MP3 科技傳佈與採用質化研究：

以美國大學生為例

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《摘 要》

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A Qualitative Study of MP3 Technology Diffusion among College Students in the United States

INTRODUCTION

According to a study by J.P. Morgan, global music sales are expected to increase in retail value from their present USD$38 billion to USD$65 billion over the next decade (Legrand, 2000). Nevertheless, recent developments in Internet technologies and applications (e.g., file sharing, CD-burning, MP3 file format, and MP3 players) have affected the future of music industry worldwide (Champ, 2003). A report by the International Federation of the Phonographic Industry (IFPI) confirmed the negative impacts of new technologies on global music sales (Masson and McClure, 2003). In this study, global sales of music fell to USD$31 billion in 2002 from USD$28.64 billion in 2001 (Masson and McClure, 2003). Another report by a London-based research firm Analysis (cited in Masson and McClure, 2003) also concluded that music downloading and burning are responsible for over 40% of the global music sales decline. At the same time, digital music sales are expected to reach USD$3.1 billion by 2010 (Informa.com, 2004). The commercial implications, as well as legal and regulatory concerns, of this emerging technology prompt this research.

AN OVERVIEW OF MP3 TECHNOLOGY

The term MP3 comes from the acronym MPEG which stands for Motion Picture Experts Group, a company that sets standards for the compression and storage of audio and video (Clarke, 2003; Hacker, 2000). MP3 is an abbreviation for MPEG audio layer 3 that identifies the compression storage of the digital audio files (Clarke, 2003; Hacker, 2000). An MPEG is an audio file built from smaller parts called frames and each frame consists of certain information that when combined, creates the audio information needed to create a complete MP3 audio file (Fisher III, 2000). An MP3's audio file consists of

compressed data using a mathematical process based on algorithms. The algorithm responsible for the compressed audio file comes by way of the work done by the German company Frauhafer Gesellshaft, who in 1987 began work in audio coding in Germany at the Frauhafer Institute (Hill, 2003). The name of the project was EU147-digital audio broadcasting. Based on an algorithm developed by professor Dieter Seitzer from the University of Erlangen-Nurnbug, the work from this project became known as the ISO-MPEG audio layer 3, allowing for the MP3 acronym (Anonymous, 2003).

Since the late 1990s, the MP3 and its popularity have increased to such an extent that acquiring and sharing music began to grow and become a phenomenon that has caused the music industry to become aware and take notice. Consumers who had MP3 files on their personal computer's hard drive began to share with others and vice versa, and soon after central file sharing websites, most notably Napster.com began allowing MP3 file sharing to occur at a grand and feverish pace (Clarke, 2003). Napster.com in its beginnings was a central MP3 service website that exhibited huge growth due to the free MP3 downloads that it offered, but in its past form imploded due to court supported claims by the music industry over breaches in legal fees and copyright (Clarke, 2003). At the time of this writing it should be noted that Napster.com is re-establishing itself as a "pay to play" website that is selling individual MP3 songs for $0.99 per song. The issue for the music industry seems to be the shift in focus on the retailing of MP3s to the Internet consumers and curb the current trend of free downloads and file swapping among online peers. One such example is Apple Computer's online music distribution.

On April 28, 2003, Apple computers launched the I-tunes Music Store, which was a new online digital service for Mac and Windows users offering songs from all five major music companies: BMG, EMI, Sony, Universal and Warner. With this service an individual can purchase a high quality audio copy of music offered by Apple's I-tunes for 99 cents per song (Leonard, 2003). In December 2003, Apple announced that fans of music had purchased and downloaded more than 25 million songs from the Apple I-tunes music store since its launch in April (Apple.com, 2004). Apple appears to be the only company to offer music fans a complete solution for managing, storing and listening to their digital music collections using a system based on electronic commerce via the

Internet and the online buyers.

The music industry itself consists of three components: (a) music production, (b) marketing, and (c) distribution (Lippincott, 1999). This research concentrates on the distribution of music and the current user behavior that the MP3 technology and its widespread diffusion may have influenced college Internet users and music file sharing among online peers. The music industry has seemingly begun to shift its focus and its energies to convert the practitioners of illegal distribution into viable and loyal online consumers, of the music that they seem to have grown accustomed to obtaining in the file sharing basis that the Internet and its resources provide. The subject of music distribution in the form of MP3 files and their sharing among peers has become a topic that has seen changes in behavior not only from Internet users but also by the music industry itself as it looks to rejuvenate what it claims to be ailing music sales, and its means of profit (Hill, 2003).

