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EXAMINING THE ROLE OF MUSIC STREAMING MOTIVES, SOCIAL
IDENTIFICATION, AND TECHNOLOGICAL ENGAGEMENT IN DIGITAL MUSIC
STREAMING SERVICE USE

by

HEIDI K. BOLDUC
B.A. University of Central Florida, 2010

A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Arts
in the Nicholson School of Communication
in the College of Sciences
at the University of Central Florida
Orlando, Florida

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2016

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ABSTRACT

According to the Nielsen Music 360 Research Report, 67% of all music consumers in the United States used digital music streaming services to listen, discover, and share music online in 2014 (The Nielsen Company, 2014). As such, communications scholars and music industry professionals are beginning to recognize the importance of understanding the factors that influence digital music listener behavior. Therefore, this study proposes an expanded theory of planned behavior model (TPB) by incorporating music streaming motives, social identification, and technological engagement into the original TPB model framework in an effort to gain a better understanding of people's intentions to use digital music streaming services as well as the amount of time spent listening to them.

Results suggest that both the original TPB and expanded TPB models can be successfully applied within the context of digital music streaming service use. Specifically, attitudes as well as convenience emerged as positive contributors to intention to use digital music streaming services, while entertainment along with social identification, technological engagement, and behavioral intention emerged as positive contributors to streaming behavior. Additionally, information seeking and pass time emerged as negative contributors to these two behavioral outcomes. However, adding these additional components only improved the overall ability of the expanded model to predict streaming behavior. Both models also explained a larger percentage of intention to use digital music streaming services as compared to total time spent listening. As a result, this study implies the practical importance of understanding the fundamental differences between what drives listener intentions to use digital music streaming services as compared to what drives the actual amount of time listeners spend using digital music streaming services.

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CHAPTER ONE: INTRODUCTION

According to the Nielsen Music 360 Research Report, 67% of all music consumers in the United States used digital music streaming services to listen, discover, and share music online in 2014 (The Nielsen Company, 2014). Realistically, this statistic reflects the extent to which advancements in new media technology are fundamentally transforming the way people interact with music (Krause, North, & Hewitt, 2015; Lepa & Hoklas, 2015; Schramm, 2006). Thanks to the continuous evolution of the Internet, for example, the act of music consumption now includes not only listening to live performances, physical recordings, or radio broadcasts of music, but also listening to customized playlists of music on-demand (Krause et al., 2015; Weijters, Goedertier, & Verstreken, 2014). Similarly, there is a wide range of options available for purchasing digital music, allowing consumers to choose from download-to-own, download-to-rent or streaming content available on a free, one-time, or subscription payment basis (Dörr, Wagner, Benlian, & Hess, 2013; Sanchez-Franco & Rondan-Cataluña, 2010). As such, communications scholars and music industry professionals are beginning to recognize the importance of understanding exactly how these complex variables interact to influence music listener behavior.

Proposing that human actions are guided by behavioral intentions, the theory of planned behavior (TPB) serves as a dynamic model through which to examine how a variety of social and psychological factors contribute to the rational decision making process of consumers (Ajzen & Fishbein, 1975). By viewing action as a function of the three interrelated variables of attitudes, subjective norms, and perceived behavioral control, the TPB provides a comprehensive model allowing for the prediction of future behaviors as complex as making healthy food choices

(Andrews, Silk, & Eneli, 2010), choosing how to obtain political news (Curnalia & Mermer, 2013), or deciding whether to access music using a digital music streaming service (Kwong & Park, 2008). In fact, studies relying upon this model have already begun to demonstrate the significance of socially constructed subjective norms to the development of digital music consumption behavior (Delikan, 2010; Dörr et al., 2013; Kwong & Park, 2008). Similarly, attitudes toward distinctive features of digital music streaming services have also been found to positively influence behavioral intention (Dörr et al., 2013). Together, these interdisciplinary findings reflect the value of expanding upon the original TPB model to explore connections between additional digital music streaming service variables including music streaming motives, social identification, and technological engagement.

Specifically, research exploring the impact of new media technologies on digital music consumption emphasizes the role that motives play in the active selection of music listening devices (Ferguson, Greer, & Reardon, 2007; Lonsdale & North, 2011). This research indicates that people choose certain music listening devices such as CD players, MP3 players, or digital music streaming services to listen to music for a wide variety of reasons including entertainment, escape, relationship building, and identity development (Zen, 2011; Lonsdale & North, 2011). As such, a majority of these motives remain similar to the gratifications sought from the mass media in general (McQuail, Blumler, & Brown, 1972). However, the unique ability for “people to [now] use music in ways that simply did not exist 20 years ago” (Lonsdale & North, 2011, p. 109), has also led to the emergence of research that attempts to uncover whether there are distinct reasons for digital music streaming use (Krause, North, & Heritage, 2014; Zeng, 2011). Because these motives are determined by a variety of social and psychological factors including

consumer attitude, incorporating music streaming motives into the original TPB model may serve to strengthen its predictability as a whole.

Additionally, social identification with music has been immensely helpful when considering the effects of digital music use in today's increasingly interactive media environment. Multiple studies have demonstrated the unique ability of music to contribute to the formation of social identity by serving as a tool for self-evaluation and social comparison within intergroup contexts (Badaoui, Lebrun, & Bouchet, 2012; North & Hargreaves, 1999; Tekman & Hortaçsu, 2002). However, because digital music streaming services allow consumers to engage with peers across a wide variety of social groups via social media platforms such as Facebook, Twitter, and Instagram (IFPI, 2015; The Nielsen Company, 2014), scholars are beginning to reexamine this connection between music consumption and social identification within the context of social media playlist sharing features. Results suggest that music consumption remains a highly social behavior influenced by social identification; therefore, understanding how the perception of important others or subjective norms also plays a role in its development can serve to further increase our understanding of this behavior.

The concept of technological engagement has also emerged as a common theme across research literature exploring the impact of new media technologies. These studies have examined the effects of technological engagement upon a wide variety of online consumption behaviors including advertising effectiveness (Calder, Malthouse, & Schaedel, 2009; Yang & Coffee, 2014), political participation (Hargittai & Shaw, 2013), and even news readership (Mersey, Malthouse, & Calder, 2010). Overall, findings conclude that consumers who exhibit high levels of technological engagement are more likely to be responsive to content distributed via online

platforms such as websites, social media networks, or smart phone applications (Calder et al., 2009; Harittai & Shaw, 2013; Mersey et al., 2010). Since digital music streaming services are often associated with Internet-based social media networks, these findings suggest the growing significance of examining technological engagement in an era where music and technology continue to exert a reciprocal influence on each other. And because the adoption of this new technology is further complicated by the overall ease or difficulty of its use, considering the variable of perceived behavioral control alongside technological engagement has the potential to provide a more comprehensive understanding of digital music streaming service use.

Despite these relationships, relatively few studies have examined the interaction among music streaming motives, social identification, and technological engagement within the context of digital music streaming service use (Dörr et al., 2013; Lin, Hsu, & Chen, 2013; Krause et al., 2014). Because approximately 41 million people currently pay for access to digital music streaming services worldwide (IFPI, 2015), this research gap is to the detriment of music marketing professionals, recording artists, and music listeners alike. Moreover, as the music industry continues to shift toward a business model that is “driven by the consumer’s desire for access to, rather than ownership of, music” (IFPI, 2015, p. 5), music streaming services are predicted to grow in popularity. Ultimately, these shifting realities of music access imply the value of exploring the antecedents that drive music listeners to use digital music streaming services.

Therefore, this study uses an interdisciplinary approach to develop an expanded TPB by incorporating music streaming motives, social identification, and technological engagement into the original TPB model framework in an effort to achieve a better understanding of how people

use digital music streaming services. To accomplish this goal, Chapter Two first provides a brief conceptual and theoretical background alongside a comprehensive literature review synthesizing both past and present digital music streaming service research. Chapter Three then offers a description of the methods and measures used in this study. Lastly, Chapter Four provides a summary of statistical analyses and research findings that inform the discussions and future research implications outlined in Chapter Five.

CHAPTER TWO: LITERATURE REVIEW

As the music industry enters a new phase of the digital music revolution “driven by consumer demand, instant availability of music on mobile devices, [and] diverse services offering widening choice” (IFPI, 2015, p. 14) it is becoming increasingly necessary to rely upon an expansive body of interdisciplinary research literature to understand this new world of music listening. Consequentially, researchers from such diverse fields as communications (Belcher & Haridakis, 2013; Lonsdale & North, 2011), marketing (Badaoui et al., 2012; Shankar et al., 2009), computer science (Dörr et al., 2013; Lin et al., 2013; Sanchez-Franco & Rondan-Cataluña, 2010), business (Kwong & Park, 2009; Weijters et al., 2014), and even psychology (Hargreaves & North, 1999; Krause et al., 2014) have employed a wide variety of perspectives to investigate this emerging topic. As such, this literature review incorporates findings from each of these fields in an attempt to better explain digital music streaming behavior.

Before examining these lines of research, however, it is necessary to consider the conceptual and theoretical foundation of this study. Due to the technically complex digital music streaming environment, the first section of this literature review provides a brief history of the digital music service options and business model shifts currently contributing to fundamental changes in the way that people interact with music (Dörr et al., 2013; Vaccaro & Cohn, 2004). Building upon this conceptual framework, the next section considers the applicability of the theory of planned behavior (TPB) as a perspective that strives to understand the unique contribution of attitudes, subjective norms, and perceived behavioral control to modern music listening behaviors (Ajzen & Fishbein, 1975). The final section of this literature review will then elaborate upon three key variables that can be used to expand the TPB model to help better

comprehend digital music consumption behavior—(1) music streaming motives, (2) social identification, and (3) technological engagement.

Digital Music Streaming Services

Because this study aims to examine music consumption behavior within the context of digital music streaming, it is important to begin by developing a firm conceptual understanding of modern digital music services. At the onset of the digital music revolution in 2000, digital music files were typically consumed by either uploading or downloading compressed audio files for playback via computer music software programs, such as Apple iTunes or Windows Media Player (Kwong & Park, 2008). In contrast, the digital music streaming services available within today's media marketplace allow people to stream digital music files in real-time from expansive music libraries hosted online by a variety of music streaming service companies, such as Pandora, Spotify, or Deezer (Dörr et al., 2013; IFPI, 2015). Due to a recent onslaught of devices capable of accessing the Internet, digital music streaming services now also offer consumers the option of listening to music via a variety of digital playback devices. For example, Spotify grants users access to over 30 million songs listenable via a wide variety of playback options including smart phone applications, tablet devices, or traditional computer software programs (IFPI, 2015; The Nielsen Company, 2014).

As a result of this enhanced connectivity, digital music streaming services are also increasingly enabling social interaction among music listeners by integrating social media platforms including Facebook, Twitter, and Instagram along with their services (Dörr et al., 2013; Kwong & Park, 2008). This means that digital music streaming services allow customers to build, share, and broadcast playlists of music across their entire social networks (IFPI, 2015;

The Nielsen Company, 2014). From a fan perspective, consumers can also receive updates concerning new music releases from their favorite artists by opting to follow them via a constantly updated digital music streaming service feed (Vevo, 2015). And because hosting music digitally via the Internet allows digital music streaming services to develop extremely sophisticated music recommendation systems, digital music streaming services are also facilitating social interaction through the discovery of new music genres and artists (Dörr et al., 2013; Kaminskas & Ricci, 2012). As a result, fans choosing to follow Green Day on Spotify receive not only notifications concerning the latest music released by the popular punk rock band, but also recommendations for future music listening from similar artists such as blink-182, Sum 41, or The Offspring. Yet, these digital music streaming service characteristics represent a small part of the complex digital music listening environment in the 21st century.

Digital Music Service Formats

Currently, three legal digital music service options give consumers the flexibility of listening to music across a wide variety of playback devices including MP3 players, computers, mobile phones, and tablet devices (Dörr et al., 2013; Schramm, 2006). These three digital music service options can be categorized according to download-to-own, download-to-rent, and streaming formats differentiated by ownership type, payment method, and recommendation system (Dörr et al., 2013). Originally introduced in response to the widespread popularity of revenue draining unauthorized music file sharing services such as Napster, download-to-own digital music services allow the consumer to download and purchase either individual songs or entire albums (Dörr et al., 2013; Kwong & Park, 2008). Modern examples of download-to-own digital music services include Apple Music, Amazon Prime Music, and Google Play, which all

provide options for the permanent download of music in the form of easily manageable compressed audio files such as MP3 files. Similarly, download-to-rent digital music service formats allow consumers to download individual songs or albums but restrict playback of that music to a specific device during a prepaid subscription period (Dörr et al., 2013; Kwong & Park, 2008). As a result, consumers utilizing this download-to-rent format are often forced to listen to music via one of the specific services offering this option including Rhapsody, Pandora, or Spotify. Additionally, because Digital Rights Management Systems (DRMS) software is commonly used to provide copyright protection and prevent consumers from freely exchanging rented music, additional consumer functionality such as recommendation systems or interactive features are usually limited within both of these legal digital music service formats (Dörr et al., 2013; Kwong & Park, 2008).

In contrast, streaming digital music services allow consumers instantaneous access to a seemingly endless supply of music (Dörr et al., 2013). Although music cannot be permanently saved while using this format, digital music streaming services are extremely functional due to sophisticated recommendation systems, diverse payment plan options, and interactive social media sharing features (Dörr et al., 2013; Kaminskas & Ricci, 2012). Despite this distinction, recent technological convergence and online revenue diversification have often meant that download-to-own and download-to-rent digital music service formats also increasingly offer consumers the chance to upgrade to an all-inclusive service featuring access to music in the form of both digital downloads and streaming applications (Dörr et al., 2013; Kaminskas & Ricci, 2012). For example, Spotify offers consumers the chance to choose between two versions of their streaming service—1) Spotify Free, offering free legal access to music streaming alongside

advertisements and 2) Spotify Premium, offering subscription based legal access to music streaming and digital downloads without advertisements (IFPI, 2015; Spotify, 2016). Thus, several scholars have noted the importance of distinguishing between digital music services that enable the possibility of streaming music without ownership rights (e.g., Spotify or Pandora) and with ownership rights (e.g., Apple Music or Google Play). Because services that allow music streaming with ownership rights merely provide users with a unique way to access their own personal music libraries, they typically do not fall within the same category as services that allow users access to stream music from a wide library of music without obtaining legal ownership rights (Dörr et al., 2013; Kaminskas & Ricci, 2012; Krause et al., 2014). This study will use the definition of music streaming services advanced by Dörr, Wagner, Benlian, and Hess (2013), which specifies that such services must employ all three characteristics associated with this format including sophisticated recommendation systems, diverse payment plan options, and interactive social media sharing features, while excluding characteristics associated with formats that simply provide a different form of digital access to a user's own music library. Rather than focusing in on a specific digital music streaming service that exemplifies all of these characteristics such as Spotify or Pandora, this study also intends to widen its scope by examining the use of digital music streaming services at a more general level in an effort to better understand the overall trends occurring within this new form of music listener behavior.

