experienced by the individual, coupled with the tactile feel or weight of the audio device, fits our understanding of transitional objects.

An individual, through habit, may experience a psychological desire or need for the device.

Perhaps, as the world gets more populated, we desire more solitude; yet, common sense might say that this lack of connection to neighbors, schools and other community based social events must have an impact on relationships. Another explanation could be that a lack of connection occurs as an extension of this societies' tendency to isolate. The questions remain: do these technological wonders, which connect us easily to the world, add to our perceptions of the social distance we feel to those closest to us and does this separation in social distance increase a person's sense of social or emotional loneliness? Portable audio technology with headphones (PAT) and this potential separation from connection or relationship with others is what this thesis will study.

Contact with others has been shown to be essential to development (Bandura, 1999; Bowlby, 1969; Lerner, 1986; Scheff, 2004) in terms of learning how to become human and, as such, develop socially acceptable mental health. We learn our sense of societal rules, moral codes and empathy toward others through social cognition (Bandura, 1999). Social cognition theory suggests that when we interact with other humans we learn the norms of behavior for the dominant culture, we practice communication skills, learn diplomacy and (hopefully) learn socialization leading to patience and empathy toward others around us. Perhaps the popularity of headphone technology in everyday life is impacting the way humans are interacting. The question is how is this technology impacting our thought processes and behavior?

Hall (1966) explored personal space and isolation as it pertains to cultures. He noticed that the space between different animal species and human cultural groups could be (and often are) markedly different. He observed four distance zones—each with a close and far phase: intimate distance, personal distance, social distance and public distance. He defined social distance as anywhere between four and twelve feet. In the far phase of social distance he posits that individuals can “insulate or screen people from each other” (Hall 1966, p. 123). Tulku’s (1977) work in compassion suggests that humans often “...set up a wall to protect ourselves from involvement and conflict, so that we seldom touch, trust, or truly share with each other” (p. 38). It seems credible that people might use audio devices, either with purpose or by accident, as a way of separating themselves from others.

Moebius and Michel-Annen (1994) were the first to posit that Walkmans (portable cassette tape players/radios) might be seen as transitional objects. They interviewed thirty-six individuals on their use of Walkmans and the reasons behind said use. Interviewees said that they used the sounds to distract from everyday life. Others used it to add to the experience of life (i.e. soundtrack). Still others used walkmans to counteract depression. The researchers hypothesized that another motive for PAT use might be as a comfort blanket to carry with them as a companion in facing the business of life. Winnicott stated this type of object usage can mitigate feelings of separation from the primary care giver in childhood (Abram, 1997). The transitional object, then, forms a connection between the child and the more mature ways of life the individual leads. The “comfort blanket of the infant and the...Walkman...serve as a distraction from the

demands of everyday tasks” and everyday relationships (Moebius and Michel-Annen, 1994, p. 576). The importance here is not transitional objects but the use of PAT devices to separate from others.

Bandura (2002) states that technology changes how we relate as humans to each other, how we communicate, how we socialize and educate. Social cognitive theory gives a foundation to study how technology impacts daily life in terms of connectedness by attempting to explain why it is important for humans to form relationships. When we isolate from each other, our attachment behavior begins to change. The relationship becomes empty because we do not perceive that we need or that it is necessary for reinforcement. This is contrary to normative behavior. Reciprocal determinism maintains that the environment (people in the environment) and our perception of their response to our behavior sustains our social behavior (Bandura). In our relationships, then, we can become intolerant or unaware of differences in others (Bandura).

In support of Bandura, Krackhardt and Kilduff (1999) hypothesized that individuals often perceive close relationships as more balanced than distant relationships. Perceptions of the relationship network might impact the effectiveness of interactions between individuals (Krackhardt and Kilduff). In part, they sought to collect data to test the hypothesis by surveying friendship networks in a corporate setting. The participants were asked their perceptions of closeness to every other person in the corporate network. The responses were plotted on a matrix and measured by the percentage of agreement between the other individuals’ perceptions within the network. Their research found that

close and distant relationships were perceived as balanced in terms of perceived friendship network and reciprocity of that friendship. This was an unexpected result.

One of Krackhardt and Kilduff's conclusions was the possibility that relationships, in order to work, require the perception of a balance in both closeness and autonomy: close relationships are balanced for emotional harmony while distant relationships are perceived as balanced for social cohesiveness. They noted that the relationships between close and distant were the ones more likely to be out of perceived balance while at the same time out of the control of the individual to affect change toward balance.

Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, & Scherlis (1998) studied the internet and how it connects individuals and groups quickly and efficiently but reduces social interaction and a sense of well-being. They used data analysis to determine changes pre- and post-internet connection within 93 families (231 individuals) in terms of social involvement and psychological well-being. They found that greater internet usage was positively correlated to smaller social opportunities and increases in loneliness and depression.

Perceived social distance can be viewed as the person's psychological evaluation of the distance they see between themselves and others. Perceived social distance may serve to maintain boundaries in social networks (such as families, work environments and public social interactions) to foster strong, positive relationships. Perceived unbalanced relationships provide opportunity for connections to be made and improved upon (Krackhardt and Kilduff, 1999). This study is interested in perceived social distance in

hopes of understanding how headphone use with audio technology, which seems to limit connection between individuals, may affect one's sense of social distance. It may be important for people to limit the number of community relationships in order to maintain order or clarity in daily life. The benefit of studying perceived social distance is what it contributes to our understanding of how we interact with each other.