The music marketplace seems to be on the verge of a transformation and it could be more consequential than the shift from records to the compact disc that started almost 20 years ago (Hill, 2003). The rejuvenation that the music industry has been placing its hopes on is high quality MP3 music sales over the Internet. These actions have been exercised in opposition to Internet users sharing music files illegally on the web, who in turn bypass both the music industry and the artists whose licensed music has been obtained without the proper fees being paid to either the artists or the recording company (Hill, 2003).

The importance of this study is derived from implications that come as a result of research involving the behavior of college Internet users and their intentions and attitudes towards acquiring free music in the MP3 format. For this study, college students were chosen due in part to past studies that have dealt with both the seemingly limitless availability of Internet technology on college campuses and the social influence that seems to arise in the college atmosphere among college Internet users in an educational cohort group.

Due to the availability of MP3 technology, the adoption of this technology warrants a relevant look at an ever evolving aspect of that technology and its

opportunities that have been offered at this current state of its existence and for the purposes of this study, the examination of technology acceptance and utilization on a college campus with college Internet users may prove to be beneficial as well as insightful due to a higher probability of technology use due to the higher proliferation rate of technology found on a college campus. The MP3 technology offers a glimpse into the bountiful offerings provided by Internet technology.

TECHNOLOGY ACCEPTANCE MODEL

Information technology has offered the potential to enhance the experience and outcomes of those who accept that technology (Davis, 1989; Hacker, 2000). User technology acceptance has attracted a great amount of attention in information technology research since the personal computer became widely available in the 1980s (Davis, 1989; Hacker, 2000; Horton, Buck, Waterson, and Clegg, 2001). The social psychological perspective in user acceptance research has appeared to be gaining influence since the introduction of the technology acceptance model (Davis, 1989; Huang, Te Lu, and Wong, 2003). When investigating the acceptance and use of information technology such as the Internet, different theoretical models have been used as a basis for its explanation. Models such as the theory of reasoned action (Fishbein and Ajzen, 1975), diffusion of innovations theory (Rogers, 2003) and the technology acceptance model (Davis 1989) have attempted to explain computer usage behavior by the individual from different perspectives (Davis, 1989; Yi and Hwang, 2003).

The technology acceptance model was originally developed by Fred D. Davis as a theoretical framework of helping to explain and predict computer usage behavior (Pijpers et al., 2001; van der Heijden 2003). The theoretical model was also developed to predict and explain behavior based on results of measures implemented by Davis that were recorded after interactions with a computer system (Pijpers et al., 2001; van der Heijden, 2003). While Davis has shown the technology acceptance model to help explain the usage of information technology systems, the model's theoretical basis is credited to Fishbein and Ajzen's (1975) theory of reasoned action (TRA). This theory illustrates that user beliefs come to influence user attitudes which then lead to user intentions and ultimately generate user behavior (Lederer et al., 2000; van der Heijden, 2002). The

theory of reasoned action is a widely studied theoretical model from social psychology that is concerned with what determines consciously intended behaviors. The basis for the theoretical model on human behavior, postulates that individual behavior in one's reasoning flows from beliefs and evaluations to the development of a certain attitude towards performing a particular behavior (Malhorta and Galletta, 1999). The technology acceptance model is an adaptation of TRA. This adaptation and evolution appear to coincide with the examination of computer software and its usage thus allowing for limitations in TRA to be evident and ultimately not employed for the purposes of this study.

The technology acceptance model consists mainly of two theoretical constructs which are hypothesized to be the key motives that govern the use of a certain system (Davis, 1989). The first of the two is "perceived usefulness." Perceived usefulness is defined as a degree to which an individual believes that using a particular system will enhance his or her performance to a related task (Davis, 1989). In the context of MP3 technology, the perceived usefulness refers to whether the performance of the task would be the acquisition of the MP3 for one's personal use. This capability for using a system is perceived by the individual functions as a type of advantage over those who have not adopted that system. An information system such as the Internet that is perceived to be useful is one where a user may come to believe in the existence of a positive relationship in which both use and performance exist simultaneously (Davis, 1989).

The second theoretical constructs is "perceived ease of use." Perceived ease of use refers to the degree in which individual believes that using a particular information system will be free of effort (Davis, 1989). The use of a system will exist from a certain sense of difficulty and therefore be easier to use and as a result more likely to be accepted by the user (Yi et al., 2003).

