

Warez Everyone Going: An Exploratory Look at Online Piracy

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Warez Everyone Going: An Exploratory Look at Online Piracy**ABSTRACT**

Over the past several decades, Internet piracy has plagued the computer software, music, and movie industries. Reports indicate that the software industry loses approximately \$12 billion in revenues a year due to piracy (Simon, 2004), that the recording industry lost a reported \$20.1B in 2003 globally (Szalai, 2003), and that the movie industry lost approximately \$3.5B globally (Szalai, 2003). Two studies explored this phenomenon (1) to understand why people download pirated materials via the Internet; (2) to determine the effects that piracy has on individual industries; and (3) to determine the utility brought about from different files with different sizes and in different formats, which drive potential downloaders to pirate these files.

INTRODUCTION

Piracy has been a plague for several industries for decades now. Ever since the cassette tape made it possible to record from one cassette tape to another, people have been pirating music. With the introduction of the VCR, movies were brought from the big screen to the television. When personal computers or PC's became a big craze, piracy filtered its way into homes ten fold because it became so easy to copy digital media such as music, movies, and software. It is estimated that the number of people pirating media on the Internet exceeds 60 million (Coleman, 2003) who, for example, download nearly 12 billion songs every year (Garland, 2004). Piracy as we now know it has exploded by leaps and bounds due to the digital age of today. With large storage capacity hard drives mixed with fast Internet connections, anyone with a PC can now easily pirate all three of the above mentioned media types without leaving the house.

Before the PC, if a viewer wanted to get a pirated version of a movie that was showing in the movie theatres, he/she would first have to know someone that had the connections of getting a pirated copy of that movie. Secondly, he/she would have to pay a premium price because it is illegal to have a pirated copy of any movie and pirates expected to be compensated for their risk. Lastly, one would have to suffer through a horrible copy of a movie that someone recorded with a cheap camcorder inside of a theatre if they wanted to watch a pirated version. The same goes for music and software, a "pirate" needed to know someone who already had what he/she wanted, in order to make a personal copy. Today it is a different story. Now one can just search online and find almost any movie, song, or other media type (e.g., software) they want and download them for free if they know the right channels. No more searching the streets for pirate vendors, users can almost "Google" what they are looking for and find a way to get it. Thanks to peer to peer networks, downloading these files is made to be extremely easy.

Peer to peer networks are networks in which groups of users connect together and share files on their computers with other users. The first major peer to peer network that gained world wide and media attention was the infamous Napster. Napster was a music swapping peer to peer network which allowed users to connect together and share mp3 files with other users. For those living in the undigitized world, an mp3 file is a compressed music file which cuts out any unneeded file room to compress music files at a ratio of 1:10. Thus, if a music file would be 40 MB in size on a Compact Disk, then the mp3 file would be 4 MB or smaller in size. And, a 4 MB file takes a lot less time to download than a file that is 40 MB in size: the time difference between the two would be the 4 MB file could be downloaded in about 10-15 minutes using a 56k dial-up connection, whereas the 40 MB file would take upwards to an hour and a half. After the media got a hold of the Napster news and started telling everyone about the new phenomenon, millions of people were flooding the Napster network downloading their favorite songs. This hurt CD sales causing a decline in record sales of about 26 percent since 1999, because everyone was downloading songs and buying fewer CDs (Music Industry, 2003). Because of the drop in record sales, the RIAA stepped in and sued Napster, shutting down the entire Napster network. The way in which the Napster network worked is detailed in Figure 1.

[Insert Figure 1 about here.]

After the RIAA shut down Napster, several off shoots of Napster and several new peer to peer networks emerged. The problem with Napster was that the network connected through servers which then allowed the users to share songs through the servers to which they were connected. This was a problem that was soon corrected by a new peer to peer network called Gnutella. The Gnutella network was designed to connect users to users without using a central server, thus eliminating any central control. With no control and with Internet connections becoming faster and faster, users could now share more than just mp3 files. Now users were

sharing mp3s, movies, software, pictures, and all other types of media. Since the inception of the Gnutella network, several other Gnutella agents have emerged such as Kazaa, Morpheus, Bear Share, Imesh, and several others. The way the Gnutella networks work is illustrated in Figure 2.

[Insert Figure 2 about here.]

Peer to peer networks have accelerated the pace of piracy in the home environment because of the easy search options that they offer. These provide a simple means for novice computer users to pirate nearly anything they want. Since the inception of peer to peer networks, people have forgotten about the other means of pirating media, such as Chat rooms, IRC clients, Newsgroups, and FTPs. These are for the more advance users of the Internet and provide a means for finding just about any type of media that is on the Internet. In chat rooms and IRC clients, users go to specified chat rooms which are run by Warez groups.

These Warez groups supply every type of pirated material imaginable. All one needs to do is ask for one of the lists from one of the servers and then ask the servers for the files that they want. These lists contain anywhere from thousands to tens of thousands of files. These groups are very organized with leaders and councils. They usually have a president and a vice president, uploaders, rippers, crackers, and servers. Together these groups upload and distribute terabytes of information daily. An estimated loss of \$5 million was attributed to just one warez group which ran for only 13-months (Malcolm, 2002). It is very hard to stop these groups because most of them are so organized and smart that they know every angle of the net that allows them to do what they do. In addition many of them work off of stolen accounts and are impossible to track: in most situations, there is no way to identify the culprits.

The purpose of this research is threefold: (1) to understand why people download pirated materials via the Internet; (2) to determine the effects that piracy has on individual industries;

and (3) to determine the utility brought about from different files with different sizes and in different formats, which drive potential downloaders to pirate these files.

