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## **LOUGHBOROUGH UNIVERSITY STUDENTS' ATTITUDES TO P2P MUSIC FILE SHARING**

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## **Introduction**

In 1877, Thomas Edison (1) invented the first analogue recording technology.

“His original recordings took the form of indentations on a sheet of tinfoil embossed by a stylus resonating in response to sound. The foil itself was wrapped around a cylinder that was rotated as the sounds were recorded.” (2)

It was Emile Berliner (3), however, who adapted Edison’s design into a flat disc in 1887. The format of the flat disc “...enabled a negative to be made and then multiple copies –or records- to be easily manufactured” (4). It was then possible for music to be mass-produced and sold to the public. With the great commercial success of the music record, composers and artists began to mount lawsuits to attempt to receive a royalty from every copy of their record that was sold (5). The record companies argued against the artists’ and composers’ claims and an early judgement went against the individuals, saying that records could not be considered as copies and should not have “...copy protection under the law.” (6). It was not until 1909 that

“...the US Congress legislated in response to the ruling of the courts and instituted a copyright law that established the right of composers and performers to be paid whenever their songs were reproduced.” (7)

Although copyright law started with protection for what are now known as Literary Works, i.e., hand-written and printed works, by the end of the nineteenth century the law had been extended in many countries to cover sheet music, and later recorded music. This is typical of the manner in which copyright law develops. As new media are invented, so the law is extended to protect creations that are available in those new media.

In the UK, the relevant extension of copyright law is nearly 100 years old. In 1908,

“The record industry, which by then had become large and influential, was able, by lobbying, to persuade the House of Commons that some restriction of the composers’ rights was desirable.” (8)

“The Gorell Committee [appointed to consider how UK law would have to be altered in light of the revision of the Berne Convention] was impressed by evidence from the record industry that copyright protection against unauthorized copying and public performance should be afforded to records themselves. The 1911 [Copyright] Act followed the Committee’s recommendation and gave copyright to records as if they were musical works.” (9)

In addition to copyright, certain other rights are relevant to the recorded music industry, most notably Performers Rights. In many countries, this

gives performers the right to object to any unauthorised recording of their performance.

Although copyright law is not policed or enforced vigorously in many countries, British and US citizens have relatively high respect for what are arguably strong copyright laws. Although the recording industry has long complained of the damage illicit taping of popular music had had on sales, the situation in the UK and USA was – until the arrival of Napster and other file-sharing applications – a lot better for the recording industry than for most countries of the world.

### **Digitisation and music copyright**

The transition to mass-produced music during the twentieth century led to the development of a new business model for the music industry. This was a “...collaborative business model of publisher and record company, songwriter and recording artists.” (10). Although there was, and is, some dispute as to just how collaborative the arrangement is, with many artists complaining that they are exploited by their record companies, this was the way the industry continued until the advent of digital technology (11). The digitisation of music began to be researched in the early 1970’s and the first CD playback technology was first introduced in 1983 (11). The public adopted compact audio discs with enthusiasm, and as a result gave a tremendous boost to, and provided greater profits for, the music industry.

“The other result of digitization was that music became more malleable than it had been before...It could now be stored in zeros and ones, the binary code that enables information of all kinds to be stored on computer disks.” (12)

Once music was available in a digitised format, people started looking at other ways that music could be distributed. In 1993, a student named Rob Lord and his friend Jeff Patterson began looking at alternative ways of distributing lesser-known music to a wider audience (13). They came across a compression format (MP3) on the Internet that “...played music files compressed using [an] algorithm.” (14) The compressed music file could be distributed rapidly over networks. After discovering the algorithm, Lord and Patterson went on to create their own website for distributing music online (15). This was the beginning of the online file sharing revolution.

The Fraunhofer Institute invented MP3 in 1991 (16). The compression technology only uses one twelfth of the storage space required by other formats and manages to do so without the loss of sound quality. “MP3..... has become the de facto standard file format for storing and transferring digital audio.” (17). MP3’s are flexible, can be shared and reproduced many times to no detrimental effect on the original MP3 (18). The impact of MP3 is even more significant

now that we have increasingly available broadband Internet access (19). Individuals can download an entire CD's worth of MP3 files in 12 to 15 minutes. Not only is the file format quick to obtain, but it also allows the music community to sample music from all different genres without necessarily having to pay. This could influence an individual to develop his or her tastes in new areas and gives lesser-known artists a chance to get their work heard on a worldwide level.

### **Tensions in the digitised environment**

There has long been tension between copyright owners, creators and users of copyright materials. The creators are anxious that their materials are not abused, that their name remains associated with the materials, and (in many cases) have a commercial interest in the exploitation of the materials. The copyright owners may be publishers, music companies, and the like, who are assigned the copyright by the creators.. They have a commercial interest in ensuring that users pay for usage. Users, on the other hand, want maximum freedom of access to copyright materials for their recreational, educational or other needs (20). Copyright laws have developed over time to reflect development changes in technology. At the same time, technological developments have made copying easier to achieve. Some users argue publishers and other rights holders will wither away in the electronic environment and to help this trend, they urge that creators should ignore publishers, and place their material directly on the Web.

The Napster case (20, 21) is an excellent example of these tensions in action, and in particular, how new technology has brought the positions of users and owners into direct conflict. Many music lovers cannot, or will not understand why rights holders should maintain a stranglehold over what they can, and cannot do with music.

The recording industry has accused those who undertake illegal file sharing of (in effect) theft, ripping off artists and losing money for a recording industry which employs large number of people (22). Potential consumers, who previously had no real choice about how they could obtain music from their favourite artist, can now obtain it through a modem at little or no cost to them. The once stable business model of the music industry has been shaken.