Apart from the two main theoretical constructs, the technology acceptance model holds two other constructs to the theory and its application, "Attitudes toward use" and "behavioral intentions to use." Attitudes toward use are based on the user's own evaluation of the attractiveness of employing an application of a particular information

system, while behavioral intentions to use is seen a measure of the likelihood that a system user will employ the applications of that system (Lederer et al., 2000).

This model also proposes that individuals use certain technologies in response to both extrinsic and intrinsic motivations. Extrinsic motivations are said to arise due to an individual's personal gain associated with the use of the technology (Dahlberg, Mallot, and Oorni, 2003). Extrinsic values can also arise due to the realization that the technology is perceived to be a necessity in achieving the valued outcome from the specific activity (Pavlou, 2003). For this study the valued outcome by the Internet users would be the acquisition of the MP3 from various music files that are shared online.

The second motivational factor for this model is the intrinsic value. The intrinsic value is best described as the perception of enjoyment as a result of engaging a certain technology (Dahlberg et al., 2003). Motivation that is termed intrinsic arises when the task of engaging an information technology such as the Internet, reinforces the activity of the performance itself (Pavlou, 2003). An example for the extrinsic motivation would be the acquisition of an MP3 that can be done only while on the Internet. Malhorta and Galleta's (1999) extension of the technology acceptance model to account for social influence also examined these motivations in the adoption and use of new information systems such as the Internet. An intrinsic motivation behavior would be the search for specific MP3 files online. This identification is due to the fact that the technology such as the Internet is embedded in the interface and file sharing data bases that provide for the actions and tasks by the users (Pavlou, 2003).

This study seeks to examine whether and how the above theoretical constructs are manifested in college students' decision to adopt MP3 technology. Specifically, this paper attempts to address the following research questions that are tied closely to a core dimension of technology acceptance model as reviewed above:

RQ1: How do college students perceive MP3 technology?

RQ2: How do college students explain their attitudes toward using MP3 technology?

RQ3: How do college students explain behavioral intentions toward using MP3 technology?

RQ4: How do college students describe their decision to adopt MP3 technology?

METHODOLOGY

A qualitative method of inquiry was employed in favor of the more commonly used quantitative approach that has been exercised in other TAM research (Davis, 1989; Dalhberg, Mallat, and Oorni, 2003; Lederer et al., 2000). A qualitative mode of inquiry is more appropriate for this study, given the nature of investigation would seem to benefit from what are detailed accounts of beliefs, thoughts, concerns of actual systems use. Furthermore, the descriptive nature of qualitative research helps gain a rich and better understanding of the research subjects by way of their interviews and fits the scope of the present study.

Focus Group Interview Method

Burton and Bruening's (2003) study argued that the use of a focus group interview method increased equality in participation and a greater response rate. This method also allowed the viewpoints of the various members in each focus group to be heard and shared by the participants (Ouimet, Bunnage, Carini, Kuh, and Kennedy, 2004). This method provides a forum for the participants to actively share their ideas, thoughts, sentiments and experiences that may have the potential to produce answers that are relevant to what the research will explore (Burton and Bruening, 2003; Ouiment et al., 2004). Studies by Ouiment et al. (2004) and Burton and Bruening (2003) concluded that among their peers, college students were more inclined to respond in a comfortable and confident manner to the survey questions. These studies also reported that response rates and participation were high and that the information the groups yielded was beneficial to what the studies were looking to find by allowing for in depth responses, varying opinions and a better understanding not seen through most quantitative studies (Burton and Bruening, 2003; Ouimet et al., 2004).

The interview procedures were designed to ensure the quality of data collected. Participants for this study were recruited by flyers posted on campus. Each of the participants were observed as part of a focus group consisting of 5 to 7 members and

recorded by an audio tape recorder in a mediated interview process to obtain the necessary data required for this study (Barbour and Kitzinger, 1999; Burton and Bruening,

2003; Krueger, 1994). The 31 undergraduate students who were recruited and participated included 17 males and 14 females. The interview itself was estimated to be 30 to 40 minutes in length and the interviews were conducted in a classroom at a state university campus in the southwestern part of the United States. The seating arrangement for the groups was selected to be a semi-circle where all of the participants would sit in front of the mediator and the tape recorder to allow for the participants and their responses to be recorded and monitored by the mediator (Krueger, 1998; Seidman, 1991). These procedures were chosen so as to obtain honest and accurate findings to gain insight into the adoption decision of college students.