The theory of attachment, however, suggests that, in order to successfully develop into functioning inter-relating individuals, we need to establish a connection with a primary caregiver. When an infant is not able to establish an attachment with a caregiver, she/he will become detached and, in extreme cases, can die. Bowlby theorized that our behavior correlates to our development of mental representations of what it is to be human (Coates, 2004).

With attachment, separation from the primary object is an important step to become a fully functioning individual. Human beings need to go through a separation and individuation process as they grow into adulthood in order to be autonomous while still relating to others as equals (Scheff, 2004; Lerner, 1986; & Erskine 1998). Mahler (1949) and Winnicott (Abram, 1997) discuss the need for separation and how children often use transitional objects (such as a blanket or teddy bear) as bridges into adulthood and individuation. Mahler (Blum, 2004) described the paradox of separation by stating that attachment is a necessary condition as a basis for change. People can, as adults, circumvent that individuation process by clinging to transitional objects instead of transitioning to another person (Mahler, 1949).

Scheff (2004) discusses attunement as “a balance between self and other: one identifies and shares awareness with the other(s) as much as with self, no less and no more” (p. 12). When one is overly fixated on self, the bond with others is insecure and one is isolated. He goes on to say “The Western, and especially the Anglophone, emphasis on the self-sufficient individual is a cultural bias toward isolated, rather than secure bonds. If one places more emphasis on the other(s), the bond is also not secure” (Scheff, 2004, p. 12). Lerner (1986) described isolation even more forcefully: “...our society creates a set of conditions in which people are always being abandoned, and in which it is extremely difficult to get the nurturance and support that are essential for psychological health...Human beings need each other, and our very essence is to be in relationship with others” (p. 176).

Kracauer (1995) claims headphones create distance: “...instead of fostering cultivated conversation (which certainly can become a bore), one becomes a playground for Eiffel noises that, regardless of their own potentially active boredom, do not even grant one’s modest right to personal boredom. Silent and lifeless, people sit side by side as if their souls were wandering about far away” (p. 333). Headphone users purposefully create a space that is separate from those around them. The communal listening of sound is inhibited in that the headphone user has no reference for experiencing the noise of society around him or her (Bull, 2001). This creates a separate experiential reality from those in the same geographical proximity. This becomes, then, a mood or experience enhancer that the user manipulates to effect disposition or frame of mind. Perhaps

headphone usage is a means of establishing self-sufficiency while blocking any uncomfortable feelings of ‘being alone in a crowd.’

Moebius and Michel-Annen (1994) hypothesize in “Colouring the grey everyday: the psychology of the Walkman” that, like Linus in the Peanuts comic strip, the headphones with audio becomes a “comfort-blanket” (p 573). Winnicott (Abram, 1997) labeled things that children become attached to as compensation for increased separateness from their primary caregiver as transitional objects. They chose this object as a constant companion to comfort themselves when alone and to “form a bridge between the infant and the child’s newer, ‘maturer’ way of living” (Moebius and Michel-Annen, 1994, p. 574). This was borne out in their research interviews with 36 individuals between the ages of 17 and 29. They concluded that the comfort-blanket and the presence of a Walkman and headphones are comparable in that they both serve the user as a companion. The sound coming through the headphones becomes a part of the listener similar to the way the transitional object becomes a part of the child (Moebius and Michel-Annen, 1994).

Technological Loneliness

Loneliness is defined in the American Heritage Dictionary (2000), as being “without companions...solitary.” In psychological terms, we might expand this definition to include the perceived need for connection to another or the feeling of being alone while wanting a connection with someone else. This is a universal experience but varies in intensity among individuals. It has been shown that non-securely attached individuals have a greater feeling of loneliness than securely attached individuals (Wei, Russell &

Zakelik, 2005). Wei, et al. attempted to see if self efficacy and self disclosure “serve as mediators between attachment and feelings of loneliness and subsequent depression” (p.602). Their results indicate that college students with a secure attachment had a high sense of self efficacy and self disclosure and had less feelings of loneliness than those with insecure attachment coupled with low self efficacy and self disclosure.

Loneliness may be an additional result of the use of portable audio technology. Loneliness has been seen as both social and emotional (Wadsworth, 1986). Weiss (1973) explored two types of loneliness: the loneliness of social isolation and emotional isolation. As one separates oneself from others around him or her, a sense of social or emotional loneliness may be a byproduct. Social loneliness can be described as the feeling of being separated from others while emotional loneliness can be described as the feeling of missing contact with others. Social isolation is a consequent of the lack of an engaging social network. Emotional isolation results from separation from a close emotional attachment figure. These two types of loneliness along with an individual’s sense of social distance, correlated with the high or low use of PAT, may provide evidence of relationships that aid in our understanding of human interconnectedness.

Loneliness, showing an increase in families who use the internet (Kraut, et al, 1998), has been implicated in depression and negative self-concept. Kraut, et al. did a longitudinal study over two years to see what psychological effects (if any) were present in families before, during and after two years online. They found that the internet was primarily used to communicate with others; however, the communication among family members and outside social engagements declined while depression and loneliness

increased. Using the UCLA Loneliness Scale (UCLALS), the researchers found that loneliness increased more among the participants that used the internet more frequently than those that used the internet less.