Music Industry Business Models

Along with the diversification of digital music services, constant changes in music industry business models are making the process of consuming digital music much more complex. Specifically, scholars tracing the evolution of the modern music industry have

identified three business models that reflect separate eras of the transition from analog to digital music—the traditional business model, renegade business model, and new business model (McCubbrey, 2015; Vaccaro & Cohn, 2004). Often associated with 20th century music consumption, the traditional business model of the music industry relies upon the mass production and distribution of music as a tangible product (Vaccaro & Cohn, 2004). As such, this model includes both record labels and artists as providers of music to brick-and-mortar stores, concert venue merchandise kiosks, and e-commerce websites that serve as music distributors (McCubbrey, 2015; Vaccaro & Cohn, 2004). This is in stark contrast to the renegade business model of the music industry “based on illegal, unauthorized peer-to-peer (P2P) music file trading of digital MP3 files via the Internet” (Vaccaro & Cohn, 2004, p. 47). Enabled by the advent of easily downloadable computer software, the renegade business model allows digital music consumers to access content and services completely free of charge by bypassing the payment process altogether (Hughes & Lang, 2003; Vaccaro & Cohn, 2004). As such, consumers who adopt this renegade business model often have unrealistic expectations for the acquisition of digital music including the belief that everything on the Internet should be free (Lin et al., 2013).

Consequentially, a second economic shift began to occur as unauthorized online software providers quickly realized the value of upselling music consumers to premium paid services and content (Vaccaro & Cohn, 2004; Lin et al., 2013; McCubbrey, 2015). As a result, the authorized sale of digital music online via either download-to-own, download-to-rent, or streaming digital music service formats eventually became the new business model of the music industry (Dörr et al., 2013; Hughes & Lang, 2003; Vaccaro & Cohn, 2004). Interestingly, this new business model allows record labels, artists, and product/service providers to share overall profits (McCubbrey,

2015; Vaccaro & Cohn, 2004). As such, it combines aspects of both the traditional and renegade business models of the music industry. It has also been cited as the most popular music business model with total revenue of online retailers adopting the approach amounting to more than \$6.9 billion in the year 2014 (IFPI, 2015). In spite of this success, however, it is important to note that all three music industry business models exist simultaneously within today's media marketplace, allowing a wide variety of social and psychological preferences to potentially influence the decisions made by digital music consumers.

Original Theory of Planned Behavior Model

Because the growth of digital music streaming services represents a relatively recent business model shift resulting from a complex interaction of technical, economic, social, and psychological factors, this study relies upon the TPB to consider how consumer attitudes and beliefs regarding this emerging technology may influence behavioral intention (see Figure 1). Assuming that “people consider the implications of their actions before they decide to engage or not engage in a behavior” (Ajzen & Fishbein, 1975, p. 5), the TPB proposes that human actions are guided by behavioral intentions viewed as a function of three interrelated variables—attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991; Ajzen & Fishbein, 1975; Petty, Briñol, & Priester, 2009). In this way, the TPB suggests that people with strong plans to perform a certain behavior are more likely to engage in that behavior going forward (Ajzen, 1991; Ajzen & Fishbein, 1975). As such, it serves as a useful model for investigating how a variety of motivational factors contribute to digital music consumers' rational decision making processes (Dörr et al., 2013; Kwong & Park, 2008).

Specifically, the TPB allows for consumer motivations to be more easily understood by breaking this factor down into the three interrelated variables of attitudes, subjective norms, and perceived behavioral control (Kwong & Park, 2008; Ajzen, 1991; Ajzen & Fishbein, 1975). The theory argues that a person's attitude or general feelings of favorableness toward a behavior serves as a motivating factor driving the performance of that behavior (Ajzen & Fishbein, 1975). Subjective norms are also thought to play a role in the development of motivations because they represent perceptions related to how significant others view the performance of a certain behavior (Ajzen, 1991; Ajzen & Fishbein, 1975). This implies that whether salient members of a person's social group view a behavior favorably or unfavorably can exert a direct influence upon a person's desire to perform that behavior. Perceived behavioral control serves as the final factor of the TPB model and reflects the perception of the ease or difficulty of performing a behavior (Ajzen, 1991; Ajzen & Fishbein, 1975). Because these three motivation variables serve as antecedents for predicting behavioral intention, the TPB provides a succinct outline for understanding the complex interactions that lead to behavior. Thus, by examining the interaction of general feelings of favorableness toward digital music streaming services (attitudes), perceptions of important others toward digital music streaming services (subjective norms), and perceptions of the relative ease or difficulty of using digital music streaming services (perceived behavioral control), the TPB serves as a solid foundation for analyzing this specific music listening behavior (Ajzen & Fishbein, 1975; Dörr et al., 2013; Kwong & Park, 2008).

As such, it is not surprising that scholars have recently started utilizing the TPB to examine behavior within the context of digital music streaming services specifically (Delikan, 2010; Dörr et al., 2013; IFPI, 2015; Kwong & Park, 2008; Lin et al., 2013; Sanchez-Franco &

Rondan-Cataluña, 2010; Weijters et al., 2014). Relying upon the TPB as a model for behavioral intention prediction, several of these studies have demonstrated the importance of subjective norms in intention to use online music streaming services (Dörr et al., 2013; Kwong & Park, 2008). Essentially, this implies that consumer intention to use digital music streaming services is primarily affected by the extent to which significant others positively perceive that behavior (Kwong & Park, 2008). Moreover, significant relationships have also been noted between consumer attitude toward and behavioral intention to use digital music streaming services (Delikan, 2010), suggesting that attributes such as multi-platform accessibility, social media capability, and audio quality may exert a positive influence upon behavior. Cumulatively, these findings suggest that the TPB model can be successfully used to predict overall digital music streaming service behavior. As such, this study advances the following two-part hypothesis:

H_{1a}: Attitudes, subjective norms, and perceived behavioral control will positively predict intention to use digital music streaming services.

H_{1b}: Attitudes, subjective norms, perceived behavioral control, and behavioral intention will positively predict streaming behavior.

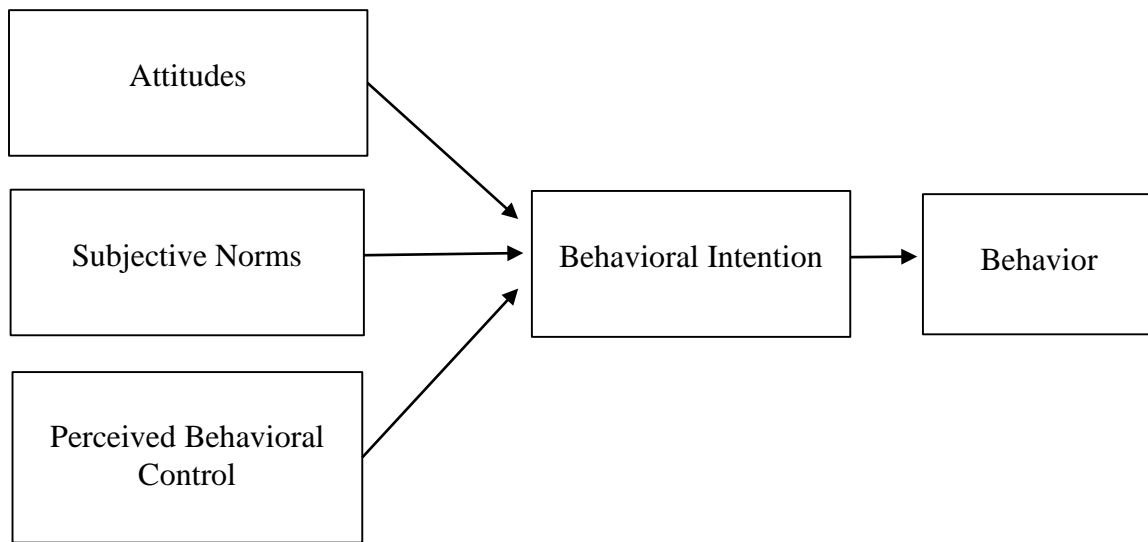


Figure 1: Original Theory of Planned Behavior Model

Moreover, the variables of attitudes, subjective norms, and perceived behavioral control can further be utilized to expand upon the original TPB model in an effort to develop a more comprehensive understanding of digital music streaming service consumption. Alongside these three primary TPB variables, three additional factors of music streaming motives, social identification, and technological engagement exhibit conceptual connections that suggest the importance of their role in the development of intention to use digital music streaming services (Dörr et al., 2013; Kinnally et al., 2008; Liikkanen & Salovaara, 2015; North & Hargreaves, 1999). For example, by serving as an integral factor driving the use and favorableness toward digital music streaming services, music streaming motives imply a fundamental connection with attitudes and intention to use digital music streaming services (Ajzen & Fishbein, 1975; Kwong & Park, 2008). Similarly, social identification with music serves as a conceptual link to social perceptions associated with subjective norms and intention to use digital music streaming services through its emphasis upon the importance of perceived social expectations to the

formation of digital music consumption behavior (Ajzen & Fishbein, 1975; Tekman & Hortaçsu, 2002). Technological engagement appears to have a relevant connection with perceived behavioral control and intention to use digital music streaming services through its ability to reflect how technological experiences come to influence the perceived ease or difficulty of digital music streaming service use (Ajzen & Fishbein, 1975; Calder, Malthouse, & Schaedel, 2009). Ultimately, these conceptual connections suggest there is potential value in incorporating each of these three social and psychological factors within an expanded TPB model combining the interdisciplinary research findings surrounding this revolutionary phenomenon.

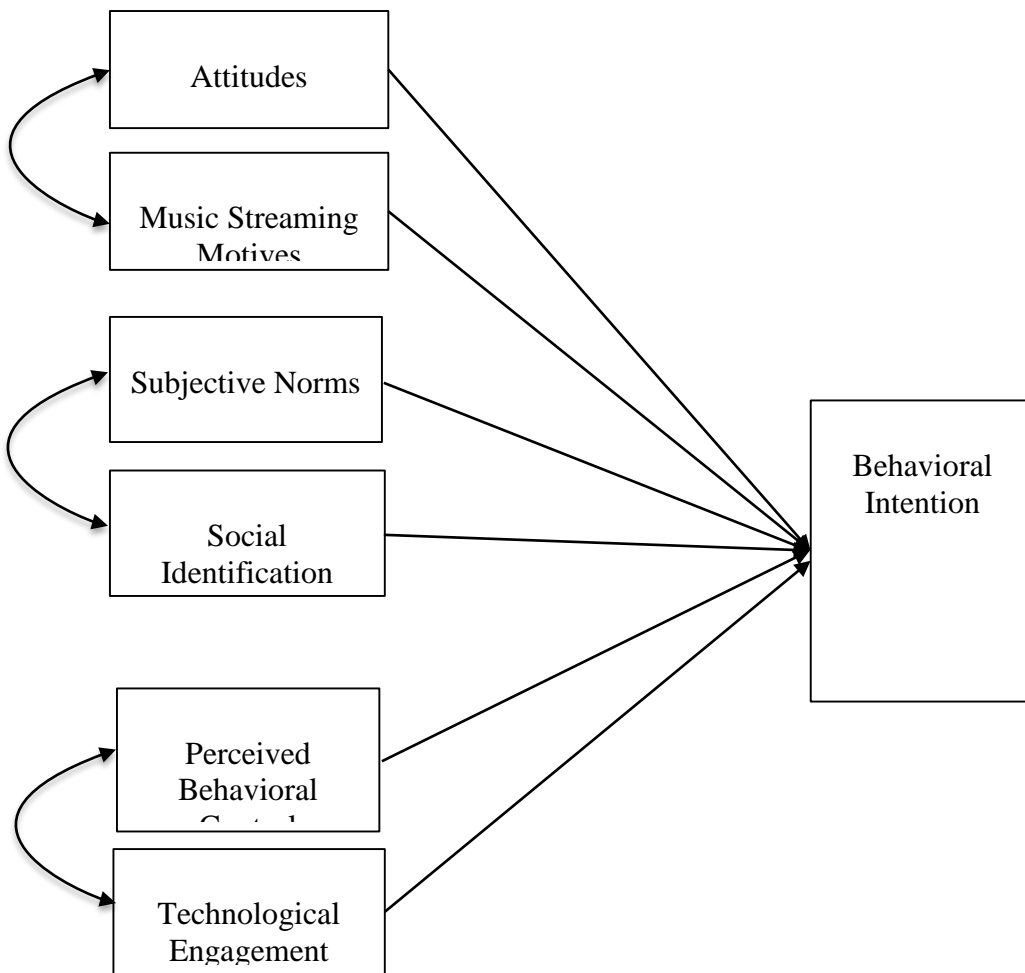


Figure 2: Original Theory of Planned Behavior H₁ Model

Music Streaming Motives

Scholars have often employed the uses and gratifications theory (U&G) of mass communications as an analytical lens through which to examine media effects produced by emerging digital technologies (Ferguson, Greer, & Reardon, 2007; Kinnally et al., 2008; Krause et al., 2014; Salo, Lankinen, & Mäntymäki, 2013; Sundar & Limperos, 2013). Defined as a perspective emphasizing “(1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources, which leads to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones” (Katz, Blumler, & Gurevitch, 1973, p. 510), U&G provides a framework for understanding both the motives that drive individuals to select certain types of media along with the resulting gratifications obtained through media use (Katz et al., 1973; Sundar & Limperos, 2013; Rubin, 2009). Essentially, this makes it useful for examining the goal-driven and purposive nature of consumers because it assumes audiences actively make decisions that lead them to engage with different types of media for fundamentally different reasons (Krause et al., 2014; Ruggiero, 2000). Additionally, U&G assumes that social and psychological factors can serve as the origins of these motive variations (Katz et al., 1974; Ruggiero, 2000; Sundar & Limperos, 2013), implying that consumers select media technologies best suited to meeting their varying internal needs. Thus, U&G offers a valuable perspective through which to analyze the role that social and psychological variables such as music streaming motives play in intention to use digital music streaming services.