Sample Characteristics

The sample characteristics matched those of music shoppers represented by teenagers aged from 13 to 18 and young adults who are of college attending age, 18 to 24 years of age (Alexander, 2002; Lippincott, 1999). Thus, the decision to employ college students for this study made the most sense. This decision came as a result of the high percentage of possible music buyers that attended college and the high level of possible study participants that may be recruited for research purposes. Another reason that college students were selected in this study was the higher percentage of college students who have the potential to spend more money than much younger teenagers due to their having access to financial funds by way of higher part time employment rate while attaining a higher education (Alexander, 2002; Leonard, 2003). These characteristics were keys to select college students for the interview. Furthermore, all participants had experiences with the Internet and MP3.

FINDINGS AND DISCUSSIONS

This section is organized to correspond to the components of the technology acceptance model outlined in the four research questions. These research questions examined various aspects critical to college students' decisions to adopt MP3 technology.

Respondents' Perception of MP3 Technology

The first research questions focuses on the perceptions of college Internet users about MP3 technology. The research question attempts to examine the first two theoretical constructs of TAM: "perceived usefulness" and "perceived ease of use."

One participant relayed the ease that pertains to the process of searching for certain artists and certain songs. Along with relaying the perceived ease of use, the participant added the personal benefits of perceiving financial savings as a result of acquiring free music in the form of MP3s:

> *I download because it is easy, I mean all you have to do is type in a band's name and find all their stuff. The best part is I do not have to go to the store and spend the money that I really don't have right now.*

Another participant's perception of MP3 technology is voiced as the participant expresses the value of its application in its perceived usefulness in acquiring the MP3 files that are found as a result of the search that takes place while online:

> *I think that it is definitely a necessity in getting the music. I really do because when I am looking around to put together a CD... Like let's say from a certain artist, I like to look . . . I switch, I mean sometimes I will go to "Best Buy" but mostly I look online and find out what tracks are on the CD, then go back and download those same tracks on MP3 and then just burn them at my house.*

The perception of MP3 technology in terms of search and acquisition of digital music files is evidenced by another study participant stating:

> *It is just easy and for me in [sic] the ease of it; it leads one to feel guilty in that there is no real effort to really get the music available. All it takes is turning on the computer and getting online and getting the music available and there you have millions of people doing it at hardly any cost to them.*

Through the interview method, the study has found that MP3 technology was perceived to be useful. One student stated how most entities retail and other wise are in

one way or another represented on the Internet, allowing one to search for most anything that an individual may think of. The student expressed the perception in both the ease and the usefulness of MP3 technology:

Now everything is online. If I hear of a new artist or song, the first thing I do is type it in on Yahoo and I know that I will find and from there I can go to "Kazaa" and I pretty much know that I will find it there or if not then my friends will.

In another example, another student stated the perception of MP3 file sharing websites and the support of user friendly applicability:

Well if you are looking for music and not have to pay then I think it's awesome, you just go online and check out "Kazza" or "Bear share"
And the way I see it, it just makes the whole thing, I mean in terms of MP3 just practical and easy.

One student remarked the convenience that is perceived as not only MP3 technology being easy to use, but also its usefulness in locating the desired music information and resulting in acquisition of the desired music entertainment:

It has become a way of life (laughs), no but really it's just easy to use and it makes a lot of stuff convenient you know, but personally I use it when my friends say "hey, you have to hear this song" and I know that I can find it while I am on the web and then be listening to it in a matter of minutes. Um...I have never actually burned CDs because of all the controversy and all that but I have downloaded music and ....uh I have like a play list on my computer. Um, but I don't know, I think it's kind of silly about this whole thing where people say it's wrong if you burn MP3s,.....they say it's just wrong , but I don't really think it's wrong. I just see it as sharing and I guess if people really like the artists, then I guess they will go out and buy the CD or whatever.

During the transcription of this interview, it was interesting to note the sense of caution in the student's testimony of downloading the music and saving it on one's computer but choosing not to transfer the music data to a physical compact disc. Although confidentiality was assured to each of the participants in this study, it was noted that for some individuals there was some hesitancy in their remarks and the delivery of

some responses, possibly as a way to help keep that sense of anonymity and confidentiality.

