USES AND GRATIFICATIONS OF DIGITAL MEDIA:
THE END OF PHYSICAL FORMATS?

by

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Abstract

Digital audio formats present a method of collecting and enjoying music that was previously unavailable with physical audio formats. Digital audio formats enable easier transmission from one location to another and accessibility on the go, while physical audio formats maintain a higher quality of sound and add to individual experiential memory. The gratifications obtained from digital audio formats are different from those obtained from physical audio formats. This study examines the relationship between audio formats and consumers to explore and identify which audio format, digital or physical, provides the greatest gratification.

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Preface

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Introduction

The first commercial recording of music in 1890 provided the foundation for the commercialization of the modern digital media industry (Kenney, 1999). Eldridge Johnson took Thomas Edison’s original phonograph design and mass produced it first under the name Victor, then later as the Victrola, an advanced model in both mechanics and aesthetics. The phonograph enabled music fans to enjoy their favorite performances away from the concert halls, but soon it became a tool to introduce new music styles to a wider audience. Demand for newer music resulted in the institution of record labels that sought out new talent and generated the basis for the record and radio industry as it is known today.

The development of record labels prompted many radio stations to alter their programming structure to include popular music, a radio format most broadcasters maintain around the world today. Technological advancements spawned a series of distinct music formats for pre-recorded music wax records to vinyl acetate, followed by the eight-track tape, cassettes, compact discs (CDs), mini-discs, and the most recently MPEG-1 audio layer 3(mp3). The digital age of consumerism has opened the doors for multiple access points through which consumers obtained music, allowing music collectors to bypass radio transmissions or record stores and both sample and obtain new music. Radio and record stores now face competition from private entertainment stores, big box locations, internet retail sites, and peer-to-peer(p2p) sites. The proliferation of digital access provides consumers with digital versions of desired physical media, reducing the demand for physical formats.

Of all the digital formats available, the mp3 is the most prevalent. Mp3s are digital audio files that maintain the acoustical integrity of the source audio after compression
Mp3 audio is compressed in either lossless or lossy formats. Lossless retains the quality of the original file in the compressed form, while lossy removes unnecessary data in the compression process (Hacker, 2000). The lossy format is suitable for transmission or digital transference, though it does not retain the higher quality acoustical reproduction of the lossless format. Using either lossy or lossless format, individuals can transfer files from one location to another with ease, generating a use not thought of in the inception of the compression technique. While the lossy format does not provide the high level of digital audio replication quality of lossless formats, the ease with which the digital audio can be shared via either form of mp3 compression has garnered the format widespread popularity (Hacker, 2000). Prior to the mp3, digital audio compression techniques generated either sound quality too degraded for transmission or did not compress the file enough for digital transference from one location to another. As the mp3 has become more popular, p2p services granted consumers access to content faster than traditional services or as a means of obtaining content not available digitally.

A popular p2p distribution program in the late 1990s to early 2000s, Napster allowed anyone in the world to share digital content ranging from music to pictures to feature films. Of the materials shared through the program, mp3 files attracted the most attention due to the ease of transfer and replication. Due to extended litigation over consumer copyright violations and file-sharing activities, Napster adapted its free service to a for-profit business model (Alves & Michael, 2005). Access to digital content remains an ethical and financial issue for consumers and businesses alike, maintaining digital access to information and media content remains a significant method for businesses to distribute their content and extend their revenue stream.
Companies such as Apple act as a gateway to music, movies, portable gaming applications, and books through their iTunes computer software, and cable companies provide video-on-demand (VOD) services, which enable customers to queue instant movies anytime from any room in the house. Digital format inventory of content is easier to obtain and readily available from almost any location. Physical formats, however, remain restricted by traditional limits on access and materials. Digital formats provide instant access to information and entertainment without regard to location or time, an advantage physical formats do not have. As such, the demand for physical media appears to be shrinking as more content undergoes conversion to a digital source (The NPD Group, 2009).

The conversion of physical formats to digital heralds the end of the “collection” as society associates it. Walter Benjamin explained the collection as “the most intimate relationship that one can have to objects” (1968/1955) As the act of collecting loses its meaning, so does the significance of the collection to the collector (Benjamin, 1968/1955). The change in format does not change the substance of the collection for the owner, merely the form of use. The new form provides a different type of gratification to the user because of changes in attributes such as access, format type, and sound quality. The switch from physical to digital formats alters the relationship between the consumer and the content so that the gratifications obtained from the collection are different from one format to another (Alves & Michael, 2005).

The determination of use of any given format, however, falls upon the consumer. The format a consumer selects best suits the need at the time of selection, according to the uses and gratifications theory, which posits consumers use what they need because of choice, not outside influencers (Ruggiero, 2000). Uses and gratifications theory studies examine the
expectations of mass media and other sources of content, gratifications obtained from the content, and understanding the expectations of the use of the content (Katz, Blumler, & Gurevitch, 1973-1974). In the digital age, the consumer determines the choice of media, as well as the format in which he or she consumes their content (Ruggiero, 2000). Content is readily accessible and interaction between consumers for information is easier than before. Now consumers can seek out the information they want, when they want, and how they want; enabling the control of content previously unavailable (Ruggiero, 2000). Now additions to a collection take place at the time and location of the consumers’ choosing, rather than because of outside influences. Yet, although access to digital content like the mp3 is widespread, the impact on the digital collection is still being determined.

Since 2008, digital purchases of music have increased to more than 1 billion songs and 56 million albums, and the numbers are still rising (Recording Industry Association of America, 2009). This has obviously affected music outlets selling CDs and other physical formats of music. In the fourth quarter of 2008, Circuit City closed all 567 locations because of poor sales. In 2009, Borders announced that it was cutting shelf space for music, and several Virgin Megastore locations began shutting down (Knopper, 2009). These recent business trends may be the result of consumers attributing fewer desirable traits to physical formats. The Recording Industry of American (RIAA) reports that although physical formats continue to maintain a larger market share of music purchases, the market share of digital music increased from 9% in 2005 to 32% in 2008 (2009). As such, the existence of physical media such as CDs, digital video discs (DVDs), video games, vinyl, or other hard media formats may soon become obsolete. If the continued progression of digital sales is a sign of
the gratification consumers obtain from digital media, will hard media formats disappear in the wake of digital media demand?

Previous research has focused on what the mp3 is and how the market reacts to its presence. This study seeks to understand why consumers use the mp3 and what gratifications they obtain from it. This study also explores the concept of the collection in the digital age in relation to physical audio formats, which have greater constraints on display, storage, and use.

Understanding consumers’ perspectives of the uses and gratifications they derive from the mp3s may enable other industries not only to better understand the way consumers gather their audio collection, but also the way they use it. This study seeks to provide a new perspective on an established problem that may enable industries with similar digital and physical format issues to react with knowledge of their consumer’s needs.
Literature Review

The following literature review will examine the uses and gratifications theory as it currently applies to consumer gratification and digital technology, specifically the audio format mp3.

An Overview of Uses and Gratifications Theory

Uses and gratifications theory implies that consumers choose media products based upon their greater ability to fulfill a need when compared to another product. Understanding this theory provides researchers an understanding of the decision-making process consumers actively undertake when choosing one product over another.

