



School of Information Management

Victoria University of Wellington

Master of Information Management

Research Project (MMIM 592)

**Is Anyone Listening? An Examination of New Zealand Musicians in
the Digital Age**

In partial fulfilment of the requirements for the degree

Master of Information Management

Prepared by: Kyle Brannick

Student Number: 300216674

Contents

1. Introduction.....	4
2. Literature Review.....	6
2.1 History of Music Distribution.....	6
2.2 First Instance of Piracy Scare	6
2.3 First Alternative Distribution Model: The Mixtape	7
2.4 Boom and Bust.....	7
2.5 Piracy on the Internet.....	8
2.6 Current Distribution Model: Artist Perspective.....	10
2.7 Free Model.....	11
2.8 Name Your Price Model.....	12
2.9 Set Price Model.....	12
2.10 Set Price or More Model	13
2.11 Copyright	13
2.12 Creative Commons	15
3. Methodology	17
3.1 Research Question	17
3.2 Epistemological and Methodological Approach.....	18
3.3 Website Selection	19
3.4 Country Selection.....	20
3.5 Data Collection.....	21
3.6 Data Analysis	23
4. Results.....	25
4.1 Internet Presence.....	25
4.2 Record Labels	29
4.3 Physical Album Sales.....	30
4.4 Fan Base Contact	32

4.5	Artist Longevity.....	36
4.6	Length of Time on Bandcamp	39
4.7	Price Model Analysis.....	44
4.8	License Selection	48
5.	Discussion	52
5.1	Further Research	58
5.2	Research Limitations.....	58
6.	Conclusion.....	61
7.	References	62
8.	Appendix.....	66
8.1	Appendix A.....	66

1. Introduction

With major recording artist Thom Yorke predicting the record industry will crumble in “Months” (Hudson, 2010), and sensationalist headlines such as “iPods and Young People Have Utterly Destroyed Music” (Buchanan, 2009) becoming commonplace, this research attempts to determine the current state of New Zealand music in the digital age. Despite the doom and gloom coming from the press in regards to the music industry, musicians haven’t stopped continuing to record, release, and promote their music as the costs of doing so continues to decline with the advent of new technologies.

This research looks specifically into the music hosting website Bandcamp and determines what methods New Zealand musicians are currently using on the site in an effort to get their music into the ears and onto the hard drives of fans. Although a large amount of research has been performed on the impacts of piracy on music sales, very little has been conducted on what strategies musicians are implementing to increase their exposure and connect with their fan base in the 21st century, with no specific research having been performed on the unique circumstances faced by artists in New Zealand. This paper first presents a historical overview of the music industry in the last century, as well as a summary of where the industry currently stands in regards to Copyright, distribution methods, and price models in order to provide perspective on the difficulties and variety of choices currently facing musicians.

Within this research paper, several hypotheses were tested in order to determine what factors have a significant effect on the amount of exposure that an artist has received for their music. In order to test these hypotheses, the number of audio streams and downloads that an artist has received for their songs posted to the music hosting site Bandcamp was used as a measure to determine the amount of exposure that a specific artist has received. Due to the subjective nature of the quality of music which each musician creates, a survey was sent to over 500 New Zealand musicians whom provided at least one song for download on the website in order to gather as much overall data on the success generated by New Zealand musicians online as possible. A quantitative analysis was then performed to determine what social networking and music hosting sites are most popular with Kiwi

artists; whether musicians are still creating physical copies of their works; and what licenses and payment models artists are applying to their songs. This analysis identified two important factors as statistically significant in terms of affecting the number of downloads and audio streams an artist receives on Bandcamp, the length of time that an artist has been present on the site and the payment model that an artist applies to their works.

In addition to the quantitative analysis performed on the success that artists were achieving on Bandcamp, a qualitative analysis was performed on the motivations artists had for applying specific pricing models and licenses to their works. The results of this analysis found a nearly unanimous positive response from musicians who had applied traditional Copyright to their work when asked if they would allow their fans to share their music without expressed permission. This research also determined that a majority of musicians currently applying traditional Copyright to their works are unfamiliar, unaware, or uninformed about Creative Commons licenses, with traditional Copyright being applied more out of habit than a desire for their works to be protected under the rights granted under traditional Copyright.

A discussion about what these results indicate for artists is also presented as a guide for future and current musicians looking to upload their music to Bandcamp, depending on the goals that the musician is looking to achieve with their music. Finally, this paper concludes with an analysis of what limitations are present in the results of the research, as well as where the need exists for future research.

2. Literature Review

2.1 History of Music Distribution

The formation of the modern music industry began in 1940s, with the simultaneous invention of the radio transistor by Bell Telephone and the invention of the LP by CBS labs (Garofalo, 1999). For the first time in the history of music it became affordable for consumers, and most importantly teenagers, to explore music on their own outside of what was being played on the only form of transmitted entertainment at the time, network radio. While these inventions were making their way into homes all over the United States, television was dealing another blow to network radio by becoming the main attractor of advertisement. This combination lead to a boom in local radio stations that needed to find cheap programming to replace the expensive in-studio bands previously used by network radio to broadcast music up to this point in history. The relatively cheap production of LPs allowed for small, independent record companies to begin operation, leading to the development of a relationship with local radio stations, which existed until the beginning of the 21st century. This arrangement resulted in radio stations receiving free programming from record companies in exchange for cheap promotion of their products (Garofalo, 1999), with little room for artists to participate in the process outside of this arrangement.

2.2 First Instance of Piracy Scare

During this time in music history, if any artists wished to have their music recorded, pressed, and distributed to radio stations and record stores, they were required to sign with one of the many established independent or major record labels. Record labels continued to successfully monopolize the entire music creation and distribution process until the invention of the cassette tape recorder, which allowed individuals for the first time to create nearly identical copies of cassettes without the need to invest in expensive equipment to do so. As a response to this new technology, in the late 1980s the recording industry lobbied the United States congress to ban recordable tapes for fear that home-taping would destroy the music industry (Ehlke, 1988; Frith, 1988). Despite this perceived threat to the status quo, the music industry would proceed to have their most profitable decade in its short

history during the 20th century with the proliferation of CDs replacing cassette tapes as the medium of choice for recorded music. Although home-taping failed to destroy the music industry as predicted, it did produce the first alternative distribution model, which flourished as a result of this cheap new form of duplication and distribution, the hip-hop mixtape.

2.3 First Alternative Distribution Model: The Mixtape

The hip-hop mixtape was originally conceived as a tool for DJs to be able to show off their talents by recoding the artist "mixing records live on turntables in a club, on the radio, or in a home studio with little to no later adjustment" (Jenkins III & Driscoll, 2009, p. 69). Working outside of the normal commercial channels of the music industry, these hip-hop mixtapes were sold on street corners, bootlegged and other forms of face-to-face commerce (Jenkins III & Driscoll, 2009), and since hip-hop mixtapes are self-produced, they allow for artists to cultivate an ascetic counter to what a record label is trying to achieve (Ciccariello Maher, 2005). By working outside of the music industry, these inner-city artists were able to cultivate a fan base and an image which, for many artists, was later turned into commercial success through live shows or traditional record deals (Anderson Jr, 2008). Although this method of distribution was created out of necessity more than a desire to subvert the norms of the record industry, it resulted in a distribution model which has flourished and is still used to this day. In recent times, the culture of mixtapes has evolved from bootlegs found on street corners to being found on many retail shelves, some of which outsell an artist's legitimate major label release. In addition to their physical forms, mixtapes have begun to exist online as a legal means for hip-hop fans to download music from their favourite artists, often containing previews of songs that will appear on their "official" releases.

2.4 Boom and Bust

Despite the fears of revenue loss due to illegal taping and the success of underground hip-hop mixtapes, the record industry was reporting record high sales during the CD boom of the 90s. This success was likely due to a combination of variables, including the period corresponding to consumers replacing vinyl records with CDs (Peitz & Waelbroeck, 2005), an economic boom, as well as the phasing out

of cassette tapes in favour of CD manufacturing which possessed a lower production cost (McCourt & Burkart, 2003). The fortunes of the music industry began to change, however, at the turn of the century when sales of physical albums began to continuously decline. At the beginning of the 21st century, the New Zealand music industry was estimated to be a 120.8 million dollar business, but dropped to 82.7 million in 2009, as estimated by the RIANZ (2009). This severe decline in record sales has resulted in several academic theories on why sales have continued to drop in the 2000s, including studies that have shown that the amount of money in the entertainment industry has remained steady, with consumers simply spending more money on DVDs and videogames (Huygen, Helberger, Poort, Rutten, & Van Eijk, 2009; Peitz & Waelbroeck, 2005). However, the most popular explanation for the decline in record sales is Internet piracy, and more specifically the digital revolution that Napster started in 2000 (Huygen, et al., 2009; IFPI, 2010).

2.5 Piracy on the Internet

The invention of Napster allowed for the first time, a seemingly infinite number of songs to be available through the use of the software, many of which may have been unavailable or out of print. The program resulted in increased convenience, no costs, access to seemingly unlimited music selections, and when carried out in moderation, low risk (Eric & Djeto, 2007). Not only was the software effective at spreading music, but it also proved to be extremely popular. Despite the fact that Napster only operated from June of 1999 to July of 2001, the program managed to completely change the way that individuals, and more specifically teenagers and university-aged consumers, obtained at least a portion of their music collection. One study found that 97% of university students surveyed had illegally downloaded music at one point (Lysonski & Durvasula, 2008).

As a response to piracy on the Internet, the Recording Industry Association of America, the RIAA, a trade group representing the United States recording industry (RIAA, 2010), began litigation against individuals who were believed to have participated in file-sharing. Beginning in September of 2003, the RIAA initially brought 261 lawsuits against individuals whom they believed to be involved in peer-to-peer, P2P, file-sharing on the Internet. Since this time, the RIAA has brought about more than 26,000 lawsuits against individuals whom they believe to be

conducting illegal activity (Reynolds, 2008). Many of these lawsuits are settled outside of court, for an average of \$3,000 per settlement against the end-user suspected of violating the Copyright (Reich, 2010). Although the Recording Industry of Association of New Zealand, the RIANZ, a non-profit organisation representing major and independent record producers, distributors and recording artists throughout New Zealand (RIANZ, 2010), has yet to file a lawsuit against any P2P file-sharing in New Zealand, the New Zealand government has attempted to enforce Copyright laws through other means. The New Zealand government is currently in the process of reviewing the Copyright (Infringing File Sharing) Amendment Bill, which “provides for a District Court to order an Internet protocol address provider to suspend an account for up to six months if an account holder had continued to infringe Copyright after receiving detection and warning notices” (Power, 2010).