Shapiro (1999) criticizes the research done by Kraut, et al. in that they used a correlational design that could not indicate causation. Because there was not a control group to measure psychological well being without free computers or internet access, she maintains that increase in social distance might have occurred as teenagers left home for college. Also, part of the sample of participants was recruited from active community groups. People involved in societal issues tend to be more socially connected than the average individual overall.

Wadsworth (1986) compiled data to show that emotional loneliness could be measured on a scale similar to the UCLALS which purports to measure social loneliness. His data suggest that his experimental scale measures the experience (or emotions) of being lonely. The experimental scale correlated significantly with the UCLALS and was found to be within acceptable parameters to meet the criteria for a new measure. Both measures are important in determining how an individual is coping with feelings of missing others or being separated from others.

Vance (1992) took Wadsworth's work and differentiated gender among college-aged students. She combined the UCLALS and the Wadsworth Scale of Loneliness (WSL) to see if men and women scored significantly different on the two scales. While her results were not supported, she did find evidence to support her hypothesis that females would score significantly more lonely as measured by the WSL. This may be a

result of the way the WSL was created. The researchers inserted the word lonely in 11 of the 18 questions. Women might be socialized to admit feelings whereas men have more difficulty admitting to being lonely (Borys and Perlman, 1985). She found that it could not be concluded which gender (male or female) is lonelier; however, her data suggests that men tend to feel more socially lonely while women tend to feel emotionally lonely.

It may be that human beings need people around them for support and balance in relationships. Some people do not need a lot of people around them while others can seem to have an insatiable need for connectedness. The communal nurturance of family and friends has been shown to be a necessary condition for physical and mental health in development (Lerner, 1986; Maslow, 1968 & Scheff, 2004). Loneliness can be seen as an indicator of a person's need for more interaction with others.

Data has supported the theory that the use of PAT serves to separate individuals (Moebius and Michel-Annon, 1994). Increases in social distance through separation from others may result in loneliness for the user. This study examines high and low users of PAT to see if, in fact, higher users report greater social distance and more loneliness.

Hypotheses

- 1) Those participants reporting high use of portable audio technology (PAT) will score significantly higher (.05 level) in social distance over those participants reporting low use of PAT as measured by the Portable Audio Technology Survey (PATS) and the Social Distance Scale (SDS).
- 2) Those participants reporting high use of portable audio technology (PAT) will score significantly higher (.05 level) in social loneliness over those

participants reporting low use of PAT as measured by the Portable Audio Technology Survey (PATs) and the UCLA Loneliness Scale (UCLALS).

- 3) Those participants reporting high use of portable audio technology (PAT) will score significantly higher (.05 level) in emotional loneliness over those participants reporting low use of PAT as measured by the Portable Audio Technology Survey (PATs) and the Wadsworth Scale of Loneliness (WSL).

Methods

Participants

The participants in this study were 58 college students. There were 30 males and 28 females and all of the participants were between the ages of 18 and 29. Only two demographic variables were obtained from the participants: gender and age.

This project was approved by the Committee for the Protection of Human Subjects in Research on May 23, 2005, approval number 04-101.

Operational Definitions

Portable Audio Technology: Portable audio technology (PAT) is defined, for the purposes of this research, as the use of hand held audio machines that employ the use of headphones or wired/wireless earbuds for the intention of listening to music, radio, silence, or other sounds. For the purposes of this study, high use of portable audio technology is defined as a score above the median on the Portable Audio Technology Survey (PATs). Low use was defined as use of two hours or less per day and less than 4 days per week while high use was defined as use greater than two hours per day and four or more days per week.

Social Distance: Social distance has been defined as the contiguity of distance (degree of personal space) that is perceived between an individual and those around him/her. The closer one feels to another is described on the Social Distance Scale (SDS) which is a measure of how close the participant reports he/she is to another represented in a row of circles conveying the reporters sense of personal distance. A high score on the SDS reflects a high degree of social distance.

Loneliness: Sullivan (1953) used the terms “human intimacy” and “interpersonal intimacy” to describe the needs people have to connect with others. Loneliness is defined in this study as a feeling of emptiness (i.e., emotional loneliness) or separation in reaction to missing an individual or social kinship (i.e., social loneliness). Social loneliness is defined as a feeling of being separated from others. Emotional loneliness is the feeling that one is missing the intimacy of human contact. This study focuses on both social and emotional loneliness as it pertains to interpersonal intimacy and social isolation. A high score on the UCLALS indicates a high degree of social loneliness (isolation). A high score on the WSL indicates a high degree of emotional loneliness (isolation).

Measures

Four measures were employed in this study: The Portable Audio Technology Survey (PATs), The Social Distance Scale (SDS), The UCLA Loneliness Scale (UCLALS), and The Wadsworth Scale of Loneliness (WSL).

The Portable Audio Technology Survey

This study employed a Portable Audio Technology Survey (PATs) developed by this researcher (Crane, 2005). The PATs asks the participants to report the number of hours per day and days per week they engage in use of headphones with portable audio technology, such as Walkmans, CD players, MP3 players and iPods. It contains questions as to when, where, and how the PAT devices are used by the participants in their everyday lives. The following are the hours per day and days per week questions:

1. How many hours per day do you estimate you use headphones with a portable audio player? Please make an X at the point of the scale that best estimates your hourly use per day:

2. How many days per week do you use portable audio technology with headphones? Circle one:

1 2 3 4 5 6 7

The hourly and weekly questions were used to determine high and low users of audio technology while the remaining questions sought to quantify the primary reasons why individuals use audio technology with headphones (See Appendix A).