Katz, Blumler, and Gurevitch (1973-1974) examined research of the 1940s in an effort to acknowledge and build upon the perceived relationship between the consumers and media. Past research deduced an active relationship, but remained satisfied with suggesting correlations rather than demonstrating them. By performing an analysis of past research, Katz, Blumler, and Gurevitch (1973-74) discovered that uses and gratifications theory required an examination of human need. Their analysis explained that uses and gratifications theory implied consumers’ active participation when selecting consumed media, rather than passively following the instruction of media producers, provided a baseline for future work (Katz, Blumler, & Gurevitch, 1973-74).

Tied to the application of uses and gratifications theory and consumer selection of media is the life cycle of the consumer. As the consumer ages, his or her sociological and psychological makeup evolves, engendering different needs and desires. To examine the role the life cycle plays, Dimmick, McCain, and Bolton (1979) utilized data collected from an independent study of media use throughout the nine levels of the consumer’s life cycle to
determine consumer patterns of media usage. Dimmick et al. (1979) labeled the nine levels of
the consumer life cycle as: childhood/egocentric (1-7 years), middle childhood/concrete
operational (7-12 years), adolescence/formal operations (12-18 years), Pre Adults (18-25
years), Early Adults (25-30 years), Early-Middle Adults (30-35 years), Middle Adults (35-50
years), Older Adults (50-65 years), and Elder Adults (65+ years). The analysis showed that
as consumers change during their life cycles, their media habits change and the gratifications
they obtain from media ebb and flow in a cycle of their own.

Gratifications also change based on the medium consumers use. Television provides a
different gratification than newspaper, which fulfills a different need than listening to music.
Katz, Hadassah, and Gurevitch (1973) suggested that no matter where a consumer is in his or
her consumer life cycle, understanding the needs satisfied by media usage enables
researchers a greater understanding of what consumers obtained through media consumption.
An analysis of consumer media needs fulfillment confirmed a connection among consumer
and media, need fulfillment, and influence in consumer familial circles suggested in Katz and
Gurevitch’s prior uses and gratifications research (Katz, Hadassah, & Gurevitch, 1973). The
results demonstrated that entertainment media fulfill a sociological and psychological need of
the audience and that media selection is a proactive consumer choice, rather than a result of
media influence.

Influences from entertainment media functioned primarily on a one-to-one level with
each consumer, prior to the digital age. Now, however, consumers maintain a one-to-many
communication relationship, allowing a higher level of control over the content with which
they engage (Ruggiero, 2000). Ruggiero’s (2000) analysis of the uses and gratifications
theory from the 1940s to present revealed that the one-to-many structure of communication
digital technology grants consumers increased control over the content they expose themselves to, as well as the means by which content reaches them. The speed and flexibility of the internet allows consumers to fulfill their needs faster, implying a need for uses and gratifications theory to adjust to the speed with which consumers gather information through media (Ruggiero, 2000).

Consumers use specific media to obtain a specific experience whether they are gathering information or seeking escapism. As such, the tools they choose to obtain gratification are specific as well. The amount of gratification consumers achieve from one form of technology to another defines the selection process with which consumers voluntarily elect to obtain gratifications.

**Technological Gratifications**

Understanding the tenets of the uses and gratifications theory provides a deeper understanding of the social, physical, and emotional gratifications that come from consumer choice. In the digital age of communication, uses and gratifications theory allows one to examine the technological gratifications consumers receive from the digital products they use.

The internet and the means of available consumer communication the internet provides are relatively new compared to other forms of communication technology. Stafford, Stafford, and Schkade (2004) suggest that the gratifications consumers achieve from online commerce provide a gratification previously unstudied. Stafford et al. (2004) executed an online survey to examine users’ perceptions of their online activity. By asking participants questions that address their perceptions of their ongoing internet activity, as well as the relationship they maintain with the internet, Stafford et al. (2004) discovered that consumers achieve higher
levels of social gratifications through internet usage compared to other, more traditional, forms of media consumption. The authors (2004) argued that the current uses and gratifications theory required an update to incorporate social gratification as a recognized technological gratification. Motivations and rewards for digital use vary compared to non-digital or more traditional communication technology uses.

Digital communication technology provides high-level information seeking consumers access to interactive media technologies that result in greater gratification of the digital experience. The greater the gratification, the more likely that the consumer will assign positive attributes to the product and increase the likelihood of purchase. Ko, Cho and Roberts (2005) executed a questionnaire examining consumer interactivity in a digital medium as it relates to consumer use and advertising. Ko et al. (2005) define interactivity as consumer digital communication occurring within the capacity of human-to-human or human-to-message interaction. The results showed that consumers who achieve high-levels of interaction are motivated to prolong use of digital technology to satisfy their needs. Consumers who participate in high levels of interaction involving both human-to-human and human-to-message interaction obtain positive associations with the product and describe their use of digital communication as positive (Ko, Cho & Roberts, 2005). These positive associations increase the level of gratification received by using the tool and the likelihood that the consumer will continue interacting with both the tool and the product.

The interactivity of the internet provides consumers with increased control of the content they intake, enabling consumers to interact with only the content that they select specifically. Digital personalized services allow consumers to take command of their online experience, enabling them to generate high levels of individual gratification while reducing information
overload (Liang, Lai, & Ku, 2006-2007). Liang et al. (2006-2007) performed two experiments to examine the extent to which personalized services increase or decrease consumer gratification. The first experiment tested participants on their reactions to explicit (user actively selecting) and implicit (recommendations based upon user selections) personalized services, and found that personalized services do respond to participant selections accurately. Liang et al. (2006-2007) determined that the rate of accuracy results in continued use of the personalized service to reference other users’ recommendations. The second experiment tested participants on the impact of information overload regarding personalized services and user satisfaction. Similar to their experiences in the first test, participants experienced low levels of information overload when the service provided information that fit their needs. The findings also indicated that personalized services increased user gratifications, particularly in social situations, and decreased when used for entertainment purposes.

Personalized services are a consumer boon, providing control of content for all digital interaction. With digital interactions designed for faster and more convenient use, digital communication tools are poised to replace traditional communication media. With this in mind, Ramirez, Dimmick, Feaster, and Lin (2008) analyzed the digital communication tool, instant messenger, which currently performs as a niche medium, yet possesses the potential to replace traditional forms of communication. The study required participants to use and report on their instant message use, focusing specifically on personal use and gratifications. The results suggest that instant messenger, though a niche medium, provides increased levels of gratification to users to support a plausible replacement of traditional communication.
Ultimately, Ramirez et al. (2008) determined that the replacement of one communication tool over another was dependent on the gratifications and needs of the user.

As technology changes from analog to digital, the tools consumers select change too. Personalized content replaces mass-market products, while e-mail, text messaging, and instant messaging services replace letter and telephone correspondence. Understanding technological gratifications enables researchers to identify the personal media tools consumers select.

Tied to technological gratification are the tools consumers use to obtain media. These personal media devices take the shape of computers, mobile media devices, cell phones, televisions – any technological device consumers can use to satisfy a need.