Although the music industry has been quick to point the finger at music piracy as the blame for the decline in sales, and some studies have found a direct link between the two (Liebowitz, 2006), not all academics believe that this theory is sound. Studies have shown that young adults are the demographic which are most likely to download music, but also have the least amount of disposable income which could be spent on entertainment (Peitz & Waelbroeck, 2005). Other studies examining piracy world-wide found that low-economic development and low-per capita income both resulted in higher-national piracy (Andrés, 2006; Eric & Djeto, 2007). These studies would suggest that individuals are downloading music they would otherwise not be able to afford, and that this activity is not directly replacing sales as the RIAA have claimed in lawsuits against alleged file-sharers (Blackburn, 2004). Several other studies have refuted the theory that online piracy is leading to a decline in record sales, with one study reporting that “downloads have an effect on sales which is statistically indistinguishable from zero” (Oberholzer-Gee & Strumpf, 2007, p. 1). Studies conducted in Japan found no link between music piracy and album sales (Tanaka, 2004) and an examination of the young people in the Netherlands discovered that file sharers purchased more albums than their non-file sharing peers (Rutten, et al., 2009). Regardless of whether piracy is to blame for the decline of music sales, the fact remain that the revenue being obtained from the physical sales of music is in continual decline, strongly suggesting the need for a

new distribution model capable of connecting the music that is being created to the fans willing to seek it out.

2.6 Current Distribution Model: Artist Perspective

Even if the current distribution model for music was still succeeding and sales of music weren't in a steady decline, there is great deal of evidence to suggest that there is a large incentive for artists to seek new ways of getting their music in the hands of their fans. Under the current distribution model, most artists make very little money on the records which are sold, with a record company often first needing to recoup all their expenses before paying any royalties to an artist (Richard & Euan, 2005). If an artist is able to successfully pay-off their record advancement and begin to collect royalty checks, some estimates suggest that a reasonable estimate is that an artist only receive \$1 USD per album sold in most record contracts (Mortimer & Sorensen, 2007). Despite the lack of financial incentive for releasing music, one study estimated that over 350,000 songs were released in 2006 alone (Baker, et al., 2006) suggesting other motives are present for why artists continue to record and release music despite evidence to suggest that this particular aspect of musicianship is not profitable for the artist.

Whatever payment model emerges as successful for artists to distribute their music, it will most likely be found online. One study found that two-thirds of all musicians surveyed found that the Internet had a "large" effect on their ability to reach a wider audience (Norek, 2004). Research conducted by the Capgemini consultancy company found that 70 percent of all music consumed in the US, UK, France and Germany came through digital channels, and until the last quarter, the sales of digital music have continued to rise although mostly sales of single songs (IFPI, 2010). The Internet has also allowed artists to communicate directly with fans through the utilization of social network sites, such as Myspace, Facebook, and Twitter. These social networking tools perform the function that once could only be accomplished by record companies and radio stations who possessed enough money and influence to inform the public of new works being released by artists.

Despite the fact that artists have always struggled to gain income through the recording and releasing of records, many artists have managed to sustain a career in

music through generating income in other areas. Artists typically earn a majority of their income through the sales of complimentary products, such as merchandise and concert sales, with a majority of the profits going directly to the artists (Peitz & Waelbroeck, 2005; Seidenberg, 2010). In the concert industry, artists typically split the profits from a concert between the promoter and themselves, typically receiving 85% of the profits from ticket sales (Fivelsdal, 2005). A study performed in 2002 found that of the top 35 earners in popular music, income from touring was 7.5 times the amount earned from record sales (Connolly & Krueger, 2006), a number which has likely increased as record sales continue to fall (RIANZ, 2009) while the touring industry continues to grow (Nelson, 2005).

There is evidence to suggest that this increase in the touring industry is a direct result of the piracy currently affecting the recording music industry, as the revenues earned through touring have been shown to increase when music piracy is present, both in the United States (Gayer & Shy, 2006) and in the Netherlands (Rutten, et al., 2009). As the price of obtaining new music continues to decline due to the widespread availability of music through P2P and other music sharing services, consumers will have more money to spend at concerts and merchandise which would have previously been spent on purchasing recorded music (Nelson, 2005).

2.7 Free Model

This need for a new distribution model has led to artists trying a variety of different pricing models in an attempt to connect their music to consumers, often with the hopes of receiving revenue through auxiliary channels, donations, or through the sales of limited edition releases. One pricing model that emerged as a result of all the factors previously mentioned is the free model. A survey of musicians and songwriters found that 83% of musicians offer samples to be freely accessed on the Internet as of 2004 (Rainie & Madden, 2004). By allowing potential fans to download music for free, artists are succeeding in decreasing the sampling costs associated with trying out unknown artists, which studies have shown can make consumers more likely to purchase their music in the future (Gopal & Sanders, 2006). Studies have also shown that many consumers will often try out new artists or genres given the low sample costs associated with file-sharing websites, with a study performed on Dutch downloading habits finding that 69% of those surveyed use file-sharing

websites to discover new artists or genres (Rutten, et al., 2009). Through the free distribution model, fans are able to connect with new artists with very little investment, while artists are able to obtain information regarding the popularity of their recorded music by examining statistics regarding where downloads are coming from and how many downloads in total have occurred. By employing the Free Model, artists are also able to help consumers to avoid peer-to-peer or other pirating sites that would otherwise have to be used to obtain an artist's music that a consumer would be unwilling to pay for.

2.8 Name Your Price Model

Another new price model used to successfully get music in the hands of fans, while ensuring that artists are able to recover at least a portion of the costs involved in recording an album, is the Name Your Price model. This model allows for the highest exposure, ease of compliance, convenience of use, and ease of admission of any distribution model currently available to artists (Regner, Barria, Pitt, & Neville, 2009). In this model, an artist makes their music available to fans for any price that they wish, including allowing fans to download the music for free. The idea behind this distribution model is to allow fans to contribute to the artists if they desire, but understanding that getting music in the hands of potential fans is more important than attempting to make money on every download. Perhaps surprisingly, several studies have shown that this distribution model can succeed in providing income for artists, showing that consumers have been found to pay voluntarily for products they wish to support (Regner & Barria, 2009; Regner, Barria, Pitt, & Neville, 2010). This phenomenon is also explained by the social preference theory, which assumes that consumers "are self-interested, but are also concerned about the payoffs of others" (Charness & Rabin, 2002, p. 817). By allowing consumers to download music for free if they wish, artists are also hoping to achieve customer loyalty, a traditionally difficult goal to achieve, as it is made from a combination of perceived product superiority, personal fortitude, and social bonding (Oberholzer-Gee & Strumpf, 2007).

2.9 Set Price Model

The third distribution model currently being employed by artists is the Set Price Model. This model is based on the traditional music industry model, which

subscribes to the philosophy that recorded music has a set price determined by the artist or the record label that an album is then valued at. Although this pricing model has been very successful in the past, recent data gathered by the RIAA and the RIANZ suggest that it is beginning to lose popularity as sales for records released under this model continue to decline (RIANZ, 2009). Traditionally, music has been very expensive to create and market (Garofalo, 1999), so implementing this model has been a way for record labels whom provide the capital investment to record, distribute, and promote an album to recoup their expenses. Despite employing this method to obtain the largest return possible on records, record companies have long suggested that they lose money on a majority of the records which they release, relying on an elite few records to sustain the rest (McCourt & Burkart, 2003).

2.10 Set Price or More Model

A variation on the Set Price Model is the Set Price or More Model. In this pricing model, artists set the minimum price that a song or album can be purchased, allowing fans who wouldn't otherwise be able to afford the music to obtain it, while still allowing fans to donate more money to the artists if they wish. One example of this model being employed successfully is Magnatune Records. Magnatune Records has specified a recommended price of \$8 for their music, with a minimum price of \$5, and have received an average of \$8.20, higher than even their recommended price (Regner & Barria, 2009). This model is especially relevant when considering the findings of Rob and Waldfogel (2006), who found that college students generally report a smaller utility value for downloaded music compared to purchased music. By charging a small amount for music, as opposed to giving it away for free, artists may increase a consumer's perceived utility for their music.

2.11 Copyright

Although it is unclear if piracy is the cause for the downturn in sales for the record industry, it does present a dilemma in regards to Copyright. Traditional copyright as applied to musical works has had a long and complicated history, beginning in 1831 when music composition was first recognized as being capable of having copyright applied. However, it was not until 1971 that the United States recognized that recorded sound could also be copyrighted, eighty years after sound

was first recorded (Besek, 2005). At the time, the copyright system was based on an opt-in system, allowing artists to decide whether to enter their works into the public domain or claim the rights associated with full Copyright (Zentner, 2006). Today, a large majority of these copyrights are owned by record companies and not the artists which have created the copyrighted material itself (Todosichuk, 2009). Copyright of musical works has become so complicated that "anytime a downstream user reproduces copies or distributes copies of a sound recording, or publicly performs that sound recording, or makes a derivative work of that sound recording, authorization from not only the sound recording copyright owner is needed, but authorization must be obtained from the musical work copyright owner as well" (Loren, 2002, p. 691). Safe navigation through copyright as it is currently defined is a costly and complicated process for individuals to undertake. However, corporations can accomplish this by passing on costs to customers through increasing the price of legally released music through traditional record label (Loren, 2007).

These complications do not include the difficulties of determining where the line between copyright violation and inspiration comes into effect, like the distinction made between parody songs and sampling often involved in hip-hop music. Parody songs are created by changing musical ideas or lyrics to recall its characteristics, but used to present an often humorous idea, and is generally protected under freedom of speech laws (Goetsch, 1980). Sampling is the use of a small portion of an existing song, and transposing it into in a new recording, often in the form of a "hook". This practice is often associated with hip-hop music, but is not exclusive to the genre (Arewa, 2005). Parody songs often utilize musical cues taken directly from an original work to reference the original recording in the listeners' mind, but using the same technique in the form of sampling has been declared a breach of copyright law without an artist's expressed permission. This distinction between parody and sampling appears to be a double standard with regards to the use of samples, as the only clear difference is the lack of mimicry or criticism found in hip-hop when samples are used (Jason, 2006). In fact, sampling may result in adding value of the original work by exposing it to a wider market or rekindled interest in it, leading to increased value (Medjahed, Rezgui, Bouguettaya, & Ouzzani, 2003). Court judges are forced to make judgement calls when cases of sampling violations are taken to

court on what constitutes a violation of copyright, with no scientific way to truly determine if a work has had their copyright breeched (Schultz, 2006). It is also academically unclear how a copyright violations through the use of sampling negatively affects the sales of the item being violated due to intellectual property being non-rivalrous, meaning that it does not lose value being consumed (Joseph & Kitlan, 2007).