In order to empirically investigate the influence of music streaming motives on intention to use digital music streaming services, it is first necessary to consider literature documenting the

myriad reasons why people listen to music (Belcher & Haridakis, 2013; Lewis, 1981; Lonsdale & North, 2011). A wide variety of genres have been examined throughout this music motive research including popular, rock, and even classical music (Gantz, Gartenberg, Pearson, & Schiller, 1978; Lacher & Mizerski, 1994; Lewis, 1981; Roe, 1985). Yet, there are overwhelming commonalities in the motives identified for listeners engaging with each of these diverse types of music. In particular, researchers have consistently found five prominent music listening motives of mood management, pass time, entertainment, relationship building, and personal identity development (Belcher & Haridakis, 2013; Gantz et al., 1978; Lonsdale & North, 2011; Roe, 1985). However, a majority of these motives remain similar to the cognitive, emotional, and social gratifications typically sought from the mass media in general (Hargreaves & North, 1999; McQuail, Blumler, & Brown, 1972).

As such, it is perhaps not surprising that U&G has also been extensively utilized to examine motives for using digital music technologies (Ferguson, Greer, & Reardon, 2007; Kinnally et al., 2008; Krause et al., 2014; Zeng, 2011). Initially, research investigating these motives focused on understanding the gratifications sought and obtained by consumers engaging in unauthorized music file sharing activities commonly associated with the introduction of the renegade music industry business model (Cenite et al., 2009; Kinnally et al., 2008; Sheehan, Tsao, & Yang, 2010). Specifically, researchers have identified the motives of economic utility, collection utility, and social utility as significant predictors of digital music piracy among college students (Sheehan et al., 2010). Similarly, the sense of community that often accompanies illegal music file sharing has also been interpreted as a motivation for digital music downloading via the Internet (Cenite et al., 2009). By demonstrating a connection between multiple diverse motives

and music listener behavior, these findings cumulatively imply that both social and economic variables may influence interactions between consumers and digital music platforms.

Furthermore, because music downloading represents one of the earliest and most widespread forms of digital music consumption (Schramm, 2006; Weijters, Goedertier, & Verstreken, 2014), it is also important to recognize differing motives among diverse subgroups of people engaging with music via the Internet. As such, past research has outlined the varying motivations and gratifications obtained from listening to digitally downloaded music utilizing MP3 player technology (Albarran et al., 2007; Ferguson et al., 2007; Kerrigan, Larsen, Hanratty, & Korta, 2014; Zeng, 2011). Not surprisingly, a majority of these motives including companionship, entertainment, and stimulation remain similar to those previously discovered for listening to music in general and downloading digital music specifically (Gantz et al., 1978; Lonsdale & North, 2011; Roe, 1985; Cenite et al., 2009; Kinnally et al., 2008; Sheehan et al., 2010). At the same time, however, salient minority motives such as status and concentration have also emerged from this research (Ferguson et al., 2007; Zeng, 2011). Because both MP3 players and digital music streaming services often exhibit “patterns of media use...characterized by portability, control, convenience, and on-demand content” (Ferguson et al., 2007, p. 103), these novel findings raise questions as to whether consumer motives are beginning to influence fundamental changes in media use patterns.

Despite extensive examination of both analog and digital music listening motives, however, there is a substantial gap in the research literature concerning motives for utilizing digital music streaming services (Delikan, 2010; Krause et al., 2014). Research examining this trend thus far has provided resounding support for the music as a service concept exemplified by

the streaming digital music service format and new music business model of the music industry (Dörr et al., 2013; Vacarro & Cohn, 2004). Most prominently, this is demonstrated through Delikan's (2010) finding that listeners of the Sweden-based music streaming service Spotify are motivated to use the platform through the three primary factors of perceived usefulness, convenience, and social sharing. Once again, these motivations are evident in research exploring reasons behind the use of various digital music applications, ranging from podcasts to social media music groups (Markman & Sawyer, 2014; McClung & Johnson, 2010; Karnik, Oakley, Venkatanathan, Spiliotopoulos, & Nisi, 2013). For example, scholars exploring the U&G of a Facebook music video sharing group revealed four gratifications for engaging in this form of digital music behavior—contribution, discovery, social interaction, and entertainment (Karnik et al., 2013). Cumulatively, these initial studies provide a comprehensive picture suggesting the significance of social interaction, economic utility, and information seeking motives upon digital music listening behavior. Yet because digital music listening motives also appear to be changing over time, this study will additionally consider the previously identified media use motives of entertainment and pass time in an effort to determine which of these motives are ultimately the most important in determining digital music streaming use today. Thus, the following research question and hypothesis are proposed:

RQ₁: Which motives are most important to using digital music streaming services?

H₂: Music streaming motives are positively related to intention to use digital music streaming services and streaming behavior.

Social Identification with Music

The highly symbolic nature of music allows listeners to achieve “a sense of both self and others, of the subjective in the collective” (Frith, 1996, p. 110). As such, social identification

research also serves as a crucial lens through which to examine the influence of subjective norms upon digital music consumption behavior. Primarily, research investigating social identification with music demonstrates music's unique ability to contribute to the formation of social identity by serving as a tool for self-evaluation and social comparison within intergroup contexts (Badaoui, Lebrun, & Bouchet, 2012; North & Hargreaves, 1999; Shankar, Elliott, & Fitchett, 2009; Tekman & Hortaçsu, 2002; Wolfe, Loy, & Chidester, 2009). For example, researchers have found that positive relationships exist between adolescent musical preference, self-concept, self-esteem, and normative expectations of music fans (North & Hargreaves, 1999; Shepherd & Sigg, 2015). Essentially, this suggests that adolescents rely on music genre preferences not only to develop their own personal sense of self-worth, but also to distinguish between in-group and out-group members in their social environment (Badaoui et al., 2012; North & Hargreaves, 1999). Because these perceptions of the social world ultimately serve as a first step toward the attitude formation that influences subjective norm perceptions (North & Hargreaves, 1999), these studies cumulatively lend empirical support to the notion that social identification with music is an antecedent to behavioral intention to use digital music streaming services. In this way, consumers rely upon music as both a foundation for social identity as well as a cue for subjective norms in an attempt to determine whether or not the use of a digital music streaming service is appropriate within the context of a specific social group.

Additionally, another significant line of research explores how consumers rely upon music to facilitate the construction and maintenance of various forms of social identification over the course of their lifetimes (Chuang & Hart, 2008; Shankar et al., 2009; Wolfe et al., 2009; Baker et al., 2001). This research has been conducted across a wide variety of music genres

including classic rock (Wolfe et al., 2009), suburban punk rock (Chuang & Hart, 2008), contemporary hip-hop (Mattar, 2003; Muhammad, 2015), and working-class country (Conrad, 1988). By analyzing the emotional and informational content conveyed through these diverse forms of music, a majority of these studies have concluded that music serves as a “key vehicle for the expression and contestation of cultural identities at both a collective and personal level” (Baker, 2001, p. 359). Interestingly, scholars have also investigated the influence of music listening on social identification over the course of a lifetime of music listening (Shankar et al., 2009). In their analysis examining how archived record collections both enable and constrain identity development, for example, Shankar, Elliott, and Fitchett (2009) observed that consumers use music to negotiate and renegotiate competing identities across socially meaningful situations. As such, these studies reflect the salience of social identification expression as a factor in digital music consumption, especially given the increasingly social nature of today’s new media.

However, recent research is beginning to question the extent to which the intersection between social identification with music and digital music listening relies upon traditional boundaries created by specific music genre preferences (Rentfrow, McDonald, & Oldmeadow 2009; Shepherd & Sigg, 2015; Ter Bogt, Mulder, Raaijmakers, Gabhainn, 2010). In fact, findings suggest that as digital music technology evolves, highly involved listeners are becoming significantly more likely to prefer a wider range of genres (Ter Bogt et al., 2010; Vevo, 2015). Similarly, studies analyzing consumers along music preference dimensions have reported small statistical correlations between group differences and music preference dimensions (Shepherd & Sigg, 2015), suggesting that digital music consumers are no longer identifying with a single music genre. By implying that emerging digital music technologies are slowly blurring the lines

between distinct social perceptions defined by music genre preferences, this pattern of findings downplays the role of genre-based social identification in the use of digital music streaming services. Thus, although several scholars argue that the psychological and social characteristics of music genre fans are increasingly losing their previous robustness, the extent to which digital music consumers actually rely upon social distinctions for identification purposes within specific social settings remains strong. As such, this study advances the following hypothesis:

H₃: Social identification is positively related to intention to use digital music streaming services and streaming behavior.

Technological Engagement

A broad range of research has also emerged examining the relationship between new media use and technological engagement (Calder, Malthouse, & Schaedel, 2009; Hargittai & Shaw, 2013; Mersey, Malthouse, & Calder, 2010; Yang & Coffee, 2014). Due to the highly interactive nature of the Internet, these studies initially examined the effects of technological engagement upon a variety of outcomes including advertising effectiveness (Calder et al., 2009; Yang & Coffee, 2014), political participation (Hargittai & Shaw, 2013), and even news readership (Mersey et al., 2010). Overwhelmingly, results of these studies consistently conclude that consumers who exhibit high levels of technological engagement are more responsive to content distributed via online platforms such as websites, social media networks, or smart phone applications (Calder et al., 2009; Mersey et al., 2010; Yang & Coffee, 2014; Mersey et al., 2010). In some instances, high levels of online engagement have even been shown to impact offline engagement in real-world settings, as documented by the findings of several studies investigating young-adult political participation during the 2008 United States presidential election (Conroy, Feezell, & Guerrero, 2012; Hargittai & Shaw, 2013). Specifically, young adults exhibiting higher

levels of technological engagement with both the Internet and social media networks were significantly more likely to participate in politically engaged activities including volunteering, donating, and contacting political officials (Hargittai & Shaw, 2013). However, it is also important to acknowledge the extent to which these results may be influenced by the higher levels of technological engagement typically associated with a young adult demographic. Because more recent studies are beginning to emphasize the increasing importance of technological engagement to new media use across all age groups (Avdeef, 2012; Conroy et al., 2012; Yang & Coffee, 2014), however, this lack of variance across the young adult demographic specifically does not prevent these studies from providing a solid foundation for examining the consumption of digital music streaming services.

Regardless of these advancements, however, the growing field of technological engagement research has also suffered from a “lack of agreement within the industry and the academy on the definition of engagement” (Mersey et al., 2010, p. 39). Recognizing the practical implications resulting from this discrepancy for online content distributors and advertisers alike, researchers are increasingly working to develop a precise definition for the concept of technological engagement (Calder et al., 2009). Studies adopting a systematic approach to examining online media engagement, for example, have identified two types of technological engagement—personal and social-interactive engagement (Calder et al., 2009; Mersey et al., 2010). Personal engagement relates to interacting with technology in the form of social experiences such as utilizing a laptop to retrieve information about wider societal issues (Calder et al., 2009). On the other hand, social-interactive engagement relates to interacting with technology through unique web-based experiences such as sharing music listening information

via an online social media application built into a digital music streaming service (Calder et al., 2009). Because these distinct forms of engagement have been found to positively influence online behavior (Calder et al., 2009; Mersey et al., 2010), this research lends empirical support to the argument that the concept of technological engagement manifests itself in a variety of different ways according to individual Internet use goals. Since digital music streaming services are often associated with Internet-based social media networks, there is strong reason to anticipate that high levels of technological engagement may positively influence digital music streaming behavior. As such, this study advances the following hypothesis:

H₄: Technological engagement is positively related to intention to use digital music streaming services and streaming behavior.

Expanded Theory of Planned Behavior Model

Building upon this interdisciplinary research, scholars have recently started examining music listening behavior within the context of online streaming services such as Pandora, Spotify, or Deezer (Delikan, 2010; Dörr et al., 2013; IFPI, 2015; Kwong & Park, 2008; Lin et al., 2013; Sanchez-Franco & Rondan-Cataluña, 2010; Weijters et al., 2014). In fact, researchers are already beginning to utilize additional variables to expand upon the original TPB model in this way to develop a more comprehensive understanding of digital music streaming service behavior (Dörr et al., 2013; Kwong & Park, 2008). For example, researchers recognizing the inherent relationship between the attitudes component of the TPB and perceived service quality have found that adding this element allows the model to better predict behavioral intention to use digital music streaming services (Kwong & Park, 2008). Similarly, attitudes toward distinctive features of digital music streaming services such as social sharing functions or diverse payment plan options have also been found to positively influence behavioral intention through its

extension upon the original TPB framework (Dörr et al., 2013). By providing supplemental support alongside the traditional elements of attitudes, subjective norms, and perceived behavioral control, these additional social and psychological factors help more fully explain the complex interactions contributing to the development of digital music consumption. As such, these initial findings imply the value of incorporating each of the three factors outlined across this literature review into an expanded TPB model (see Figure 2) aimed at investigating the complex phenomenon of digital music streaming service behavior, while simultaneously setting the stage for the next set of multi-part hypotheses:

H_{5a}: Music streaming motives and attitudes are positively related to one another.

H_{5b}: Social identification and subjective norms are positively related to one another.

H_{5c}: Technological engagement and perceived behavioral control are positively related to one another.

H_{6a}: Alongside the original TPB model variables, music streaming motives, social identification, and technological engagement will positively predict intention to use digital music streaming services.

H_{6b}: Alongside the original TPB model variables, music streaming motives, social identification, technological engagement, and behavioral intention will positively predict streaming behavior.