**Personal Media**

Personal media technology puts the control of content directly in the hands of the consumer. The convenience of technology enables consumers to manage their digital library from anywhere in the world at any time. The growth of digital media enables consumers’ instant gratification, while providing the tools to enrich their collection of media.

Present digital media provide a dynamic experience for consumers as the technology is able to evolve its functions for personal control and creation. The resulting empowered individuals create mash-ups of pre-existing products, share information, and communicate socially in a manner of their own design. Concerned with privatization of digital media, Luders (2008) examined the relationship and social significance of digital technology in both mass-market and private settings. Through an analysis of the communication technology literature, Luders (2008) determined that a crossover occurs in the resulting communication technology genres. Private users of content are shifting into producer roles typically held in
mass-market communication control. Concurrently, personal media allow consumers to define themselves through their own tastes and actions within their social circles rather than remaining dependent on outside influences. Personal media allow consumers to manage their content in their own way, which, in turn, encourages consumers to take an in-depth role in the content they create. The shift into consumer-producer roles empowers consumers to create what they want, when and how they want it, providing a gratification previously unattainable.

Personal media drive technology to increase speed of information transmission as a means of increasing access for consumers. As information becomes more readily available, the electronic marketplace grows to provide the content consumers want. In the digital space, music maintains the largest share of digital activity due to pay for file-sharing services and illegal downloading. To explore the motivations behind illegal downloading through personal media, Kinnally, Lacayo, McClung, & Sapolsky (2008) distributed questionnaires to entry-level communications students at one large state university and one community college over a four-month period. The questionnaire sought to determine the motivations for and the gratifications obtained through downloading. The results revealed four main points: 1) downloading receives the same gratifications as other forms of entertainment, 2) downloading presents an activity to pass the time, 3) downloading allows consumers to sample music without concern of a faulty purchase, and 4) downloaded content is easier to store than traditional audio media. Kinnally et al. (2008) also found a positive, though weak, relationship between those who download to sample and those who purchase, suggesting that downloading music encourages consumers to purchase music.
Also interested in the role of downloading and consumers’ ethical choices in technological and non-technological scenarios, Poole (2007) surveyed junior high, high school, and college age students as participants. Participants reported how likely they were to engage in activities ranging from copying a friend’s CD for personal use or eating food off someone else’s plate while at a buffet. The younger participants demonstrated a higher likelihood to engage in unethical activities such as illegal downloading and information sharing, while the college age students revealed a more conservative ethical stance and refrained from those activities. Poole (2007) suggested that the participants engage in file sharing, downloading, or other unethical acts with technology because they perceive less of a chance of being caught. From this, Poole (2007) infers that if consumers cannot obtain gratification from traditional physical format technology, they will seek out other methods and means of doing so. As technology increases the ease of information transmission through personal media, consumers will find ways to obtain and use content, even through less than legal means.

Personal media extends beyond the tools consumers use to listen to music, watch videos, communicate, or other interpersonal interactions. Referring also to the items consumers select to use with their technological tools, such as mp3s, peer-to-peer services, video files and various short message services, personal media assume a connection to the consumer otherwise thought tied with the tools used to access media. As such, consumers chose the tools that give them the easiest access to what they seek. The focus of personal media, then, is not the tool itself, but the media formats of the content consumers seek to access.

In the realm of music, personal media devices allow for the broadest spectrum of popular audio formats while restricting access based on the technological specifications determined
by the device creators. The mp3 is the most popular of the digital audio formats due to its versatility in file size, ease of transmission, and data containment. These traits make the mp3 the ideal personal media component.

The mp3

Though other digital audio formats are available and frequently used by consumers, none is as commonplace as the mp3. Often perceived as merely a collection of data to replicate audio, the mp3 also functions as a container for data; making the audio format both a tool for portable audio enjoyment and a receptacle for data collection and preservation.

By design, the mp3 serves as a means of transmitting digital audio from one location to another using the least amount of data, while also preserving the integrity of the audio quality. Sterne (2006) explored the mp3 as both an auditory technology and as a social and cultural object – a container of data. In design, the mp3 provides a means of storing data, establishing a digital container for information transmission. This means that only the required data is included in the file as the human ear replicates cut portions. From a sociological perspective, the mp3 is a representation of the data it contains (Sterne, 2006). As such, consumers view an mp3 not as a digital audio data file, but as a song. The mp3 as an object provides the consumer a form of use and gratification similar, though different, from the uses and gratifications of physical auditory formats. Sterne’s (2006) exploration determined that the auditory design of the mp3 provides consumers the gratification of high quality sound expected from physical formats in addition to a portable experience not typically available.

The unexpected downside of the mp3, however, lies in its design. Originally intended for engineers to send audio files, consumers used p2p programs to do the same with each other.
This practice of sharing music on free services produced a negative impact on the music industry as file-sharing extended from professional engineers into general, and illegal, consumer use (Quiring, Von Walter, & Atterer, 2008). Using a faux p2p distribution system, 100 undergraduates participated in an experiment to determine if incentives alter consumer download activity of mp3s. Although Quiring et al. (2008) could not establish a clear link between free mp3 downloads and lower music sales, they did determine that consumers who download free music mp3s are more likely to continue to download music. Conversely, consumers who pay a fee to download mp3 music are less likely to download free mp3 music. Unexpectedly, Quiring et al. (2008) also discovered that participants developed their own community within the p2p service and demonstrated reciprocity toward others with their musical property. The mp3, revealed through the faux p2p service, provided social gratification to the respondents, as well as the feeling of gathering and sharing music.

The gratification of the mp3 comes from the social interaction of sharing content and the high level of control consumers possess over content selection. The mp3 enables consumers to transcend their audio experience beyond any one location or one specific style of music. Recognizing the revolutionary manner in which the mp3 has altered consumer audio consumption, Beer (2008) examined the transformative nature of audio technology as a pervasive personal media player and its relationship with the mp3. As a digital construct, the mp3 is a virtual artifact that is capable of providing an audio experience transcendent of traditional broadcast means. Beer’s (2008) analysis demonstrated that mp3s provide consumers portability without restriction, effectively changing the means and manner in which music collecting and reproduction of sound are expected. Beer (2008) also suggested that while the mp3 functions as a container of data that reproduces audio, the personal media
mp3 player serves as a container in which audio is collected. The device replaces the traditional physical collection with a virtual collection that consumers can transport to the location of their choosing. In changing the manner in which consumers listen to and obtain audio, the mp3 also altered the manner in which consumers collect and store audio. As the relationship between consumer and audio technology changes, Beer’s (2008) noted, the simplicity of the mp3 is its ability to merge with our society to the point where it is nearly invisible.

The aforementioned research demonstrates the prevalence and reach of the mp3 in consumer culture. However, despite the prevalence and reach of digital content, physical formats remain a desired format, extending the possibility of other formats providing consumer gratifications (RIAA, 2009).

Consumers use the tools and media that provide them the greatest gratification. As technology advances and changes, so do the means by which consumers obtain gratifications. With music, consumers first purchased vinyl for private performance until cassette formats grew in popularity. In the digital age of music, however, the mp3 is poised as the standard-bearer for audio formats. Although previous research demonstrates the ability of the mp3 to satisfy consumer needs, physical audio formats remain a desired component to consumers’ audio collections. Is this a result of consumers not updating their personal media players to play digital audio formats or is there something about physical audio formats that provides a greater gratification for consumers than digital audio can provide?