The Social Distance Scale

The Social Distance Subtest of the Self-Subject Symbols Test, created by Long, et al. (1965) and modified by Elmore (2000) into the Social Distance Scale (SDS), was employed in this study. The scale is made up of six circles. The first circle represents self. The participant is asked to rate the closeness of different people in relation to the self circle on the five circles to the right. The closer the relationship, the closer the participant marks one of the other circles and the lower the score. The scale measures the perceived psychological/emotional closeness or distance individuals feel between themselves and those around them. Close relationships (parents, siblings, close friends), peripheral relationships (mentor, teacher, acquaintances) and non-personal or neutral relationships (U.S. President, favourite actor/actress) were surveyed to assess the perceived social distance one feels in daily interactions. An additional three questions were added in order

to seek information on the participants' perceptions of social distance while using public transportation, while waiting in line and while walking on campus. Social distance to father was included twice in order to give a reliability check. Item analysis for reliability using these participants was completed in order to add to the reliability regarding this measure. The alpha reliability coefficient for these participants was .71 (See Appendix B).

The UCLA Loneliness Scale

The UCLA Loneliness Scale (UCLALS) measures social isolation. Item analysis for reliability using these participants was completed in order to add to the reliability regarding this measure. The alpha reliability coefficient for these participants was .85. This scale consists of twenty statements with a four item rating format ("never," "rarely," "sometimes," "always"). Half of the items are reversed scored to provide a reliability check. This measure has an internal consistency coefficient of .94 (Russell, 1982). Test/retest reliabilities have consistently rated a correlation of .73 (Jones and Moore, 1987, Robinson, Shaver and Wrightsman, 1991) (See Appendix C).

The Wadsworth Scale of Loneliness

The Wadsworth Scale of Loneliness (WSL) is similar to the UCLALS; however, it was constructed to measure emotional isolation. This scale consists of eighteen items with eight of the statements reverse scored as a reliability check. The reliability coefficient for the WSL was calculated to be .82 and was found to be very significantly correlated with the UCLA Loneliness Scale ($p < .001$). Item analysis for reliability using

these participants was completed in order to add to the reliability regarding this measure.

The alpha reliability coefficient for these participants was .62 (See Appendix D).

Procedures

The participants were recruited from classes at Humboldt State University and College of the Redwoods, as well as in student gathering places (i.e., cafeteria, quad, lounges, and computer rooms) on both campuses. All of the participants were over the age of 18. The participants were given a packet of material consisting of a consent form (Appendix E), the PATS, the SDS, the UCLALS, and the WSL. They were informed of their rights regarding consent (i.e. that they can stop the study at any time). They were told to not put their names on any of the surveys in order for the information to be kept confidential. They were instructed to fill each page out as thoroughly as possible.

The participants were informed that the completed survey and scales were to be kept in a locked drawer in Dr. Elmore's Humboldt State University office and were to be destroyed when the thesis was completed. The participants were informed that turning in the completed questionnaire packet would be seen as informed consent. The participants were thanked for their participation; however, no remuneration was offered them.

Results

High users of Portable Audio Technology with headphones (PAT) were defined as those participants who indicated PAT use of more than two hours per day and four or more days per week. Low users of PAT were defined as those participants who indicated two or less hours of use per day and less than four days per week at the analysis level as defined by the median split for both days and hours combined. This study also explored the demographic variables age and gender. Age was separated into two groups (younger: 18-21 and older: 22-29) and gender was separated into male and female.

It was hypothesized that high users of PAT would score significantly higher ($p < .05$) on the Social Distance Scale (SDS) than low users of PAT. Scores on the SDS measure perceived social distance in an individual's relationships. Means and standard deviations were calculated for both groups. The mean for low users ($n=34$) was 37.91 with a standard deviation of .355. High users ($n=24$) had a mean of 38.88 with a standard deviation of 6.589. The t -test revealed that there were no significant differences between the groups, $t(56) = -.56$, $p = .578$ or ns (See Table 1 for results with means, standard deviations and significance levels).

Age was determined to not be a factor in how the surveys were scored by the participants. Younger users ($n=28$) were not found to be significantly different than older users ($n=30$), $t(56) = -.558$, $p = .579$ or ns , when looking at social distance.