Overall, this literature review has provided a comprehensive examination of the interdisciplinary body of research relevant to understanding the impact of new media technologies upon digital music consumption behavior. By using the TPB as a foundation to explore connections between the diverse variables of music streaming motives, social identification, and technological engagement, this study is poised to help develop a better understanding of digital music streaming behavior. Despite consistent findings across early music listening research, however, recent revolutions in the development of digital music

technology are beginning to present a wide array of new challenges to the prediction of music consumer behavior (Delikan, 2010; Dörr et al., 2013; Kwong & Park, 2008; Lin et al., 2013). Therefore, more research is needed to firmly determine the role that these variables play in an expanded TPB model predicting streaming behavior. As such, this study advances one final hypothesis:

H7: An expanded TPB model including the variables of music streaming motives, social identification, and technological engagement is a better predictor of intention to use digital music streaming services and streaming behavior as compared to the original TPB model.

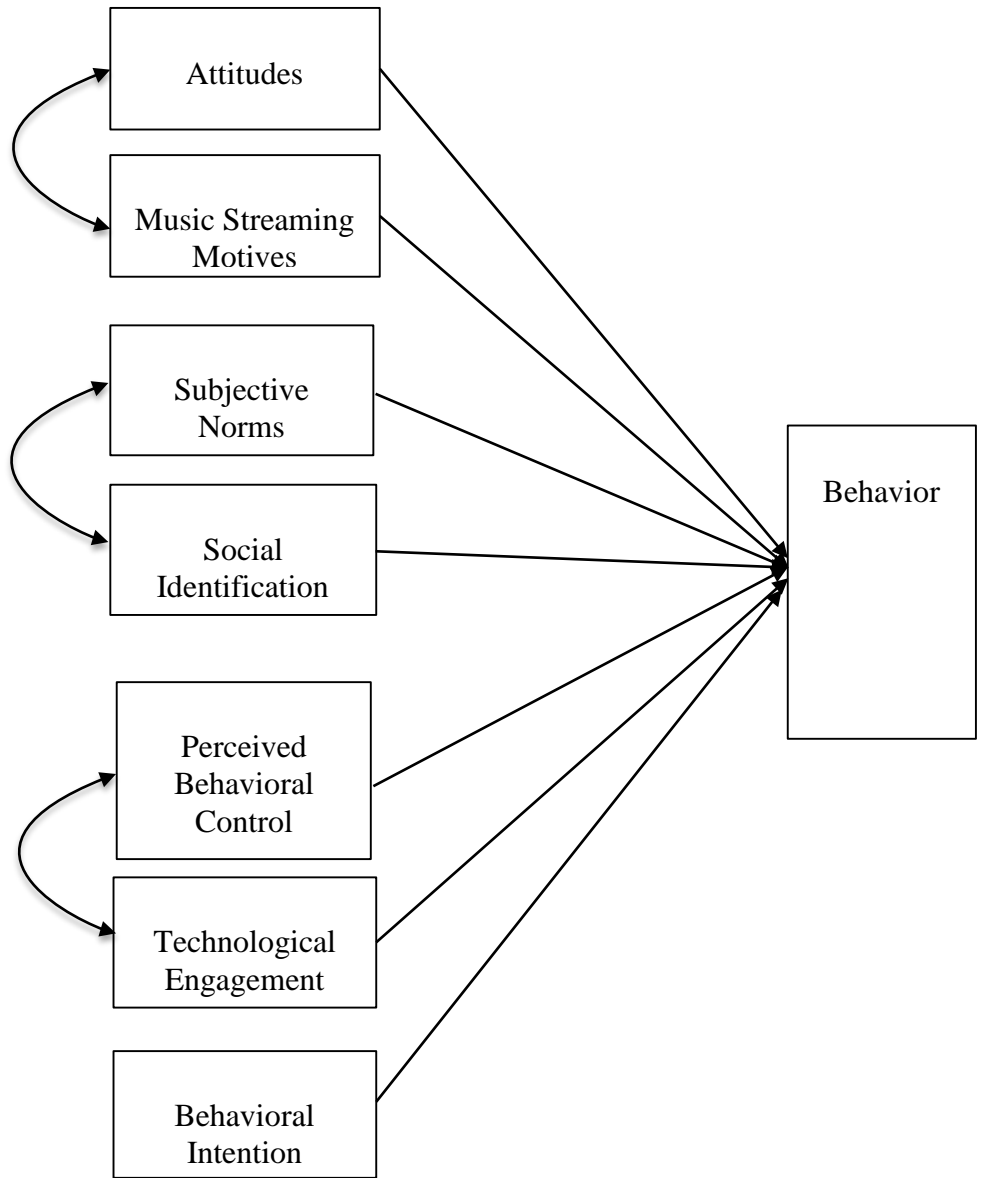


Figure 3: Expanded Theory of Planned Behavior H₆ Model

CHAPTER THREE: METHODOLOGY

Procedure

A quantitative survey methodology (see Appendix C) was used to measure the influence of music streaming motives, social identification, and technological engagement on consumer intention to use digital music streaming services according to an expanded theory of planned behavior (TPB) model (Ajzen & Fishbein, 1975). After creating an online survey instrument using the Qualtrics secure survey administration platform, links to complete the survey were distributed to undergraduate students enrolled in introductory-level communication courses at the University of Central Florida. Instructors offered students credit for their completion of the survey with the option to complete an alternative assignment if desired. Survey links were distributed via official university sanctioned e-mail addresses and course websites. Survey data were collected over the course of a three-week time period between April 5, 2016 and April 26, 2016.

In order to participate, students first agreed to the parameters of the study including the informed consent statement presented at the very beginning of the survey. Before beginning the first section of the survey, participants were initially presented with several questions related to basic demographic and media use information. The first section of the survey included several items related to the measurement of music streaming service use (Belcher et al., 2013; Kinnally et al., 2008) and technological engagement (Calder, Malthouse, & Schaedel, 2009; Sharafi, Hedman, & Montgomery, 2006). The second section of the survey included several items measuring social identification (Badaoui et al., 2012; Bogt et al., 2010). The third section included items related to the TPB variables of attitude, subjective norms, perceived behavioral

control, and behavioral intention (Ajzen & Fishbein, 1975; Dörr et al., 2013; Kwong & Park, 2008). The last section featured items measuring time spent listening (Conway & Rubin, 1991; Kinnally et al., 2008). To maintain anonymity, students who completed the survey were then directed to a link allowing them to provide the personal information necessary for instructors to award credit for their participation.

Participants

A total of 781 people participated in the survey. In order to maintain internal validity, data from 87 participants were excluded due to a failure to complete the survey in its entirety. Additionally, all data from non-users of digital music streaming services ($n = 28$) were also excluded from analysis due to concerns related to small sample size including the increased probability of committing a Type I error. These adjustments resulted in a total sample size of $N = 665$ participants.

The use of a convenience sample of college students is appropriate and supported within recent research highlighting the importance of younger demographic groups to the adoption of new media music technologies (Bonneville-Rousy et al., 2013; Krause et al., 2015; Tekman & Hortaçsu, 2002; Vevo, 2015). Because Millennials exhibit a penchant for “discovery, engagement and sharing, along with a strong technology acumen” (Vevo, 2015, p. 2), for example, scholars have argued that this population is vital to the examination of a variety of music consumption and interaction variables including music listening motives, social identification, and engagement (Bonneville-Rousy et al., 2013; Krause et al., 2015). In spite of the appropriateness of this sample, however, there is also limited generalizability as a result of this targeted focus.

Overall, the sample for this study consisted of 62.1% female and 37.9% male participants. Participants ranged in age from 18 to 56 years old with an average age of approximately 20 ($M = 19.91$, $SD = 3.14$). A majority of participants identified as Caucasian accounting for 58.9% of the total sample, while 18.0% identified as Latino, 9.6% identified as African American, 7.7% identified as Asian/Pacific Islander, 5.6% identified as either Multi-ethnic or Other, and .2% identified as Native American. As a whole, participants indicated that they use Spotify (49.7%), Pandora (42.6%), and SoundCloud (20.0%), more often than Apple Music (14.4%), Google Play (5.3%), Amazon Prime Music (2.3%), Tidal (1.4%), Rhapsody (0.6%), and Other (3.9%) digital music streaming services. Common examples of other digital music streaming services listed by participants include 8tracks, bandcamp, and Samsung Milk Music.

Participants also indicated the level of importance that they place upon five essential digital music streaming service characteristics by rating their agreement with five items on a 7-point Likert-type scale with responses ranging from “not at all important” to “extremely important.” The five characteristics examined included sound quality, legal access to music, social media integration, the music search feature, and the shuffle feature. Overall, results suggest that these participants felt sound quality ($M = 6.12$; $SD = 1.13$) and the music search feature ($M = 6.12$; $SD = 1.06$) were the most important characteristics of digital music streaming services. On the other hand, the shuffle feature ($M = 5.28$; $SD = 1.49$), legal access to music ($M = 4.40$; $SD = 1.95$), and social media integration ($M = 2.82$; $SD = 1.75$) were seen as less important characteristics of digital music streaming services.

Measures

Original Theory of Planned Behavior Variables

Attitudes. Following techniques used in prior TPB research, a previously developed measure of attitude toward the behavior was adapted from recent research literature (Ajzen & Fishbein, 1980; Dörr et al., 2013). The 6-item index measures participants' general feelings of favorableness toward using a digital music streaming service (see Appendix B). Participants read prompted statements such as “using a digital music streaming service is a favorable activity” or “using a digital music streaming service will help me have a great listening experience” and indicated their agreement on a 7-point Likert-type scale with responses ranging from “strongly disagree” to “strongly agree.” Item means were then averaged to create an *Attitudes Index* ($M = 5.70$, $SD = .90$; $\alpha = .87$).

Subjective Norms. Subjective norms were also measured using an index adapted from recent research literature (Dörr et al., 2013, Kwong & Park, 2008). The 5-item index measures participants' perceptions of how important others view the behavior of using a digital music streaming service (see Appendix B). Some wording was altered to reflect the measure of intention to use digital music streaming services. Participants responded to statements by indicating their agreement on a 7-point Likert-type scale with responses ranging from “strongly disagree” to “strongly agree.” Examples of statements designed to measure the subjective norms of participants included “my close friends think that I should use a digital music streaming service to listen to music” and “most people who are important to me approve of my using a digital music streaming service to listen to music.” Item means were then averaged to create a *Subjective Norms Index* ($M = 4.97$, $SD = 1.01$; $\alpha = .79$).

Perceived Behavioral Control. Perceived behavioral control was measured using an index adapted from recent research literature (Dörr et al., 2013, Kwong & Park, 2008). The 8-item index measures participants' perceptions of the ease or difficulty of using a digital music streaming service (see Appendix B). Although this index was originally 9 items in length, 1 item was omitted from analysis due to its negative effect on the reliability of the index, indicating that it may have been confusing to some participants. Some wording was altered to reflect the measure of intention to use digital music streaming services. Participants responded to statements such as "I am confident that I know how to use a digital music streaming service" or "I have the equipment needed to use a digital music streaming service to listen to music" by indicating their agreement on a 7-point Likert-type scale with responses ranging from "strongly disagree" to "strongly agree." A 3-item self-efficacy index was also included to assess participants' perceptions of confidence toward using a digital music streaming service. Participants responded to statements such as "I will be able to use all of the features of a digital music streaming service" by indicating their agreement on a 7-point Likert-type scale with responses ranging from "strongly disagree" to "strongly agree." Item means were then averaged to create a *Perceived Behavioral Control Index* ($M = 5.73$, $SD = .84$; $\alpha = .84$).

Behavioral Intention. Behavioral intention was measured using an adapted index (Dörr et al., 2013, Kwong & Park, 2008). The 4-item scale measures participants' behavioral intention to use a digital music streaming service (see Appendix B). Some wording was altered to reflect the measure of intention to use digital music streaming services. This resulted in the formation of a concise scale containing statements such as "I intend to use a digital music streaming service within the next 24 hours." Participants responded to these statements by indicating their

agreement on a 7-point Likert-type scale with responses ranging from “strongly disagree” to “strongly agree.” Item means were then averaged to create a *Behavioral Intention Index* ($M = 6.03$, $SD = 1.34$; $\alpha = .97$).

Behavior. Behavior operationalized as time spent listening to digital music streaming services was also measured using an index adapted from previous research literature (Kinnally et al., 2008). The 4-item index measures the amount of time that participants spend listening to digital music streaming services over the course of a typical 24-hour period (see Appendix B). Some wording was altered to reflect the context of digital music streaming services. Participants read prompted statements corresponding to specified segments of a 24-hour period such as “yesterday morning between 6:00 A.M and noon,” “yesterday afternoon between noon and 6:00 P.M.,” “yesterday evening between 6:00 P.M. and midnight,” and “overnight between midnight and 6:00 A.M. today.” Participants then indicated the typical amount of time spent listening to digital music streaming services during each of these six-hour time periods represented in 30-minute increments. Item means were then summed to create a *Time Spent Listening Measure* ($M = 3.52$, $SD = 3.33$) indicating the average number of hours per day participants spent listening to digital music streaming services.

Expanded Theory of Planned Behavior Variables

Music Streaming Motives. Following techniques used in prior uses and gratifications (U&G) research, a composite measure of music streaming motives was adapted from recent studies investigating consumer uses of new music technology (Belcher et al., 2013; Kinnally et al., 2008). Several items from each of the scales used by these researchers were condensed into a 26-item measure (see Appendix B). Based on previous measures (Belcher et al., 2013; Kinnally

et al., 2008), the five factors of entertainment, pass time, economic utility, social interaction, and information seeking were used within this scale to group items together according to motive type. Items were adapted to fit the context of digital music streaming services with participants responding to statements such as “I use digital music streaming services because I can access the music I want” or “I use digital music streaming services because I can share my listening experiences.” A sixth factor made up of items related specifically to digital music streaming service features was also constructed by the researchers, consisting of statements such as “I can listen to songs that match my mood” or “I can save music I enjoy to listen to again later at a time that is more convenient for me.” Participants indicated their agreement with each of these items on a 7-point Likert-type scale with responses ranging from “strongly disagree” to “strongly agree.” Although this index originally consisted of 26 items, 2 items were omitted from the entertainment and economic utility index analysis due to their low loading scores, indicating that they may have been confusing to some participants. Additionally, 3 items were also omitted from analysis due to their inability to load into a factor category (see Chapter 4: Results for full factor analysis description). Item means were then averaged to create six music streaming motive factor scales including a *Social Interaction Index* ($M = 4.32, SD = 1.49; \alpha = .89$), *Entertainment Index* ($M = 6.09, SD = .84; \alpha = .89$), *Information Seeking Index* ($M = 5.84, SD = 1.10; \alpha = .85$), *Pass Time Index* ($M = 5.30, SD = 1.23; \alpha = .80$), *Economic Utility Index* ($M = 4.53, SD = 1.53; r = .76$) and *Convenience Index* ($M = 5.96, SD = 1.19; r = .59$).