Current sales trends indicate that digital media are replacing physical formats of music media (Knopper, 2009; RIAA, 2009); however, the cause of the trend is currently unknown. While digital libraries contained in portable devices provide the use and
gratification of convenience, physical format libraries provide a link to experiential memory. This study seeks to explore the role of user gratifications in determining which format, digital or physical, provides the greater gratification. Therefore, I propose the following research question.

**RQ:** Are the gratifications digital media consumers obtain from the mp3 greater than the uses and gratifications they obtain from physical audio media such as CDs, vinyl, or cassette?
Method

This study sought to explore whether digital audio formats, primarily the mp3, are a viable replacement for physical audio formats based upon the uses of and gratifications obtained by digital media consumers from technology.

A survey provides researchers the means of gathering information on a small group of respondents to build quantitative data, which may shed light on characteristics applicable to a wider population (Groves, Fowler, Couper, Lepkowski, Singer, & Tourangeau, 2009). The survey method proved to be the best quantitative tool for this study, as the intent of the research was to determine the perception of a wider audience using the perceptions of a few.

Respondent Selection

Digital audio format users 18 years of age and over were the primary target demographic for the survey. Utilizing recruitment tools selected specifically to target digital media consumers, the researcher used the Johns Hopkins listserv and the social networking sites Facebook and MySpace to gather respondents. An email was sent to the Johns Hopkins listserv along with the consent statement and SurveyMonkey.com hyperlink to invite respondents comprised of faculty, staff, and other Johns Hopkins students. I employed my personal MySpace and Facebook pages to post entries requesting volunteers to participate in the survey. In both the initial consent statement and thank you statement at the end of the survey, respondents were solicited to share the survey with others to increase participation. No direct communication occurred between respondents and the researcher prior to any respondent’s involvement in order to reduce any possible coercion or influence by the Homewood Institutional Review Board (HIRB) standards. By using a recruiting method of convenience, the research sample was not random and my results were not generalizable.
Research Design

Using Surveymonkey.com, I executed a survey of users of digital media to determine their perceptions and uses of digital and physical media. If the greatest gratification media users acquire comes from using digital media formats, there may be no further need for physical media formats. However, if the survey revealed that physical format media are the preferred format, then perhaps the rising trend of digital purchases reported by the RIAA may not be a signifier of changing consumer habits, but rather an acknowledgment of a popular substitute format. This may imply that consumers obtain digital media for their mobile activities, while maintaining physical formats as the foundation for their media collection. The survey required respondents to respond to questions regarding the ways in which they use audio media formats and the gratifications they obtain.

I executed the survey for one month to collect a minimum of 200 completed surveys. At the end of one month, I had collected 219 completed questionnaires and removed the questionnaire from the SurveyMonkey.com site. The electronic survey format enabled me to determine individual perceptions of gratifications of audio formats without the concern of direct influence from either the researcher or a group. The format of the website questionnaire employed the scroll method (Maronick, 2009), empowering respondents to control the speed and timing in which they engage in the survey, but also ensuring that the respondents focused on only the questions the researcher wanted.

I designed the instrument to determine which audio media format (physical or digital) provided the greatest gratification of use. Taking into account that digital media grants different uses and gratifications than physical formats for each respondent, each question centered around either a use or a gratification that the respondent obtained from digital and
physical audio formats. The survey collected the individual perceptions, aggregating them according to which format provided the greatest use and gratification based upon their perceptions of the format. The final three questions asked respondents how they use the audio formats, what gratifications they perceive to obtain from each audio format, and which of the two audio formats, digital or physical, grants the greatest gratification. By requiring respondents to choose the audio format that provides the greatest gratification, I was able to delineate which format the respondents perceive provides the greatest gratification.

Analysis

The tools provided by SurveyMonkey.com enabled review of the calculated percentages of the close-ended questions and the review of open-ended respondent responses. This allowed me to review the overall respondent opinion and determine if the reported perceptions match those asserted by the uses and gratifications theory -- that consumers use what they perceive provide the greatest gratification (Ruggiero, 2000). The overall respondent response percentage of each question provided a general indication of which audio format the respondents determined provided them the greatest benefit. Reviewing the response percentages and analyzing the responses along with the open-ended questions allowed me to assess how respondents used the audio media, why they chose the audio format, and which audio format they preferred.
Results

Two hundred forty-nine respondents began the electronic survey, only completing the filter questions. Of these, 219 respondents completed the survey. The following discusses the findings from the research before positing the answer to the research question stated at the end of the literature review. The results first address the demographic information to identify what type of respondents participated in the survey before examining the uses and gratifications respondents claim to obtain through physical and digital audio formats. Result percentages are rounded to the nearest whole number to represent whole persons, instead of the raw data that includes partial responses. The results provided a glimpse into consumer uses and gratifications of audio formats, but were not subjected to a significance test.

Demographics

Of the 219 respondents who completed the questionnaires, 75 reported they were male and 85 were female. Fifty-nine respondents did not report their gender. Only 161 respondents reported their age. A slight majority (56%) was between 26 and 35; the second largest respondent age-group was in the 18-25 range (see Table 1).

As shown in Table 2, 155 respondents reported their estimated annual income. Thirty two percent (32%) listed incomes of “more than $70,000”, the highest income bracket.

Audio Purchase and Listening Habits

Respondents answered nine questions regarding their personal purchase habits, methods of listening to audio, and initial lifestyle audio format preference before addressing digital audio and physical audio formats specifically.

Respondents reported a higher number of digital audio purchases than physical audio purchases with 25% of respondents having purchased digital audio within a week of the
survey (see Table 3). Less than half that percentage (12%) purchased physical audio content in the same period (see Table 4). However, more respondents purchased physical audio more than a year ago (101%) than did those who purchased digital audio (99%) in the same time span. However, 84% of those who purchased digital media did so in the last six months, while only 44% of those who purchased physical audio media did so in the last six months (see Tables 3 & 4). These results imply support for the data provided by the RIAA (2009) that physical sales are dropping over time, while digital sales are increasing.

When asked where they listen to audio, 47% of respondents reported that they listened mainly in the car or other locations while traveling (see Figure 1). When asked what they do while listening to audio, 56% of respondents indicated that they passively listen to the music when performing activities (see Figure 2). Respondents reported that the top five activities they engage in are: work, driving, reading, exercising and cooking. Location and use of audio suggests that respondents prefer audio in the background, rather than as a point of focus while performing tasks.

Of the 160 respondents who reported on their perception of audio while performing tasks, 99% indicated that they believe that listening to audio enriches the activities they perform. Though seemingly contradictory, respondents claim that audio is both a distracting and focusing agent when used during activities. Audio is distracting when tasks are disagreeable and focusing when respondents are working on preferred tasks. Respondents claimed that audio increases individual pace while working, provides a sense of increased energy, and endows a sensation of time passing faster while performing the activity.