“The result [of the need to re-examine the business model] could be that record companies emulate publishing companies, becoming licensors of rights, as new and superior entities become the dominant forces in distribution. Perhaps these new Internet-centric enterprises will acquire the record companies' underlying catalogues in the end, in their own ultimate search for vertical integration... Or maybe the

record companies will be able to re-invent themselves as cyber-distributors.” (12)

A study carried out by Reciprocal and SoundScan looked at the sales figures for music stores near colleges and Universities in the USA over three years (23). The study was carried out in the belief that students at colleges and Universities were using the fast Internet connections at their institutions to access online music files (24). The results found a larger decline in music sales in these areas than that of the national average (25). These results were used in a court case against Napster as evidence that illegal online file sharing has a detrimental effect on the music industry (26). As is well-known, the Record Industry Association of America (RIAA) won its lawsuit against Napster in March 2001, requiring Napster to install filtering software into its software to prevent illegally copied files from being shared (a further illegality) (27). Napster subsequently dropped its service, was acquired by Bertelsmann, and finally was closed down.

Despite the demise of Napster, music file sharing continues apparently unabated, no doubt assisted by the victory of Grokster in the case brought against it by MGM (see [http://www.eff.org/IP/P2P/MGM\\_v\\_Grokster/](http://www.eff.org/IP/P2P/MGM_v_Grokster/)). A key debating point is whether file sharing damages the sales of music, helps it, or has no overall impact. There is a vast literature on this topic, but much of it is biased in favour of one side or the other. For example, in 1999, the International Federation of Phonographic Industries reported that:

“...around three million tracks were downloaded from the Internet every day, most of them without the permission of their copyright holders.” (28)

In contrast to these findings, an article written in October 2000 said that:

“The RIAA is unalterably convinced that the easy availability of freely downloadable commercial songs will bring on the apocalypse, and yet, during the two years since MP3 music began flooding the Net, CD sales have *risen* by 20 percent.” (29)

It is difficult to obtain objective evidence of whether file sharing damages sales by simply counting those sales. It is necessary, instead, to obtain opinions of music lovers on this topic. One study found that “Over 91% of Napster users buy as much or more music than before they used Napster, with 28% purchasing more.” (30). Another study found that “59 percent of ‘streamers and downloaders’ report that online listening has led to a retail purchase at a conventional brick-and-mortar store.” (31) Other studies have indicated that the decrease in sales of music in retail outlets is due to the marked increase in sales of DVDs and computer games, i.e., that there is increased competition in the entertainment business.

It has been argued that the decline in music sales in brick-and-mortar stores may not simply be due to online file sharing, but also due to the increasing number of web sites that sell music online (32). Other studies have found that although students may download music from the Internet, they also purchase music items from online stores (33). A spokesman from online store CDNow.com reported that

“CDNow experienced a 32 percent sales increase between the first quarter of 1999 and the first quarter of 2000 among 18- to 24- year old age group- roughly the same surveyed by Reciprocal.” (34)

The major long-term threat of online file sharing is claimed to be

“...the digital piracy of CDs before they have been commercially released. Promotional singles and albums sent to radio stations, television music channels and club DJs are finding their way to the file swapping services so that by the time they are released, the market is already almost exhausted..... Britney Spears’ single *I’m a Slave for You* was downloaded four weeks before its official release last October. By the end of the week before release, more than 200,000 copies [had] been downloaded.” (35)

### **Peer-to-peer sharing**

“In a P-to-P network... all computers are equal; any computer on the network can function as both client and server, making the contents of its hard drive available to other network peers, and vice versa.” (36)

The various peer-to-peer services have different methods of keeping a record of what is available on their networks. Napster uses a master catalog, where the users’ collections of MP3 files are automatically entered at logon. (37). It worked through a central server. Other file sharing services do not operate through a central server and operate instead by direct client-client interaction (38). One popular file sharing application that does not operate through a central server is Morpheus, created by MusicCity (39).

The availability of films and other media other than audio files creates additional concern for the media industry over the potential infringement of copyright. MusicCity, Grokster and Kazaa are amongst the most popular file sharing networks since Napster, and are currently being sued by Hollywood and the record industry due to the alleged illegal sharing of music and other media over their networks (40). Kazaa recently won a notable case against the industry in a Dutch court. The inconsistency of court decisions in different countries will without doubt be a source of great concern to the music companies.

“The source of the software for all three services is a company called Fast Track or Consumer Empowerment, based in Amsterdam. A self-described ‘virtual organization’ of programmers... has licensed its file-swapping software to MusicCity...and Grokster. Fast Track CEO Niklas Zennstrom also manages Kazaa” (41)

Though MusicCity, Grokster and Kazaa give their own brands to their services, their underlying software is virtually identical . (42)

The issue of illegal file sharing appears to be evolving into a wider and more complicated issue for the media industry to control. Peer-to-peer networks that operate without a central server make it more difficult for illegal media files to be controlled or monitored (43).

There are many reasons behind why people download music from the Internet. One study showed that fifty percent of respondents downloaded music from the Internet because they couldn’t find it elsewhere. Also interestingly, two thirds of respondents said they would purchase music more often if they could purchase it immediately after identifying it. (44)

A study of 6,413 Internet users in the United States provided interesting results about the differing viewpoints of the generations.

“According to the report, 64 percent of US users ages 18 to 29 think downloading music is ok, compared to 43 percent of all those between ages 30 and 49, and 28 percent of 50 to 64-year-olds.” (45)

The study also found that even people who didn’t have Internet access, particularly the younger generation, considered that people who downloaded music online were not guilty of theft.

Studies that have focused specifically on the student community have found that students knew little about downloading music from the Internet before coming to University, but within a short time of coming to university every student’s computer had such files. This is despite students comments that MP3’s

“...[do] not compare to buying the whole package, with the art and printed material, many [students] acknowledged they hadn’t bought albums in ages.”(46)

This reinforces the views of the RIAA who believe that online file sharing has the potential to effect music sales.