One of the respondents also related the adoption of MP3 technology due to what is perceived as high prices that many may see in the retail outlets that distribute music. The usefulness noted was in trying to avoid paying for what is perceived to be overpriced music:

Well……recently the music has been overpriced. I bought the 50cent CD and at the time I went all over to find it and this was when the CD barely came out. Finally, I got to one of the stores in the mall over at [local mall] and it cost me close to $20. Now that I think about it, I guess it was kind of pricey for just a CD. Now if I really want to search for something I will check it out online first, but that is only once in a while, I guess that I have been really busy and stuff, but I will try not to pay so much for CDs anymore.

Participants discussed and related that as a result that the systems use the result that many saw were viewed as convenient. Convenience appeared as a result of the other two perceptions and allowed for the explanation of the student who stated the results of viewing the two systems as convenient:

It's just convenient, like she was saying you can just go and turn your computer on and flip the button and be downloading. So it's pretty cool and plus then.....I mean you have it on your computer via the Internet . . . I mean what else you can say; it's just a great thing.

Attitudes toward Using MP3 Technology

Research Question 2 focused on attitudes toward using MP3 technology. Respondents were asked to evaluate their attitudes in employing this particular technology system and the outcomes. One college Internet user stated:

I love everything about MP3; I mean all that you can do with it. It's easier, it's faster and the best part of course is the free music you can get.

In terms of respondents' attitude, the results reflect the notion of the system's ease in operating and the resulting free MP3 music. Another student's attitude focused on the

enjoyment in the system's use and the results of having acquired multiple songs in the process:

> *Basically it is fun, because once I get on I start looking for songs……..and then I look for more songs and before I know I have like 10 downloads going at once. I love it.*

While another college Internet user replied:

> *I think the technology is great but I think that because it is so easy to use and yeah you save all this money, but after a while I guess you start to feel guilty. It is so convenient that you just get kind of addicted and you get all these songs and for me I guess I felt a bit guilty because I was in my room and the next thing I knew I had all of these burned CDs..   I don't know…. I guess after a while it was just my guilty conscience …I guess.*

The response to the second research question yielded an overall positive attitude due in part to themes perceived as benefits. The attitudes reflected the ease of the system, its convenience and the cost effectiveness that results in the system's employment. It was interesting to note that the attitudes expressed over this technology also resulted in a sense of guilt due to the participant's use and overall benefits described in adopting the use of the MP3 music format.

In terms of their attitudes toward obtaining MP3 music file, a student stated:

> *I enjoy it, and I like it for the convenience as we said, it's a time saver I also enjoy for my husband because he's out in Iraq right now and the limited time we have on the computer he usually downloads and I mean he's got hundreds of hours of music and that's basically the real reason why I got Roadrunner, to make things faster and it makes it fun for him because of it.*

This participant reveals the convenience of the MP3 technology and positive attitude in the response due to the positive outcomes experienced in having a loved one enjoy the perceived benefits of the system as well.

Behavior Intention to Use MP3 Technology

The qualitative data collected also shed some lights on how respondents' attitudes toward using MP3 technology are related to their behavioral intention to use this

technology.　One of the research participants commented on behavioral intention to use MP3 technology by intending continued use of MP3 technology as long as the technology is available by stating:

> *I intend to use it until they take it away. I mean it's just jealousy whoever invented this has made it easy for us and now people are scared of losing money, it's all just business.*

Two students made practical remarks and commented on their behavioral intentions by commenting on the simple notion as stated:

> *Well, if what you are doing works then I feel you'll keep doing it right? I mean that's what makes sense to me.*
>
> *I guess like what she was saying, we all seem to do it and use MP3 that is how and why the record companies are freaking out.*

Another participant explained their behavioral intention to uses as a result of the past experiences and overall results and attitudes by stating:

> *I mean all of my experiences have been good. I'm always online and I've got a lot of music on MP3, so I will keep doing it until they remove it or come up with something else. I will not pay $15 or $20 for a CD when most times I can get it for free no way.*

This participant also declared:

> *Me too, I do it everyday, every single day even if it's only for one song, I stopped for a while only for a while. One time a while back I got a couple of viruses but after, it's like a routine but I guess you get back into it and after a while...... there I was checking out some of the latest songs I had heard about.*

Themes Affecting their Decision to Adopt MP3 Technology

The study found, from these interviews, several recurrent themes affecting respondents' decision to adopt MP3 technology. Of the themes that recurred among them were ease, convenience and cost effectiveness. These themes were identifies by respondents most often in the adoption of MP3 technology. Having based the research instrument on the constructs of the technology acceptance model, the first theme appeared in relation to research questions that examined the perceptions of the Internet's

use and importance to their tasks and experiences with MP3 technology. Respondents claimed that searching for certain songs or an artist was easy to do by MP3 and Internet. Respondents also claimed that the overall technology was easy. Ease was identified in the accessibility resulting from online searching as well as the task of looking up the various MP3 music files. One respondent stated:

I download because it is easy, I mean all you have to do is type in a band's name and find all their stuff. The best part is I do not have to go to the store and spend the money that I really don't have right now.