When asked what equipment they used to listen to audio, 49% of the 173 respondents who answered this question reported using portable devices. Less than 25% said they used
stereo and computer speakers (see Table 5). Considering that, the fact that 58% of respondents declared a preference for portability of audio over quality of sound (see Figure 3) is unsurprising. Similarly, when asked which audio format style fits their lifestyle better, 90% of the 173 respondents who answered indicated that the digital audio format is better (see Figure 4). Though the high percentage of respondents (58%) indicates that digital audio is the preferred audio format due to its portability, 42% of respondents prefer quality of sound, a trait associated with physical audio.

**Digital Media Perceptions**

Respondents answered five questions regarding their use and perceptions of digital audio. These questions asked the respondents to detail what types of digital audio equipment they own, the size of their digital audio collection, and the manner in which they store their digital audio collection.

Regarding personal ownership of devices that play digital media audio formats, 99% of 173 respondents reported owning devices that play digital formats; only 1% claimed not to own any devices that would play digital format audio content. Of those who claimed to own devices that play digital formats, 21% reported owning one device and 96% reported owning 2-5 devices (see Table 6). All of the respondents (100%) reported owning between 1 and 10 devices that play digital media. Respondents indicated through an open-ended question that the most popular digital media devices owned include Apple iPod products, the Microsoft Zune, and a personal computer/laptop.

Of the 170 respondents who reported owning digital albums, 60% owned more than 100. Nine percent of the respondents reported 21-40 total albums in their digital collection (see Table 7). When asked to choose one of four possible choices for storing their digital
collection, 92% indicated that they store their digital collection on their computer; while 77%
store their digital collection on their portable device (see Table 8). The large percentage of
respondents who own more than 100 digital albums (60%), along with the large percentage
who store their digital collections on computers or portable devices supported previous data
from this study suggesting that respondents preferred digital content as a portable audio
format that fits their lifestyle (see Figure 3 & 4).

Physical Media Perceptions

Respondents answered six questions regarding their use and perceptions of physical audio. These questions asked the respondents to detail what types of physical audio equipment they own, the size of their physical audio collection, and the manner in which they store their digital audio collection.

When asked what devices respondents own that play physical media audio formats, 98% of the 167 of the respondents who answered reported owning devices that play physical formats, and 2% claimed not to own any devices that would play physical format audio content. Of those who claimed to own devices that play physical formats, 21% reported owning one device and 94% reported owning 2-5 devices (see Table 9). The majority of respondents (97%) reported owning 6-10 devices (See Table 9). The most popular physical media devices respondents claimed to own include the car stereo, CD player, and personal computer. Of the 167 respondents, 71% do not display their physical audio collection, yet 32% owned more than 100 physical albums (see Table 10). When asked about storage for their physical collections, 29% of 166 respondents store their collections in their homes. The most common forms of storage reported by respondents included in display cases in living rooms, as parts of the entertainment center, and in CD binders. The low percentage of
respondents who collect physical audio, along with the low level of physical audio suggests that though the majority of respondents prefer digital audio, physical audio provides some level of gratification, given the continued rate of use by the respondent minority.

The last question about physical media perception asked respondents whether they noticed a sound quality difference between digital and physical audio formats. Of the 164 respondents who answered, 60% responded “No” while 40% answered “Yes” (see Figure 5). Respondents who answered “Yes” provided a description of the differences they could hear in physical and digital audio content. Some respondents described a “warm” sound from vinyl (physical format) audio recordings that, they claimed, digital audio does not possess, while other respondents claimed digital audio maintains a “cleaner” sound when reproduced.

**User Gratification Perceptions**

Respondents answered three questions regarding their perceptions of the uses and gratifications they obtain from digital and physical audio. The first asked respondents to name the top three gratifications they receive from digital audio and the second asked the same of their perception of physical audio. The last question required respondents to name which of the top formats they perceived to provide the greatest gratification and why.

One hundred sixty-one respondents responded to the request naming their top three gratifications from digital and physical audio. Respondents selected “portability” (70%), “convenient access to content” (67%), and “no physical clutter” (47%) as the greatest gratifications provided by digital content (see Figure 6). In contrast, respondents selected “the ability to display as part of a collection” (47%), “quality of sound” (46%), and “adds to experiential memory” (45%) as the greatest gratifications provided by physical content (see Figure 7).
The last question of the user gratification perceptions section asked respondents to state which audio format, digital or physical, provided them with the greatest gratification. Of the 161 respondents who responded, 84% claimed that digital audio provided the greatest gratification, whereas 16% claimed that physical audio provided the greatest gratification (see Figure 8). The top three reasons respondents provided for why digital audio provides the greatest gratification are: 1) portability, 2) ease of storage, and 3) ease of access to content.

Uses and gratifications theory asserts that consumers are empowered to satisfy their specific need for gratification utilizing specific media content, rather than requiring outside direction or involvement (Luders, 2008; Ruggiero, 2000). Previous studies indicated a preference for digital content due to its portability, smaller size for easier storage, and consumer’s ability to take control of access to content (Kinnally et al., 2008; Quiring et al., 2008). The present study examined the uses and gratifications obtained from digital and physical audio formats to determine which of these formats respondents perceived to obtain the greatest gratification from to infer the possible fate of physical audio formats as a desired format. The results suggested that respondents obtained more gratifications from digital audio due to easier access, portability, and storage (see Figure 6). Though a minority of respondents (16%) expressed a preference for physical audio formats, digital audio reported a higher (84%) rate of perceived gratification, which suggests digital audio is the preferred format (see Figure 8).
Conclusion

Discussion

The study sought to explore the uses of digital and physical media, and to determine if the gratifications digital media consumers obtain from the mp3 are greater than the gratifications obtained from physical audio media. The survey results reveal a trend in both spending preferences and perception of audio formats, suggesting that the respondents use the audio format that better suits their lifestyle needs (see Figures 1 & 4). With a plurality of respondents claiming portability of content (42%) as the greatest gratification and a majority claiming digital audio (84%) as the more gratifying audio format (see Figures 3 & 8), the results suggest that digital audio provides a greater gratification than physical audio. However, though physical audio is not in as high demand as digital audio in sales (RIAA, 2009), respondents did express an explicit need for the continued use of physical audio (see Table 3 & 4).

Relevance of Current Findings

Prior studies on mp3s and other digital audio formats focus on the method in which consumers obtain the audio content or the moral implications of file-sharing (Poole, 2007; Sterne, 2006), rather than trying to determine why consumers utilize digital audio when physical formats still exist. This study sought to determine the uses and gratifications of audio formats to determine which format respondents preferred and what the leading perception is that caused respondents to select it.

Digital audio single sales increased 25.5%, while digital audio albums increased 33.9% from 2007 to 2008, according to the RIAA (2009). In that same span, overall physical audio format sales decreased 24.9% (RIAA, 2009). Though the results of the study cannot be
generalized, they suggest that consumers’ desire for physical audio formats may fall into three main categories: 1) potential for display (47%), 2) perceived higher quality of sound (46%), and 3) ability to provide experiential associations (45%) (See Figure 7). Though when compared to the digital responses these percentages appear low, they represent a continued, albeit meager by comparison, desire for physical audio.