One study found that students who shared their files illegally on web sites felt that they were benefiting "...artists by functioning as a promotional vehicle. Others are simply unaware that it is neither ethical nor legal to create such websites. " (47). Such results indicate that most students do not appear to realise the legal implications of sharing illegal music files. David Millar, an Information Security Officer for the University of Pennsylvania stated, "I think some of our students imagine they live in some sort of protective sanctuary beyond the reach of the corporate lawyers" (48)

The making of digitised copies using MP3 without permission is *prima facie* infringement if it does not fall under one of the exceptions to copyright. The position of a University that allows its facilities to be used to commit an infringement is fairly clear-cut. A University could be liable in law for the actions of the students if it provided the facilities to permit the downloading to take place, and could cut the students off from access to the Internet. Since it is well known that students download music, the University could hardly claim it had no idea what was going on.

It was almost certainly for that reason that Loughborough University announced in early 2002 that it was banning students from downloading music. At one point, Napster usage was accounting for over eighty percent of traffic through the University network (49).

### **Our research**

There has not hitherto been a study carried out in the UK on the impact that online file sharing has had on the purchasing of music within the student community. We report in this paper the results of some research on student and vendor attitudes in Loughborough. The students were from the Business School and Department of Information Science at Loughborough University

Senior staff in Computer Services in the University were also approached to attempt to find out what percentage of the Internet traffic coming to and from the University appears to be audio and media files since the announcement that file sharing applications were banned on the University network



There are many places that Loughborough University students could purchase their music from. Not only are there several music shops in Loughborough, but music is also sold in supermarkets, market stalls and music mega stores in neighbouring cities. It would therefore have been difficult to retrieve the data or meaningful results from simply looking at the sales figures from these retail outlets. However, several store managers were approached for interviews to gain an insight into their views on the topic.

Questionnaires were used to collect data from students. Semi-structured interviews were used to collect information from the senior staff at Computing Services and music store managers. Interviews with local store managers were conducted face-to-face or by telephone, according to their preference.

The primary method of data collection from students was the use of structured questionnaires. A variety of questions were used, attempting to establish:

- Where students lived, if they had Internet access and what they used the Internet for;
- Whether students downloaded music, the frequency that they did so, what downloading applications they used, why they downloaded music, etc.
- Whether students purchased music and where they were most likely to purchase it from;
- Whether students read Internet or music magazines;
- What age students were, their year at university and what course they took.

All undergraduate and postgraduate students taught by the Business School and Information Science departments were contacted by e-mail in late 2001. The questionnaire (see Appendix) was designed to enable respondents to complete the questionnaire electronically or to print out the questionnaire and complete it in hard copy. The numbers of students to whom the questionnaire was sent were as follows:

#### Information Science

Undergraduate:	292
Postgraduate:	77

#### Business School

Undergraduate:	1037
Postgraduate:	231

Due to the fact that downloading music files from the Internet was against University regulations and potential copyright infringement, participants were assured of their anonymity.

Of the 1637 students who were sent the questionnaire, only 94 (5.7%) replied. Whilst this is a reasonable response rate to an unsolicited e-mail questionnaire, it certainly does not indicate that the topic is high on students' personal agendas. The low number of respondents means, of course, that the results presented should be used with caution. Despite the low response, however, a chi-squared test showed that the respondents were typical of the student body as a whole.

The Computing Services of twenty Universities in the UK were e-mailed to ascertain whether they are experiencing problems with online file sharing, and whether Loughborough University's approach of the banning of online file sharing has been adopted by them

### **Results of student questionnaire**

The ages of respondents ranged from 18 to 50, with the large majority aged 18-22. 59 of the students lived in halls of residence during term time, 24 lived in rented accommodation, nine lived at home and two lived in other circumstances. 82 of the 94 respondents had Internet access at their term time address and 80 of the 94 respondents had Internet access at their home address out of term time.

Respondents rated some activities in the order which they felt they used the most. Whilst most respondents rated chatrooms as being one of the activities that they would rarely use the Internet for, there was a mixed response as to whether the downloading of music files was a major activity when using the Internet.

A large proportion of respondents rated the use of e-mail as being their most common activity when using the Internet, whilst playing games was not of great importance to them.

The purchasing of products was middling in importance in terms of Internet activity. Not surprisingly, University work emerged as one of the top three most important activities when using the Internet. Surfing the web was also important. Using newsgroups and bulletin boards was less important.

66% of respondents downloaded music files from the Internet. This was broken down as follows:

Less than once a week:	37.1%
1-2 times a week:	19.4%
3-4 times a week:	12.9%
5 or more times a week:	30.7%

No respondents over the age of 26 downloaded music. Only respondents aged 21 and younger downloaded music more than 'less than once a week'. 21-year-old respondents downloaded music most frequently.

63% of the students in the survey who said that they downloaded music from the Internet said that they downloaded more music at University than at home. 42% of those students live in halls of residence. Approximately 53% of the students in the survey who said that they downloaded music from the Internet said that they had downloaded music from the Internet before coming to University.

A large majority (66%) of the students who answered the question about the banning of downloading music on the University network, i.e., 62 out of the 94 respondents; said that they were not aware of the announcement about the banning.

85.5% of the students who answered the question on the banning of the downloading of music files over the University network did not agree with the ban. The majority said they had ignored the ban.

56 respondents answered the question as to where they obtained their music files. Respondents selected more than one application in some cases. A wide range of resources were used to obtain music files online, although the most popular was Audiogalaxy. The full details are shown in the Table below:

Music Downloading Application	Number of Respondents
Audiogalaxy	31
Napster	7
iMesh	6
Morpheus	6
Local Area Networks	3
Aimster	2

Filetopia	2
Gnutella	2
LimeWire	2
Real Player	2
Websites (non specific)	2
Download Accelerator	1
FTP Servers	1
Google	1
MP3Sound.com	1
Win MX	1

Only 29% of the respondents who downloaded music from the Internet said that they would still use their chosen file sharing application if they had to pay a subscription fee.

The websites of the most popular file-sharing applications were analysed to find out what the applications' policies were about illegal file sharing. Napster, although popular, was ignored as it had just closed down its service.