THE IMPACT OF PIRACY ON INDUSTRY

Online piracy is unique in essence because it affects three different industries in unique ways. The three industries which are directly affected by piracy are the music industry, the movie industry, and the software industry. Interestingly, some industries have shown positive long run effects from this activity, while others have negative long run effects.

One industry which has potentially favorable long term effects is the software industry. These long-run affects are only beneficial to those companies that can afford to make it to the long-term. This means that in the long-term, the larger software companies will thrive because they will gain market share through piracy. According to Nick Bradbury, a free-ware software programmer, "More people have downloaded cracked versions of his software than have purchased the software" (Bradbury, 2004). How can free-ware programmers make a living when more people are downloading their programs for free rather than paying for their products?

Software companies such as Microsoft, Adobe, and Macromedia will most likely be the winners of market share due to piracy because of their overwhelmingly large dominance in the market. If you want to survive, you have to capture the market, and piracy will more than likely help these big companies because it is their software that most people are pirating. Reports indicate that the software industry loses approximately \$12 billion in revenues a year due to piracy (Simon, 2004). Some software can be seen to have positive repercussions due to piracy. For example, Slive and Berhardt (1998) suggest that, in the presence of significant network externalities for the software, it may be profitable for the software manufacturer to permit piracy by home users as this can increase demand for the software by business users. When network

externalities are smaller, the manufacturer should increase, if possible, the expected piracy costs, so that home consumers do not pirate. If the software manufacturer cannot raise piracy costs sufficiently high to induce many home consumers to purchase, however, then software manufacturers should focus little effort on reducing piracy in this group. Also the greater the proportion of the market that is composed of business consumers, the relatively more profitable it is to permit piracy. That is, allowing piracy tends to be more profitable when the software market consists primarily of business consumers (Slive and Bernhardt, 1998).

Industries that face negative effects due to piracy include the music industry. Music piracy has been adapted by many because of the relatively small file size. Most songs on the Internet can be downloaded within about 10-20 minutes using a 56k dial up connection, and in a matter of minutes using a broadband connection such as DSL (Digital Subscriber Line) or Cable. Since it is so easy to pirate music files such as mp3s, piracy has contributed to the recording industry losing an estimated \$20.1 billion globally in 2003 (Szalai, 2003). No one can really know the impact of piracy on the future of the music industry because of new innovations that have spanned within the last year, e.g. the creation of several legal downloading alternatives. For example, Apple computers developed its own mp3 site called iTunes and the infamous Napster network was purchased by the Roxio Corporation and was converted to a pay as you download site. Last year these music downloads reported earning nearly \$30 million (Burt, 2004). Several other music download sites have emerged since the inception of pay-per-downloads and the overall impression seems to be positive with most sites reporting positive numbers.

The movie industry has been less affected by online piracy due to the extremely large file size of movies. With encoding technologies, pirates have been able to reduce the size of movie files, but most movie files with good resolution, still take up over 1 GB of storage. Furthermore these files take about four hours to download, depending on the source of the download. If

downloading directly from an FTP (File Transfer Protocol) with a large amount of bandwidth these files could take less than one hour. Some pirates break up files and have hundreds of individual files to download. Once a user downloads all of the files they can then join them together using a utility such as WinRAR or HJ-split. The quality of some of these movie files will baffle most audiences, and some are capable of being played on DVD players in SVCD (Super Video CD) format when burned on a regular CD-R. Although the movie industry is the lightest hit by piracy, it is still estimated that approximately \$3.5 billion was lost globally in 2003 (Szalai, 2003).

Industry Response & Regulatory Efforts

To combat the fight against piracy, Congress passed a bill in 1998 called the Digital Millennium Act. This bill was passed to help enforce laws against infringers of copyright protected materials by holding infringers liable for copyright crimes even if the infringer is not using the copyrighted media for a profit. The 1998 Digital Millennium Act has allowed the RIAA to sue such infringers using the Kazaa network that share thousands of files everyday with downloaders. Along with the RIAA, the FBI has made piracy a major priority. According to Jana Monroe, a director of the FBI Cyber Division, "Cyber crime is the bureau's third priority behind terrorism and counterintelligence" (Bond, 2004, p. 1). The FBI has also changed the warning labels used on CDs, movies, and video games because of the massive amounts of piracy flooding the Internet.

Fighting piracy seems to be an endless battle with no end in sight just yet. Since the last launch of lawsuits brought about by the RIAA in March of 2004, 1977 individual downloaders have been sued for sharing music files (Veiga, 2004). By suing downloaders and handing out notable fines, the RIAA hopes that most novice downloaders will give up in fear of prosecution. Thus, they will leave the underground where pirated materials can be downloaded for the

purpose of trying out software and learning the software before you buy it. As of late, the underground is not safe due to undercover raids conducted by the FBI. Such operations as “Operation Fastlink” and “Operation Safehaven” have netted arrests in several countries connected with online piracy. According to Boliek (2004), “Operation Fastlink” identified over a hundred people in the US and from other countries tied to online piracy. “Operation Safehaven” was a raid in 2003 that resulted in the arrest of three men for their ties to online piracy (Wall Street Journal, 2003). With the RIAA suing infringers on one side of the spectrum, and the FBI conducting raids on piracy groups on the other, online piracy is bound to decrease and thus go further underground.

Hypotheses

The above discussion is summarized in the following hypotheses:

H1: Piracy, if monitored correctly and efficiently, can provide larger profits for some industries in the long run.