Consumers’ desire for digital content, however, appears to be connected to their use of audio. The results suggest that consumers may utilize digital audio because digital audio is easily transferred from one location to another, via digital devices, allowing for a less cumbersome mobile experience than physical audio do. Though the sound quality of the digital audio is typically more compressed and diluted than that of physical audio, the study results indicate that respondents were aware of the lower quality sound and considered the ease of portability worth the disparity. Ultimately, the results support the common belief that digital content is the desired format by consumers.

**Study Limitations**

This study used an electronic surveying method, and electronic surveys have several limitations ranging from survey style to respondent bias. Two main styles of surveys are paging and scrolling: paging allows respondents to view one question at a time, while scrolling enables respondents to view multiple questions at a time (Maronick, 2009). Paging allows the researcher to control the pacing of the survey, but does not allow respondents to review previous questions. Scrolling allows respondents to see questions for an entire section before moving on, thereby creating a perceived understanding of what the researcher is asking, possibly creating a bias in the answers.
Sample generalizeability is also an issue with electronic surveying as not all eligible respondents may have direct or consistent access to the internet (Maronick, 2009). Potential respondents may have wanted to engage the survey, but lacked the required internet access to complete the questionnaire. Due to time and monetary restraints, I did not develop a non-digital version of the survey.

Avoiding coercion provided another limitation to sampling. HIRB prohibits direct communication by researchers with potential respondents, as any communication could be perceived as “coercion.” As such, I had to use indirect blog posts and emails requesting participation through third parties, removing all direct communication. I utilized three main indirect modes of communication – the JHU Listserv, Facebook, and MySpace – to avoid as much coercion as possible.

A third limitation was the voluntary, snowballed nature of the sample. To help offset the coercion limitation, respondents were encouraged to share the survey with others they knew. As respondents shared the questionnaire, the reach of the survey increased; however, the questionnaire was also more likely to reach similarly minded respondents, creating homogeneity in the sample. Therefore, the sample was not random, and the results are not generalizeable.

An individual respondent’s relationship with the internet might also have been a limitation. Internet surveys possess the ability to increase survey responses; however, the quality of the data can be suspect (Maronick, 2009). The expectation of the respondent for a survey on the internet to be easier or faster than traditional survey methods may bias individuals into rushing answers or assuming the meaning of a question rather than taking their time. Though the subject of the survey concerns consumer use of digital media, utilizing...
email and two social networking sites limits the manner in which the survey reaches consumers.

Due to the convenience sampling method employed in this study, sampling error could not be assessed for any of the descriptive statistics reported in this study. Readers should use caution when making comparisons between results; tests were not conducted for statistical significance and any differences could be due to sampling error.

**Suggestions for Future Research**

This study reports results produced from a small group of respondents who utilize digital audio, but also have experience with physical audio formats. The results from this study conclude that digital audio provides gratifications that suit the lifestyle of the respondents better than physical audio, thereby suggesting that digital is the preferred audio format. However, future research of digital content could benefit from looking into the manner in which digital content is viewed by not just the consumers, but also by the industry that creates the content. In addition, an examination of what consumers may be giving up through assimilation in the digital age may provide insights concerning uses and gratifications that I could not address in the present study.

A specific issue unaddressed by this study is the reduced ownership that occurs with digital content. Physical audio content cannot be altered or fixed in any way to prohibit use without taking extreme measures (destroy the material, remove playback devices, etc). Digital audio content, however, is often seen as something rented or lent to consumers, rather than owned property. The rightsholders for digital audio and video licenses do not view their responsibility to maintain access for consumers as an important one (Anderson, 2009). If consumers purchase content with the understanding that they own the content and
rightsholders forgo maintenance of the licenses that grant access to play the content, consumers’ perception of ownership in the digital world changes.

The significance of learning why consumers select digital audio, a seemingly lower quality product, over physical audio extends beyond the realm of the music industry into other areas of commerce. Publishing, television and film broadcasting, and the gaming industry all face dropping physical sales partially attributed to consumer access to digital content. Is the reason for this that consumers prefer digital content to physical content or that consumers are selecting digital content as it fits better into their individual lives? When given an open-ended question concerning digital audio, respondents in this study expressed a preference for digital audio because they could use it when and wherever they wanted. Digital audio presented them with the gratification of control and audio enjoyment. But questions concerning the issues of collection and ownership still linger.

The results from this study do suggest that digital audio formats provide more uses and gratifications than physical audio formats, as determined by the analysis of respondent responses. Future studies on the uses and gratifications of audio formats could benefit from utilizing focus groups, personal interviews, and physical surveys to increase access to respondents and possibly increase participation and response. Though the results from this study do suggest consumer preference in audio formats, expanding the participation level might better address the trend suggested by the RIAA regarding consumer preference. If the RIAA implied trend is correct and physical audio sales continue to drop (2009), the relevance of physical format will become nil in the public domain while the perception of digital will remain high; yet understanding why consumers made the initial shift to digital will remain just as important later as it is now. Addressing the unanswered question of ownership in the
digital world might better provide a picture of whether or not digital content in the digital age is best.
Appendix I

Email Consent Statement Requesting Listserv Participants

Hello,

My name is Douglas Davidson and I’m a graduate student in the Communication Department at Johns Hopkins University. I am conducting research for my master’s thesis, which examines user gratifications of digital media. I am looking for respondents to take part in a survey that will ask questions regarding perceptions and uses of both physical and digital audio formats. The purpose of the research is to determine which audio format, digital or physical, provides the greatest gratifications to audio media consumers.

There are no risks involved with the completion of this survey, and your participation is voluntary and can be stopped at any time by closing out the browser. Continuing to the first question of the survey indicates your consent. You must be at least 18 years of age to participate.

I would appreciate your participation and encourage you to share this survey with others.

Thanks,

Douglas Davidson

For questions or concerns, contact me at: dldavidson2003@yahoo.com
Appendix II

Facebook and Myspace Consent Statement Requesting Participants

Hello Everyone,

In case you weren’t aware, I’m working on my master’s thesis at Johns Hopkins University and I’m ready to conduct my research, which examines user gratifications of digital media. I’m looking for respondents to take part in my survey, which will ask you questions regarding your perceptions and uses toward both physical and digital audio formats. The purpose of the research is to determine which audio format, digital or physical, provides the greatest gratifications to audio media consumers.

There are no risks involved with the completion of this survey; your participation is voluntary and can be stopped at any time by closing out the browser. Continuing to the first question of the survey indicates your consent. You must be at least 18 years of age to participate.

I would appreciate your participation and encourage you to share this survey with others.

Thanks,

Douglas Davidson

For questions or concerns, contact me at: dldavidson2003@yahoo.com
Appendix III

Consent Statement and Survey

Thank you for your willingness to participate in this survey. I am conducting research for my master’s thesis at The Johns Hopkins University on the issue of user gratifications of digital media. The purpose of the research is to determine which audio format, digital or physical, provides the greatest gratifications to audio media consumers.

There are no risks involved with the completion of this survey; your participation is voluntary and can be stopped at any time by closing out the browser. You must be at least 18 years of age to participate.