Another respondent praises the ease in using MP3 technology and claims that its use would still be employed despite the thought of not being free of price.

I mean it's just easy to use, and I think even if it weren't free I bet people would still use it.

The second theme identified in the findings was convenience. Conveniences was identified in relation to the perceptions students claimed as a result of having adopted MP3 technology and experiencing a dramatic decrease in having to travel to certain retail outlets in order to purchase the desired music. Convenience was noted as respondents claimed that MP3 technology was perceived as suitable in the search and acquisition of the desired music. It was also noted that this phenomenon could be done in the comfort of their respective homes and bedrooms. These statements resulted as respondents claimed they could search for the desired music at times that were best suited to their schedules or at instances where leisure was sought. One example illustrated is:

I guess it's convenient. You really don't have to go shopping for music, I mean it's all there at the touch of a button all you have to do is click on it and it's all right there, ...and plus you can find a lot more things on your computer then you might find at the store. There's lots of time when I download music that I really don't know what it is but I download it anyway because I mean it's not costing me anything and sometimes I will end up liking the song. I mean that's why I like the technology.

While another respondent stated that the music could be acquired without having to leave their respective place of residence.

It is just convenient. I mean that it is just convenient in that nowadays you really do not have to go out to get the latest music that you see on MTV. I mean if you see someone that you like …..then you just go online and get it.

Another student illustrated the convenience of just having to turn one's computer on and easily commanding the computer and its applications to acquire the MP3 music.

It's just convenient, like she was saying you can just go and turn your computer on and flip the button and be downloading. So it's pretty cool and plus then…..I mean you have it on your computer via the Internet …..I mean what else you can say; it's just a great thing.

The last theme identified by this study was cost effectiveness related to MP3 technology. Cost effectiveness was listed among the responses that were given as a result to perceptions students had of MP3 technology. It was identified in comparison to what respondents claimed as over priced music sold in retail outlets. Some respondents claimed that as a result of attending college, they were less inclined to having disposable income that they could allot to the purchase of music that they sought. MP3 technology allowed for them to acquire the music and the resulting free MP3 files aided them by stating they could save that money otherwise used.

Because right now, I don't have spare money, I mean my parents help me out but I really don't have money for CDs or extra stuff that I might not really need right now, so this helps me because I do love a lot of music, bur I just can't buy it that much,……..at least at the moment.

Another student stated that the savings on MP3 music are seen in relation to the expenses experienced at the current stage of being a college student.

I'm all for it, I mean let's face it; I think that we [college students] all have a lot to pay for. For now this is just a good way of getting back at all those that made so much money on people for everything that is just way too expensive but yet we buy because, you know I guess that is the way we are. We want to buy everything on TV and be in. I love it and yes I do save money when I burn, but that is why I do it because I don't have that much money.

These themes were identified by respondents in study as most influential to their decision to adopt MP3 technology. Alongside the identified themes, results also

suggested that the technology acceptance model was capable of allowing for an adequate explanation of how respondents might adopt MP3 technology when acquiring new music format.

The ease of use allowed for most of the users to then perceive MP3 technology as useful in the apparent cost effectiveness by allowing participants to perceive a certain sense of financial savings. From the reported positive perceptions of MP3 technology favorable attitudes were noted as well as behavioral intention to use due to the majority of participants relating their success and continued acquisition of free MP3 music. From this reported success, the interview transcripts interpreted overall positive and favorable comments and continued use as identified by interview transcripts. This example stated:

I love everything about MP3; I mean all that you can do with it. It's easier, it's faster and the best part of course is the free music you can get. Basically it is fun, because one I get on I start looking for songs……..and then I look for more songs and before I know I have like 10 downloads going at once. I love it.