Gender was also considered but not found to be a significant variable when combined with PAT usage and social distance. For females ($n=28$) the mean was 37.82

Table 1

Results of t-tests for High and Low Users of PAT and Social Distance, Social Loneliness, and Emotional Loneliness

	Mean	<i>N</i>	<i>SD</i>	<i>t</i>	<i>df</i>	Sig. (2-tailed)
<u>Social Distance</u>						
High Users	38.88	24	6.589	-.560	56	.578
Low Users	37.91	34	6.355	-.560	56	.578
<u>Social Loneliness</u>						
High Users	55.75	24	3.234	-2.268	56	.027*
Low Users	53.53	34	3.948	-2.268	56	.027*
<u>Emotional Loneliness</u>						
High Users	46.21	24	7.501	-.702	56	.486
Low Users	44.91	34	6.506	-.702	56	.486

*Significant at the .05 level

with a standard deviation of 7.097. For males ($n=30$) the mean was 38.77 with a standard deviation of 5.788. The results for these were $t(56) = -.558, p = .579$ or *ns*. Additionally, female high users ($n=8$) had a mean of 38.00 and a standard deviation of 7.051 while female low users ($n=20$) had a mean of 37.75 with a standard deviation of 7.297. Male high users ($n=16$) had a mean of 39.31 and a standard deviation of 6.539 while male low users ($n=14$) had a mean of 38.14 with a standard deviation of 49.59. These high and low user groups were checked for significance but found lacking: female, $t(26) = -.083, p = .935$ or *ns* and male, $t(28) = -.546, p = .590$ or *ns* (See Table 2 for results with means, standard deviations and significance levels).

It was also hypothesized that high users of PAT would score significantly higher on social loneliness than would low users of PAT. Means and standard deviations were calculated for both groups: low users ($n=34$) were found to have a mean of 53.53 with a standard deviation of 3.948 while high users ($n=24$) were found to have a mean of 55.75 and a standard deviation of 3.234. The *t*-test revealed that there was a significant difference at the .05 level between the groups, $t(56) = -2.268, p = .027$. High users of PAT scored significantly higher on the UCLALS scale than low users of PAT (See Table 1 for results with means, standard deviations and significance levels).

Age of the participants was not found to be significant in the UCLALS. Younger participants ($n=28$) had a mean of 54.29 and a standard deviation of 3.809. Older participants ($n=30$) had a mean of 54.60 and a standard deviation of 3.856. Both groups scored similarly on the UCLALS, $t(56) = -.312, p = .756$.

Table 2

Means and Standard Deviations for High and Low Users of PAT and Gender, and Social Distance, Social Loneliness, and Emotional Loneliness

	Mean	<i>N</i>	<i>SD</i>	<i>t</i>	<i>df</i>	Sig. (2-tailed)
<u>Social Distance</u>						
Male High Users	39.31	16	6.539	-.546	28	.590
Male Low Users	38.14	14	4.959	-.546	28	.590
Female High Users	38.00	8	7.051	-.083	26	.935
Female Low Users	37.75	20	7.297	-.083	26	.935
<u>Social Loneliness</u>						
Male High Users	55.06	16	3.605	-1.015	28	.319
Male Low Users	53.86	14	2.770	-1.015	28	.319
Female High Users	57.13	8	1.808	-2.235	26	.034*
Female Low Users	53.30	20	4.658	-2.235	26	.034*
<u>Emotional Loneliness</u>						
Male High Users	43.81	16	7.539	.217	28	.830
Male Low Users	44.36	14	5.969	.217	28	.830
Female High Users	51.00	8	4.870	-2.102	26	.045*
Female Low Users	45.30	20	6.982	-2.102	26	.045*

*Significant at the .05 level

The results using gender as a dependent variable were not significant for social loneliness. Females ($n=28$) had a mean of 54.39 with a standard deviation of 4.383. Males ($n=30$) had a mean of 54.50 with a standard deviation of 3.246. The results for this grouping were $t(56) = -.106$, $p = .916$ or *ns*. Male high users ($n=16$) had a mean of 55.06 and a standard deviation of 3.605. Male low users ($n=14$) had a mean of 53.86 and a standard deviation of 2.770. There was found to be no significance between the two male groups: $t(28) = -1.015$, $p = .319$. Female high users ($n=8$) had a mean of 57.13 and a standard deviation of 1.808. Female low users ($n=20$) had a mean of 53.30 and a standard deviation of 4.658. The result of comparing female high and low users revealed a significant difference in social loneliness, $t(26) = -2.235$, $p = .034$. Female high users of PAT reported more social loneliness than female low users of PAT.

It was expected that high users of PAT would score significantly higher in emotional loneliness than would low users of PAT. Means and standard deviations were calculated for both groups. Low users ($n=34$) had a mean of 44.91 and a standard deviation of 6.506. High users ($n=24$) had a mean of 46.21 and a standard deviation of 7.501. The *t*-test revealed that there was not a significant difference between the scores for these two groups, $t(56) = -.702$, $p = .486$ or *ns* (See Table 1 for results with means, standard deviations and significance levels).

Age of the participants was not found to impact the scoring on the WSL. Younger participants ($n=28$) had a mean of 45.25 and a standard deviation of 7.830. Older participants ($n=30$) had a mean of 45.63 and a standard deviation of 6.037. These groups scored similarly, $t(56) = -.210$, $p = .835$ or *ns*.

The results of *t*-tests for gender revealed a trend toward significant differences in emotional loneliness. Females ($n=28$) had a mean of 46.93 with a standard deviation of 6.880. Males ($n=30$) had a mean of 44.07 with a standard deviation of 6.741. These gender groups scored higher in emotional loneliness but not significantly, $t(56)=1.60$, $p=.115$. Male high users ($n=16$) had a mean of 43.81 and a standard deviation of 7.539 while the male low users ($n=14$) produced a mean of 44.36 with a standard deviation of 5.969. The male high/low groups did not reveal significance in their scoring in emotional loneliness, $t(28)=.217$, $p=.830$. Female high users ($n=8$) had a mean of 51.00 with a standard deviation of 4.870 while female low users ($n=20$) had a mean of 45.30 with a standard deviation of 6.982. The *t*-test for female users scored in the significant range on the WSL, $t(26)=2.102$, $p=.045$. Female high users of PAT reported more emotional loneliness than female low users of PAT (See Table 2 for results with means, standard deviations and significance levels).