For questions or concerns, contact me at: dldavidson2003@yahoo.com

1) Are you at least 18 years of age?
   If Yes, please continue
   If No, thank you for your time and participation.

2) Do you purchase music via digital services? (iTunes, Zune Marketplace, Rhapsody, Amazon, etc?)
   a. Yes
   b. No
   If Yes, please continue.
   If No, thank you for your time and participation.

3) How long has it been since you last purchased digital music:
a. Less than a day
b. More than a day - Less than a week
c. More than a week - Less than a month
d. More than 1 month – Less than 6 months
e. More than 6 months – Less than 1 year
f. 1 year or more
g. Never

4) How long as it been since you last purchased physical format of music (CD, vinyl, cassette):
   a. Less than a day
   b. More than a day - Less than a week
   c. More than a week - Less than a month
   d. More than 1 month – Less than 6 months
   e. More than 6 months – Less than 1 year
   f. 1 year or more
   g. Never

5) Where do you listen to music most?
   a) Work
   b) Home
   c) Traveling (Car, Bus, Metrorail, Bike)
   d) Gym
   e) Other

6) When you listen to music, do you predominantly:
a) Passively listen (play it as background)

b) Actively listen (focus on the lyrics and/or melody)

7) Do you engage in other activities while you listen to music?

a) Yes. (If yes, what do you do?)
___________________________________________________________________

b) No

8) Does the use of music enrich these activities? Answer only if you answered yes to #6

a. If Yes, Why?

b. If No, Why?

9) How do you listen to your music?

a) Computer speakers

b) Stereo

c) Boombox

d) Portable device (mp3, CD, minidisc player, etc)

10) Which do you prefer more?

a) Portability

b) Quality of sound

11) Which format better fits your lifestyle?

a) Digital (mp3, AAC, FLAC)

b) Physical (CDs, vinyl, cassette)

Why: _______________________________________________________________________

12) Do you own devices to play digital music?
13) If yes, how many do you own?
   a) 1
   b) 2 – 5
   c) 6-10
   d) 11-15
   e) 16-20

14) What types of devices for playing digital music do you own? (Please list)

15) Do you own devices that play physical formats? (Computer, Stereo, Record Player, Tape Player, etc)
   a) Yes
   b) No
   If No, please go to question 23.

16) If yes, how many do you own?
   a) 1
   b) 2 – 5
   c) 6-10
   d) 11-15
   e) 16-20

17) What types of devices for playing physical music do you own (Please list)
18) How large is your physical collection of music? (CDs, vinyl, cassettes, etc) Note:

Albums are considered comprised of the following: Single tracks from an album, EPs, Album Singles, 45s, 78s, CDs, Cassettes.

   a) 1 album
   b) 2-20 albums
   c) 21-40 albums
   d) 41-60 albums
   e) 41-60 albums
   f) 61-80 albums
   g) 81-100 albums
   h) 100+

19) How large is your collection of digital music? (mp3, AAC, Flac, etc) Note: Albums are considered comprised of the following: Single tracks from an album, EPs, Album Singles, or whole digital albums.

   a) 1 album
   b) 2-20 albums
   c) 21-40 albums
   d) 41-60 albums
   e) 41-60 albums
   f) 61-80 albums
   g) 81-100 albums
   h) 100+
20) Do you display your physical collection?
   a) Yes
   b) No

21) If Yes, in what way and why do you display your physical collection of music?

22) How do you store your digital collection: (Select all that apply)
   a) Computer
   b) Portable device (iPod, Zune, Rhapsody Rio, etc)
   c) Physical media storage (flash drive, CDs, DVDs, memory stick, etc)
   d) Not at all.

23) If you use both digital and physical formats, do you notice quality differences in audio reproduction?
   a) Yes
   b) No

24) If Yes, briefly describe the differences you notice.

25) What are the top three gratifications you obtain from digital media (mp3, AAC, FLAC, etc)?
   1. Convenient access to content
   2. Flexibility to purchase when I want
   3. Fewer product stocking issues than physical media format (product either available digitally or not)
   4. Portability
5. Easy to share

6. Easy to store

7. Adds to experiential memory (the experience of purchase or listening to the purchase)

8. No physical clutter

9. Other _________________________________

26) What are the top three gratifications you obtain from physical media (CDs, vinyl, cassettes, etc)?

   a) Convenient access to content

   b) Human-to-Human Interaction (in-store purchasing/sharing of media)

   c) Adds to experiential memory (the experience of purchase or listening to the purchase)

   d) Sturdy Design (no quality degradation when transferred between devices)

   e) Ability to display as part of a collection

   f) Quality of sound

   g) Low stock availability creates rarities and collectibles

   h) Easy to share

   i) Other _________________________________

27) Overall, which format provides you the greatest gratification through use (satisfies all of your needs the most)?

   a) Digital media formats (mp3, AAC, FLAC)

   b) Physical media formats (CDs, vinyl, cassette)

   Why______________________________
Tell me a little about yourself:

28) Gender:
   a) Male
   b) Female

29) How old are you?
   a) Under 18
   b) 18-25
   c) 26-35
   d) 36-45
   e) 46-55
   f) Over 55

30) Annual Household income:
   a) Under $20,000
   b) More than $20,000 – Less than $30,000
   c) More than $30,000 – Less than $40,000
   d) More than $50,000 – Less than $60,000
   e) More than $60,000 – Less than $70,000
   f) More than $70,000

Thank you for taking the time to complete this survey. Your answers and opinions are very important. Please pass this survey along to other digital media users.
## Appendix IV

### Tables and Figures

Table 1

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>Cumulative n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
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<td>36-45</td>
<td>11</td>
<td>147</td>
<td>7</td>
<td>93</td>
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<tr>
<td>45-55</td>
<td>7</td>
<td>154</td>
<td>4</td>
<td>97</td>
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<td>Over 55</td>
<td>6</td>
<td>160</td>
<td>4</td>
<td>101</td>
</tr>
</tbody>
</table>

*Note. N = 160, not all respondents answered this question. Cumulative % greater than 100% due to rounding.*
Table 2

Respondent Household Income

<table>
<thead>
<tr>
<th>Income</th>
<th>n</th>
<th>Cumulative n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
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<td>34</td>
<td>8</td>
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<td>23</td>
<td>57</td>
<td>15</td>
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<td>50</td>
<td>155</td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. N = 155, not all respondents answered this question.
Table 3

*Most Recent Digital Audio Purchase*

<table>
<thead>
<tr>
<th>Digital Audio Purchased</th>
<th>n</th>
<th>Cumulative n</th>
<th>%</th>
<th>Cumulative %</th>
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<td>Less than 1 day ago</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>More than 1 day, less than 1 week ago</td>
<td>37</td>
<td>43</td>
<td>21</td>
<td>25</td>
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<tr>
<td>More than 1 week, less than 1 month ago</td>
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<td>27</td>
<td>52</td>
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<tr>
<td>More than 1 month ago, less than 6 months</td>
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<td>84</td>
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<td>173</td>
<td>1</td>
<td>100</td>
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</tbody>
</table>