The frequent violations of copyright law through the illegal trading of files through P2P, torrents, and file-hosting sites also raises questions in regards to the current legitimacy of Copyright. An estimated 60 to 80 million people used Napster at its peak (DeVoss & Porter, 2006), and the number of files transferred on the four leading P2P networks once Napster had been shut down is estimated at 3.05 billion per month in August of 2001 (Liebowitz, 2006). Although it could be argued that many users on Napster were unaware they were breaking copyright law sharing files on P2P networks, after Napster was forced to shut down by being unable to stop the sharing of Copyright protected files, it would be difficult to state that P2P users weren't aware they were in violation of copyright laws. A study performed by the PEW Institute even found that 58% of those surveyed did not care whether the files they downloaded were Copyright protected or not (Rainie, Madden, Hess, & Mudd, 2004). Given all the evidence regarding the difficulties with navigation of copyright law, and the disregard of these laws by a significant portion of the population, these findings certainly call into question the validity of Copyright as it is currently interpreted.

2.12 Creative Commons

As a response to the increasing difficulties involved with traditional Copyright previously mentioned, a non-profit organization called Creative Commons was founded in 2001. Creative Commons is built upon the "all rights reserved" of traditional Copyright to create a voluntary "some rights reserved" system (Creative Commons Aotearoa New Zealand, 2010). Creative Commons currently allows for six different licenses to be voluntarily applied to works by an artist, allowing artist to specify the rights they are willing to voluntarily give up that traditional Copyright gives to copyright holders. Artists are able to choose whether they will allow their works to be used commercially, remixed / tweaked / or built upon, or whether derivative works

must also be shared under a similar license. Despite the fact that all Creative Commons licenses require artists to allow their works to be redistributed without their expressed permission, a study found that 53% of professional artists generated income from their work which was placed in the Creative Commons (Bhattacharjee, Gopal, Lertwachara, & Marsden, 2006). Having only been founded within the last ten years, Creative Commons has become a well-established copyright system, being used to license over 130 million works and has been adapted to the legal systems of 52 countries as of December 2008 (Creative Commons, 2010).

One of the main advantages offered by Creative Commons is the explicit acknowledgement that the work under any of the six licenses can be shared with others without fear of legal repercussions. A study performed on the reasons which artists choose to license their works under Creative Commons found that the majority (51.8%) stated that they did so because they believed in sharing, with the second most common (25.7%) applying the license as a way to increase their reputation via making their work widely available over the Internet (Kim, 2008).

One issue artists need to consider before licensing their works under Creative Commons is that very few international courts have made a ruling regarding the legality of the licenses. However, thus far all international courts which have made rulings with regards to the legality of the licenses have found in favour of Creative Commons (Creative Commons, 2011), suggesting that the licenses are likely to be found valid in a court of law if an artist finds that the terms of their license has been violated.

3. Methodology

3.1 Research Question

Faced with the difficulties with enforcing and interpreting copyright law and falling record sales combined with the continued creation and distribution of music by artists, this research seeks to determine what factors can be identified which are currently having significant impact on the amount of exposure an artist receives for their music. By testing a variety of factors, it is hoped the following null hypothesis can be rejected at a statistically significant level:

H_0 = No factors which differentiate one group of artists from another will have an effect on the number of streams or downloads an artist receives on Bandcamp.

There is significant difficulty in attempting to measure the amount of exposure which an artist has gained because “evaluations often do not include true control groups, it often is impossible to assess the validity of these exposure measures” (Brown, Bauman, & Padgett, 1990, p. 300). For this study, the number of audio streams and downloads that an artist has received on the music hosting site Bandcamp was chosen as a measure for that exposure. This measure was selected because the more downloads or audio streams that an artist receives from their personal Bandcamp website, the more impact that the awareness effect will have on the artist and the music which they create. The awareness effect essentially acts like a network effect, but instead of “increasing the valuation of individual consumers, the increased number of users increases the share of the consumers who are aware of the good, thus raising the valuation of the average consumer” (Blackburn, 2006, pp. 10-11). The awareness effect has been found to increase the sales of an artist’s music, causing consumers to not only purchase old albums, but create a larger fan base for the release of future albums (Hendricks & Sorensen, 2006).

Both streaming and downloading music from a website will increase the awareness that a consumer possesses for a particular artist, but downloaded music in particular is an especially strong measure of this effect. This is because it is very difficult to determine if one user has streamed the same song multiple times, but it is unlikely that one user would download the same song multiple times, given the

technology which quickly and easily allows consumers to make identical copies of an original on their own computers. Downloading is also important in regard to increasing the exposure for an artist, as a study performed in 2003 found that 19% of respondents reported that a downloaded MP3 influenced their buying decisions (Peitz & Waelbroeck, 2005). Although an exact number of audio streams can be determined by obtaining statistics provided on many music hosting websites, downloads have the potential to be played countless times with each play increasing the awareness effect, especially if played to large groups of like-minded consumers. Studies have also shown that downloading of files can increase sales as “consumers are willing to pay more because the match between product characteristics and buyers’ tastes is improved.” (Peitz & Waelbroeck, 2006, p. 907).

3.2 Epistemological and Methodological Approach

Determining a successful approach to increasing exposure of an artist’s music is very difficult given the subjective nature of art and music (Cohen, 1962). Two artists could apply same pricing model and license to their music, and yet achieve two different levels of exposure to their music depending on how well their music is received by the individuals who hear it and an immeasurable number of other factors. In order to minimize the effects of the subjectivity contained in music, this research seeks to gather a large sample containing as many different musicians releasing music online as possible through the use of an online survey provided to artists regarding their online exposure. By performing a quantitative analysis on these survey results, it is hoped that any idiosyncrasies that each individual artist possesses will be minimized and factors will emerge that result in a group of musicians achieving significantly higher amount of exposure than their counterparts.

When interpreting the results obtained by the analysis of the data, a positivist epistemological approach will be taken in order to formulate theories which can be applied to artists who were not included in this research. This positivist approach holds that “the world of phenomena has an objective reality that can be measured and that relationships between entities in this world can be captured in data that is reasonably representative and accurate” (Straub, Boudreau, & Gefen, 2004, p. 5). By applying these epistemological assumptions to the quantitative research methodology, a general approach to releasing music will be established for artists to

use as guidelines for increasing their exposure, as well as the awareness effect to their own music.

3.3 Website Selection

In order to obtain the largest possible sample, as well as the best possible statistics regarding the number of downloads and audio streams that a group of artists have received, the website Bandcamp was chosen as the music hosting site to be examined for this study. Bandcamp is a music sharing website that allows musicians to distribute their music using a variety of different methods, with 1,426,231 tracks and 177,149 albums uploaded to the site according to the latest statistics provided (Bandcamp, 2011). The website also claims to have completed 727,272 paid transactions and provided 11,276,311 downloads since the website began in September of 2008 (Bandcamp, 2011). Additionally, the site also provides an excellent statistics tool which gives artists the opportunity to examine the number of audio streams, downloads, and page visits which have occurred over a variety of time-frames.

The functionality of Bandcamp allows any user to stream any song from a musician's page as many times as desired, regardless of the pricing model attached to the file itself. Unlike the iTunes music store, the leader in online digital music sales (Yoffie & Kim, 2010) which only allow users to listen to a 30 second sample of a selected song, Bandcamp allows users to stream the entire song as many times as desired. If a user decides they wish to purchase music from an artist, Bandcamp permits users to purchase individual songs or albums for either the price specified by the artist or for a user selected price, depending on the pricing model employed by the musician. Bandcamp also requires artists to upload high-fidelity, lossless encoded audio files, such as WAV, AIFF or FLAC, ensuring the consumer that any music downloaded or purchased through the website doesn't suffer from audio compression common in many low bit-rate MP3s. This is because lossless audio coding "enables the compression of digital audio data without any loss in quality due to a perfect reconstruction of the original signal" (Liebchen, 2004, p. 1012)

A significant reason why Bandcamp was selected for this study was that it allows artists to apply a variety of pricing models to their works, as well as different

licenses. When an artist uploads their music to Bandcamp, they are required to specify whether they will apply the Free Model, Name Your Price Model, Set Price Model, or Set Price or More Model to their music, allowing all four models to be examined under the same conditions. Additionally, artists can easily specify the licensing model they wish to use for their music, with Traditional Copyright being the default selection, but all six different Creative Commons licenses also being located on the upload page. Artists are also able to upload music themselves, unlike the Amazon and iTunes digital store which require artists to enter into a contract with a third-party before being permitted to sell their music on the online store.

Bandcamp also has a competitive pricing model for the use of their service, allowing every artist 200 free download credits every month, and requiring a 15% commission on any music sold on Bandcamp up to \$5,000 USD, at which point the commission drops to 10%. Finally, Bandcamp allows artists to tag their music with meta tags to allow for easy searching for certain self-subscribed properties, a feature utilized to determine the number of New Zealand artists currently using the website to host their music.

3.4 Country Selection

For this study, the amount of success that New Zealand musicians were achieving with digital distribution was selected for a number of reasons. The first and most practical reason is that New Zealand makes for an excellent sample size, with over 700 artists posting their music for download on the Bandcamp website. Secondly, New Zealand's music scene offers unique challenges for emerging artists to gain a level of success necessary to support themselves through creating and performing music. As previously stated, a large majority of musicians earn their income through touring, especially in Europe and the United States where there are a number of large metropolitan areas where bands can easily and cheaply tour to exposure their music to new markets. However, most New Zealand musicians are unable to earn sufficient income to support themselves on touring the country alone, as it possesses only one city above one million inhabitants, and only two other cities with populations over three hundred thousand (Statistics New Zealand, 2010). The New Zealand music industry is also an extremely small, with the country being estimated to generate export earnings from the music industry at \$5 million NZD per

year, in comparison to the global music market which is estimated at \$44 billion NZD (Shuker, 2008).

These difficulties make New Zealand musicians need for exposure through other means besides touring especially important. By artists being able to gain sufficient exposure to their music, both within the country and abroad, artists may be able to achieve a level of success needed to generate enough income to live comfortably through the music industry alone. Despite the challenges of creating music in New Zealand, several well-known international acts have been able to cultivate international exposure starting from within the country. In the mid-eighties, a boom of artists coming out of Dunedin on the Flying Nun record label (Shuker & Pickering, 1994) achieved international levels of success, proving that certain artists are able to overcome the challenges associated with the New Zealand music scene to achieve international exposure.

3.5 Data Collection

The criteria used to select artists for this research project required that they must have at least one song available for download on the Bandcamp website, and have tagged their music with the "New Zealand" meta tag. Using these parameters, it was determined that there were 666 individual artists who had tagged their music as being from or associated with New Zealand. Of the musicians which were identified, traditional Copyright was used by 543 artists to protect their works, one of the six Creative Commons licenses were utilized by 96 musicians, and 19 artists applied a mixture of traditional and Creative Commons licenses to their works.

Of the various pricing models available to musicians on Bandcamp, the Free Model proved the most popular with New Zealand musicians, with a total of 296 artists allowing their music to be downloaded for free. The second most popular pricing model was the Set Price or More Model, allowing fans to donate above a minimum price, with 140 artists employing this method. The Set Price Model also proved to be popular with Kiwi artists, with 110 Bandcamp users employing this model. The least popular model on the site was the Name Your Price Model, with only 50 total artists applying it to all of their works. The remaining 62 artists were found to use a variety of the pricing models previously listed, typically allowing fans

to download a single song or album for free, while applying one of the set price models to their other works. A complete breakdown of how many artists chose each license and price model combination can be found in Table 1.