In summary, one major significant difference was found for these participants and their use of PAT: high users scored significantly higher in social loneliness than did low users of PAT. There were also two significant differences found between female high users and female low users: female high users were significantly high in both social and emotional loneliness than were female low users of PAT.

Discussion

Findings

When we began this research it was assumed that persons who used headphones (PAT) a great deal of time would be significantly more socially distant and more socially and/or emotionally lonely than those who used PAT less. It was interesting to find that, at least for this sample of participants, only social loneliness was significantly reported by high users of PAT.

Moebius and Michel-Annen (1994) hypothesized that headphone use with music players separates the user from interacting with others around them. In this study, participants reported that blocking others from distracting them was the very reason for using PAT. According to our findings, this does not mean that individuals who use headphones more feel further distant from friends and relatives than lower users; however, there does seem to be a relationship between high use and social loneliness. This finding appears to support those researchers that suggest some forms of technology may serve to separate.

This data may also support those researchers who view PAT as transitional objects. It is certainly understandable that social loneliness could be present before the PAT use and we must be open to that possibility. Bull (2001) postulates that the wearer of headphones controls his experience in the world to the negation of the collective experience. The high usage, therefore, could be a protective mechanism or defense against feelings of loneliness while the presence of the audio player and headphones may

serve as a comfort blanket that aids in creating safety among the distractions of a busy world.

Emotional loneliness was not significantly reported except for among female high users as compared to female low users. Females are more likely to accurately report feelings of loneliness (Scheff, 2004; Vance, 1992). The high using females scored significantly higher on both measures of loneliness than low using females while gender comparison showed no significant difference. This discrepancy is puzzling and more research to explore reasons for this is in order. Nevertheless, if we examine the social context present in the world today (i.e. war, job insecurity, family instability, financial stressors, etc.) and the powerlessness many individuals feel in respect to social issues, it seems plausible that those who are in touch with their emotions might feel more isolated from being able to solve community issues (Lerner 1986). These individuals may seek to placate their feelings by controlling the atmosphere of their own environment.

Social distance was not significantly different between high and low users. A significant finding may be in what was not found. Perceived social distance seemed an obvious conclusion from observing users of PAT. According to the Social Distance Survey results, however, there is no difference between low users and high users of PAT. This may be because the participants were college students and as such are relatively healthy, productive and secure members of the community who are not struggling for connection. It could also be that the SDS measures somewhat fixed relationships that are less prone to change without some other trauma involved (Krackhardt and Kilduff, 1999). These students are in a period of development when they are normally working on

separation or individuation (Bowlby, 1969; Scheff, 2004). The questions are: what is the balance of feeling close and isolating oneself and how can one use available resources (such as PAT) to maintain a healthy balance during this time of adjustment? Scheff (2004) might call this becoming attuned. Lerner (1986) states: "...because we have been taught to believe that selfishness is the reality, and all else mere fantasy, we are encouraged to ignore or discount those fleeting moments when we get a temporary glimpse of all that we could really be" (p. 178).

Limitations of this Study

The most serious limitation of this study was in obtaining a representative sample of PAT users. The self-isolation of high users made it impossible to obtain their cooperation as participants. If a person truly desires to isolate themselves with PAT, requesting participation in a study violates their need to be distant and control personal space.

Another significant limitation was in the Portable Audio Technology Survey. It asked for self-report measures of time used by hours of the day and days of the week as well as other when, where and why use questions. It was noted that the general questions (after hours and days used) were too leading and/or complex in nature and not useful to this particular study without significant revision. That portion of the study had to be dropped.

Yet another limitation to this research is the number of participants. While the researchers self-identified users by sight on campus, a lot of potential participants were unwilling to participate in taking the survey. Many stated they were in a hurry while

others stated they were not interested. Some of those who did participate seemed to do so grudgingly and may have reflected their lack of enthusiasm in answering the questionnaire. Our data showed some significance; however, doubling our pool of participants and/or finding a way to gather data from high users who lack social skills might have added more information for analysis.

Personality of the participants might be another factor that the survey did not take into consideration. There seemed to be a lack of social friendliness by some individuals that might have changed the data collected had they participated. It seemed that some of the data we most wanted to collect was lost due to refusals. It can only be inferred (at best) that these refusals were from high users who may not be as socially friendly as those who chose to participate. Furthermore, our data cannot show causation and only shows that there is a common link between social loneliness and high use of portable audio technology with headphones.

In addition to the above limitations, some of the more common limitations found for small studies of this nature may be applicable. First, small sample size made for a tight thesis; however, a larger sample may have captured some of the more reluctant participants. Also, generalization may be a factor. These results are limited to a largely Euro-American, rural, young community. A larger and more diverse urban community may have resulted in a different outcome. Finally, the impact of the data collector on the participants may have been a limitation. A younger examiner, wearing PAT with headphones, may have collected a different sample.