This study suggests that user acceptance and adoption of new technology such as the MP3 seems to confirm the theoretical postulation of the technology acceptance model. Based on the comments by most of the respondents that partook in the interviews, the findings appear to show that perceptions, attitudes and behavioral intentions favored the adoption of the technology and as a result found that most respondents had downloaded and acquired music in the MP3 format due to the system's ease, and convenience and found the system to be useful in the cost effectiveness that resulted in the system's use. This is evidenced by these comments on the use of MP3 music:

It's so easy, that most times you just can't help but want to do it.

I think as we've all been saying it really lends itself to be used and I think that's why all the business people are scared because of the money thing.

I intend to use it and keep on using it until they take it away or when something new comes along. If you want free music, then there it is I mean if you get what you want out of it why not?

CONCLUSION

The objectives of this study were to examine the adaptability of the technology acceptance model in explaining the adoption of MP3 technology among college Internet

users in the United States. The purpose of this study was to examine the applicability of constructs derived from the technology acceptance model and to extend them to help explain the adoption of MP3 technology. The focus group interview method allowed a forum for the study to examine the ideas, opinions and practices of college Internet users with this technology as it pertained to the search and acquisition of new music in the form of MP3 music files. It allowed for the exploration into the actual thought processes that college Internet user's exhibit in adopting MP3 technology when searching and acquiring new music. The findings from the interviews appeared coincide with the objectives of this study and help further the exploration of what the technology acceptance model and its theoretical constructs posit in its use and explanation of technology use and uptake (Shih, 2004).

Overall, the above findings appeared in support of all four research questions in relationship to the technology acceptance model and the constructs central to its theoretical applications which include perceived usefulness, perceived ease of use, attitude toward use and behavioral intentions to use. The outcomes illustrate that the relationships between perceived ease of use, perceived usefulness, attitudes toward use and behavioral intention to use are steady and consistent with the theory and its applications. This study appeared to follow suit in findings that have employed study samples having diverse backgrounds such as that found on a university campus (Legris, Ingham, and Collerete, 2003). Among the study participants perceived ease of use appeared to be more influential than perceived usefulness in affecting overall attitudes and behavioral intentions in the adoption of MP3 technology. It should be noted that the resulting findings were particular to this study.

Prior technology acceptance research found that perceived usefulness was consistently a more powerful predictor than perceived ease of use and while Horton et al. (2001) argue that perceptions of usefulness has a direct effect on perceptions of ease, this instance appears to exhibit the opposite in influencing perceived usefulness followed by attitudes and behavioral intentions. Perceived ease of use appeared to allow for perceived usefulness and positive attitudes toward use and ultimately allowing for positive behavioral intentions for MP3 technology by college Internet users in the adoption of that technology. The rationale for this statement comes as a result of the findings for this

particular study and the influence that perceived ease had on the rest of the constructs in relation to the responses given by research subjects as they demonstrated their perceptions, attitudes and overall behavioral intentions to use MP3 technology.

Implications

This study makes a theoretical yet practical contribution to MP3 adoption and emerging Internet technologies by helping to advance the understanding of college user acceptance and adoption behavior while extending the subjects of the technology acceptance research. Overall, understanding the factors and conditions that promote MP3 technology adoption can help explain behavior in other contexts of other than college students. As digital music distribution has caught momentum (Informa.com), it is important for music industry to better understand why consumers will adopt MP3 technology.

Limitations of Study

Despite the outcome of this study in exploring the adoption process of MP3 technology among college students in the United States, this study is not without its limitations. It is important to note that there may be limitations due to the sample characteristics from conveniently recruited respondents. Although a sample of convenience was used the limitations may be noted in the possibility of having attained answers that could have been socially influenced. The limitations may have been yielded as consideration must be given to responses that may have been influenced by the group members themselves. It should also be noted that focus group interviews have limitations in the nature of responses that are given by respondents who may not want to appear inferior or inept to the remaining members of the focus group.

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A Qualitative Study of MP3 Technology Diffusion among College Students in the United States

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Abstract

This study examines the diffusion of MP3 technology among college students in the United States through the framework of technology acceptance model (TAM). Using qualitative data drawn from several in-depth focus groups of 31 undergraduate students, the paper identifies three main themes in the technology's adoption and utilization: ease, convenience and cost effectiveness. Furthermore, theoretical constructs proposed in the technology acceptance model were also manifested. Managerial and theoretical implications are discussed.

Keywords: Focus group, MP3 technology, qualitative research, technology acceptance model (TAM)

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