Table 1 - Number of Artists by License and Payment Model

License Selected, Price Model Selected	Number of Musicians	Percentage of All Musicians
Traditional Copyright, Set Price Model	93	14%
Creative Commons, Free Model	60	9%
Traditional Copyright, Mixed Price Models	54	8%
Traditional Copyright, Name Your Price Model	42	6%
Creative Commons, Set Price or More Model	14	2%
Mixed License, Set Price Model	11	2%
Creative Commons, Name Your Price Model	8	1%
Creative Commons, Mixed Price Models	8	1%
Creative Commons, Set Price Model	6	<1%
Mixed License, Free Model	6	<1%
Mixed License, Set Price or More Model	2	<1%

Bandcamp does not provide the functionality needed to directly contact artists through the site, unlike other music hosting sites such as Myspace or Soundcloud, so contact was initiated through the use of email or other social networking sites. If no contact information was provided directly on the Bandcamp page, as was most often the case, a Google search was performed in an attempt to locate the artists' personal website, their record label's website, or a social networking site set up by the band which could be used to contact the artists. Of the bands which were identified as potential candidates, 562 bands were found to be contactable through one of the previously listed methods. Once a musician was determined to be contactable, one of fourteen possible surveys were sent out to the artist to complete, with each musician receiving a survey specific to both the license and the pricing

model the artist applied to their music. This was done in order to gather as much information regarding the success of an artist's Bandcamp page as possible, along with the reasoning for the selection of their specific pricing model and license. A complete copy of the survey sent out to all the artists involved in this survey can be found in Appendix 1.

Given the volatile nature of the music industry, it was often difficult to tell whether musicians who were selected for this study were still active or if the contact information found for the artist was still valid. Many artists who would have otherwise qualified for this research may have been ignored if the meta tag "New Zealand" was not applied to their works, making it extremely difficult to ensure that they were included in the study. Although this survey was able to achieve a response rate of 24% to the survey, this still leaves a significant amount of artists who have posted music for download on Bandcamp unaccounted for.

3.6 Data Analysis

Once the data regarding the number of plays and downloads that an artist had received was collected and compiled, it became clear that the data points were non-normative in regards to the number of audio streams, downloads, and total visits that an artist received. This non-normality was expected given the nature of the research, with some musicians being significantly more popular than artists who may have just started recording or posting their music to Bandcamp. To compensate for this non-normality, a logarithmic transformation was applied to all reported statistics used for comparisons between groups of artists in an attempt to create a normal distribution of data. Due to some artists having received 0 audio streams or downloads at the time this survey was conducted, either due to recently uploading their works onto Bandcamp or failing to direct fans to the site, a quantity of 1 added to all the values before performing the transformation.

This transformation was applied to all the data points used to test the hypotheses created as it was believed that these outliers were reflective of valid data and that removing these values would significantly skew the analysis. This belief was formed on the basis that certain artists may never receive streams or downloads for their works, due to insufficient publicity in regards to the music being made

available on the site. If an artist uploads their music to Bandcamp, but fails to tag the music properly or promote the material in any fashion, it is unlikely that any consumers will locate the music in order to stream or download the songs. Likewise, certain artists may achieve a disproportionate amount of streams and downloads, due to a combination of talent, publicity, and other intangible factors. Both of these groups of artists reflect realistic scenarios which occur in the music industry, and thus the values were included in the comparisons.

The number of surveyed which were completed was another influencing factor in the analysis of the data gathered by the survey. Although 136 surveys were begun by various artists, only 90 were either completed or provided usable data in regards to the number of downloads or audio streams that they received. Any surveys which were begun but were left incomplete were only used if the data completed was considered valid and useful in the analysis. Additionally, one artist's response was removed from the survey due to suspicion of data forgery, as all of the responses were numbers rounded to the 100s, a very unlikely response given the nature of this research.

4. Results

4.1 Internet Presence

One of the first goals of the survey was to determine what other music hosting sites artists were utilizing to allow consumers to listen to or download their music. This was done in order to test the validity of using Bandcamp as a measure for online success an artist has achieved. As seen in Appendix A - Question 2, a list of possible websites was provided, along with two spaces for the artists to write in alternatives to the choices given. Table 2 illustrates that of the music hosting sites reported, Myspace was found to be the most popular site for posting music other than Bandcamp, with 118 respondents identifying the site as a source for hosting their music. A very close second was Facebook, with 106 respondents stating that they had a web presence on the popular social networking site. In addition to the choices specifically given to the artists, 47 respondents identified other sites which they used to host their music with a wide range of individual sites being identified. Of the other sites mentioned, the most popular proved to be Last.fm with 5 respondents identifying this site as a hosting service and no other site receiving a significant number of responses.

Table 2 –Responses Given Regarding Other Websites Used to Host Music

Website	Total Respondents	Percentage of Responses Identifying Site as Being Used
Myspace	118	87%
Facebook	106	78%
Youtube	92	68%
iTunes	57	42%
Soundcloud	55	40%
Amplifier New Zealand	47	35%
Personal Band Website	45	33%
Reverb Nation	36	26%
Amazon	23	17%
Vimeo	21	15%
Only Bandcamp	3	2%
Other	42	31%

The number of different websites reported to being used by each artist can be seen in the histogram in Figure 1. This figure shows that a majority of artists chose to upload their music to at least three sites in addition to Bandcamp, with only three total respondents identifying Bandcamp as the only website which their music could be streamed or downloaded.

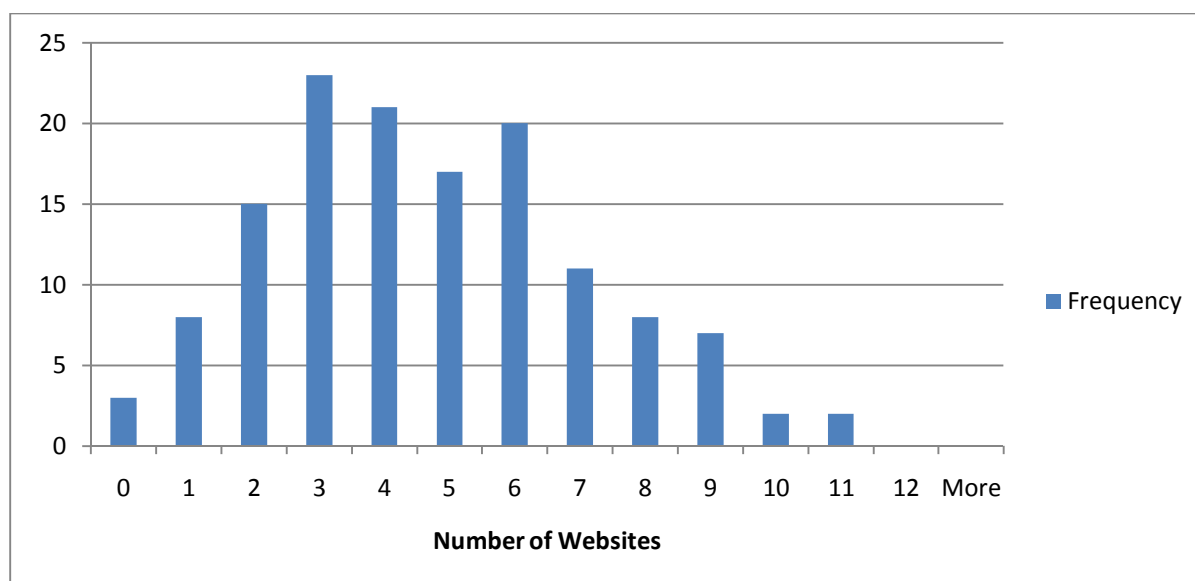


Figure 1 – Histogram Displaying Number of Websites Used in addition to Bandcamp for Hosting Music

The participants to the survey were asked a follow-up the previous question by identifying which of these websites provided their music with the most number of downloads and audio streams to help determine if any particular website proved to be the most successful of increasing the awareness effect for an artist. The most successful site identified was Bandcamp itself, with 43 respondents identifying the site as providing the most number of audio streams for the songs posted. The second most successful site for audio streams was Myspace with 23 respondents identifying the social networking site as the most successful in terms of audio streams, as displayed in Table 3. For this question, 20 respondents were unable to identify which website provided them with the highest number of audio streams for their music.

Table 3 – Responses Given Regarding Most Successful Website for Audio Streams

Website	Total Respondents	Percentage of Total Respondents
Bandcamp	43	32%
Myspace	23	17%
Facebook	14	10%
Soundcloud	11	8%
Youtube	11	8%
Personal Band Website	3	2%
Reverb Nation	2	1%
Unknown	20	15%
Other	9	7%

Artists were also asked to identify which website provided the most downloads of their music by fans. The largest response for this question was also identified as Bandcamp with 86 artists identifying the site as their most successful for song downloads. This response was given 77 more times than the next most successful website, Soundcloud, which received nine responses, as seen in Table 4. For this question, 13 of the artists responding to the survey were unable to identify which website provided them with the highest number of downloads.

Table 4 - Responses Given Regarding Most Successful Website for Music Downloads

Website	Total Respondents	Percentage of Total Respondents
Bandcamp	86	63%
Soundcloud	9	7%
iTunes	7	5%
Myspace	5	4%
Personal Band Website	3	2%
Facebook	3	2%
Youtube	1	<1%
Reverb Nation	1	<1%
Unknown	13	10%
Other	8	6%

4.2 Record Labels

The first factor examined in this research to determine if it had a significant impact on the number of audio streams and downloads an artist received on the Bandcamp was whether the respondent was signed to a record label or an independent musician. This factor was examined as it was speculated that artists who were provided with additional promotion through their label would receive more exposure to their music online than artists releasing their music independently. Of the artists that responded to the survey, only 24 of the artists were signed to a record label, while 108 reported to be independent musicians, as shown in Table 5. Of the musicians who were signed to a record label, five were signed to Mole Music, three to MUZAI Records, and two artists were from A Low Hum, with no other record label having more than one respondent from their label participate in the survey. Because of the small number of respondents which were signed to a record label responding to the survey, no analysis was performed to determine if this factor affected the number of audio streams or downloads an artist receives, as normality could not be obtained for the group of artists signed to a record contract.

Table 5 – Responses Given Regarding being Signed to Record Label

Signed to a Record Label	Total Respondents
Yes	24
No	108

4.3 Physical Album Sales

A second factor examined for its effect on the amount of exposure an artist has received was the presence of physical copies of albums, in addition to the digital downloads provided through Bandcamp. As shown in Table 6, 67 musicians stated that they made physical copies of their music available, while 36 asserted that they only had their music available in digital format. Using these results, two hypotheses were created to test both the number of audio streams an artist received and the number of downloads in relation to the availability of a physical album by the musician.