Audiogalaxy ([www.audiogalaxy.com](http://www.audiogalaxy.com)) provides a user agreement, containing a long list of terms and conditions. The agreement states that users may not use Audiogalaxy to "publish, post, distribute or link to any (i) ... infringing...material or information." (50)

By accepting the agreement, users

"...agree to defend, indemnify and hold Audiogalaxy, and its Affiliates, harmless from and against any and all claims, losses, liability, costs and expenses arising from your violation of these Terms and Condition, any third-party's rights (including, without limitation, infringement of any copyright, violation of any proprietary right and invasion of any privacy rights.)." (51)

iMesh ([www.imesh.com](http://www.imesh.com)) has a legal notice that states:

**“iMesh (Israel) Ltd.** Respects the intellectual property of others, and we ask our users to do the same. We are making every effort to achieve a legal file-sharing environment on Internet by entering into distribution agreements with copyright holders. Thousands of data and files have been authorized for distribution over the Internet by copyright owners...however, other data and files may have been created or distributed without copyright owners authorization. Copying or distributing unauthorized data and files may violate both United States and foreign copyright laws. Compliance with both copyright laws remains your responsibility.” (52)

At the time this research was carried out, there was no user agreement for the Morpheus application, but a notice stated:

“StreamCast Networks does not condone copyright infringement..”  
(53)

It is clear that each service provides a notice or user agreement stating that users who use the service illegally do so at their own risk and that the application itself bears no responsibility for the action of its users.

Respondents were then asked if they agreed or disagreed with a number of statements. 62 respondents answered the questions. The majority of respondents agreed or agreed strongly that they downloaded music because of the easy availability of titles on the Internet. A large number of respondents agreed strongly that they downloaded music because it cost them little or nothing to do so.

The majority of respondents agreed or agreed strongly with the statement that they downloaded music because it is easy to do so.

Marginally more respondents disagreed than agreed with the statement that they downloaded music to sample it before deciding whether to buy it or not. Roughly equal numbers of respondents agreed and disagreed with the statement that they liked to download music they had never heard before. A large majority of respondents either agreed or agreed strongly with the statement that they downloaded music to create their own personalised collection.

Most respondents did not download music to pass on to their friends, although about a third agreed that they did pass music on.

The views of respondents about the result of the Napster trial split in two. Some felt that it was right to ban Napster, as artists should receive money for the time and effort they put in to producing their music. These respondents also felt that

the banning of Napster was in accordance with copyright law and that online file sharing would, in the long run have a detrimental effect on the music industry.

The opposing viewpoint given by respondents was that the banning of Napster disappointed them, but that many more applications have been created in its absence. Many respondents also felt strongly that record companies and artists are greedy and make enough money, and that people are charged too much to buy music in this country.

Some examples of typical views of respondents are provided below:

“I think the music industry has been overcharging people for years with the high cost of CDs. So although I don’t download stuff myself its probably a good thing that they get some competition.”

“Obviously Napster was breaking copyright, however I believe that if music from the shops was cheaper more people would be willing to buy it. CDs cost so little to make and we all know this, so therefore we are effectively paying to line the pockets of already enormously rich artists and their record companies.”

“This is fair to the record companies and bands, as people might never buy their music, but there should maybe be a way which people can pay a fraction of the cost to download music either through subscription or charge per song, which the record companies can collect to pay for production costs. Music should be available for all those who want to enjoy it, which should be, in my opinion, why bands make music and not for the profit.”

“I feel it was inevitable, however the decision to close it down will achieve little as there are many more available programs...The problem of on-line music sharing will not be solved by closing down Napster.”

Respondents highlighted particular issues in relation to online file sharing as a whole:

- The lack of respect for copyright and the view that we have the right to free music.

“I can see why artists would be annoyed. I believe that loss of sales will and does occur. However, how much money an artist will lose is probably negligible. I think artists and record companies should be aware that tracks can aspire to semi-cult status through the art of file sharing due to the popularity of passing around new versions or sampled mixes. It does, however, underline the increasing attitude of people to always want something for nothing. We used to always hear of ‘nothing is ever free’

and 'there is no such thing as a free lunch' etc, but in these times of technological dependancy many of us, myself included, feel that if we can get it for free then it is our right to get it for free."

- That individuals continue to purchase CD's despite downloading music.

"Legally it is incorrect to download music, but personally the amount of times I have downloaded music and then went out and bought/ obtained the CD is a lot. Anyway do you see record labels/ music shops struggling at the moment?"

"Record companies make millions a year and do not need the extra money. They are penny pinching, greedy people. Most people who download music still buy some CDs and those who can't download music buy CDs meaning the companies will not go bankrupt."

- That downloading encourages purchasing.
- That the media coverage of file sharing court cases has attracted interest and encouraged usage.

"File sharing should be made legal because research shows that the sales of CDs have gone up since it started. When you download music the sound is not always very clear, so if you like the sound of it your more likely to buy it. It's no different to people recording music off the radio or purchased CDs and tapes. By stopping file sharing, people are going to know about the services more through the media - I actually first tried Napster once I found out that it was going to get stopped!"

- That some respondents are willing to pay a subscription to download music files.

"I would be happy to pay a subscription to sites dedicated to MP3 sharing, providing there were no more restrictions, other than the payment method. Blocking access is only going to annoy people and they will search for other methods of obtaining their music if they really want it."

- That students living on campus feel that as they pay a weekly charge to use the campus network that they should have the freedom to decide whether they download music or not.

"At £2.90 a week —working out at just over £10 a month- you can also subscribe to free internet services such as NTL - which allow 24 hour unrestricted free service, all be it a little slower. I would be prepared to be more patient and be able to access the sites and areas I use the internet for as opposed to lining some 'FAT CAT's' pocket to be told what I can and cannot do."

The majority of respondents said they spent less than £20 a month on music. Although respondents aged between 18 and 23 downloaded the most music, they also spend the most on purchasing music.