H2: As government and industry prosecution efforts increase, users will curtail their downloading behaviors.

H3: If the utility gained from downloading pirated materials is greater than the risk of criminal prosecution, downloading of pirated materials will increase.

METHODOLOGY – STUDY 1

Overview and Sample

An online survey was designed to understand why people download and what they are downloading from the Internet. Requests to participate were e-mailed to college students who signed up to participate via lists handed out in various courses. A total of 222 surveys were completed by participants ranging in age from 18 to 85, with over 85% of the participants being between the ages of 19 and 32 years old, with 48% being female.

Survey Instrument

The first part of the survey distinguished between people who have downloaded copy-right protected materials and those who have not downloaded copy-right protected materials. [See Appendix 1-A.] If the respondent answered that they have downloaded copy-right protected materials, they then continued on with the “full” survey. [See Appendix I-B.] If the respondent answered that they have not downloaded copy-right protected materials, then the survey proceeded to a couple of questions asking the respondent why they have not downloaded copy-right protected materials. At the end of the survey, respondents (downloaders and non-downloaders) completed a series of demographic characteristic (e.g., gender, income, etc.) and social values measures. [See Appendix I-C.]

The primary dependent variables are (1) fear of prosecution from downloading copy-righted materials and (2) what kind of enjoyment users receive from downloading copy-right materials. Other dependent variables examined which types and how often various media are downloaded, thus enabling more precise investigation of which industries are more affected by online piracy. In addition, the sources that respondents use to download pirated materials were assessed to determine which means most easily facilitates piracy.

RESULTS – STUDY 1

An OLS regression model was used to test H1, to determine which factors impact the downloading of pirated (copyrighted) materials (see Table 1). To help understand the downloading behaviors of people who download pirated materials, a regression model specified gender, file size, fear of prosecution, connection speed, and further downloading due to rising movie prices as independent predictors of (self-reported) downloading behavior. The overall model was significant ($F(5, 100)=15.839, p=.000$) with an R^2 of .442, indicating that 44.2% of

the variance in the dependent variable (downloading behavior) was explained by this set of independent variables (i.e., gender, file size, fear of prosecution, connection speed, and further downloading due to rising movie prices). Examination of the individual beta coefficients suggest that (1) males are more likely to download than females ($b=-.204, t=-2.531$), (2) smaller files are more likely to be downloaded ($b=.161, t=1.993$), (3) faster connection speeds make downloading pirated media more appealing ($b=.182, t=2.404$), (4) as prosecution rates increase, downloading will decline ($b=-.198, t=-2.549$), and (5) downloading will increase if movie prices keep rising ($b=.428, t=5.433$).

[Insert Table 1 about here.]

After evaluating which factors influence downloading behaviors, another OLS regression model was analyzed to determine which factors were significant in predicting “fear of being prosecuted”. [See Table 2 for a summary.] To examine downloaders’ attitudes towards fear of being prosecuted for downloading, the independent factors included guilt, expect prosecution, prosecution will reduce my downloading, and “I download copy-righted files because I feel I am stealing from large companies and not small artists”. The model overall was significant ($F(4,109)=27.513, p=.000$) with an R^2 of .502, indicating that 50.2% of the variance in the dependent variable, fear of prosecution, was explained by this set of independent variables (i.e., guilt, expect prosecution, prosecution will reduce my downloading, and I download copy-righted files because I feel I am stealing from large companies and not small artists). Review of the individual beta coefficients suggest that (1) guilt is likely to take place for users who fear prosecution ($b=.193, t=2.604$), (2) users who fear prosecution are likely to expect prosecution for downloading pirated materials ($b=.479, t=6.573$), (3) users are likely to reduce downloading while more and more people are prosecuted for downloading pirated materials ($b=.217, t=2.931$),

and (4) though downloaders fear prosecution, they download because they feel that they are stealing from large companies and not the smaller artists ($b=.121$, $t=1.752$).

[Insert Table 2 about here.]

Download Gateways

For additional insight into the downloading behaviors of Internet users, a series of one-way Anovas were run to determine which file types are being downloaded more often through different downloading gateways. That is, user reported “downloading” for all media types (i.e., movies, music, software, and games) were the dependent variables, and user’s preferred outlet for downloading (i.e., chat rooms, peer-to-peer, newsgroups, web pages, and FTP) was the single independent variable. The first Anova revealed that users who preferred to download movies did so more in chat rooms, news groups, and by FTP versus peer-to-peer ($M=1.75$) and web pages ($M=1.73$; $F(4,143) = 6.814$, $p=.001$).

Music was downloaded by more users in each group than any other media type: chat rooms ($M=4.250$) led all other downloading gateways, followed by newsgroups ($M=3.333$) and FTP ($M=3.33$), which were then followed closely by peer-to-peer ($M=3.120$), and lastly web pages ($M=2.27$; $F(4,144) = 5.381$, $p=.001$).

As for software downloading, chat rooms ($M=3.50$) exceeded all other downloading avenues, again followed by news groups ($M=2.33$), and FTP ($M=2.17$). Users rarely downloaded software from peer-to-peer ($M=1.83$) or web pages ($M=1.73$; $F(4,143) = 5.585$, $p=.001$).

Last to be analyzed was the least downloaded media type, games. Chat rooms ($M=2.38$) led here as well, closely followed by newsgroups ($M=2.33$). All other download gateways were much lower: peer-to-peer ($M=1.56$), FTP ($M=1.50$), and web pages ($M=1.40$; $F(4,142) = 2.112$, $p=.081$).