Table 6 - Responses Given Regarding Physical Copies Available

Physical Copies of Work Available	Total Respondents
Yes	67
No	36

H₁ – An artist who provides their music for physical purchase, as well as digital download, will receive a different amount of audio streams for the music on their Bandcamp website than an artist who only provide digital copies of their music.

To determine if there was any statistically significant difference to the number of audio streams obtained by artists who also provided physical copies of their works, a F-test was performed on the logarithmically transformed number of audio streams between two groups for variance, resulting in a P-value of 0.271 (F=1.196,(33,58 d.f.)) at the 95% level, accepting the null hypothesis that the variance are equal between the groups. Once equal variance was determined, a t-Test was conducted

assuming equal variance, resulting in a two-tailed P-value of 0.945 (91,1 d.f.) and rejecting the hypothesis at the 95% level. This result shows that there is no significant difference in the number of audio streams an artist receives depending on whether they also have physical copies of their works for sale in addition to digital downloads.

H₂ – An artist who provides their music for physical purchase, as well as digital download, will receive a different amount of total downloads for the music on their Bandcamp website than an artist who only has digital copies of their music available.

To determine if there was a statistically significant difference to the number of music downloads obtained by artists who also provided physical copies of their works, a F-test was performed between the logarithmically transformed number of downloads between the two groups for variance, resulting in a P-value of 0.289 (F=1.177,(33,58 d.f.)), accepting the null hypothesis that the two groups have equal variance at the 95% level. A t-Test was then conducted assuming equal variance, resulting in a two-tailed P-value of 0.328 (91,1 d.f.), rejecting the hypothesis at the 95% level. This result shows that there is no significant difference in the number of downloads an artist receives depending on whether they also have physical copies of their works for sale in addition to digital downloads.

Although no statistical significance was found when testing the hypotheses, other results were obtained from the questions asked to artists who created physical copies of their albums, as shown in Appendix A – Question 8. Of the 65 respondents which provided physical copies of their music, 35 reported that they have higher sales of their physical copies of their music than of the digital sales, 17 found that their digital downloads were more than their physical sales, six found that they were approximately equal, and seven were unaware of how their sales and digital downloads compared, as shown in Table 7. Artists were also asked where physical copies of their music could be found, the results of which can be found in Table 8. The most popular response was at an artist's concerts, with 55 respondents identifying this venue as a location to purchase their album. Additionally, 11 musicians selected "Other" as locations for purchasing their music,

with three responses being that physical copies could be obtained directly from the artist. No other response received more than one response.

Table 7 - Responses Given Regarding Sales Comparison of Physical and Digital Product

Difference of Physical Sales to Downloads	Total Respondents	Percentage of Total Respondents
More Physical Sales than Downloads	35	54%
More Downloads than Physical Sales	17	26%
Approximately Equal	6	9%
Unknown	7	11%

Table 8 - Responses Given Regarding Locations available to Purchase Physical Copies of Music

Locations	Total Respondents	Percentage of Respondents Identifying Location
Concerts	55	85%
Online	48	74%
Record Stores	39	60%
Other Retailers	15	23%
Other	11	17%

4.4 Fan Base Contact

The number of times and the medium through which musicians contacted their fan base was also examined as a possible factor affecting the number of downloads and audio streams that the artist's Bandcamp page will receive. In order to test this factor, respondents were asked to identify what methods that they employ to update their fan base about upcoming releases or events, as shown in Appendix A – Question 3. The most popular method of contact was Facebook, with 118 respondents identifying the popular social networking site as a method of updating fans, as shown in Table 9. Additionally, 39 artists selected "Other" as the survey question did not cover all the options which they employ to keep in contact with fans.

Of the “Other” responses, the musician’s personal blog or website was the most common with 16 responses, other non-specific websites or message boards received 10 responses, and Word of Mouth, Posters and Text Messages received five responses a piece. Six artists indicated that they employ no methods to update fans with regards to their upcoming events or releases.

Table 9 - Responses Given Regarding Methods of Fan Base Contact

Method of Contact	Total Respondents	Percentage of Responses Identifying Method of Contact
Facebook	118	89%
Myspace	60	45%
Twitter	52	39%
Email/Mailing List	48	36%
Other	39	30%
None	6	5%

In addition to identifying the websites and methods which were used to contact their fan base, artists were also asked how often they contact their fans through those methods, as seen in Table 10. These results showed that no specific timeframe was preferred by the artists participating in the survey, with responses split relatively evenly between the possible responses. Three respondents selected “Other” in response to this question, indicating they updated their fans on a daily basis through the use of Facebook or Twitter.

Table 10 - Responses Given Regarding Frequency of Fan Base Contact

Frequency of Fan Base Contact	Total Responses	Percentage of Total Respondents
Weekly	35	29%
Big Events/Releases	34	28%
Infrequently (Less than Once a Month)	29	24%
Monthly	21	17%
Other	3	2%

Using the information gathered on the frequency of contact, several hypothesis were created in regards to the number of audio streams, downloads, and Bandcamp website visits that an artist has received. These hypotheses were based on the assumption that artists who contact their fan base more often would develop a stronger relationship with their fans, generating a higher measured exposure on Bandcamp.

An artist who provides their music for physical purchase, as well as digital download, will receive a different amount of audio streams for their music than an artist who only provide digital copies of their music.

H₃ – An artist who contacts their fan base regularly will receive more audio streams for the music on their Bandcamp website than an artist who contacts their fans infrequently.

Using the amount of contact as the factor, a single factor ANOVA test was performed to determine if there was any significance difference between the four groups regarding the number of audio streams reported, which had been logarithmically transformed to achieve normality. After applying this test, a P-value of 0.349 ($F=1.111, (85,3d.f.)$) was returned, failing to reject the null hypothesis that there was difference between the groups at the 95% level. This result shows that there was no statistical significance found between any of the groups tested based on the amount of contact they had with their fan base. Due to the inability to find

statistical difference between the four major groups of contact, no further analysis was performed to determine if artists who contacted their fan base weekly received more audio streams than the other groups.

H₄ – An artist who contacts their fan base regularly will receive more total downloads for the music on their Bandcamp website than an artist who contacts their fans infrequently.

Using the same factor as the previous hypothesis, the number of times an artist contacts their fan base, a single factor ANOVA test was performed to determine if there was any statistical significance to the different number of downloads that each of the four groups of artists received. After applying a logarithmic transformation to the download data to achieve normality, the ANOVA test returned P-value of 0.467 ($F=0.857, (85,3 \text{ d.f.})$), failing to reject the null hypothesis that there was a statistical difference between the means at the 95% level. This result shows that there is no statistical significance between the different levels of contact each group had with their fan base and the amount of downloads which occurred on the musicians' Bandcamp page. Due to the inability to find statistical difference between the four major groups of contact, no further analysis was performed to determine if artists that contacted their fan base on a weekly basis received more downloads than the other groups.

H₅ – An artist who contacts their fan base regularly will receive more total visits to their Bandcamp website than an artist who contacts their fans infrequently.

Using the same factor as the previous two hypotheses, the number of times a artist contacts their fan base, a single factor ANOVA test was performed to determine if there was any statistical significance to the number of visits that each group of artists received to their Bandcamp website. Using the logarithmically transformed number of visits, the ANOVA test returned P-value of 0.746 ($F=0.410, (85,3 \text{ d.f.})$), and failing to reject the null hypothesis that there was a statistically significant difference between the means at the 95% level. This result shows that there is no significant difference between the number of visits each artist has received to their Bandcamp page based on the amount of contact each artist

had with their fan base. Due to the inability to find statistical difference between the four major groups of contact, no further analysis was performed to determine if artists who contacted their fan base weekly received more visits to their Bandcamp page than the other groups.

4.5 Artist Longevity

Another theory that this research sought to test was whether the length of time that the artist had been producing music using the same name had an effect on the number of downloads or audio streams that they received. It was thought that an artist performing under its current name for a longer period of time is more likely to have a larger fan base and thus receive more audio streams and downloads from those fans. To test this theory, the respondents to the survey were asked what year they formed their current musical project, the results of which can be seen in Figure 2. Using these results, two hypotheses were created to examine the amount of streams and downloads a musician had received based on the year they began performing under their current name.

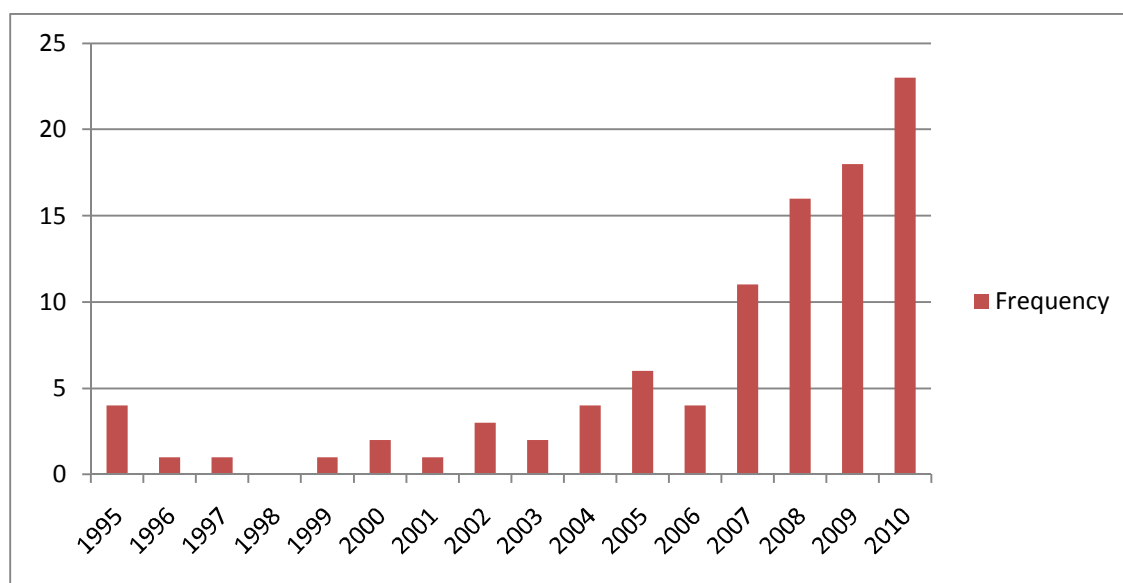


Figure 2 - Histogram Displaying the Years Artist Began Performing Under Current Name

H₆ – An artist who has been performing under their current name for a longer period of time will receive more audio streams for the music on their Bandcamp website than an artist who has just begun to produce music and build a fan base.

To determine if there is any significance to the year which an artist began to perform music to the number of streams an artist receives on their Bandcamp page, a regression test was performed to attempt to fit a trend line to the data. This was done by plotting the year which an artist had begun performing music against a logarithmically transformed number of audio streams, the results of which can be found in Figure 3. Upon performing this analysis, the data produced a regression function of $r=0.006$ with a y-intercept of 2.502, with a P-value of 0.722 (96,1 d.f.), rejecting the validity of the regression function at the 95% level. This result shows that there is no statistically significant function which can be found in relation between the number of streams which an artist has received on their Bandcamp page and the number of years since an artist began performing.