Our results showed that music mega stores and large high street stores were heavily used for music purchases. Online music stores have yet to reach the same popularity. Three local music stores were also popular. A far larger number of respondents read or bought music magazines, than they did Internet magazines. It could therefore be assumed that it is the interest in the music itself that has encouraged the downloading of music and not an interest in Internet applications.

### **Results - Computing Services**

Two senior managers in the University's Computer Services Department were interviewed. Computing Services came to the decision to ban file-sharing applications from the University network for several reasons. Primarily, file-sharing applications were banned because of the volume of bandwidth that the file sharing applications were taking up. Napster generally took up 80-85% of the network capacity and at its highest, Napster took up 95% of the network capacity. The University network was set up for academic use, and Computing Services therefore has a responsibility to all students that every student should be able to use the network to support his or her educational needs.

The University is also aware that through using online file sharing applications, there is a lot of copyright infringement going on. Many copyright owners had complained to the University about the availability of illegal files across the University network. The British Phonographic Industry (BPI) contacted the University when a Loughborough user informed it of copyright infringement. The BPI was in touch with the University around six times a year for separate incidents of copyright infringement. Computing Services therefore needed to show the BPI that the University is doing something about combating such behaviour.

There are blocks on the University network for specific types of file sharing application, e.g., Morpheus and Napster. This block is University wide. The blocks are only in place for a few applications, and may not work after a while if the software changes or students move on to a new application. However, the use of file sharing applications across the campus network is, it was claimed, now minimal. Nonetheless, action has had to be taken against students who infringe. Normally, they have network services suspended for a period of time proportionate to the offence. Occasionally, cases have been passed to the individual's Department where further action is taken.



The managers were asked about the 45% of questionnaire respondents who lived in halls of residence who did not know about the banning of online file-sharing applications on the University Network. The student hall service policy is written in plain English. They felt therefore that there was therefore no excuse for hall-based students not to know about these issues. They also argued that students have accepted the new rules.

Eight of the twenty Universities who we approached regarding their policies replied with comments. The approach taken by Universities was quite variable, with some Universities taking an approach similar to Loughborough, and others having no blocks/restrictions on their networks at all. A few made interesting quotes:

“We have implemented a ban on such activities from the halls and main campus as we perceived that there was a waste of network bandwidth (and hence money). When we did so the transatlantic traffic reduced noticeably and no one ever complained!”

“Large audio/video downloads are generally blocked.”

“It does cause us a problem due to the amount of disk space they can take up, at the moment we limit the amount of space our undergraduates have. It may be something that might happen in the future.”

“We don’t currently block it, but it’s a good policy in my opinion.”

Some Universities either do not block file-sharing applications at all, or only allow them to be used at a certain time. Those Universities that restrict file-sharing applications to certain times of day or by allocating trans-Atlantic bandwidth quotas are dealing with the problem of network capacity efficiently, but are not addressing the legal implications surrounding online file sharing.

### **Results - Record store managers**

The three independent record stores in Loughborough were approached to find out their views on the online file-sharing situation.

In the first store, approximately 20-25% of customers are between the ages of 18-24. Approximately 50% of these were thought to be students. Over the last few years the number of students has declined slightly. Sales figure for the store have remained stable over the past few years. Supermarkets may have affected sales slightly and so may MP3’s. Trends in music affect store sales, for example obscure dance and indie bands that may only be able to be purchased in independent stores in the inner city.

The first store's opinion was that the impact of MP3's on the music industry was not as great as people make out. Individuals wishing to download music need a quality PC and speakers, which many people may not be able to afford. People use MP3's as they would the radio. MP3's give people the chance to sample music before deciding whether to purchase it.

Approximately 20-25% of the second store's customers were estimated to be between the ages of 18-24. Students account for approximately 10-15% of sales during term time.

Over the last few years, the number of students purchasing music at the store has remained the same, perhaps a fraction down. It is difficult to measure whether the number of students purchasing music has changed over the past few years as the student population is constantly changing and it is therefore difficult to get a definite figure.

Sales figures for the store have remained stable over the past few years. Supermarkets that have started to sell cost price chart CD's in their stores have affected chart sales. Online music stores have not affected sales, as it appears that customers only use online stores to obtain music, which they cannot obtain locally. Online file sharing has had some affect on music sales, although it is difficult to estimate in real terms how much.

Approximately 40-50% of the third store's customers are between the ages of 18-24. Approximately 30% of those were thought were students. Over the last few years, the number of student customers has declined.

Over the last few years there has been a period of decline in sales, although there was a rise at the end of last year. The rise in sales was due to a renewed interest in rock and punk music within the younger generation. New sales have declined as supermarkets have started to sell cost price chart CD's in their stores. Due to the different markets and music genres that the store deals with, it was difficult to pinpoint a specific reason for a decline in sales, although it could in part be attributed to CD copying.

The store's opinion was that online file sharing has a negative effect on music sales. This is more so in the student population where there is a greater likelihood that individuals have access to computer equipment and also to broadband Internet access. It is likely that students are more technically minded and are therefore more likely to know about online file sharing applications. The threat of online file sharing in the general public domain is not so much of an issue. This may change however, with the development of faster and cheaper Internet connections.

However, they also thought that online file sharing may have some positive effects, such as enabling people to sample music that they were unsure about purchasing and also enables people to sample music they haven't heard of before. Individuals may sample music, and then decide to purchase it on CD because that is their preferred format for listening to music. Individuals may also download music that they may not be interested in buying, for example a popular chart song that they may not listen to after a short period of time. There will always be individuals who are interested in buying CD's as it contains a complete package of art and printed material, and also provides a way in which fans can show support for their favourite bands.

What appears to be more of a threat to music sales is CD copying. The store has seen growing sales in blank recordable CDs.

### **Discussion of the responses**

Blocks are in place over the Loughborough University campus network to prevent access to file sharing applications. However, this is not effective for all file-sharing applications and, as the results indicated, some students are still downloading music over the campus network.