Following the above analyses, a final Anova examined the fear of prosecution associated with each preferred avenue of downloading. To no surprise, the two gateways which had the highest percentage of downloading of media types had the lowest fear of prosecution, although these differences were not statistically significant. The lowest fear of prosecution was observed for users using news groups ($M=2.67$), followed by chat rooms ($M=2.88$). Web pages ($M=3.27$) and FTP ($M=3.17$) had moderate levels for fears of prosecution, while the highest fear of prosecution was observed in users who prefer to use peer-to-peer networks ($M=3.84$; $F(4,143) = 0.662, p=ns$).

Software Downloads

An OLS regression model was analyzed to determine which factors were significant in predicting behaviors associated with users downloading “software” media files. To better understand which factors impacted the downloading of software media files, a regression model specified time looking, prosecution, and downloading files because users feel they are stealing from corporations and not individual programmers as predictors of downloading. The overall model was significant ($F(3,110) = 11.078, p = .000$) with an R^2 of .232, indicating that 23.2% of the variance in the dependent variable (software downloading) was explained by this set of independent variables. The individual beta coefficients suggest that (1) users who download software illegally do so because they feel they are stealing from the large corporations and not individual artists/programmers ($b=.305, t=3.596$), (2) prosecution is likely to reduce downloading of software files ($b=-.335, t=-3.596$), and (3) time spent looking for software files influenced the downloading of this media type ($b=.159, t=1.761$).

According to the above regression model, software files are primarily downloaded because of users’ ability to do so without guilt because primarily they are frauding large corporate profits. This would uphold the study by Joshua Slive and Daniel Bernhart (1998), that argues that

allowing piracy tend to be more profitable when the software market consists of primarily business consumers. The value of the software files are greater than any other media type (about \$8.00 per MB downloaded), and software companies are primarily making their profits from large corporate customers and not home users.

Movie Downloads

Following the above procedure, an OLS regression model specified time looking, connection speed, movie file size, download if movie prices rise as predictor variables. The overall model was significant ($F(4,98) = 15.374, p = .000$) with an R^2 of .386, indicating that 38.6% of the variance in the dependent variable (movie downloads) was explained by these predictors. The individual beta coefficients suggest that (1) time spent looking for movies to download is essential ($b=.312, t=3.710$), (2) connection speed is important to users downloading movies ($b=.141, t=1.763$), (3) movie file size is another determinable variable for users downloading movies ($b=.265, t=3.097$), and (4) users will download movies more often if prices of theatre tickets rise ($b=.247, t=2.967$).

Users who download movie files are downloading files which are very large, with a utility margin of value which is respectfully low (\$0.01 per MB downloaded, detailed below in Study 2). This is why many users put an emphasis on connection speed and movie file size, and what has kept movies from being downloaded as rampantly as music files. In addition, before the movie industry raises theatre tickets, they must consider the potential increases in pirating.

Music Downloads

An OLS regression model specified guilt, price, music file size, and pay \$.79-.99 per song downloaded as predictive of music downloading. The overall model was significant ($F(4,135) = 9.378, p = .000$) with an R^2 of .217, indicating that 21.7% of the variance in the dependent variable (software) was accounted for by this set of independent factors. The individual beta

coefficients suggests that (1) guilt was a determinable variable for users downloading music files ($b=-.310$, $t=-3.902$), (2) as the price of music increases so does the downloading of music files ($b=.170$, $t=2.213$), (3) users download small music files more often than larger files ($b=.179$, $t=2.272$), and (4) users willing to pay \$.79-.99 per individual song that they download will download less files illegally ($b=-.125$, $t=-1.613$).

Music by far is the largest media type downloaded daily on the Internet. This is easy to see because the value received for each individual size is higher than other media types other than software (see “utility” details presented below in Study 2). The major determinate for downloading music files is their small size which makes them easy to be downloaded, even by users with dial-up connections. According to the model above, users feel guilt but it was not enough to stop them from downloading, likely because the value of the music files is greater than that of the fear of prosecution for downloading these files (this argument is further explored in Study 2).

Games Downloading

An OLS regression model using guilt, price, prosecution will reduce my downloading of pirated materials via the Internet, and I download copy-righted materials because I believe I am stealing from large corporations and not individual programmers was significant ($F(4,108) = 7.115$, $p = .000$) with an R^2 of .209. Examination of the individual beta coefficients suggest that (1) users download games less when they feel a sense of guilt ($b=-.156$, $t=-1.716$), (2) the rising price of games increases the downloading of games ($b=-.143$, $t=-1.614$), (3) users download games because they believe they are stealing from large corporations and not individual programmers ($b=.348$, $t=3.872$), and (4) prosecution will reduce users downloading of games ($b=-.277$, $t=-2.998$).

Users who download games are downloading large files which carry a value higher than that of movies (detailed below in Study 2). These files are more likely to be downloaded by younger downloaders who do not have the money to personally buy the games from the stores. This is harmful to the game industry because young users are the primary market for their products. The game industry's best strategy might be to place more fear in downloaders' eyes and make them realize that paying for the games will only make future games better.

In summary, the above results of the on-line survey of Internet users find general support for H2 and H3 along with additional insight into the relationship between piracy and fear of criminal prosecution. A second study explored the "utility" gained from such illegal behavior.

METHODOLOGY – STUDY 2

Overview of Purpose

Using information printed from the Internet, I created several data charts depicting all sorts of media being offered by Internet chat rooms. The data collected included the title, company name/artist, price, size, downloaded, and file type. From this data, I estimated the "utility" gained from different media types to explore reasons why people go through such great lengths to download these media types.