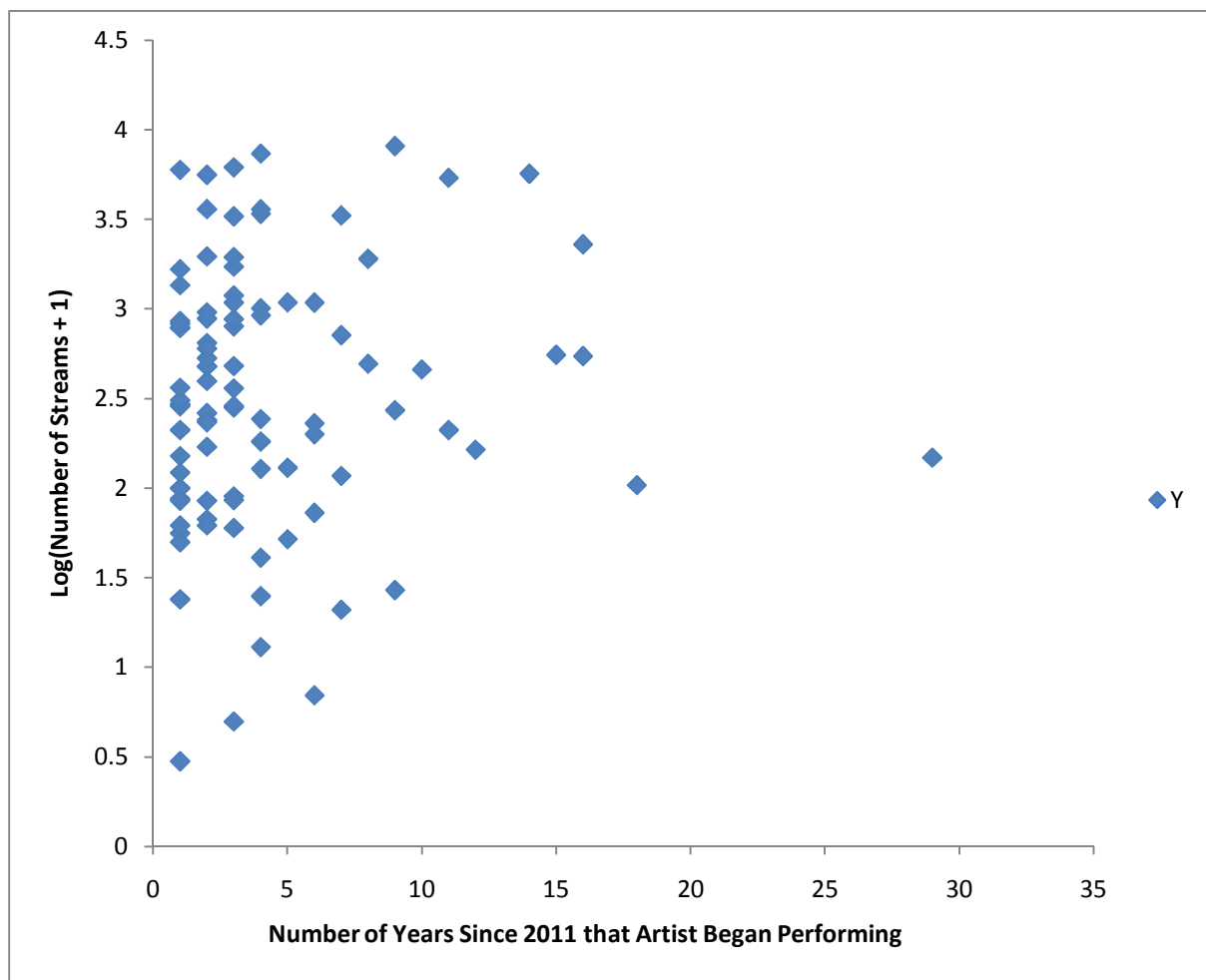


Figure 3 – Scatter Plot showing Number of Audio Streams an Artist has Received as Function of Years Performing

H₇ – An artist who has been performing under their current name for a longer period of time will receive more total downloads for the music on their Bandcamp website than an artist who has just begun to produce music and build a fan base.

In order to establish if there is any significance to the year which an artist begun to perform music to the number of downloads an artist receives on their Bandcamp page, a regression test was performed to try to fit a trend line to the scatter plot created from the data. This was prepared by plotting the year which an artist had begun performing music against a logarithmically transformed number of downloads an artist had received, the results of which can be found in Figure 4. Upon performing this analysis, the data found a regression function of $r = -.022$ with a y-intercept of 1.485 and a P-value of 0.295 (96,1 d.f.), rejecting the validity of the regression function fit to this data at the 95% level. This result shows that there is no significant function which can be found in relation between the number of downloads which an artist has received on their Bandcamp page and the number of years since they began performing under their current name.

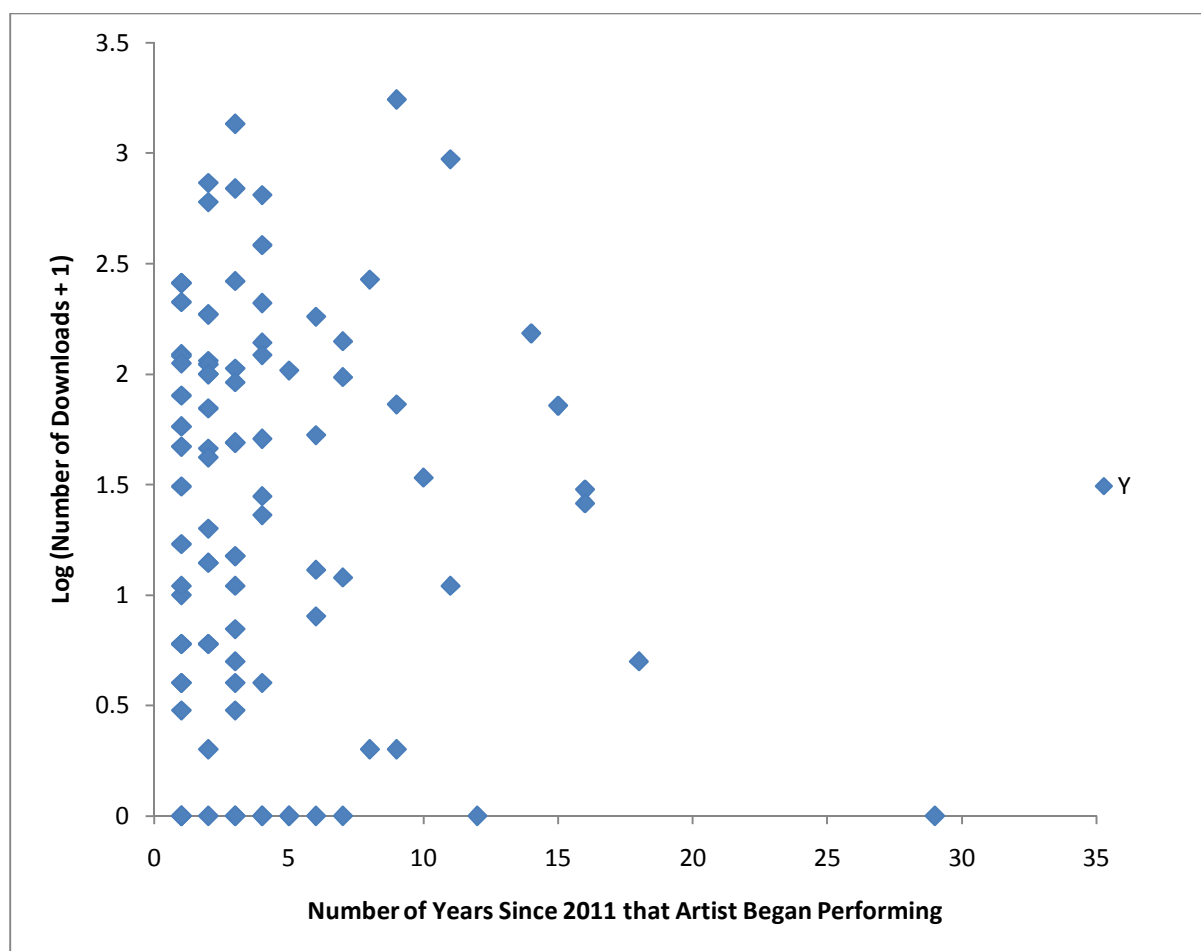


Figure 4 – Scatter Plot showing Number of Downloads an Artist has Received as Function of Years Performing

4.6 Length of Time on Bandcamp

The length of time which an artist has been present on Bandcamp was also analyzed as a possible factor affecting the number of streams and downloads that an artist received. To accomplish this, artists were asked the date in which they uploaded their first song to Bandcamp, which was then used to determine the number of days that an artist had been on the site since 31st of January, 2011, the date the survey was closed. The results of this data can be seen in Figure 5. Using the length of time in which artists have had their music available for download on Bandcamp, two hypotheses were formed regarding the number of streams and downloads an artist will receive as a function of the length of time on the site. These hypotheses were formed on the assumption that an artist who has provided their music for download longer than an artist who has recently uploaded their music will have amassed a larger amount of total downloads and streams.

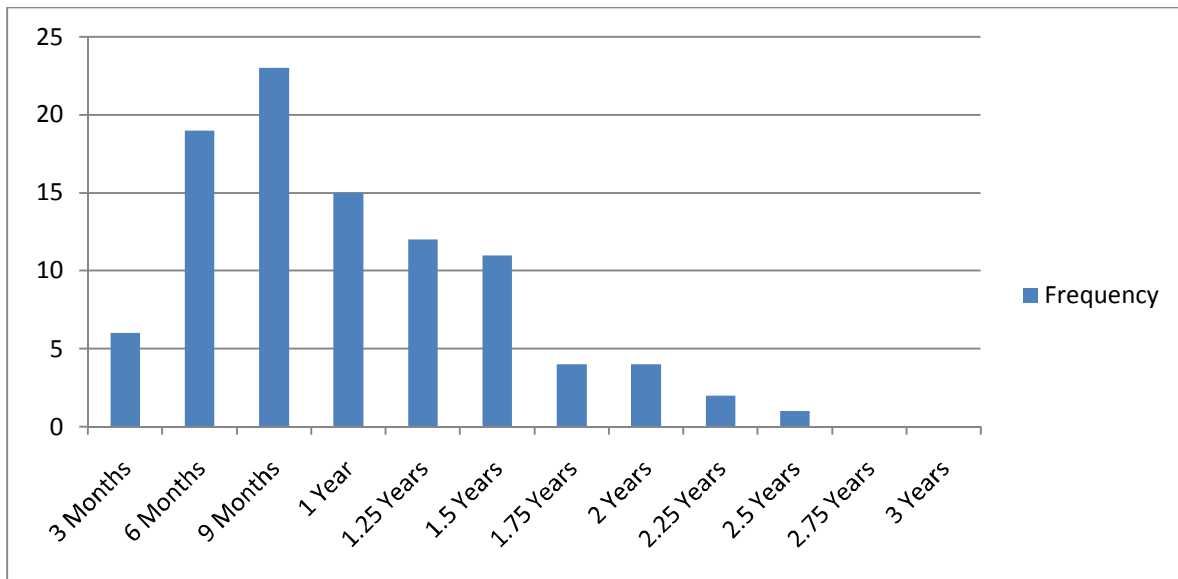


Figure 5 - Histogram Displaying Length of Time Artists Have Been On Bandcamp

H₈ – An artist who has their music available for streaming and download on Bandcamp for a longer period of time will receive more audio streams for the music on their Bandcamp website than an artist who has recently uploaded their music.