Based on the sample of students who replied to the questionnaire, it appears that brick-and-mortar stores remain the clear favourite when students purchase music. Online stores have yet to reach the same popularity. It appears that people only use online stores to purchase music that they could not obtain locally.

The higher the year group/qualification at University (i.e., years 4 and 5 and postgraduates), the fewer people downloaded music. No respondent over the age of 26 downloaded music. It could be argued that this reinforces the view that the younger generation does not feel that downloading music is wrong and they do not take the legal implications seriously. It could equally be speculated, however, that older people are less confident in using P2P.

Only 29% of respondents who downloaded music would still use their chosen file sharing application if they had to pay a subscription fee. It could be assumed, then, that what attracts the majority of users to file sharing applications on the Internet is the fact that they are free, rather than the convenience of finding titles on a particular service. A large number of respondents agreeing that they download music because it costs them little or nothing to do so reinforces this.

Students are using a wide range of applications to obtain their music files. It is likely that it is not the features of a particular application that is important, but which applications are the fastest. These factors can change depending on

Internet traffic and server downtime and therefore users use more than one application.

The majority of respondents who lived in halls of residence said they had ignored the banning of the downloading of music over the campus network. As the respondent sample was small, it is not possible to gauge whether this is representative of the entire student population living in halls of residence. Computing Services staff claimed that infringers do not appear to be aware of the legal implications of file sharing over the Internet, yet comments from respondents to the questionnaire indicate that students are aware that it is against the law and appear to be ignoring it.

There was a discrepancy between Computing Services who believe that the problem of online file sharing on the University network is minimal, and respondents to the student questionnaire who have indicated that they are still downloading music files from the network. It is difficult to judge what causes this discrepancy.

The three local record stores in Loughborough reported a slight decline in sales and a decline in the number of students buying music in their stores. However, they felt this decline in sales was not linked to the downloading of music from the Internet, but was instead linked to supermarkets selling cost price chart CD's and the effects of CD copying. Those individuals interviewed from the three local record stores were not sure how much impact online file sharing has had on music sales. Their views can be summarised as follows:

The equipment and fast Internet access that is ideally needed to download music files is fairly expensive. Students are likely to have such equipment for their courses and are more likely to have broadband Internet access. Students are also more likely to be more technically minded and will therefore know where and how to go about downloading music from the Internet. The benefits of digital music files were also identified. MP3's give people a chance to sample music before they decide whether to buy something or not. A similar statement was posed to questionnaire respondents and had a mixed reaction, with marginally more respondents disagreeing that sampling music before buying was a reason why they downloaded music. This supports the music industry's fears that people are not on the whole downloading music to sample and then buy.

People are likely to download chart music and other titles that are of short-term interest to them and that they would not normally spend much money on. One manager believed that there would always be people who are interested in buying CD's. This viewpoint is contradicted by a study in America, which found that although students felt that MP3's did not compare to buying the CD, they had not bought albums for a long time (54). MP3 has been described as a format that takes up less space without losing sound quality. Both the

comments from record store interviewees and respondents to the questionnaire contradict this. Some respondents and record store interviewees commented that people were still likely to buy CD's of their favourite music, as the sound quality of MP3's is not good. It should be noted here that MP3's can be of different quality, as the lower the quality, the quicker the upload.

Some studies have claimed that, "Over 91% of Napster users buy as much or more music than before they used Napster, with 28% purchasing more." (55). Similarly, the results of our questionnaire showed that although respondents between the ages of 18 and 23 downloaded the most music, they also purchased the most. This indicates that a high level of interest in music at that age leads to increased downloading and increased purchasing.

One respondent to the questionnaire commented that people's interest in online file sharing is encouraged by the media coverage that it has had over the past few years. This is an interesting observation. An analogy could be drawn here with would-be censors' complaints about films, TV programmes or books that lead to much greater interest by the public. This has sometimes been used in the past by companies falsely claiming that their work had been complained about in order to boost sales.

We have found that downloading music is not high in the list of students' use of the Internet. A large majority of the students that downloaded music said that they would not pay a subscription fee if their chosen file sharing application began charging. This result is not encouraging for those companies planning to launch subscription services. Until the free file sharing applications are closed down (and the Dutch Kazaa decision shows this is most unlikely to happen), people will understandably be most likely to go for the free option. Apple's iMusic initiative is an interesting attempt to break this mind set.

The music store interviewees' belief that people download music to sample music before deciding whether to buy it or not and also to sample new tastes in music was not supported by the results of the student questionnaire. It appears that students are attracted to online file sharing because it is easy to find files and costs little or nothing to do so.

Computing Services and record store interviewees thought that students on the whole do not seem to understand how the music industry works, or why the downloading of music files can have legal implications. Some students also do not appear to understand why Computing Services had banned popular file sharing applications from the campus network.

In comparison to the other Universities questioned, Loughborough University appears to be the most proactive at dealing with online file sharing and its

implications. It is surprising that some Universities do not have blocks on their networks.

### **Conclusions**

There is virtually no objective research about whether online file sharing damages the music industry; indeed, it is difficult to see how such research could be carried out. Surprisingly, the views of active file sharers are rarely sought. Our research, although based on a small sample of students in one UK University, therefore throws some light onto an otherwise confused and confusing set of claims and counter-claims. This research has not provided a clear-cut answer as to whether online file sharing is a threat to the music industry or not. Whilst the majority of respondents to the student questionnaire said that they downloaded music from the Internet, those that downloaded the most music also spent the most on buying music. Record store interviewees did not feel that online file sharing was having a detrimental effect on sales in their stores. In short, whilst our results are not conclusive, they show that claims made by the music industry that P2P file sharing is severely damaging its sales are not supported. We suspect that the decline in the music industry's sales is due to a complex mix of reasons and that it is simplistic to blame it on one factor. We doubt, however, that our conclusion will have much impact upon the music industry's views.