Social Identification with Music. A composite measure of social identification with music was constructed from previous research studies examining this variable (Badaoui et al., 2012; Bogt et al., 2010). This 8-item index was adapted to measure social identification within

the context of listening to music using digital music streaming services specifically (see Appendix B). Participants indicated their agreement with items such as “how I see myself depends on the type of music I listen to” or “my friends have the same music taste as I do” by responding to each statement on a 7-point Likert-type scale with responses ranging from “strongly disagree” to “strongly agree.” Item means were then averaged to create a *Social Identification Index* ($M = 3.37$, $SD = 1.23$; $\alpha = .87$).

Technological Engagement. This study uses an index adapted from recent research to measure the concept of technological engagement (Calder et al., 2009; Sharafi et al., 2006). Several questions from each of the scales used by these researchers were condensed into a 20-item measure (see Appendix B). Items were adapted to fit the context of digital music streaming services with participants responding to statements such as “digital music streaming technology inspires me to listen to music” or “I have control over my music listening when I use digital music streaming services.” Participants indicated their agreement with each of these items on a 7-point Likert-type scale with responses ranging from “strongly disagree” to “strongly agree.” Item means were then averaged to create a *Technological Engagement Index* ($M = 4.09$, $SD = .85$; $\alpha = .88$).

CHAPTER FOUR: RESULTS

This study utilizes a combination of multiple regression, factor analysis, and correlation techniques to examine the influence of music streaming motives, social identification, and technological engagement on consumer intention to use digital music streaming services and streaming behavior. Cumulatively, these statistical techniques address the seven hypotheses and one research question advanced by this study.

Original Theory of Planned Behavior Results

Hypothesis 1a. Hypothesis 1_a proposed that attitudes, subjective norms, and perceived behavioral control are positive predictors of intention to use digital music streaming services. As such, a multiple regression was conducted to test the overall predictive strength of this original TPB model (Ajzen & Fishbein, 1975). This first model included the attitudes index, subjective norms index, and perceived behavioral control index as independent variables and intention to use digital music streaming services as a dependent variable (see Table 1). Multiple regression analysis revealed that the overall model of intention to use digital music streaming services was statistically significant, $F(3, 647) = 92.42, p < .001$, with an $R^2 = .302$ and an adjusted $R^2 = .300$. Two of three independent variables contributed to this model including attitudes ($\beta = .41, p < .001$) and perceived behavioral control ($\beta = .16, p < .01$). However, subjective norms ($\beta = .01, p > .05$) did not contribute to this behavioral intention model. As such, intention to use digital music streaming services was explained by a combination of attitudes and perceived behavioral control together accounting for 30% of the total variance explained by the behavioral intention model. Overall, these results provide partial support for hypothesis 1_a.

Hypothesis 1b. Hypothesis 1_b focused on examining whether the original TPB components as well as behavioral intention positively predict streaming behavior. This second model included the attitudes index, subjective norms index, perceived behavioral control index, and behavioral intention index as independent variables and time spent listening as a dependent variable (see Table 1). A review of the data for outliers indicated that 15 participants' time spent listening reports were greater than three standard deviations from the mean and therefore were removed from the analysis of this model. A hierarchical multiple regression analysis run with the original TPB model variables contained in step one and behavioral intention contained in step two revealed that the overall model of digital music streaming behavior was statistically significant, $F(4, 644) = 22.01, p < .001$, with an $R^2 = .094$ and an adjusted $R^2 = .089$. Attitudes ($\beta = .16, p < .05$) was the only contributor to step one of the model with an $R^2 = .054$ and an adjusted $R^2 = .050$. After adding behavioral intention to step two, the overall explained variance increased by 7% ($\Delta R^2 = .07$). However, behavioral intention was the only independent variable that contributed to this significant effect ($\beta = .30, p < .001$). Attitudes ($\beta = .04, p > .05$), subjective norms ($\beta = .01, p > .05$), and perceived behavioral control ($\beta = .03, p > .05$) did not contribute to step two of this streaming behavior model. As such, behavioral intention accounted for 12% of the total variance explained by this streaming behavior model. Overall, these results provide partial support for hypothesis 1_b, suggesting the continued strength of the original TPB model as proposed by Ajzen and Fishbein (1975).

Table 1: Regression Analysis for Original TPB Models (N = 649)

Predictor Variables	Behavioral Intention			Streaming Behavior					
	B	SE β	β	B	SE β	β	B	SE β	β
Attitudes	.54	.07	.41***	.49	.21	.16*	.14	.21	.04
Subjective Norms	.01	.05	.01	.07	.13	.02	.03	.13	.01
Perceived Behavioral Control	.22	.08	.16**	.24	.21	.07	.09	.21	.03
Block 2									
Behavioral Intention							.64	.09	.30***

Note: Model 1: $R^2 = .30, p < .001$. Model 2 Block 1: $R^2 = .05, p < .001$; Block 2: $\Delta R^2 = .07, p < .001$
 $*p < .05, **p < .01, ***p < .001$

Factor Analysis of Music Streaming Motives

Research Question 1. Research question 1 sought to determine which motives are most important for consumers seeking to use digital music streaming services. An exploratory factor analysis using varimax rotation and principle components analysis was conducted in order to answer this first research question (see Table 2). A KMO Measure of Sampling Adequacy (KMO = .90) and Bartlett's Test of Sphericity, ($\chi^2 = 8976.47, df = 325, p < .001$) were conducted to confirm that the correlation matrix was significantly different from the identity matrix. The factor solution was then determined from items exhibiting an eigenvalue greater than 1.0. Items were selected for inclusion according to a .60-.40 rule with items exhibiting a rotated component matrix score of above .60 and below .40 incorporated into a distinct factor category.

Factor analysis revealed six factors that aligned with six distinct digital music streaming use motives. Factor one was labeled as social interaction due to the high loading of 6 items associated with sharing music listening experiences, participating in discussions about music, and exchanging music recommendations. On its own, this factor explained 30.88% of the overall

variance for these 26 items. Similarly, factor two was labeled as entertainment since the majority of the 4 high loading items are related to the happiness, enjoyment, and fun that consumers associate with digital music streaming service use. After removing the item “I can listen to music for free” (loading = .565), this second factor accounted for 12.42% of the total variance. Factor three was labeled as information seeking and included 4 items associated with the discovery of various artists, genres, and types of music through digital music streaming services. This third factor explained 8.78% of the total variance.

Factor four was labeled as pass time because the 3 high loading items related to consumers’ habitual use of digital music streaming services to occupy time. On its own, this fourth factor accounted for 5.43% of the total variance. Factor five was labeled as economic utility since the majority of the 3 high loading items related to purchasing music through a digital music streaming service platform. After removing the item “I like being able to upgrade to a premium version without advertising if I choose” (loading = .517), this fifth factor explained about 4.67% of the total variance. A sixth factor was labeled as convenience due to the high loading of 2 items associated with the ease of using digital music streaming services to listen to music on-demand. This final factor explained about 4.16% of the overall variance. Together, these six digital music streaming motive factors explained 66.34% of the total variance. As such, there is evidence to suggest that consumers use digital music streaming services to gratify the desire for convenience in addition to the five previously identified motives of social interaction, entertainment, information seeking, pass time, and economic utility.

Table 2. Means, Standard Deviations, and Factor Loadings for Music Streaming Motives

(N = 665)

	<i>M</i>	<i>SD</i>	<i>Music Streaming Motive Factors</i>					
			Social Interaction	Entertainment	Information Seeking	Pass Time	Economic Utility	Convenience
I can see what music my friends listen to.	4.27	1.85	.854	.023	.053	.068	.109	.110
I can listen to playlists created by friends.	4.68	1.86	.836	.023	.074	.049	.034	.234
I can create playlists to share with friends.	4.70	1.83	.821	.105	.081	.062	.136	.208.
I can share information and knowledge about music with friends.	4.39	1.83	.805	.065	.239	.090	.117	.040
I can participate in discussions about music.	3.68	1.83	.646	.028	.242	.106	.237	-.116
I can share my listening experiences.	4.18	1.88	.635	.223	.083	.066	.343	-.105
It's enjoyable.	6.22	.869	.048	.785	.229	.195	.047	.176
It makes me happy.	6.11	.974	.105	.778	.155	.208	.039	.184
It's entertaining.	6.13	.940	.075	.765	.189	.222	.053	.165
It's fun.	5.90	1.08	.134	.743	.120	.246	.054	.151
I can learn about artists I have never heard before.	5.90	1.26	.146	.209	.820	.051	-.003	.027
I learn about music I have never heard before.	5.90	1.33	.092	.161	.804	.036	.080	.118
I can learn about genres I have never heard before.	5.47	1.51	.250	.038	.773	.040	.131	.118

	<i>M</i>	<i>SD</i>	<i>Music Streaming Motive Factors</i>					
I can learn about new music by artists I already enjoy.	6.07	1.17	.091	.336	.695	.032	.089	.213
It's something to occupy my time.	5.49	1.36	.102	.244	.030	.813	.043	.083
It's just something I do when I have nothing better to do.	4.74	1.70	.086	.035	.003	.800	.127	-.067
It helps pass time when I'm bored.	5.66	1.33	.099	.323	.056	.759	.091	.041
I can purchase the music I like right away.	4.43	1.89	.206	.099	.041	.061	.871	.106
I can easily purchase just the songs I like.	4.51	1.84	.238	.114	.051	.074	.861	.053
I can save music I enjoy to listen to again at a later time that is more convenient for me.	6.04	1.24	.170	.194	.251	.062	.053	.772
I can listen to any song I want on-demand.	5.88	1.42	.108	.152	.194	.006	.213	.765
I can listen to music for free.	6.18	1.15	-.022	.565	.078	-.063	.101	-.192
I like being able to upgrade to a premium version without advertising if I choose.	4.66	1.85	.217	.015	.217	.159	.517	.163
I can listen to songs that match my mood.	6.17	.982	.053	.444	.462	.042	.074	.361
I can listen to playlists that match the activities I enjoy participating in.	5.98	1.24	.175	.346	.365	.002	.077	.258
It's a good thing to do when I'm alone.	5.82	1.14	.074	.533	.145	.480	.010	.126
Eigenvalue of unrotated factor.			8.03	3.23	2.28	1.41	1.22	1.08
Variance explained in unrotated solution.			30.88	12.42	8.78	5.43	4.67	4.16

	<i>M</i>	<i>SD</i>	<i>Music Streaming Motive Factors</i>					
Mean			4.32	6.09	5.84	5.30	4.53	5.96
SD			1.49	.84	1.10	1.23	1.53	1.19
Internal Consistency Reliability			.89	.89	.85	.80	.76	.59

Note: Results were determined using Principle Components extraction and Varimax rotation

Expanded Theory of Planned Behavior Results

Hypotheses 2-4. Pearson correlations were then used to investigate hypotheses 2-4.

Hypothesis 2 predicted a positive relationship between music streaming motives and intention to use digital music streaming services and streaming behavior. Results of the correlation analysis reveal that statistically significant positive correlations exist between each of the six music streaming motive scales and intention to use digital music streaming services (see Table 4). Specifically, entertainment ($r = .37, p < .001$) and convenience ($r = .33, p < .001$) emerged as the strongest of these correlations. Information seeking ($r = .23, p < .001$), social interaction ($r = .20, p < .001$), pass time ($r = .18, p < .001$), and economic utility ($r = .18, p < .001$) were also positively correlated. This suggests that as digital music streaming motives increase, digital music streaming use similarly increases, supporting hypothesis 2. Similarly, statistically significant positive correlations also exist between each of the six music streaming motive scales and streaming behavior. In this case, entertainment ($r = .20, p < .001$) and social interaction ($r = .15, p < .001$) emerged as having the strongest correlations. However, convenience ($r = .12, p < .001$), information seeking ($r = .11, p < .001$), economic utility ($r = .09, p < .05$), and pass time ($r = .07, p < .05$) were also correlated, albeit weakly.

Hypothesis 3 proposed a positive relationship between social identification and intention to use digital music streaming services and streaming behavior (see Table 4). Results reveal a statistically significant positive correlation exists between social identification and intention to use digital music streaming services ($r = .11, p < .001$). Additionally, there was a statistically significant positive correlation between social identification and streaming behavior ($r = .16, p <$

.001). This suggests that as social identification increases, intention to use digital music streaming services and streaming behavior similarly increase, providing support for hypothesis 3.

Hypothesis 4 proposed a positive relationship between the variables of technological engagement and intention to use digital music streaming services and streaming behavior (see Table 4). Results reveal a statistically significant positive correlation exists between technological engagement and intention to use digital music streaming services ($r = .21, p < .001$). A statistically significant positive correlation was also evident between technological engagement and streaming behavior ($r = .20, p < .001$). This suggests that as technological engagement increases, intention to use digital music streaming services and streaming behavior similarly increase; therefore, hypothesis 4 is supported.

Hypotheses 5a-c. Hypotheses 5_{a-c} proposed positive relationships between each component of the expanded TPB model and the original TPB model. Pearson correlations were conducted to determine whether a positive relationship exists between each of these components (see Tables 3 and 4). Hypothesis 5_a proposed a positive relationship between music streaming motives and attitudes. Results indicate that statistically significant positive correlations exist between these two components. Specifically, a strong positive correlation was evident between attitudes and the entertainment motive ($r = .59, p < .001$). Moderate positive correlations were also observed between attitudes and the two music streaming motive factors of information seeking ($r = .48, p < .001$) and convenience ($r = .42, p < .001$). And weak positive correlations were evident between attitudes and the three music streaming motive factors of social interaction ($r = .28, p < .001$), pass time ($r = .28, p < .001$), and economic utility ($r = .25, p < .001$).