To determine if there is any significance to the date which an artist first uploaded their music to Bandcamp and the number of streams they received, a scatter plot was first created plotting the number of days since January 31st, 2011 that an artist had been present on Bandcamp against a logarithmic transformation of the number of streams the artist had received. Once this was created, a regression test was applied to the data in an attempt to fit a statistically significant line to the data points, as seen in Figure 6. Upon performing this analysis, a regression function of $r=.0012$ with an intercept of 2.146 was found, with a P-value of 0.004 (97,1 d.f.), accepting the validity of this regression function at the 99% level. This test suggests that there is a statistically significant exponential growth function which can be seen relating the number of streams that an artist receives for their works based on the number of days that the music has been available for download. This function can be represented as follows:

$$\text{Number of Streams} = 10^{(2.146 + .0012(\text{Number of Days Since Initial Upload}))} - 1$$

This function indicates that an artist can expect on the number of streams they receive after the first year to be around 383 streams on average and increasing to 1,051 streams by the second year.

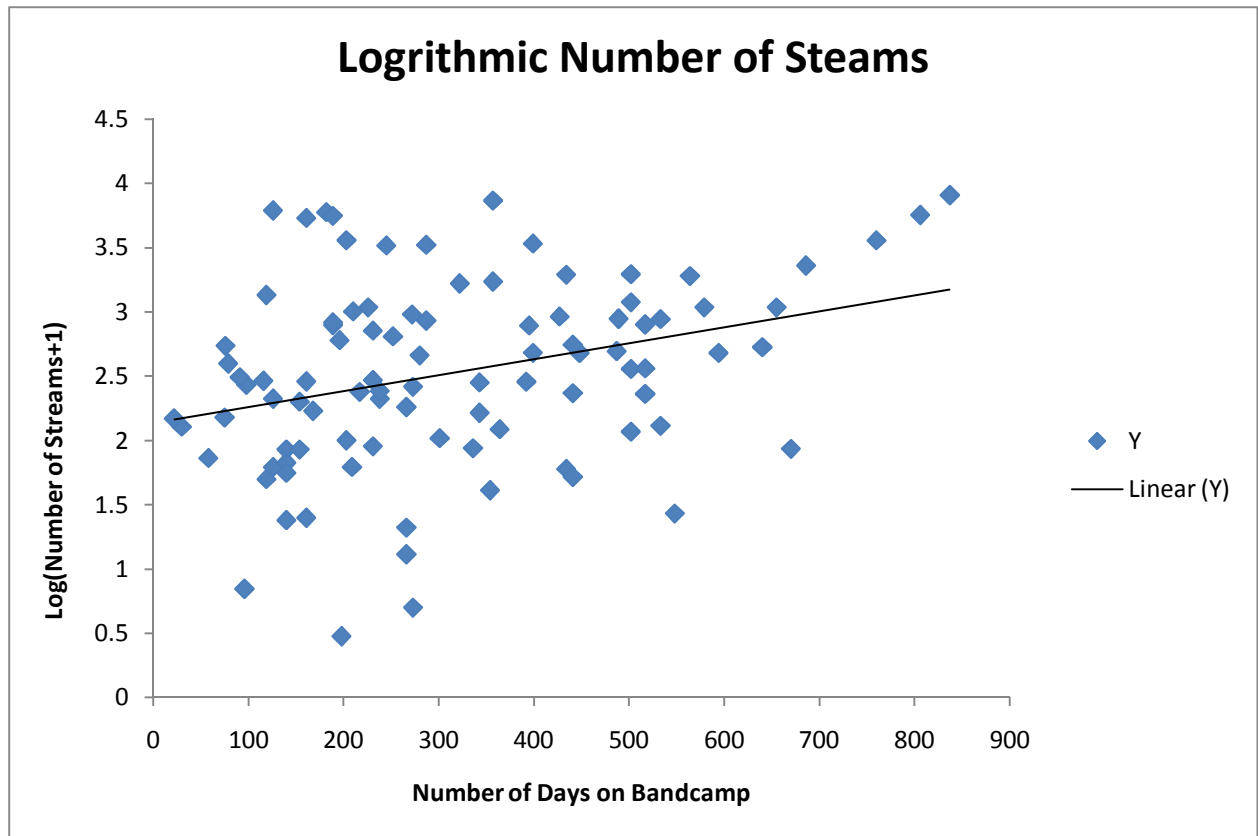


Figure 6 - Regression Function of Total Audio Streams as a Function of Days on Bandcamp

H₉ – An artist who has their music available for streaming and download on Bandcamp for a longer period of time will receive more total downloads for the music on their Bandcamp website than an artist who has recently uploaded their music.

To determine if there is any significance to the number of days which an artist has been present on Bandcamp in relation to the number of downloads they receive, a scatter plot was created plotting the number of days since January 31st, 2011 that an artist had been present on Bandcamp against a logarithmic transformation of the number of downloads the artist had received. After this plot was created, a regression test was applied to the data in an attempt to fit a statistically significant line to the data points, as seen in Figure 7. Upon performing this analysis, a regression function of $r=.00099$ with an intercept of 1.0763 was found, with a P-value

of 0.051 (96,1 d.f.), accepting the validity of this regression function at the 94.9% level. This test suggests that there is a statistically valid exponential growth function which can be seen relating the number of downloads that an artist receives for their works based on the number of days that the music has been available for download. This function can be represented as follows:

$$\text{Number of Streams} = 10^{(1.0763 + .00099(\text{Number of Days Since Initial Upload}))} - 1$$

This function indicates that an artist can expect on average for the number of streams they receive after the first year to be 26 downloads, increasing to 62 downloads by the second year for all artists.

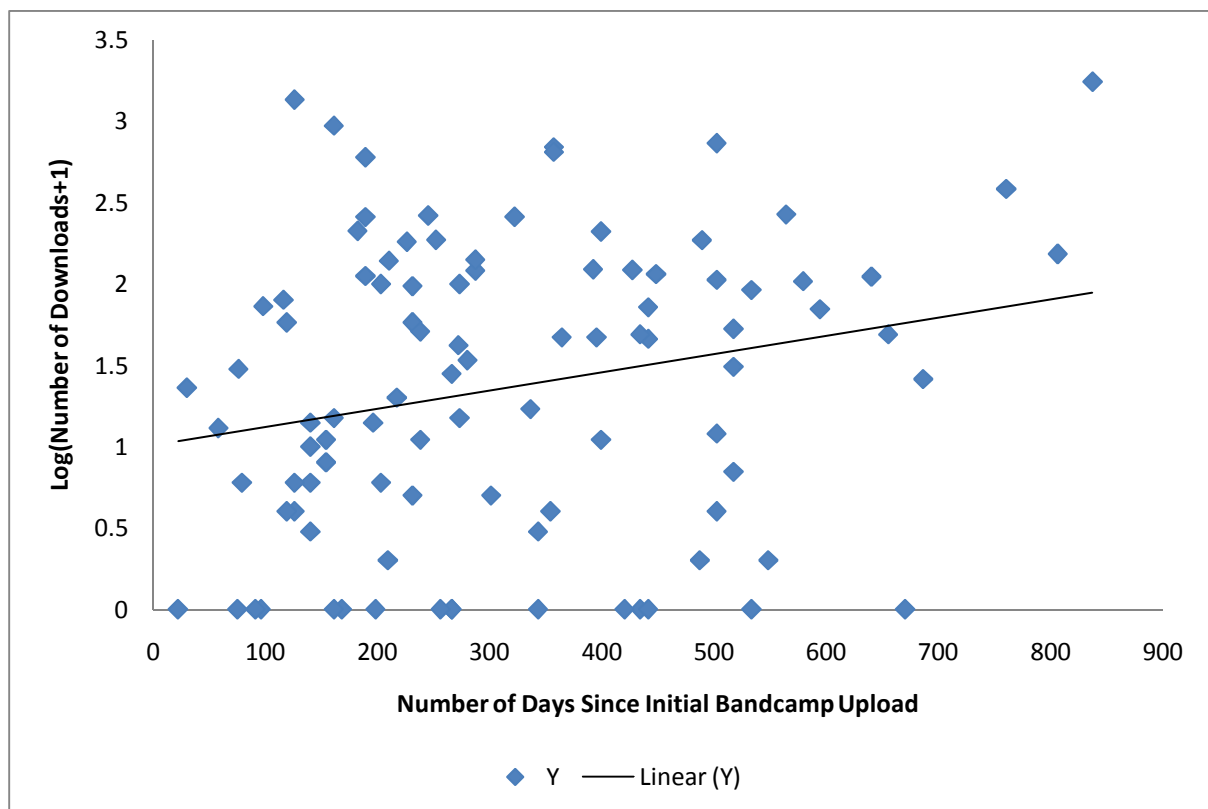


Figure 7 - Regression Function of Total Downloads as a Function of Days on Bandcamp

Due to the confidence level being slightly less than the desired 95%, another transformation of this data was performed removing the outliers of artists who had not received any downloads to determine if the fit of the line was altered through this process. By applying a regression line to these data points, with the 17 points removed as outliers, a regression function of $r=0.00097$ with an intercept of 1.3211,

with a P-value of 0.027 (79,1 d.f.), accepting the validity of this regression function at the 95% confidence level. This regression function can be seen in Figure 8. This test suggests that if an artist is able to achieve a single download from their Bandcamp site, there is a statistically significant exponential growth function which can be used relating the number of downloads that an artist receives for their music based on the number of days that the music has been available for download. This function can be represented as follows:

$$\text{Number of Streams} = 10^{(1.3211 + .00097(\text{Number of Days Since Initial Upload}))} - 1$$

This function indicates that an artist can expect on average for the number of streams they receive after the first year to be 46 downloads, increasing to 107 downloads by the second year for all artists which are able to achieve a single download for their music.