Procedure

Data was collected from various warez chat rooms. A total of 667 files were recorded along with their file size, estimated dollar amount, and then grouped by the rooms in which they were being offered for downloading and by media type. A *utility* value was assigned to each file based upon questions asked in the above mentioned survey in which users rank ordered the highest download amounts for certain media types. After collecting all of the data, the size of the files was transformed into mega bytes (MB). This was done by dividing any file in kilobytes (KB) by

1024 bytes and by multiplying any file in gigabytes (GB) by 1024 bytes: e.g., a 97 kilobytes (KB) file is now, $97/1024 = 0.094$ MB. After computing all files into MB, the price per MB for each file was calculated by taking the retail price of the file and dividing it by the size of the file in MB. Each file was then analyzed for rejection. Rejection of any data was done when any file had a price per MB larger than its retail price, and was less than 1 MB in size. After rejecting all null data from the list, there still remained 648 files in the data set.

To better understand another factor which was not measurable through the survey in Study 1 (i.e., the “value” which can be accumulated from downloaded files), I examined the utility gained from downloading certain types of files. Thus, “price per MB downloaded” was computed as the ratio of price versus file size. For example, when I divide \$15.00 by 80 MB I get about \$0.19 per MB downloaded. Now compare this to the utility gained from a movie downloaded which is about 1.5 GB in size and is worth about \$20, i.e., the price per MB downloaded is less than \$0.01 per MB.

To better understand the downloading behaviors of users downloading the various file types, OLS regression models were designed for each media type. These models were structured using the same variable types for all models and then filtered to only contain usable independent or predictor variables.

To help understand the utility across media types, I compiled tables by media type using price, size, price/MB, standard deviation. By comparing these media types with the likely sources for downloading these files, we should be able to understand why some files are downloaded more than others, and what factors could be in play to cause downloaders to download one media type over another.

After compiling the data from each room, the files were divided into four different categories: software, movies, music, and games. For each category group, the total size in MB

was calculated along with the total price (i.e., the cumulative category's retail price). After finding these totals, the price per MB downloaded was figured for each file, followed by the average price per MB downloaded for the category.

RESULTS – STUDY 2

Category: Software

The software category consisted of a total of 444 files at an estimated worth of \$62,682 and a total of 110,541 MB (107.95 GB). The average price per MB downloaded with the software files was \$8.36 per MB. This is a pretty high number, indicating that (for the software files) every MB downloaded is worth about \$8.00. The average behavior of downloaders downloading software files was 1.94 on a 5-point scale (where “1” represented “never downloading” and “5” represented “downloads all the time”). From this average, of the 150 users who said they download, 45.6% said that they never download software files via the Internet. The highest yields of downloading for software files were found in chat Rooms ($M=3.500$) and News Groups ($M=2.333$; $F(4,143) = 5.830$, $p = .000$).

Category: Movies

The next category, movies, consisted of only 43 files with an estimated value of \$880 and a total size of about 67,645 MB (66.06 GB). The average price per MB downloaded for the movie files was about \$0.01 per MB, meaning that for each MB downloaded, one receives “value” of approximately \$0.01. This category had an average downloading response of 1.89 on a 5-point scale. Of the users who say they download files over the Internet, 56.4% said they never download movies, and only 7.4% of the users said they download movies all the time. The highest amount of downloading for movie files was observed in News Groups ($M=3.667$), FTP ($M=3.000$), and Chat Rooms ($M=2.875$; $F(4,143) = 4.725$, $p = .001$).

Category: Music

The music category had 76 files in it and an estimated value of \$1,154.95 and a total size of 6859.7 MB (6.7 GB). The average price per MB downloaded was \$0.27 per MB downloaded. The music category had an average downloading response of 3.1 which was greater than the other three categories. Of the people who claim to download media files via the Internet, only 7.4% said they never download music files, leaving 92.7% of people downloading music sometimes, of which 16% said they download music files all the time.

Category: Games

The last category examined was the game category which had a total of 36 titles with an estimated value of \$1,700 and a total size of 48,215 MB (46.27 GB). The average price per MB downloaded was \$0.07 per MB downloaded. The average downloading response for games was 1.61 which was the lowest for all the categories. Of the users who said they download game media files, 62.2% said they never download games via the Internet, and only 1.4% download games all the time (see results reported above for Study 1).

GENERAL DISCUSSION

Piracy, as seen from the above studies, takes on several different forms in different industries. To support H1, one would have to show that piracy can be monitored correctly and efficiently. As indicated by findings in Study 1, it is virtually impossible to monitor piracy on the Internet. Also, in conflict with H1 is the study by Joshua Slive and Daniel Bernhart (1998) which concluded that allowing piracy tends to be more profitable when the software market consists primarily of business consumers. This argument can be challenged because the most downloaded files on the Internet are MP3 files. If one could eradicate the Net of such media types such as movies, music, and games, then H1 would hold.

As for H2, the data suggest that as government and industry officials prosecute more users, users are turning to other mediums to download their files. Peer-to-peer users were the largest group of downloaders and they had the highest fear of prosecution, thus supporting H2. Downloaders using other avenues to get their pirated materials had a lower fear of prosecution. This can be attributed to the fact that no respondents have been prosecuted for downloading files using chat rooms, newsgroups, web pages, and FTP. Users with a higher fear of prosecution will more likely stop downloading or find other gateways to download their media files. If the government and industry officials really want to curtail downloading efficiently, they need to find ways to prosecute those using other means of downloading pirated materials. The highest percentage of downloading pirated materials other than peer-to-peer networks is in chat rooms. If downloading pirated materials on the Internet is to be cut down, officials must prosecute other downloaders other than those using peer-to-peer networks.