Implications for Future Research

The use of portable audio technology with headphones and loneliness has been somewhat ignored in the literature. Our use of technology to entertain ourselves may have significant impacts on our ability to interact with others around us as well as affect our sense of feeling connected to others. The data in this study bears that out to some degree and further research could illuminate more of a causal finding and/or personality traits that may impact the use of technology.

It is recommended that a larger and more diverse sample be collected in future studies. In addition, a more concise survey as to usage might illuminate the topic further. Controlling for personality might be mitigated by a more stable or captive sampling rather than surveying the participants in public places. Additionally, a voluntary sampling of participants might have controlled for those participants who didn't want to be bothered.

It would be interesting to find out how the people around those who use headphones feel in relation to the wearer of headphones. The impact of technology may not be only felt by those who use it but may significantly change how others relate to those around them. Research should be designed to capture these individuals' perceptions.

What is needed is a more qualitative examination where the behavior of high/low users is observed by several raters. This data could then be quantified. In addition, a clinical or narrative format instead of a pencil and paper answer question scale could be

employed. Using a narrative format might eliminate some of the caution displayed by high users.

Conclusion

The most significant finding in this study was that high users of portable audio technology with headphones (PAT) report more social loneliness than low users of PAT. This result is but a small beginning in terms of psychological research; however, it has repercussions in terms of how society functions and communicates. Whether or not individuals are avoiding feelings of loneliness by wearing headphones or are becoming lonely by using headphones more than others, we now have evidence that there may be a problem that can be explored by noting high PAT use. Nonetheless, no causality or direction can be claimed by these results. This information now requires further empirical evidence and observation in order to better understand the impact of portable audio technology with headphones on individuals and society.

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Appendix A

Portable Audio Technology Use Survey

1. How many hours per day do you estimate you use headphones with a portable audio player? Please make an **X** at the point of the scale that best estimates your hourly use per day:

2. How many days per week do you use portable audio technology with headphones? Circle one:

1 2 3 4 5 6 7

3. Where do you use your portable audio device with headphones? Check any circles that apply and estimate hours of time per day [in increments of 15 minutes] on line provided.

- ☐ _____ On public transport
- ☐ _____ Walking to class
- ☐ _____ While studying
- ☐ _____ While sleeping
- ☐ _____ While riding in the car
- ☐ _____ In class
- ☐ _____ While on the computer
- ☐ _____ While exercising
- ☐ _____ Around the house
- ☐ _____ In the bedroom
- ☐ _____ Other (please list) _____

4. When I am listening to portable audio technology (circle best answer for each):

- People around me seem to disappear

|all the time| |most of the time| |some of the time| |never|

- I am invincible (powerful)

|all the time| |most of the time| |some of the time| |never|

- People around me seem uncomfortable

|all the time| |most of the time| |some of the time| |never|

- I feel like I fade into the surroundings

|all the time| |most of the time| |some of the time| |never|

- I can be comfortable in crowds/ around strangers

|all the time| |most of the time| |some of the time| |never|

- I am invisible

|all the time| |most of the time| |some of the time| |never|

- I am able to think clearly

|all the time| |most of the time| |some of the time| |never|

- Other (please describe) _____

|all the time| |most of the time| |some of the time| |never|

5. How do you feel when you do not have your portable audio player with you?

(circle best answer for each):

- Happy/ Content

|all the time| |most of the time| |sometimes| |never|

- Uncomfortable/ Naked

|all the time| |most of the time| |sometimes| |never|

- Frustrated/ Angry

|all the time| |most of the time| |sometimes| |never|

- Free

|all the time| |most of the time| |sometimes| |never|

- Sad/Depressed

|all the time| |most of the time| |sometimes| |never|

- Tranquil/Quiet

|all the time| |most of the time| |sometimes| |never|

- Nervous/Frightened

|all the time| |most of the time| |sometimes| |never|

- Other (please describe) _____

|all the time| |most of the time| |sometimes| |never|

6. Why do you use headphones with your portable audio player? (circle best answer to indicate use):

- To listen to music

|all the time| |most of the time| |sometimes| |never|

- To be cool/trendy

|all the time| |most of the time| |sometimes| |never|

- To tune out extraneous noise

|all the time| |most of the time| |sometimes| |never|

- To ignore the environment

|all the time| |most of the time| |sometimes| |never|

- To avoid talking to strangers

|all the time| |most of the time| |sometimes| |never|

- To maximize my time

|all the time| |most of the time| |sometimes| |never|

- To relax

|all the time| |most of the time| |sometimes| |never|

- To learn new skills

|all the time| |most of the time| |sometimes| |never|

- To feel comfortable where I am

|all the time| |most of the time| |sometimes| |never|

- To positively affect my mood

|all the time| |most of the time| |sometimes| |never|

- To avoid silence

|all the time| |most of the time| |sometimes| |never|

- To add to my environment

|all the time| |most of the time| |sometimes| |never|

- Other (please list) _____

|all the time| |most of the time| |sometimes| |never|

7. I am able to pay attention to other conversations while listening to portable audio technology:

|all the time| |most of the time| |sometimes| |never|

Appendix B

Social Distance Survey

Instructions: These six circles represent the closeness or distance you may feel between yourself and another. The first circle on the left side of the page represents you. Each question introduces an individual you might share a relationship with. For each question, please place a mark representing the circle you feel best describes the closeness of this relationship. The answers you give will be kept in complete confidence.