Hypothesis 5_b proposed a positive relationship between social identification and subjective norms. Results indicate that moderate positive correlations exist between the variables of social identification and subjective norms ($r = .30, p < .001$). Hypothesis 5_c proposed a positive relationship between the components of technological engagement and perceived behavioral control. Similarly, results also indicate that moderate positive correlations occurred between technological engagement and perceived behavioral control ($r = .29, p < .001$). Cumulatively, these results provide support for all three components of hypothesis 5.

Table 3: Correlations for Original TPB Model Variables

	Behavioral Intention	Streaming Behavior	Attitudes	Subjective Norms	Perceived Behavioral Control
1	-	-	-	-	-
2	.31***	-	-	-	-
3	.51***	.18***	-	-	-
4	.34***	.12**	.58***	-	-
5	.46***	.15***	.78***	.52***	-
<i>M(SD)</i>	6.03(1.34)	3.52(3.33)	5.70(.90)	4.97(1.01)	5.73(.84)

Table 4: Correlations for Expanded TPB Model Variables

	BI	SB	SI	ENT	IS	PT	EU	CON	SID	TE
1	-	-	-	-	-	-	-	-	-	-
2	.31***	-	-	-	-	-	-	-	-	-
3	.20***	.15***	-	-	-	-	-	-	-	-
4	.37***	.20***	.26***	-	-	-	-	-	-	-
5	.23***	.11**	.37***	.44***	-	-	-	-	-	-
6	.18***	.07*	.24***	.44***	.15***	-	-	-	-	-
7	.18***	.09*	.48***	.26***	.29***	.25***	-	-	-	-
8	.33***	.12**	.32***	.40***	.45***	.15***	.31***	-	-	-
9	.11**	.16***	.38***	.14***	.15***	.16***	.16***	.13***	-	-
10	.21***	.21***	.55***	.27***	.36***	.25***	.38***	.26***	.44***	-
<i>M</i>	6.03	3.52	4.32	6.09	5.84	5.30	4.53	5.96	3.37	4.09
(<i>SD</i>)	(1.34)	(3.33)	(1.49)	(.84)	(1.10)	(1.23)	(1.53)	(1.19)	(1.23)	(.85)

Hypothesis 6a. Hypothesis 6_a proposed that alongside the original TPB variables of attitudes, subjective norms, and perceived behavioral control, music streaming motives, social identification, and technological engagement are positive predictors of intention to use digital music streaming services. As such, a hierarchical multiple regression was conducted to test the overall predictive strength of this expanded TPB model (see Table 5). Step one of this first model included the original TPB indexes of attitudes, subjective norms, and perceived behavioral control as independent variables. Step two of this first model included the six music streaming motive indexes of social interaction, entertainment, information seeking, pass time, economic utility, and convenience as independent variables. Step three of this first model included the social identification index as an independent variable. And step four of this first model included the technological engagement index as an independent variable. Analysis of the data indicated there were 6 outliers whose reports of behavioral intention were greater than three standard deviations from the mean. As such, these outliers were removed from the regression analysis.

Hierarchical multiple regression analysis revealed that step one of the overall model of intention to use digital music streaming services was statistically significant, $F(3, 646) = 92.42, p < .001$, with an $R^2 = .300$ and an adjusted $R^2 = .297$. Two of three independent variables contributed to this model with both attitudes ($\beta = .41, p < .001$) and perceived behavioral control ($\beta = .14, p = .01$) emerging as significant predictors. Step two of the overall model of intention to use digital music streaming services was also statistically significant, $F(9, 640) = 35.40, p < .001$, with an $R^2 = .332$ and an adjusted $R^2 = .323$. Three of nine independent variables contributed to this model including attitudes ($\beta = .41, p < .001$) as well as the music streaming motives of convenience ($\beta = .19, p < .001$) and information seeking ($\beta = -.12, p < .01$).

Moreover, hierarchical multiple regression analysis revealed that step three of the overall model of intention to use digital music streaming services was also statistically significant, $F(10, 639) = 31.91, p < .001$, with an $R^2 = .333$ and an adjusted $R^2 = .323$. Three of ten independent variables contributed to this model including attitudes ($\beta = .40, p < .001$) as well as the music streaming motives of convenience ($\beta = .19, p < .001$) and information seeking ($\beta = -.12, p < .01$). Thus, the same three variables emerged as significant predictors, despite the addition of social identification within step three of the model. Step four of the overall model of intention to use digital music streaming services was also statistically significant, $F(11, 638) = 28.97, p < .001$, with an $R^2 = .333$ and an adjusted $R^2 = .322$. Three of eleven independent variables contributed to this model including attitudes ($\beta = .41, p < .001$) as well as the music streaming motives of convenience ($\beta = .19, p < .001$) and information seeking ($\beta = -.12, p < .01$). Thus, the same three variables emerged as significant predictors, despite the addition of technological engagement within step four of the model. As such, a majority of the intention to use digital music streaming services was explained by a combination of attitudes, convenience, and information seeking together accounting for 33% of the total variance explained by the behavioral intention model.

However, the two original TPB variables of subjective norms ($\beta = .04, p > .05$) and perceived behavioral control ($\beta = .08, p > .05$) did not contribute to final step of this behavioral intention model. Additionally, the four music streaming motive factors of social interaction ($\beta = .03, p > .05$) entertainment ($\beta = .04, p > .05$), pass time ($\beta = .01, p > .05$), and economic utility ($\beta = .01, p > .05$) also did not contribute to this behavioral intention model. Neither social identification ($\beta = -.03, p > .05$) nor technological engagement ($\beta = -.01, p > .05$) contributed to this behavioral intention model either. As such, these results provide partial support for

hypothesis 6_a by suggesting that only three of the eleven originally proposed variables contribute to the predictive strength of the expanded TPB model.

Hypothesis 6_b. Hypothesis 6_b proposed that alongside the original TPB variables of attitudes, subjective norms, and perceived behavioral control, music streaming motives, social identification, technological engagement, and behavioral intention are positive predictors of streaming behavior. As such, a hierarchical multiple regression was conducted to test the overall predictive strength of this expanded TPB model (see Table 6). Step one of this second model included the original TPB indexes of attitudes, subjective norms, and perceived behavioral control as independent variables. Step two of this second model included the six music streaming motive indexes of social interaction, entertainment, information seeking, pass time, economic utility, and convenience as independent variables. Step three of this second model included the social identification index as an independent variable. Step four of this second model included the technological engagement index as an independent variable. And step five of this second model included the behavioral intention index as an independent variable. Analysis of the data indicated there were 12 outliers whose reports of time spent listening were greater than three standard deviations from the mean. As such, these outliers were removed from the regression analysis.

Hierarchical multiple regression analysis revealed that step one of the overall model of digital music streaming behavior was statistically significant, $F(3, 649) = 10.18, p < .001$, with an $R^2 = .045$ and an adjusted $R^2 = .041$. One of three independent variables contributed to this model with attitudes ($\beta = .14, p < .05$) emerging as the only significant predictor. Step two of the overall model of digital music streaming behavior was also statistically significant, $F(9, 643) =$

5.62, $p < .001$, with an $R^2 = .073$ and an adjusted $R^2 = .060$. Two of nine independent variables contributed to this model including the music streaming motives of entertainment ($\beta = .17, p = .001$) and social interaction ($\beta = .09, p = .05$). However, attitudes ($\beta = .07, p > .05$) did not emerge as a significant predictor within step two of the model.

Moreover, hierarchical multiple regression analysis revealed that step three of the overall model of digital music streaming behavior was also statistically significant, $F(10, 642) = 5.88, p < .001$, with an $R^2 = .084$ and an adjusted $R^2 = .070$. Three of ten independent variables contributed to this model including the music streaming motives of entertainment ($\beta = .17, p = .001$) and pass time ($\beta = -.09, p < .05$) as well as social identification ($\beta = .12, p < .01$). However, social interaction ($\beta = .05, p > .05$) did not emerge as a significant predictor within step three of the model. Step four of the overall model of digital music streaming behavior was also statistically significant, $F(11, 641) = 5.92, p < .001$, with an $R^2 = .092$ and an adjusted $R^2 = .077$. Four of eleven independent variables contributed to this model including the music streaming motives of entertainment ($\beta = .15, p < .01$) and pass time ($\beta = -.09, p < .05$) as well as technological engagement ($\beta = .12, p < .05$) and social identification ($\beta = .09, p < .05$). Step five of the overall model of digital music streaming behavior was also statistically significant, $F(12, 640) = 9.31, p < .001$, with an $R^2 = .149$ and an adjusted $R^2 = .133$. Five of twelve independent variables contributed to this model including the music streaming motives of entertainment ($\beta = .15, p < .01$) and pass time ($\beta = -.09, p < .05$) as well as technological engagement ($\beta = .13, p = .01$), social identification ($\beta = .08, p < .05$), and behavioral intention ($\beta = .28, p < .001$). As such, a majority of digital music streaming service use was explained by a combination of entertainment, pass time, technological engagement, social identification, and behavioral

intention together accounting for 15% of the total variance explained by the streaming behavior model.

On the other hand, not one of the three original TPB variables of attitudes ($\beta = -.05, p > .05$), subjective norms ($\beta = -.06, p > .05$) and perceived behavioral control ($\beta = .04, p > .05$) contributed to the final step of this streaming behavior model. Additionally, the four music streaming motive factors of social interaction ($\beta = .01, p > .05$), information seeking ($\beta = -.05, p > .05$), economic utility ($\beta = -.02, p > .05$), and convenience ($\beta = .02, p > .05$) also did not contribute to this streaming behavior model. As such, these results provide partial support for hypothesis 6_b by suggesting that only five of the twelve originally proposed variables contribute to the predictive strength of the expanded TPB model.

Comparison of Original and Expanded TPB Results

Hypothesis 7. Hypothesis 7 sought to determine whether an expanded TPB model is a better overall predictor of both intention to use digital music streaming services and streaming behavior as compared to the original TPB model. As such, the final analyses compare the outcomes of hypotheses 1 and 6. Ultimately, the results of the two multiple regressions provide support for both the original TPB and expanded TPB models of intention to use digital music streaming services ($F_{3, 647} = 92.42, p < .001$; $F_{11, 638} = 28.97, p < .001$). Additionally, the results also provide support for both the original TPB and expanded TPB models of streaming behavior ($F_{4, 644} = 22.01, p < .001$; $F_{12, 640} = 9.31, p < .001$). However, conducting a comparison of the effect sizes associated with each model reveals that both expanded TPB models appear to be greater in predictive strength in terms of effect size ($d = .47$ and $d = .10$) as compared to the original TPB models ($d = .43$ and $d = .14$). Furthermore, the expanded TPB model also explained

more of the variance in both intention to use digital music streaming services (33%) and streaming behavior (15%) as compared to the original TPB model variances of intention to use digital music streaming services (30%) and streaming behavior (12%) respectively, indicating that these variables may be more helpful when examining this specific type of media behavior.

Table 5. Regression Analysis for Expanded TPB Model Predicting Behavioral Intention

(N = 649)

Predictor Variables	B	SE β	β	B	SE β	β	B	SE β	β	B	SE β	β
Block 1												
Attitudes	.54	.07	.41***	.53	.08	.41***	.53	.08	.40***	.53	.08	.41***
Subjective Norms	.04	.05	.04	.04	.05	.03	.05	.05	.04	.05	.05	.04
Perceived Behavioral Control	.19	.08	.14**	.11	.08	.08	.11	.08	.08	.11	.08	.08
Block 2												
Social Interaction				.01	.03	.01	.02	.03	.02	.02	.03	.03
Entertainment				.06	.06	.04	.06	.06	.04	.05	.06	.04
Information Seeking				-.14	.04	-.12**	-.13	.04	-.12**	-.13	.04	-.12**
Pass Time				.00	.04	.00	.00	.04	.00	.01	.04	.01
Economic Utility				.01	.03	.10	.01	.03	.01	.01	.03	.01
Convenience				.19	.04	.19***	.19	.04	.19***	.19	.04	.19***
Block 3												
Social Identification							-.03	.03	-.03	-.03	.04	-.03
Block 4												
Technological Engagement										-.02	.06	-.01
	$R^2 = .30, p < .001$			$\Delta R^2 = .03, p < .001$			$\Delta R^2 = .00, p > .05$			$\Delta R^2 = .00, p > .05$		

Note: $R^2 = .30, p < .001$. Adjusted $R^2 = .28$; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6. Regression Analysis for Expanded TPB Model Predicting Behavior

(N = 653)

Predictor Variables	B	SE β	β	B	SE β	β	B	SE β	β	B	SE β	β	B	SE β	β
Block 1															
Attitudes	.46	.21	.14*	.23	.23	.07	.26	.23	.08	.17	.23	.05	-.15	.23	-.05
Subjective Norms	.05	.14	.02	.00	.14	.00	-.09	.15	-.03	-.14	.15	-.05	-.16	.14	-.06
Perceived Behavioral Control	.26	.22	.07	.16	.23	.05	.20	.23	.06	.24	.23	.07	.14	.22	.04
Block 2															
Social Interaction				.18	.09	.09*	.11	.10	.05	.03	.10	.02	.01	.10	.01
Entertainment				.59	.18	.17***	.59	.18	.17***	.62	.18	.18***	.54	.18	.15**
Information Seeking				-.15	.13	-.06	-.16	.13	-.06	-.20	.13	-.08	-.13	.13	-.05
Pass Time				-.19	.10	-.08	-.20	.10	-.08*	-.21	.10	-.09*	-.21	.10	-.09*
Economic Utility				-.02	.09	-.01	-.01	.09	-.01	-.04	.09	-.02	-.04	.08	-.02
Convenience				.16	.12	.06	.15	.12	.06	.15	.12	.06	.05	.11	.02
Block 3															
Social Identification							.28	.10	.12**	.21	.10	.09*	.20	.10	.08*
Block 4															
Technological Engagement										.43	.18	.12*	.45	.17	.13**
Block 5															
Behavioral Intention													.62	.10	.28**
	$R^2 = .05, p < .001$			$\Delta R^2 = .03, p < .001$			$\Delta R^2 = .01, p < .001$			$R^2 = .09, p < .001$			$R^2 = .13, p < .001$		

Note: $R^2 = .15, p < .001$. Adjusted $R^2 = .13$. * $p < .05$, ** $p < .01$, *** $p < .001$

CHAPTER FIVE: DISCUSSION

Overall, the purpose of this study was to investigate whether an expanded TPB model incorporating the variables of music streaming motives, social identification, and technological engagement into the original TPB model framework can help achieve a more comprehensive understanding of how consumers use digital music streaming services. As such, seven hypotheses and one research question were advanced in an effort to better understand the relationships between each component as well as the overall predictive power of both the original TPB and expanded TPB models. Although findings suggest that an expanded TPB model can indeed improve our understanding of digital music streaming service use, there are also important differences between the variables influencing the two behavioral outcomes of intention to use digital music streaming services and streaming behavior. Therefore, the following discussion section will consider the findings of this study in light of recent research investigating digital music streaming service use within a modern 21st century context (Delikan, 2010; Dörr et al., 2013; Kwong & Park, 2008; Lin et al., 2013).