Support for H3 that downloading decreases as the utility gained from a download exceeds the risk associated with prosecution is apparent across several media categories. Study 2 shows that the largest utility to a downloader of a file is a valuable file which is small in size. This enables the downloader to maximize their value utility, while maximizing their size utility. This is easy to be seen with music files which are normally small in size and with some software titles. Movies and Games are less likely to be downloaded by users who seek the largest amount of the two given utility determinates. This is because Games and Movies are very large files which only give a downloader a minimum utility of value.

Limitations and Future Research

Most obviously, a more comprehensive investigation of H1 is warranted. Data for Study 1 was collected during the first wave of lawsuits issued by the RIAA to users using the Kazaa network. Future research should explore the impact of that and subsequent legal actions on

downloaders. For example, have the lawsuits caused downloaders to stop downloading or to pursue other means to find and download their pirated materials? In addition, during the course of this research, another means of downloading has emerged which is still new and unknown by most of the downloading public. This new technology is a way of downloading files and having other users download the partially downloaded file that you are currently downloading on your computer. This is done by downloading a file named a .torrent. This file is then used by an agent to find other users downloading the same file and allows other users to leach off of the partially downloaded file, even before the download is completed. If the file that the user is downloading is removed or deleted, the agent simply looks for another file, from another user to leach from.

Future research might investigate the fight of fighting against new technologies such as bit torrent technologies, and the benefits that users receive from downloading pirated materials.

APPENDIX 1-A**“INTRODUCTORY” SURVEY QUESTIONS**

1. Have you ever downloaded copy-right protected (illegal) materials (MP3, Movies, Software, Games, Etc...) for free, via the Internet? [Choose one answer.]
 - Never (If selected, survey would be branched to Appendix 1-C)
 - Occasionally (If selected, survey would be branched to Appendix 1-B)
 - Frequently (If selected, survey would be branched to Appendix 1-B)
2. How likely are you to download copy-right protected (illegal) materials in the near future? [Likert - answers based on a range of 9 values (where ‘1’ = ‘Not likely to’; ‘9’ = ‘Very likely to’)]
3. What are your OVERALL IMPRESSIONS of downloading copy-right protected (illegal) materials from the Internet? [Likert – answers based on a range of 9 values (where ‘1’ = ‘Not at all’; ‘9’ = ‘Very’)]
 - Positive
 - Helpful
 - Useful
 - Exciting Good
 - Fun
4. How guilty do you feel when downloading copy-right protected (illegal) materials via the Internet? [Likert – answers based on a range of 9 values (where ‘1’ = ‘Not at all guilty’; ‘9’ = ‘Very guilty’)]

APPENDIX 1-B
MAIN SURVEY QUESTIONS

1. How often do you download the following? [Likert – answers based on a range of 5 values (where ‘1’ = “Never”; ‘2’ = ‘Sometimes’; ‘3’ = ‘Occasionally’; ‘4’ = ‘Frequently’; ‘5’ = ‘All the time’)]
 - Movies (VCD, MPG, DIVX, AVI, etc...)
 - Music (MP3, WMA, WAV, etc...)
 - Software
 - Games

2. How long are you willing to spend looking for a particular form of pirated media? [Only one answer allowed]
 - Less than 15 minutes
 - Less than 1 hour
 - More than 1 hour

3. Which of the following sources have you used to download copy-right protected (illegal) materials on the Internet? (Please choose all that apply.)
 - Chat Rooms (MIRC or AOL)
 - Peer to peer Networks (Napster, Morpheus, Kazaa, Etc...)
 - News Groups
 - Web Pages
 - FTP (File Transfer Protocol)

4. Which of the following sources is your MOST preferred source to download copy-right protected materials from the Internet? [Only one answer allowed]
 - Chat Rooms (MIRC or AOL)
 - Peer to peer Networks (Napster, Morpheus, Kazaa, etc...)
 - News Groups
 - Web Pages
 - FTP (File Transfer Protocol)

5. Do you feel that you may be faced with criminal damages for downloading copy-right protected (illegal) materials? [Likert answers based on a range of 9 values (where ‘1’ = ‘Very Unlikely’; ‘9’ = ‘Very Likely’)]

6. How big of a file are you likely to download for a movie; especially for a movie that you really want to see? [Only one answer allowed]
 - Less than 500 MB in size
 - 501 - 800 MB in size
 - 801 MB - 1 GB in size
 - 1.01 GB – 1.5 GB in size
 - Larger than 1.5 GB in size