### **Acknowledgements**

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## **REFERENCES**

1. **Edison, T. A.**, *Cylinder Machine*, US Patent, 2,909/1877.
2. **Gilbey, C.** *The Infinite Digital Jukebox*. Australia: Hardie Grant Books, 2000, p. 13.
3. **Berliner, E.**, *Gramophone*, US Patent, 372,786 (1887).
4. **Gilbey, C.** *The Infinite Digital Jukebox*. Australia: Hardie Grant Books, 2000, p. 14.
5. **Gilbey, C.** *The Infinite Digital Jukebox*. Australia: Hardie Grant Books, 2000, p. 15.

6. *Ibid*
7. *Ibid*
8. **Davenport, N.** *United Kingdom Copyright & Design Protection*. Hampshire: Kenneth Mason Publications, 1993. p.113.
9. *Ibid*
10. **Gilbey, C.** *The Infinite Digital Jukebox*. Australia: Hardie Grant Books, 2000, p. 17.
11. **Moylan, W.D.** *Sound recording and reproduction*. (URL: <http://encarta.msn.com/find/print.asp?&pg=8&ti=761552202&sc=54&pt=1&pn=5> ) [05/11/01]
12. **Gilbey, C.** *The Infinite Digital Jukebox*. Australia: Hardie Grant Books, 2000, p. 18.
13. **Alderman, J.** *Sonic Boom*. London: Fourth Estate, 2001, p.12.
14. **Alderman, J.** *Sonic Boom*. London: Fourth Estate, 2001, p.13.
15. **Alderman, J.** *Sonic Boom*. London: Fourth Estate, 2001, p.14.
16. **Helfant, D.A.** *The Impact if Internet-Based Digital Distribution on the Music Industry*. (URL: <http://www.trooplaw.com/events/hrtuesdayf.htm>.) [03/03/01]
17. **Valenza, J.K.** *Music Online: Debate crescendos they want their MP3, and many students see no problem in downloading libraries of hit albums*. Philadelphia Inquirer. March 16<sup>th</sup> 2000. (no page numbers available)
18. **Helfant, D.A.** *The Impact if Internet-Based Digital Distribution on the Music Industry*. (URL: <http://www.trooplaw.com/events/hrtuesdayf.htm>.) [03/03/01]

19. **Lam, C. and B. Tan.** *The Internet is Changing the Music Industry.* Communications of the ACM. Vol. 44, No 8. August 2001. p. 63.
20. **Lopez, A. and C. Oppenheim,** Legal issues on the Web, *Annual Review of Information Science and Technology*, 2003, **38**, in the press.
21. **Boag-Thomson, J.** *Napster et al: Has copyright law passed its sell-by date?* *Computers and Law*, **11**(6), 2001, 39-41.
22. *BizReport web site.* Does Online Music Distribution Drive Sales? Maybe. (URL: <http://www.bizreport.com/ebiz/2000/06/20000620-1.htm>) [04/03/01]
23. *Reciprocal web site.* Reciprocal/VNU entertainment study reveals online file sharing as likely cause of decline in college market album sales. (URL: [http://www.reciprocal.com/prm\\_rel05242000.asp](http://www.reciprocal.com/prm_rel05242000.asp)) [04/03/01]
24. **Fine, M.** *SoundScan study on Napster use and loss of sales.* (URL: <http://www.riaa.com/PDF/fine.pdf>) [05/03/01]
- ~~25-25.~~ *Reciprocal web site.* Reciprocal/VNU entertainment study reveals online file sharing as likely cause of decline in college market album sales. (URL: [http://www.reciprocal.com/prm\\_rel05242000.asp](http://www.reciprocal.com/prm_rel05242000.asp)) [04/03/01]
- ~~26-26.~~ *BizReport web site.* Does Online Music Distribution Drive Sales? Maybe. (URL: <http://www.bizreport.com/ebiz/2000/06/20000620-1.htm>) [04/03/01]
- ~~27-27.~~ **Lam, C. and B. Tan.** *The Internet is Changing the Music Industry.* Communications of the ACM. Vol. 44, No 8. August 2001. p. 64.
- ~~28-28.~~ *Ibid*
29. **Teather, D.** *Napster Reboots with Trial Service.* Guardian Unlimited. (URL: <http://www.guardian.co.uk/Archive/Article/0,4273,4333128,00.html>) [18/01/02]
30. **Arthur, C.** *Huge Increase in Music Swaps Over the Net Despite Demise of Napster.* Independent, 8<sup>th</sup> November 2001. (URL: <http://www.independent.co.uk/story.jsp?dir=1&story=103811&host=1&printable=1>) [13/11/01]
31. *Ibid.*



32. **Hacker, S.** *MP3 The Definitive Guide*. Sebastapol: O'Reilly, 2000, p. 9.
33. **Barlow, J.P.** *The Next Economy of Ideas*. Wired. October 2000. p. 241.
34. *First Monday*. The Big Bumpy Shift: Digital Music via Mobile Internet. (URL: [http://www.firstmonday.dk/issues/issue5\\_12/dolan/index.html](http://www.firstmonday.dk/issues/issue5_12/dolan/index.html)) [29/08/01]
35. **Millar, S.** *Music Firms Losing Digital Piracy Fight*. The Guardian, Friday 8<sup>th</sup> February 2002, p. 11.
36. **Doolittle, S.** *The Scoop on File-Sharing Services*. (URL: <http://www.smartcomputing.com/editorial/article.asp?article=articles%2F2000%2Fs1112%2F08s12%2F08s12%2Easp>) [01/11/01]
37. *Ibid*
38. **Feldman, T.** *The Impact of peer-to-peer on 21<sup>st</sup> century publishing*. In: EPS Ltd. *Publishing After Copyright: maintaining control online*. EPS monthly briefing paper, March 2001.
39. **Allen, S.** *Morpheus: MusicCity's Napster Killer* (URL: <http://mp3.about.com/library/weekly/aa070201.htm>) [02/11/01]
40. **Borland, J.** *Suit Hits Popular Post-Napster Network*. (URL: <http://news.cnet.com/news/0-1005-200-7389552.html?tag=lh>) [02/11/01]
41. *Ibid*
42. *Ibid*
43. *Ibid*
44. *BizReport web site*. Does Online Music Distribution Drive Sales? Maybe. (URL: <http://www.bizreport.com/ebiz/2000/06/20000620-1.htm>) [04/03/01]
45. **Featherly, K.** *Music Downloaders Don't Think They're Thieves*. (URL: [http://www.infowar.com/survey/00/survey\\_092800a\\_j.shtml](http://www.infowar.com/survey/00/survey_092800a_j.shtml)) [10/06/01]
46. **Valenza, J.K.** *Music Online: Debate crescendos they want their MP3, and many students see no problem in downloading libraries of hit albums*. Philadelphia Inquirer. March 16<sup>th</sup> 2000. (no page numbers available)