Original Theory of Planned Behavior Discussion

The original TPB model was found to positively predict both intention to use digital music streaming services as well as streaming behavior (Ajzen & Fishbein, 1975). Ultimately, this suggests the continued applicability of the original TPB model within the context of mass media use in general as well as digital music streaming services specifically (Delikan, 2010; Kwong & Park, 2008). Nevertheless, it is important to note that only attitudes and perceived behavioral control emerged as significant predictors of intention to use digital music streaming services. As such, feelings of favorableness toward and perceptions of the relative ease or

difficulty of using digital music streaming services should be emphasized within marketing campaigns aimed at securing the initial interest of consumers. However, behavioral intention emerged as the only significant predictor of streaming behavior. Thus, future plans related to using digital music streaming services should play an important role in the decision making processes of marketing professionals, recording artists, and even digital music streaming services developers in an effort to improve the continued adoption of these revolutionary music listening platforms.

On the other hand, because subjective norms did not emerge as a significant predictor of intention to use digital music streaming services or streaming behavior, these results also suggest that perceptions of important others may not be a crucial factor in determining digital music streaming service use. Although this finding falls into line with recent studies that have generally supported the importance of attitudes and perceived behavioral control to intention to use digital music streaming services (Delikan, 2010; Dörr et al., 2013), however, it also contrasts with the results of studies that have previously identified subjective norms as exhibiting the strongest effect on intention to use digital music streaming services (Kwong & Park, 2008). Therefore, despite the overall significance of the original TPB model, there are also important differences worth noting between the variables contributing to intention to use digital music streaming services as compared to streaming behavior.

Behavioral Intention. Most significantly, this difference is evidenced within the finding that both attitudes and perceived behavioral control emerged as contributors to intention to use digital music streaming services, while only behavioral intention emerged as a contributor to streaming behavior. In this case, because intention to use digital music streaming services refers

to the extent to which a consumer is planning to perform a behavior, it is perhaps not surprising that both attitudes and perceived behavioral control were found to serve as crucial elements. In fact, previous studies applying the original TPB model framework to a variety of outcomes ranging from intent to use digital music streaming services (Dörr et al., 2013; Lin et al., 2013) to intent to provide healthy food to children (Andrews et al., 2010) have often identified attitudes as the strongest influencer of behavioral intention. And because the act of using a digital music streaming service itself requires overcoming the technological barrier of understanding how to use either a smart phone application, tablet device, or traditional computer software program, it makes logical sense that perceived behavioral control also exhibited a substantial impact upon behavioral intention. Accordingly, the amount of explained variance accounted for by the combination of attitudes and perceived behavioral control also falls in line with similar studies that have noted behavioral intention variance levels within the 20-30% range (Dörr et al., 2013; Kwong & Park, 2008).

Yet, subjective norms did not emerge as a contributor to intention to use digital music streaming services, meaning that how consumers' peers view the use of digital music streaming services did not make a large enough impact to significantly contribute to behavioral intention. As such, this finding provides evidence to suggest that the opinions expressed by peers may not be as important to the intent to use digital music streaming services today as they may have been to the intent to use alternative music listening devices such as record players, CD players, or MP3 players during past decades (Kwong & Park, 2008; North & Hargreaves, 1999). This could perhaps be due to the tendency for modern digital music listeners to access these platforms via independently operated smart phone applications, which allow users to search through expansive

libraries of recommended music without the input of friends or family members. Additionally, there is also a potential that this finding could simply be a result of the high rates of digital music streaming service diffusion throughout modern society (IFPI, 2015). Because many consumers are already using digital music streaming services to listen to music, consumers as a whole may be becoming less reliant upon the perceptions of others.

Behavior. On the other hand, because streaming behavior represents the extent to which a consumer actually performs a behavior, it also makes sense that behavioral intention emerged as a primary contributor to streaming behavior within this study. Realistically, this means that behavioral intention or future plans related to the use of digital music streaming services served as the sole variable influencing the amount of time that consumers spent listening to digital music streaming services. This finding falls in line with previous studies demonstrating the general importance of behavioral intention to behavior (Andrews et al., 2010; Curnalia & Mermer, 2013; Elliott, Armitage, & Baughan, 2003). It is important to note that comparisons can also be made between these findings and previous research investigating the contribution of behavioral intention to a wide range of mass media use behaviors including frequency of use, perceived usefulness, and purchase behavior (Dörr et al., 2013; Kwong & Park, 2008). In fact, the amount of explained variance accounted for by behavioral intention also falls in line with similar studies that have noted behavior variance levels within the 12-15% range (Andrews et al., 2010; Curnalia & Mermer, 2013).

However, attitudes, perceived behavioral control, and subjective norms did not emerge as contributors to streaming behavior. It is possible that attitudes became excluded due to the overwhelming impact of behavioral intention on streaming behavior. As such, consumer plans to

use digital music streaming services could have been more influential than general feelings of favorableness when it came to the decision to actually spend time listening to these platforms simply because intent is typically the first step in the process towards the actual enactment of behavior. One possible explanation for the exclusion of perceived behavioral control could relate to the operationalization of streaming behavior as time spent listening. In other words, consumers may have already overcome the challenge of feeling confident enough to use a digital music streaming service by the time it came to actually spend time listening to one of these services. Additionally, strong correlations between attitudes, perceived behavioral control, and behavioral intention also mean that these variables lose efficacy because they are already encompassed to some extent within the concept of behavioral intention. Similarly, the exclusion of subjective norms demonstrates that how consumers' peers view the use of digital music streaming services does not make a large enough impact to significantly contribute to behavior. Once again, this finding provides evidence to suggest that the opinions expressed by peers may not be as important to the enactment of digital music streaming behavior within today's socially complex 21st century society.

Music Streaming Motives Discussion

Furthermore, the results of this study also provide evidence to suggest that consumers use digital music streaming services for more than simply gratifying the five previously identified mass media motives of social interaction, entertainment, information seeking, pass time, and economic utility (Belcher & Haridakis, 2013; Sheehan et al., 2010). Because convenience was identified in addition to these five motives, this study indicates that the ease of using digital music streaming services to listen to music on demand also exists as a motivating factor driving a

consumer's decision to use digital music streaming services. In fact, these results make sense given that conveniently accessible smartphone applications are now accessible to 82% of the United States population with 44% of consumers indicating that they already use a smartphone to listen to music (The Nielsen Company, 2015). However, it is important to note that this convenience motive has already been previously identified across multiple studies examining consumer motivations for mass media use (Ferguson et al., 2007; Kinnally et al., 2008; Krause et al., 2014; Salo et al., 2013). Therefore, although it is important to acknowledge the significance of convenience as a factor driving digital music streaming service use within the confines of this study, identifying this common motive does not necessarily serve as a novel contribution to the research literature.

However, the two motives of social interaction and entertainment together explained nearly 45% of the overall variance in music streaming motives, implying that sharing music listening experiences, participating in discussions about music, and exchanging music recommendations along with the general enjoyment of the service itself continue to exist as strong motivating factors for digital music streaming service use. And although the information seeking, pass time, and economic utility motives together only explained a minority of the overall variance, it remains significant that these three motives consistently emerge as distinct factors within the context of digital music listening (Kinnally et al., 2008; Krause et al., 2014; McClung & Johnson, 2010). As such, these findings ultimately provide continued support for previous research while simultaneously expanding our understanding of digital music streaming service use.

Expanded Variable Relationships

Music Streaming Motives. The expanded TPB model variables of music streaming motives, social identification, and technological engagement were all found to be positively related to both intention to use digital music streaming services as well as streaming behavior. This means that as consumer motivation to use digital music streaming services increases, consumers also become more likely to intend and actually use these platforms over time. In fact, this positive relationship has been demonstrated across a variety of previous studies examining consumer motivations to use a number of early manifestations of digital music streaming services (Krause et al., 2014; Kwong & Park, 2008). Yet, there are also important differences worth noting between the motives exhibiting the strongest relationships with intention to use digital music streaming services as compared to streaming behavior. Entertainment and convenience were most strongly correlated with intention to use digital music streaming services; however, entertainment and social interaction were most strongly correlated with streaming behavior. This suggests that the enjoyment achieved by listening to music using a digital music streaming service is an important factor associated with both intention to use digital music streaming services as well as streaming behavior. However, ease of use appears to be more important to intention to use digital music streaming services whereas social interaction appears to be more important to streaming behavior. As such, there are slightly different factors driving each of the two behavioral outcomes examined within this study.

Social Identification with Music. Moreover, the positive correlations between social identification and behavioral intention and behavior mean that as consumers' ability to socially identify with the music they listen to via digital music streaming services increases, consumers

also become more likely to intend and actually use platforms such as Spotify, Pandora, or Deezer (IFPI, 2015). Although these positive relationships were found to be statistically significant, however, they were also relatively weak. This suggests that this finding may not be as practically important as the relationships previously noted between social identification and music listening across different genres of music (North & Hargreaves, 1999; Tekman & Hortaçsu, 2002; Shankar et al., 2009). Thus, while social identification remains an important aspect of the music listening experience by continuing to serve as a tool for self-evaluation and social comparison, the strength of this relationship may be tapering off in conjunction with the rise of digital music streaming services that are slowly eroding the boundaries between music genre preferences (North & Hargreaves, 1999; Ter Bogt et al., 2010). Moreover, this positive relationship between social identification and behavioral intention contrasts with the finding that subjective norms was not a significant contributor to the behavioral intention outcome of the original TPB model. Because there is a conceptual connection between the ability of consumers to socially identify with the music they listen to via digital music streaming services and the importance they place upon others' perceptions of the act of using a digital music streaming service, this discrepancy indicates that using music as a tool for social comparison serves as a more vital factor influencing the intent to use these platforms.

Technological Engagement. Additionally, the positive correlations between technological engagement and behavioral intention and behavior mean that as consumer engagement with digital music streaming service technology increases, consumers also become more likely to intend and actually use these platforms over time. Because these positive relationships were found to be almost identical in strength, this finding suggests that

technological engagement possesses the unique ability to play a moderately important role in both intention to use digital music streaming services as well as streaming behavior. One possible explanation for this lack of differentiation, however, may stem from the fact that the sample used for this study consisted of undergraduate college students who typically exhibit above average levels of technological engagement (Vevo, 2015; North & Hargreaves, 1999). As such, more generation specific research is needed to determine how these moderate levels of technological engagement may impact the growth of digital music streaming service use over time.

Music Streaming Motives & Attitudes. Positive relationships were also found to exist between each of the six components of the expanded TPB and original TPB models. As such, music streaming motives and attitudes, subjective norms and social identification, and perceived behavioral control and technological engagement were all found to positively relate to one another. Most noticeably, this relationship was strongest between the music streaming motive of entertainment and the attitudes component of the original TPB model, indicating the empirical connection between both of these variables within the context of digital music streaming service use. Similarly, moderate correlations also occurred between the music streaming motives of information seeking and convenience and attitudes. This suggests that both the discovery of various artists, genres, and types of music and the on-demand aspect of digital music streaming services have the ability to impact consumer attitudes toward digital music streaming service use. In the same way, the fact that weak correlations emerged between the music streaming motives of social interaction, pass time, and economic utility and attitudes also implies the ability of these three factors to capture additional consumer desires beyond attitudes toward digital music

streaming service use. By revealing which music streaming motives may prove the most useful in understanding digital music streaming behavior, these positive relationships also extend further support to the conceptualization of an expanded TPB model.

Social Identification with Music & Subjective Norms. Moreover, the positive relationship found between social identification and subjective norms also adds an additional level of support to the credibility of the conceptual connections proposed throughout this study. Primarily, this is because this moderate relationship implies a connection between the ability of consumers to socially identify with the music they listen to via digital music streaming services and the importance they place upon others' perceptions of the act of using a digital music streaming service. Additionally, the fact that this finding emphasizes a connection between these two conceptually related social factors of digital music streaming service use in this way becomes especially poignant considering that the measurement of social identification within the context of digital music streaming services is unique to this study.

Technological Engagement & Perceived Behavioral Control. Similarly, it is also crucial to consider the implications of the positive relationship found between technological engagement and perceived behavioral control. Realistically, this moderate relationship implies a connection between the ability of consumers to technologically engage with the digital music streaming services they use and the importance they place upon perceptions of the ease or difficulty of use associated with this behavior. Because the music industry continues to shift toward a business model "driven by the consumer's desire for access to, rather than ownership of, music" (IFPI, 2015, p. 5), this finding will have important implications as digital music streaming service use continues to grow in popularity worldwide.

Expanded Theory of Planned Behavior Discussion

Furthermore, the expanded TPB model was found to positively predict both intention to use digital music streaming services as well as streaming behavior. Inevitably, this suggests the applicability of the expanded TPB model within the context of digital music streaming services specifically. As such, music streaming motives, social identification, and technological engagement should increasingly begin to play a role in the decision making processes of marketing professionals, recording artists, and digital music streaming service developers alongside the original TPB model variables of attitudes, subjective norms, and perceived behavioral control. Despite the overall significance of the expanded TPB model, however, there are once again important differences worth noting between the variables contributing to each step of intention to use digital music streaming services as compared to streaming behavior.