7. How big of a file are you likely to download for a music file or full CD; especially for a file or CD that you really want to hear? [Only one answer allowed]
- 1 – 10 MB in size
 - 11 – 20 MB in size
 - 21 – 30 MB in size
 - 31 – 40 MB in size
 - Larger than 40 MB in size
8. How big of a file are you likely to download for a software application; especially one that you really want? [Only one answer allowed]
- 1 – 100 MB in size
 - 101 – 300 MB in size
 - 301 – 500 MB in size
 - 501 – 700 MB in size
 - Larger than 700 MB in size
9. How many times have you downloaded a copy-right protected (illegal) file and have been upset with the quality of the file(s)? (Poor film quality, poor sound quality, corrupted files, etc...) [Only one answer allowed]
- Never
 - Occasionally
 - All the Time
10. Overall, how satisfied are you with the quality of copy-right protected (illegal) downloads? [Likert – answers based on a range of 9 values (where ‘1’ = ‘Very Dissatisfied’; ‘9’ = ‘Very Satisfied’)]
11. The retail price of goods that I have pirated in the past influenced my choice to download pirated products. [Likert – answers based on a range of 9 values (where ‘1’ = ‘Strongly Disagree’; ‘9’ = ‘Strongly Agree’)]
12. I download copy-right protected (illegal) materials because I feel I am stealing from the large corporations that are exploiting the original artists. [Likert – answers based on a range of 9 values (where ‘1’ = ‘Strongly Disagree’; ‘9’ = ‘Strongly Agree’)]
13. I will download more movies on the Internet if the price of a theatre ticket is raised. [Likert – answers based on a range of 9 values (where ‘1’ = ‘Strongly Disagree’; ‘9’ = ‘Strongly Agree’)]
14. How likely are you to pay \$.79 - \$.99 to download a song on the Internet legally? [Likert – answers based on a range of 9 values (where ‘1’ = ‘Very Unlikely’; ‘9’ = ‘Very likely’)]

15. I fear being prosecuted for downloading copy-right protected (illegal) materials. [Likert – answers based on a range of 9 values (where ‘1’ = ‘Strongly Disagree’; ‘9’ = ‘Strongly Agree’)]

16. As more people are prosecuted for downloading illegal materials from the Internet, I will reduce my own downloading of illegal materials. [Likert – answers based on a range of 9 values (where ‘1’ = ‘Strongly Disagree’; ‘9’ = ‘Strongly Agree’)]

17. Please list any other deterrents that may keep you from downloading more copy-right protected materials via the Internet. [Comment – users to enter comments]

APPENDIX 1-C
REVERTED SURVEY QUESTIONS

1. Please list the reasons that you have for not downloading copy-right protected (illegal) material on the Internet. [Comment – allows user to enter comments]

2. I have not downloaded copy-right protected (illegal) materials from the Internet because I fear criminal prosecution for my actions. [Likert – answers based on a range of 9 values (where ‘1’ = ‘Strongly Disagree’; ‘9’ = ‘Strongly Agree’)]

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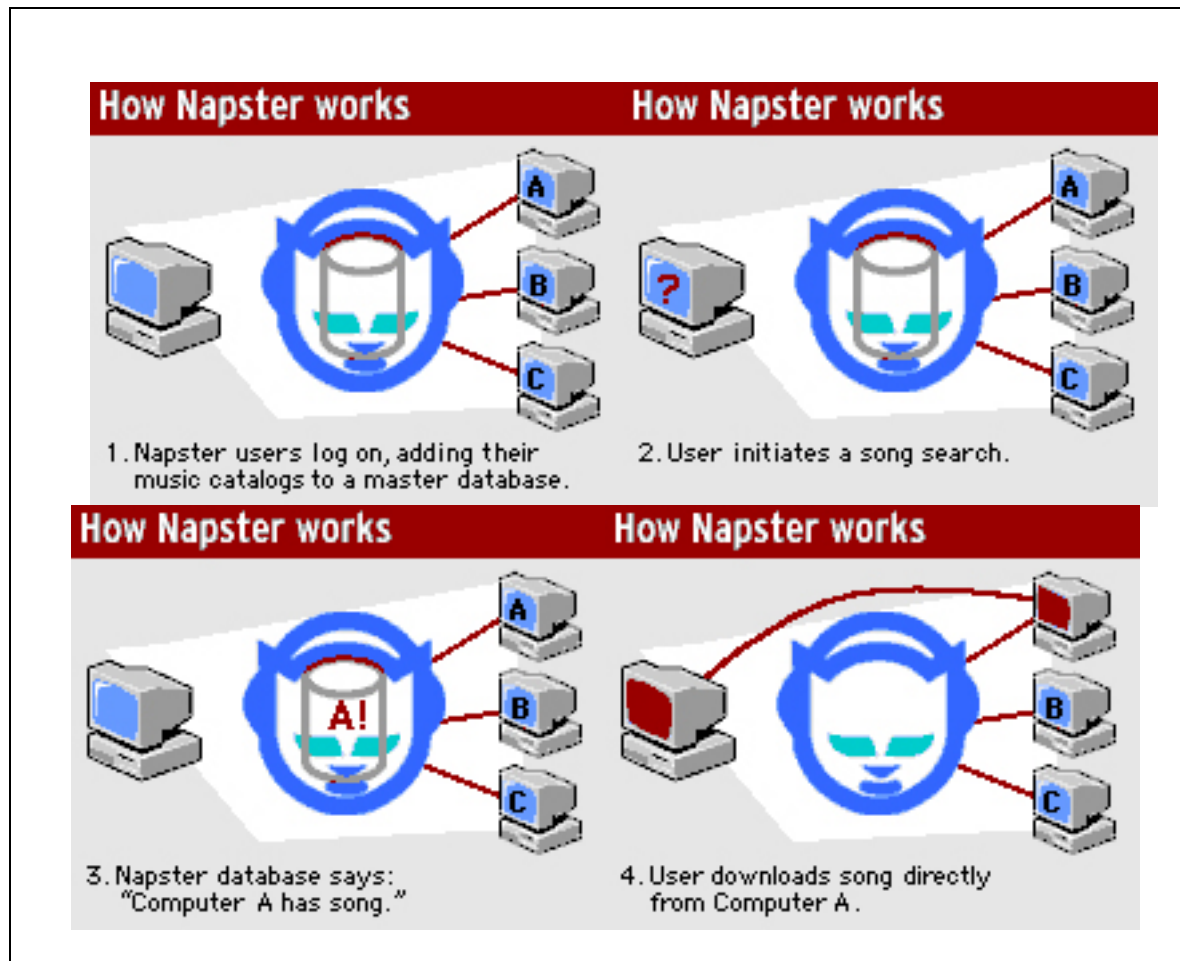
TABLE 1
Factors Impacting Downloading: Summary of Regression Statistics