*Note.* $N = 173$, not all respondents answered this question.
Table 4

_Most Recent Physical Audio Purchase_

<table>
<thead>
<tr>
<th>Physical Audio Purchased</th>
<th>n</th>
<th>Cumulative n</th>
<th>%</th>
<th>Cumulative %</th>
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<tbody>
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<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>More than 1 day, less than 1 week ago</td>
<td>15</td>
<td>20</td>
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<td>12</td>
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<td>67</td>
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<tr>
<td>More than 1 year ago</td>
<td>58</td>
<td>173</td>
<td>34</td>
<td>101</td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>173</td>
<td>0</td>
<td>101</td>
</tr>
</tbody>
</table>

*Note. N= 173, not all respondents answered this question. Cumulative % greater than 100% due to rounding.*
Table 5

**Respondent Owned Physical Audio Collection Devices**

<table>
<thead>
<tr>
<th>Playback Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer speakers</td>
<td>40</td>
<td>23</td>
</tr>
<tr>
<td>Stereo</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>Boombox</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Portable device (mp3, CD, minidisc player, etc)</td>
<td>85</td>
<td>49</td>
</tr>
<tr>
<td>Other (respondent option)</td>
<td>24</td>
<td>14</td>
</tr>
</tbody>
</table>

*Note. N = 173, not all respondents answered this question. Percentages equal 100% though respondents provided more than one response.*
Table 6

*Respondent Digital Device Ownership*

<table>
<thead>
<tr>
<th>Devices Owned</th>
<th>n</th>
<th>Cumulative n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Devices Owned</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1 Devices Owned</td>
<td>35</td>
<td>35</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>2-5 Devices Owned</td>
<td>128</td>
<td>163</td>
<td>75</td>
<td>96</td>
</tr>
<tr>
<td>6-10 Devices Owned</td>
<td>7</td>
<td>170</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>11-15 Devices Owned</td>
<td>0</td>
<td>170</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>16-20 Devices Owned</td>
<td>0</td>
<td>170</td>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note.* $N = 170$, not all respondents answered this question.
Table 7

**Respondent Digital Audio Collection**

<table>
<thead>
<tr>
<th>Albums Owned</th>
<th>n</th>
<th>Cumulative n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Album</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-20 Albums</td>
<td>9</td>
<td>9</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>21-40 Albums</td>
<td>15</td>
<td>24</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>41-60 Albums</td>
<td>21</td>
<td>45</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>61-80 Albums</td>
<td>11</td>
<td>56</td>
<td>7</td>
<td>34</td>
</tr>
<tr>
<td>81-100 Albums</td>
<td>12</td>
<td>68</td>
<td>7</td>
<td>41</td>
</tr>
<tr>
<td>100+ Albums</td>
<td>102</td>
<td>170</td>
<td>60</td>
<td>101</td>
</tr>
</tbody>
</table>

*Note. N = 170, not all respondents answered this question. Cumulative % greater than 100% due to rounding.*
Table 8

*Respondent Owned Digital Audio Collection Devices*

<table>
<thead>
<tr>
<th>Playback Options</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer speakers</td>
<td>156</td>
<td>92</td>
</tr>
<tr>
<td>Portable device</td>
<td>130</td>
<td>77</td>
</tr>
<tr>
<td>Physical media</td>
<td>94</td>
<td>55</td>
</tr>
<tr>
<td>Not at all</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note. N= 170, not all respondents answered this question. Percentages exceed 100% as respondents provided more than one response.*
Table 9

*Respondent Physical Device Ownership*

<table>
<thead>
<tr>
<th>Devices Owned</th>
<th>n</th>
<th>Cumulative n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Devices Owned</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1 Devices Owned</td>
<td>35</td>
<td>39</td>
<td>21</td>
<td>23</td>
</tr>
<tr>
<td>2-5 Devices Owned</td>
<td>120</td>
<td>159</td>
<td>73</td>
<td>97</td>
</tr>
<tr>
<td>6-10 Devices Owned</td>
<td>4</td>
<td>163</td>
<td>2</td>
<td>99</td>
</tr>
<tr>
<td>11-15 Devices Owned</td>
<td>0</td>
<td>163</td>
<td>0</td>
<td>99</td>
</tr>
<tr>
<td>16-20 Devices Owned</td>
<td>1</td>
<td>164</td>
<td>1</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note. N = 164, not all respondents answered this question.*
Table 10

**Respondent Physical Audio Collection**

<table>
<thead>
<tr>
<th>Albums Owned</th>
<th>$n$</th>
<th>Cumulative $n$</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Album</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2-20 Albums</td>
<td>41</td>
<td>42</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>21-40 Albums</td>
<td>26</td>
<td>68</td>
<td>16</td>
<td>42</td>
</tr>
<tr>
<td>41-60 Albums</td>
<td>23</td>
<td>91</td>
<td>14</td>
<td>56</td>
</tr>
<tr>
<td>61-80 Albums</td>
<td>17</td>
<td>108</td>
<td>10</td>
<td>66</td>
</tr>
<tr>
<td>81-100 Albums</td>
<td>5</td>
<td>113</td>
<td>3</td>
<td>69</td>
</tr>
<tr>
<td>100+ Albums</td>
<td>52</td>
<td>165</td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note. N = 165, not all respondents answered this question.*
Figure 1. Location of Audio Use

This figure illustrates respondents’ preference of location while utilizing audio.
This figure illustrates respondents’ active listening level while utilizing audio.
This figure illustrates respondents’ preferred aspect of audio.
Figure 4. Respondent Lifestyle Audio Preference

This figure illustrates respondents’ audio format preference in their daily lives.
This figure illustrates respondent perception of sound quality differences between the audio formats.
This figure illustrates respondent perception of digital audio gratification. Respondents selected three of the possible answers, which create percentages greater than 100%.
This figure illustrates respondent perception of physical audio gratification. Respondents selected three of the possible answers, which create percentages greater than 100%.
This figure illustrates respondent perception of which audio format provides the greater gratification.

**Figure 8. Format Perceived To Have Greatest Gratification**

- **84%** Digital media formats (mp3, AAC, FLAC)
- **16%** Physical media formats (CDs, vinyl, cassette)
References


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Curriculum Vitae

The youngest of three sons, Douglas Davidson was born in Roanoke, Virginia on December 19, 1980. Davidson’s fascination with digital technology led him to participate in the digital communications concentration at Johns Hopkins Advanced Academic Program. Davidson earned his Bachelor of Arts degree in the Communications program with a minor in Philosophy at the University of North Carolina at Asheville in 2003.

Currently, Davidson is seeking out new adventures after leaving the Washington, D.C. area for North Carolina to be closer to family. Previously, Davidson had worked for CBS Radio in multiple capacities from December 2004 through September 2009. During his tenure with CBS Radio, Davidson facilitated the creation of many promotions and sales opportunities on the local and national level. Noticing a shift in consumers’ response to radio prompted Davidson’s interest in pursuing a master’s degree as a means of examining not just what was happening in the communications marketplace, but why.

In addition, while an undergraduate, Davidson assisted in developing the first digital broadcasting radio station for the University of North Carolina at Asheville, known as The Blue Echo. During its first year, Davidson served as the Music Director, a position that required overseeing the staff and developing relationships with national record labels to obtain music.