Behavioral Intention. Most significantly, this difference is evidenced within the finding that three factors emerged as contributors to the final step of intention to use digital music streaming services, while five factors emerged as contributors to the final step of streaming behavior. Specifically, attitudes and convenience emerged as positive contributors to intention to use digital music streaming services. Because this finding is consistent with the positive relationships identified earlier in this study between convenience and attitudes as well as convenience and behavioral intention, it suggests that the easy to use on-demand aspect of digital music streaming services may be influencing consumers who plan to engage in this behavior more so than the motives of pass time, economic utility, social interaction, or entertainment. Interestingly, this convenience motive has also been demonstrated across the findings of several other researchers investigating digital music streaming service use, who collectively make note

that “being able to access an extensive online library [of music] anytime, anywhere is a strong motive for respondents” (Delikan, 2010, p. 44). However, it is also important to note that information seeking actually emerged as a slightly negative contributor of intention to use digital music streaming services, meaning that consumers motivated by artist or genre discovery may actually exhibit less of an intention to use digital music streaming services. One explanation for this unexpected outcome may be that consumers did not feel an immediate need to use a digital music streaming service for information seeking purposes within the limited timeframe of 24-hours as specified by the behavioral intention measure. Nevertheless, the amount of explained variance accounted for by the combination of attitudes, convenience, and information seeking does fall in line with similar studies that have noted behavioral intention variance levels within the 30-50% range (Dörr et al., 2013; Kwong & Park, 2008).

Behavior. On the other hand, two of the music streaming motives of entertainment and pass time along with social identification, technological engagement, and behavioral intention emerged as contributors to streaming behavior. This finding is consistent with the strong positive relationship identified earlier in this study between entertainment and streaming behavior. Considering that the nature of listening to music itself has always involved aspects of fun and enjoyment, it is perhaps not surprising that the digital music streaming motive of entertainment remains prominent within this study as well as across other digital music motive focused endeavors (Ferguson et al., 2007; Zeng, 2011). Conversely, pass time emerged as a slightly negative contributor of intention to use digital music streaming services, revealing that consumers motivated by this factor may actually use digital music streaming services less often compared to those motivated by other factors. And because there were no overlapping

contributors between intention to use digital music streaming services and streaming behavior, there is also evidence to suggest that there is once again a different combination of factors driving each of these two behavioral outcomes.

In fact, this point is further supported by the appearance of social identification and technological engagement as positive contributors. Taken together with the positive relationships established between social identification and subjective norms as well as technological engagement and perceived behavioral control, the appearance of these unique elements lends further credence to the predictive strength of the expanded TPB model. Additionally, the emergence of behavioral intention as a positive contributor to streaming behavior also demonstrates the unique way in which future plans of consumers possess the ability to impact the specific combination of motives driving their use of digital music streaming services. As such, it makes logical sense that the amount of explained variance accounted for by the combination of entertainment and pass time along with social identification, technological engagement, and behavioral intention remains relatively small at 15% for streaming behavior as compared to 33% for intention to use digital music streaming services, especially considering the wide array of variables found to contribute to each consumer's active decision to listen to music in this newly evolved way.

Limitations

Overall, the main limitation of this study was the use of a nonrandom convenience sampling technique to select participants. Realistically, utilizing a convenience sample recruited from undergraduate communications courses at a large southeastern university limits the generalizability of these findings to larger populations. Additionally, relying upon a mostly

technology savvy Millennial age demographic may have also limited the variance for the measure of technological engagement. In the same way, the highly positive skew of the behavioral intention scale adopted by this study may have also limited the variance for this particular measure. Moreover, the study is also restricted by its adoption of a survey methodology that relies upon participant self-reporting to capture the behavioral outcome of digital music streaming service use. Because of the inherent human error in self-reporting, this study would have benefitted from being conducted in a controlled environment designed to directly measure the behavior of participants exposed to various digital music streaming services.

Furthermore, the low level of association between behavioral intention and behavior evidenced throughout this study is also a significant limitation. Ultimately, this disconnect can be attributed to differences in the way the two outcome variables of intention to use digital music streaming services and streaming behavior were measured. Although operationalizing intention to use digital music streaming services as the factors most likely to predict engagement with these platforms is a traditional way of evaluating consumer motivations to use audio media, it does not quite line up with the operationalization of streaming behavior as time spent listening. On their own, each of these outcomes is important to further comprehend the complex factors that lead to the use of digital music streaming services. However, it is important to acknowledge this methodological discrepancy in order to understand why the predictive strength of the expanded TPB model did not improve significantly with the addition of behavioral intention as noted within similar studies adopting this theoretical framework (Andrews et al., 2010; Kwong & Park, 2008).

Directions for Future Research

Going forward, it would be valuable for future researchers to both refine and expand upon several aspects of this study. Since this study was unable to obtain a large enough sample of non-users of digital music streaming services for analysis purposes, one way to expand upon its scope would be to incorporate approximately equal sample sizes of both users and non-users in order to make comparisons across their digital music streaming service use. Moreover, examining a wider variety of music streaming motives such as mood management or collection utility in addition to the six motives identified by this study would also be a beneficial way to develop a more succinct list of digital music streaming motives moving forward. And from a practical application perspective, it would be useful for future researchers to incorporate additional dependent variables related to intention to subscribe or purchase music from digital music streaming services. Including measures such as consumer satisfaction, willingness to pay, or perceived price fairness alongside intention to use digital music streaming services and streaming behavior will allow future researchers to advance the quickly expanding knowledge base of this revolutionary new digital music listening behavior.

APPENDIX A: IRB APPROVAL



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1
FWA00000351, IRB00001138**
To: **Heidi Bolduc**
Date: **January 06, 2016**

Dear Researcher:

On 01/06/2016, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: Examining how social and psychological factors influence digital music consumption behavior
Investigator: Heidi Bolduc
IRB Number: SBE-15-11785
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewska, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

IRB Coordinator

APPENDIX B: SURVEY MEASURES

Demographic Questions

1. Are you male or female?
Male
Female
2. I am ____ years of age.
3. Which race do you identify with?
African American
Caucasian
Native American
Latino
Asian/Pacific Islander
Multi-ethnic
Other

Digital Music Streaming Service Use Questions

1. Are you currently or have you ever been a subscriber of a digital music streaming service (i.e., Spotify, Pandora, Apple Music, Amazon Prime Music)?

Yes
No

(If Yes → Question 2; If No → Behavioral Intention Scale Non-Subscribers)

2. How long have you been a subscriber of a digital music streaming service?

0-6 months	3.0-3.5 years
6 months-1 year	3.5-4.0 years
1.0-1.5 years	4.0-4.5 years
1.5-2 years	4.5-5.0 years
2.0-2.5 years	5.0-5.5 years
2.5-3.0 years	5.5-6.0 years

3. Thinking about only YESTERDAY, tell us about how much time you spend listening to music using a digital music streaming service? (DO NOT include time spent listening to your own mp3s on your phone or mp3 player or broadcast radio over the air or online.)

Yesterday Morning between 6:00 A.M. and NOON

0-30 minutes	3-4 hours
30 minutes-1 hour	4-5 hours
1-2 hours	5-6 hours

2-3 hours

Yesterday Afternoon between NOON and 6:00 P.M.

0-30 minutes 3-4 hours

30 minutes-1 hour 4-5 hours

1-2 hours 5-6 hours

2-3 hours

Yesterday Evening between 6:00 P.M. and MIDNIGHT

0-30 minutes 3-4 hours

30 minutes-1 hour 4-5 hours

1-2 hours 5-6 hours

2-3 hours

Overnight between MIDNIGHT and 6:00 A.M. TODAY

0-30 minutes 3-4 hours

30 minutes-1 hour 4-5 hours

1-2 hours 5-6 hours

2-3 hours

4. Which of these digital music streaming services are you *currently* subscribed to?
(Select all that apply)

Spotify

Pandora

Apple Music

Rhapsody

Amazon Prime Music

Google Play

Tidal

SoundCloud

Other _____

5. Which of these digital music streaming services have you *previously* subscribed to?
(Select all that apply)

Spotify

Pandora

Apple Music

Rhapsody

Amazon Prime Music

Google Play

Tidal

SoundCloud

Other _____

6. Which of these digital music streaming services do you use *most often*?
(Select only one)

Spotify
Pandora
Apple Music
Rhapsody
Amazon Prime Music
Google Play
Tidal
SoundCloud
Other _____

7. Which of these digital music streaming services do you use *least often*?
(Select only one)

Spotify
Pandora
Apple Music
Rhapsody
Amazon Prime Music
Google Play
Tidal
SoundCloud
Other _____

8. Please rate the following digital music streaming service characteristics in terms of their overall importance to you. Each characteristic should be rated on a scale from 1-7, with 1 representing “not at all important” and 7 representing “extremely important.”

1. Sound quality
2. Legal access to music
3. Social media integration
4. Music search feature
5. Shuffle feature

9. How do you feel digital music streaming services have changed how you listen to music?
(Open-ended)

Music Listening Motives Scale
(Belcher & Haridakis, 2013; Kinnally, Lacayo, McClung, & Sapolsky, 2008)

I use digital music streaming services because...

Entertainment:

1. It's fun.
2. It makes me happy.
3. It's entertaining.
4. It's enjoyable.

Pass Time:

1. It helps pass time when I'm bored.
2. It's a good thing to do when I'm alone.
3. It's something to occupy my time.
4. It's just something I do when I have nothing better to do.

Economic Utility:

1. I can purchase the music I want right away.
2. I can purchase just the songs I like.
3. I can listen to music for free.
4. I like being able to upgrade to a premium version without advertising if I choose.

Social Interaction:

1. I can share my listening experiences.
2. I can participate in discussions about music.
3. I can see what music my friends listen to.
4. I can share information and knowledge about music with friends.

Information Seeking:

1. I can learn about music I have never heard before.
2. I can learn about artists I have never heard before.
3. I can learn about genres I have never heard before.
4. I can learn about new music by artists I already enjoy.

Digital Music Streaming:

1. I can listen to any song I want on-demand.
2. I can listen to songs that match my mood.
3. I can listen to playlists that match the activities I enjoy participating in (e.g., exercising, studying, dancing).
4. I can create playlists to share with friends.
5. I can listen to playlists created by friends.
6. I can save music I enjoy to listen to again later at a time that is more convenient for me.

Technological Engagement Scale

(Calder, Malthouse, & Schaedel, 2009; Sharafi, Hedman, & Montgomery, 2006)

Stimulation/Inspiration:

1. Digital music streaming technology inspires me to listen to music.
2. Digital music streaming technology enriches my music listening experience.
3. Digital music streaming technology makes me think of music in new ways.
4. Digital music streaming technology stimulates my thinking about lots of different topics related to music.

Avoidance/Hesitation:

1. I'm concerned about the role digital music streaming services play in my life.
2. I'm concerned about how much I use digital music streaming services.
3. I think that digital music streaming services restrict my music listening ability.

Frustration/Anxiety:

1. When I have a problem using digital music streaming services I feel stupid.
2. I am not satisfied with my capability to use digital music streaming services.
3. Others think that I am bad at using digital music streaming services.
4. I feel pushed to learn about digital music streaming services.

Efficiency/Productivity:

1. I can be more effective using digital music streaming services.
2. I can organize my music better with the help of digital music streaming services.
3. I manage to listen to a wide selection of music with the help of digital music streaming services.
4. I have control over my music listening when I use digital music streaming services.

Ambition/Curiosity:

1. I want to learn more about digital music streaming services.
2. It is interesting to learn how digital music streaming services function.
3. I want to understand more about the possibilities of digital music streaming services.
4. I want to improve my ability to use digital music streaming services.

Theory of Planned Behavior Measures Scale
(Kwong & Park, 2008; Dörr, Wagner, Benlian & Hess, 2013)

Attitudes:

1. Using a digital music streaming service is a good use of my time.
2. Using a digital music streaming service is a favorable activity.
3. Digital music streaming services are valuable tools for listening to music.
4. Using a digital music streaming service will help me to gain a better understanding of the new music that's available today.
5. Using a digital music streaming service will help me have a great listening experience.
6. Using a digital music streaming service will give me access to a lot of great music.

Subjective Norms:

1. My parents think that I should use a digital music streaming service to listen to music.
2. My close friends think that I should use a digital music streaming service to listen to music.
3. My classmates think that I should use a digital music streaming service to listen to music.
4. Most people who are important to me approve of my using a digital music streaming service to listen to music.
5. Most people like me use digital music streaming services to listen to music.

Perceived Behavioral Control:

1. I am confident that I know how to use a digital music streaming service.
2. If I want to listen to music using a digital music streaming service, I am able to do that easily.
3. I have complete control over whether I want to use a digital music streaming service to listen to music.
4. I can afford to use a digital music streaming service to listen to music.
5. I have the equipment needed to use a digital music streaming service to listen to music.
6. There are a number of external influences that would present me from using a digital music streaming service to listen to music.
7. It will be easy to find the music I like on a digital music streaming service.
8. I will be able to share the music I like with other people through a digital music streaming service.
9. I will be able to use all of the features of a digital music streaming service.

Theory of Planned Behavior Measures Scale
(Kwong & Park, 2008; Dörr, Wagner, Benlian & Hess, 2013)

Behavioral Intention Scale: Current Subscribers

1. I intend to use a digital music streaming service within the next 24 hours.
2. I expect to use a digital music streaming service within the next 24 hours.
3. It is likely that I will try to use a digital music streaming service within the next 24 hours.
4. I anticipate myself using a digital music streaming service within the next 24 hours.

Behavioral Intention Scale: Non-Subscribers

5. I intend to subscribe to a digital music streaming within the next month.
6. I expect to subscribe to a digital music streaming service within the next month.
7. It is likely that I will try to subscribe to a digital music streaming service within the next month.
8. I anticipate myself subscribing to a digital music streaming service within the next month.

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