<i>Predictors</i>	<i>Beta</i>	<i>t Value</i>	<i>p value</i>
Gender	-.20	-2.53	.04
File size	.16	1.99	.05
Fear of prosecution	-.20	-2.55	.04
Connection speed	.18	2.41	.03
Rising movie prices	-.73	-2.08	.04
<i>Model Statistics</i>			
R^2		.442	
F		15.839	
N		101	

TABLE 2
Fear of Being Prosecuted: Summary of Regression Statistics

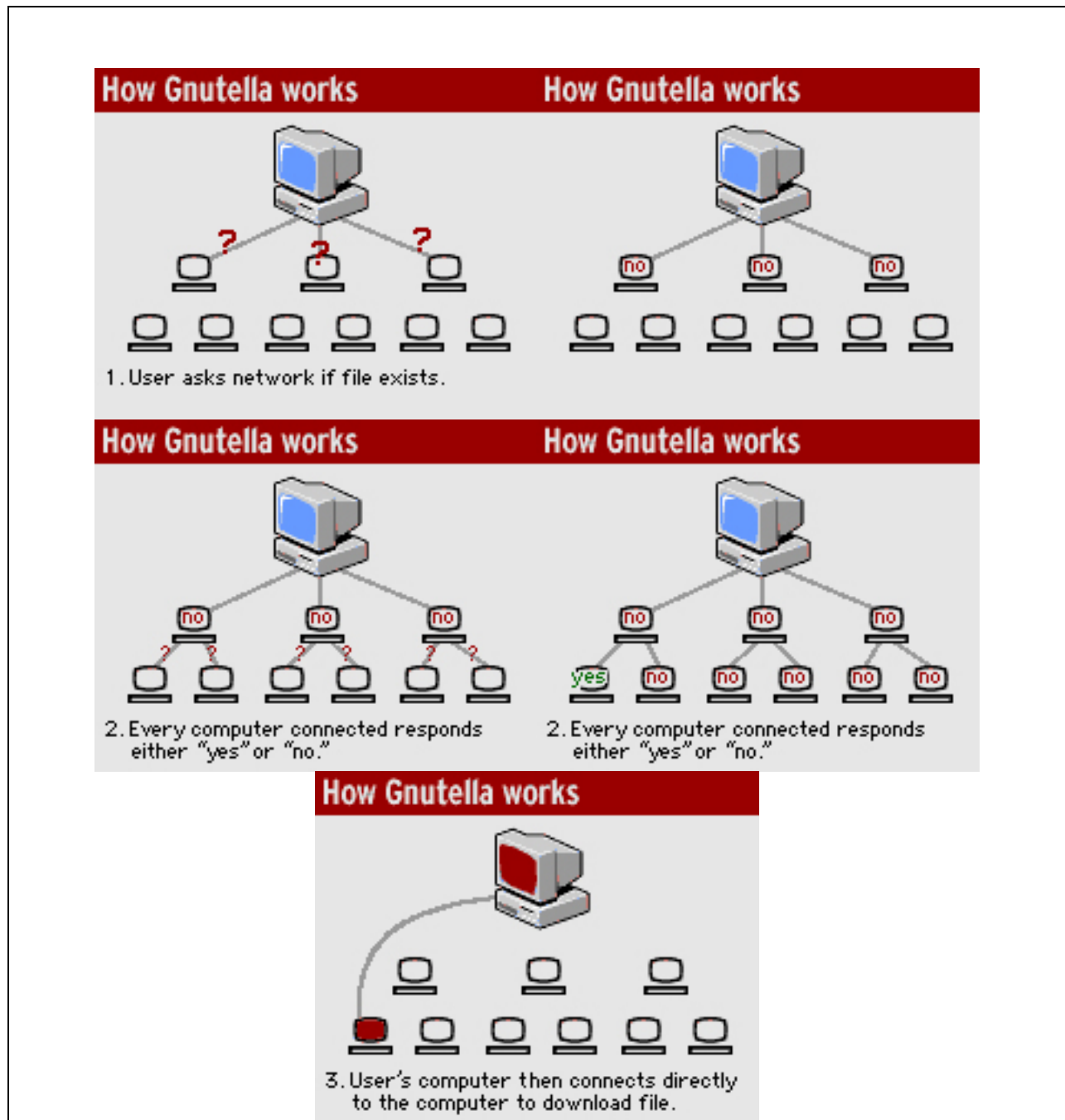
<i>Predictors</i>	<i>Beta</i>	<i>t Value</i>	<i>p value</i>
Guilt	.19	2.60	.01
Expect prosecution	.48	6.57	.05
Reduction in downloading	.22	2.93	.01
Stealing from large companies	.12	1.75	.08
 <i>Model Statistics</i>			
R ²		.502	
F		27.513	
N		110	

FIGURE 1
THE NAPSTER NETWORK



Source: Borland, J. (2000, May 31). Napster-like technology takes web search to new level. News.com

FIGURE 2
HOW GNUTELLA WORKS



Source: Borland, J. (2000, May 31). Napster-like technology takes web search to new level. News.com