47. **Lam, C. and B. Tan.** *The Internet is Changing the Music Industry.* Communications of the ACM. Vol. 44, No 8. August 2001. p. 68.
48. **Valenza, J.K.** *Music Online: Debate crescendos they want their MP3, and many students see no problem in downloading libraries of hit albums.* Philadelphia Inquirer. March 16<sup>th</sup> 2000. (no page numbers available)
49. **Lockwood, S.** *Napster Nabbed.* Label Magazine<sup>1</sup>. Issue 115, 8 June 2001. p. 3.
50. *Audiogalaxy.* About the Satellite. (URL: <http://www.audiogalaxy.com/satellite/about.php?>) [23/01/02]
51. *Audiogalaxy.* User Agreement. (URL: <http://www.audiogalaxy.com/info/userAgreement.php?>) [23/01/02]
52. *iMesh.* Legal Notice. (URL: <http://www.imesh.com/legal.htm>) [23/01/02]
53. *MusicCity.* (URL: <http://www.musiccity.com/index.html>) [12/02/03]
54. **Valenza, J.K.,** *op. cit.*
55. *First Monday, op. cit.*

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<sup>1</sup> “Label Magazine” is the magazine of the Loughborough University Students’ Union.

## APPENDIX: STUDENT QUESTIONNAIRE

1. During term time, do you live in:

Halls of residence	<input type="checkbox"/>
Rented accommodation	<input type="checkbox"/>
At home	<input type="checkbox"/>
Other	<input type="checkbox"/>

2. Do you have Internet access at your term time address?

Yes ☐

No ☐

3. Do you have Internet access at home?

Yes ☐

No ☐

4. Please rate which of the following activities you use the Internet for most.

Please number the activities from 1-8  
1=use the most; 8=use the least

Chatrooms	_____
Downloading music files	_____
E-mail	_____
Playing games	_____
Purchasing products	_____
Research for University work	_____
Surfing the web	_____

Using Newsgroups and bulletin boards \_\_\_\_\_

5. If you download music from the Internet, how many times a week would you say you do so?

Please select one of the following:

I do not download music ☐ (Please go to question 12)

Less than once a week ☐

1-2 times a week ☐

3-4 times a week ☐

5 or more times a week ☐

6. Did you download music from the Internet before coming to University?

Yes ☐

No ☐

7. Where do you download music more?

Home ☐

University ☐

8. Are you aware that Computer Services announced that it was banning the downloading of music from Halls?

Yes ☐

No ☐

Do you approve of this decision?

Yes ☐

No ☐

If you are in Halls, have you ignored this decision?

Yes ☐

No ☐

9. Which file sharing applications do you most often use to obtain your music files? (For example, Gnutella, AudioGalaxy, BearShare, Filetopia etc...)

10. Would you still use your chosen file sharing application if you had to pay a subscription fee (to the application, to the University, or both) to use it?

Yes ☐

No ☐

11. You will find below a number of statements. Please give a number to indicate whether you agree or disagree with each statement.

1= agree strongly; 2= agree; 3= no strong feelings or don't know; 4= disagree; 5= disagree strongly

I download music because of the easy availability of the music titles on the Internet

\_\_\_\_\_

I download music because it costs me little or nothing to do so

\_\_\_\_\_

I download music because it is easy to do so

\_\_\_\_\_

I download music to sample it before deciding whether to buy something or not

\_\_\_\_\_

I like to download music I have never heard before

\_\_\_\_\_

I download music to create my own personalised collection

\_\_\_\_\_

I download music to pass on to my friends

\_\_\_\_\_

12. You may have heard that the Napster service was forced to close down as a result of the actions of record companies and various bands. What are your views on this?

13. If you were to purchase a music item, which of the following places would you be most likely to purchase it from?

Music mega store (HMV, Virgin)	<input type="checkbox"/>
Any high street store that sold CD's (e.g. Woolworth's)	<input type="checkbox"/>
Online music store (e.g. Amazon)	<input type="checkbox"/>
Small record shops	<input type="checkbox"/>
Specialist record shops (e.g. for jazz records)	<input type="checkbox"/>
Market stalls	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>

14. Have you shopped in the past six months in any of the following Loughborough- based record shops?

Andy's Records	<input type="checkbox"/>
Castle Records	<input type="checkbox"/>
Left Legged Pineapple	<input type="checkbox"/>

15. How much do you spend on buying music per month on average?

Please select one of the following:

- |        |                          |
|--------|--------------------------|
| £0     | <input type="checkbox"/> |
| £1-10  | <input type="checkbox"/> |
| £11-20 | <input type="checkbox"/> |
| £21-30 | <input type="checkbox"/> |
| £30+   | <input type="checkbox"/> |

16. Do you regularly buy or read Music magazines?

If so, please name the title(s) here:

17. Do you regularly buy or read Internet magazines?

If so, please name the titles(s) here:

18. What year are you in at University?

19. What is your age?

20. Are you

- |           |                          |
|-----------|--------------------------|
| Male UG   | <input type="checkbox"/> |
| Male PG   | <input type="checkbox"/> |
| Female UG | <input type="checkbox"/> |

Female PG

☐

21. What course are you on?

Do you have any further comments on this subject?