1. Mark the circle where you would place your mother in relationship to you.

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2. Mark the circle where you would place your father in relationship to you.

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3. Mark the circle where you would place your best friend in relationship to you.

---	---	---	--	---	---

4. Mark the circle where you would place others in relationship to you while walking on campus.

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5. Mark the circle where you would place your current romantic partner (former romantic if you do not have a current partner) in relationship to you.

☐	☐	☐	☐	☐	☐
You					

6. Mark the circle where you would place your favorite actor/actress in relationship to you.

☐	☐	☐	☐	☐	☐
You					

7. Mark the circle where you would place a others in relationship to you when you are waiting in line.

☐	☐	☐	☐	☐	☐
You					

8. Mark the circle where you would place your siblings (cousins if no siblings) in relationship to you.

☐	☐	☐	☐	☐	☐
You					

9. Mark the circle where you would place others in relationship to you who are near you while using public transportation.

☐	☐	☐	☐	☐	☐
You					

10. Mark the circle where you would place a significant adult in your life (mentor, teacher, etc.) in relationship to you.

11. Mark the circle where you would place your father in relationship to you.

A horizontal row of six identical circles. The first circle on the left contains the word "You" in a black serif font. The other five circles are empty.

12. Mark the circle where you would place the President of the United States of America in relationship to you.

13. Mark the circle where you would place your relationship with your favorite grandparent alive or dead.

A horizontal row of six identical circles. The first circle on the left contains the word "You" in a black serif font. The other five circles are empty.

Appendix C

UCLA Loneliness Scale

	Never	Rarely	Sometimes	Often
1. I feel in tune with the people around me.	1	2	3	4
2. I lack companionship.	1	2	3	4
3. There is no one I can turn to.	1	2	3	4
4. I do not feel alone.	1	2	3	4
5. I feel part of a group of friends.	1	2	3	4
6. I have a lot in common with the people around me.	1	2	3	4
7. I am no longer close to anyone.	1	2	3	4
8. My interests and ideas are not shared by those around me.	1	2	3	4
9. I am an outgoing person.	1	2	3	4
10. There are people I feel close to.	1	2	3	4
11. I feel left out.	1	2	3	4
12. My social relationships are superficial.	1	2	3	4
13. No one really knows me well.	1	2	3	4
14. I feel isolated from others.	1	2	3	4
15. I can find companionship when I want it.	1	2	3	4
16. There are people who really understand me.	1	2	3	4
17. I am unhappy being so withdrawn.	1	2	3	4
18. People are around me but not with me.	1	2	3	4

19. There are people I can talk to.	1	2	3	4
20. There are people I can turn to.	1	2	3	4

Items 1, 4, 5, 6, 9, 10, 15, 16, 19 and 20 are reversed when scoring.

Appendix D

Wadsworth Scale of Loneliness

	Never	Rarely	Sometimes	Often
1) I feel lonely even when I am with other people.	1	2	3	4
2) Being alone is something that I talk about with my friends.	1	2	3	4
3) In the last month I've found myself feeling lonely.	1	2	3	4
4) I am by myself when I feel lonely.	1	2	3	4
5) When I feel lonely I feel removed from others even when I am out with friends.	1	2	3	4
6) When I am feeling lonely, no one can snap me out of it.	1	2	3	4
7) Even though there are people around me who I like and who like me, I can feel lonely.	1	2	3	4
8) Recently I have found myself feeling lonely.	1	2	3	4
9) I feel self-assured when I am alone.	1	2	3	4
10) I think of myself as a lonely person.	1	2	3	4
11) It's hard for me to feel lonely when I am with others.	1	2	3	4
12) Spending time by myself is often more fulfilling than spending time in a group.	1	2	3	4
13) When I am alone I feel lonely.	1	2	3	4
14) I enjoy being by myself.	1	2	3	4

15) Thoughts of my separateness from others bother me when I am in a group.	1	2	3	4
16) I am more confident when I am alone.	1	2	3	4
17) I search for friends who keep me from feeling lonely.	1	2	3	4
18) I look forward to spending time by myself.	1	2	3	4

Items 2, 9, 11, 12, 14, 16, 18 are reversed when scoring.

Appendix E

Consent Form

Thank you for agreeing to participate in this research project on social distance, loneliness and portable audio technology. The questionnaires should take approximately 15 minutes to complete. Your participation will provide you with experience in the research process and will help to increase our collective knowledge about the use of portable audio technology and relationships. The principal investigator is Robert Crane (e-mail: rmc16@humboldt.edu) a graduate student working on his master's thesis. He can also be contacted through Bettye Elmore, PhD., (e-mail: bse1@humboldt.edu), Professor of Psychology at Humboldt State University, at (707) 826-4313.

Your participation in this study is entirely voluntary and you may decline to continue at any time without jeopardy. Please do not answer these questions if you are less than 18 years of age. If you choose to participate please answer the questions as honestly and completely as possible.

All information will remain anonymous. Although the results of this study may be published at some time, at no time will any identifying information be able to be used. By completing and submitting these questionnaires you indicate your consent to participate. If you feel the need to discuss the questionnaires after completing them, please contact the project supervisor Bettye Elmore, Ph.D., Psychology Department, Humboldt State University, Arcata, California, 95521.

Age: _____

Gender (Circle one):

Female

Male