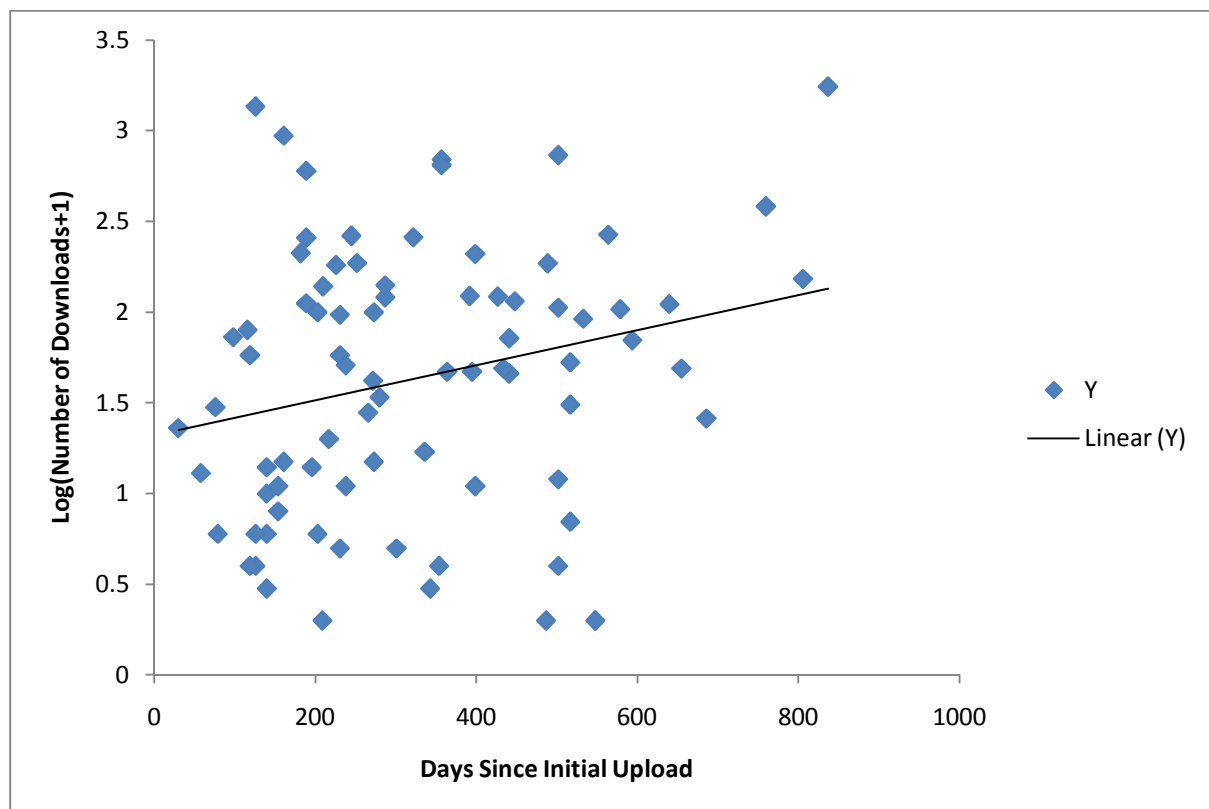


Figure 8 - Regression Function of Total Downloads as a Function of Days on Bandcamp with Minimum Outlier Removed

4.7 Price Model Analysis

Bandcamp allows artists to choose from four different pricing schemes to be applied to their music, which are the Free Model, Name Your Price Model, Set Price Model, and the Set Price or More Model. All artists which were chosen for this research were categorized into either one of these four models or the fifth model which was a combination of two or more of the pricing models, and asked why they chose the model they did for their music. The responses to this question were then qualitatively analyzed to determine if any trends were apparent in the reasons which artists gave for selecting specific pricing models.

The most common response given by artists who applied a model which allowed fans to download their music for free was that the exposure gained from the download was more valuable than the money they would gain from charging for their recordings. An analysis of the answers given showed that over 70% of the respondents in this category specifically mentioned this philosophy in their responses.

Artists which chose to release their music under the Free Model also had a variety of other reasons for selecting their pricing model. Besides the desire to increase exposure for their art, the next most common reason given was the belief that consumers wouldn't pay for the recordings if they did charge for them, either because the recordings were too low quality or the artists felt they were too unknown and consumers don't spend money on artists they aren't familiar with. A number of musicians employing this model also mentioned that they do not create music with the intention of making money. Other reasons which were mentioned were that the recordings were free to record, that it was easy to get other music for free so there was little reason to charge for their music, and that they viewed MP3s versions of their songs as a promotional item, either for their live show or for physical product which they also had available.

Artists who utilized the Name Your Price Model nearly all echoed the sentiment that exposure for their music was more important than money. However, it was also important to this group of artists that fans were allowed to donate to download their music if they wished. One artist also mentioned that they allowed fans to name their price because they also sold physical copies of their albums, and

this model allows fans to obtain digital copies of their music without having to pay again for something which they had already bought.

Reasons why musicians chose to use the Set Price model were less difficult to qualify. The most common reason given was that the artist needed to generate income to support their music, but this response was only given by five out of the 12 artists. Other most common reason was that they provided music for free download on other site, with four responses. Other reasons given which received at least two responses were that streaming allowed for free listens, the set price was fair for the recording, and that music has value like a physical good.

Artists who applied the Set Price or More Model expressed the sentiments of all the previously mentioned groups. The most popular reason for selecting the model was that it allowed for donations above a cheap price, that money was needed to continue producing music, that it allows fans to decide what it's worth, and that free downloads are also available on other sites.

In order to test whether a specific pricing model had an effect on the number of downloads or streams that an artist received, artists were grouped into two categories, those which allowed fans to download songs or albums for free if they wished, the Free Model and Name Your Price Model, and those that required a minimum payment to download songs or albums, Set Price and Set Price or More Model. For artists which applied a mixture of pricing models, their statistics were not included when examining the total number of audio streams or downloads that artists had received. This is because the data gathered in the survey didn't allow for the distinction to be made between songs that were free to download and those which required a minimum price when the total number of downloads and audio streams was examined. However, when examining the number of downloads for individual songs and albums, the albums and songs which were reported to be the most popular were examined to determine whether to include them in the free to download group, or the minimum payment group. In order to test if the pricing model applied to an artist's music to download had a significant effect between the two groups, the following hypotheses were created:

H₁₀ – An artist who allows their songs and albums to be downloaded for free will receive more audio streams for the music on their Bandcamp website than an artist who requires a minimum payment to download their music.

In order to determine if the number of audio streams that artists in the free group is significantly different from those in the minimum price group, a F-test was performed on the logarithmically transformed number of audio streams between two groups for variance, resulting in a P-value of 0.419 ($F=1.061, (32,48 \text{ d.f.})$), accepting the null hypothesis that the variance are equal between the groups at the 95% level. Once the variance was determined to be equal, a t-Test was applied to the two groups, returning a one-tailed P-value of 0.429 (80,1 d.f.), rejecting the null hypothesis that there is a significant difference between the two groups at the 95% level. This result rejects the hypothesis that the total number of audio streams that an artist receives is related to the payment model used for music downloads at a significant level.

H₁₁ – An artist who allows their songs to be downloaded for free will receive more downloads of their most popular single song on their Bandcamp website than an artist who requires a minimum payment to download their music.

In order to test this hypothesis, the songs which were available for free download and the songs which required a minimum payment were placed into two groups, after which a logarithmic transformation was applied to the number of downloads the artist reported for their most popular song. After these groups were formed, a F-test was performed to determine the variance between groups, resulting in a P-value of 0.189 ($F=1.344, (59,31 \text{ d.f.})$), accepting the null hypothesis that the variance are equal between the groups at the 95% level. Once this was determined, a t-Test assuming equal variance was performed, returning a mean value of 0.963 for artists allowing their music to be downloaded for free, and a mean value of 0.135 for artists who required a minimum amount for download of their single songs. The t-Test also reported a one-tail P-value of 1.676E-08 (90,1 d.f.), accepting the null hypothesis that there is a statistically significant difference between the means at the 99.9% level. This result confirms that the hypothesis is statistically significant and that artists who allow their single songs to be downloaded for free receive more downloads for that song than those who require a minimum payment for the download.

H₁₂ – An artist who allows their albums to be downloaded for free will receive more downloads of their most popular album on their Bandcamp website than an artist who requires a minimum payment to download their music.

As previously described, artists which allowed their albums to be downloaded for free were placed in a group to be compared with artists which required a minimum payment for their album downloads. Once this was completed, a logarithmic transformation was applied to the number of downloads the artist reported for their most popular album to achieve normality. After these groups were formed, a F-test was performed to determine the variance between groups, resulting in a P-value of 0.0004 ($F=3.139, (54, 33 \text{ d.f.})$), rejecting the null hypothesis that the variance are equal between the groups at the 99% level. Once this was determined, a t-Test assuming unequal variance was performed, returning a mean value of 1.117 for artists allowing their music to be downloaded for free, and a mean value of 0.521 for artists who required a minimum amount for download of their albums. The t-Test also reported a one-tail P-value of $2.479E-05 (86,1 \text{ d.f.})$, accepting the null hypothesis that there is a statistically significant difference between the means at the 99.9% level. This result confirms that the hypothesis that an artist which allows their albums to be downloaded for free will receive a significantly higher amount of downloads for their most popular album than artists requiring a minimum payment.

In order to assure that the most popular downloaded song or album that an artist reported was not an anomaly in the data, a hypothesis was tested in regards to the total number of downloads that an artist received. For this test, the same groups were formed as were used in testing the H₁₀, as it was impossible to separate the number of free downloads from pay downloads for artists who used mixed payment methods.

H₁₃ – An artist who allows all their music to be downloaded for free will receive more total downloads of music on their Bandcamp website than an artist who requires a minimum payment to download their music.

Forming the same groups and performing the same logarithmic transformation as was used in H₁₀, a F-test was performed to determine the variance between groups, resulting in a P-value of 0.001 ($F=2.772, (48, 33 \text{ d.f.})$), rejecting the null

hypothesis that the variance are equal between the groups at the 99% level. Once this was determined, a t-Test assuming unequal variance was performed, resulting in a median of 1.429 for artists who allowed their music to be downloaded for free and 0.608 for artists requiring a monetary payment for their music to be downloaded. These results found a one-tail P-value of 6.097E-07 (80,1 d.f.), accepting the null hypothesis that the difference between the means is significant at the 99.9% level. This result confirms that there is a statistically significant difference between the total number of downloads musicians receive for their songs and albums on Bandcamp depending on the payment method applied.

4.8 License Selection

Finally, one last factor was examined as having an effect on the number of downloads and streams that an artist receives, whether the musician chose to license their work with either a Creative Commons or traditional Copyright. These questions are shown in Appendix A – Question 7 and 8. The design of the Bandcamp website allows the user to easily license their works under one of the Creative Commons licenses available when they first upload the file to the site, presenting the artist with the image shown in Figure 9 which was taken from a screenshot of the upload page.

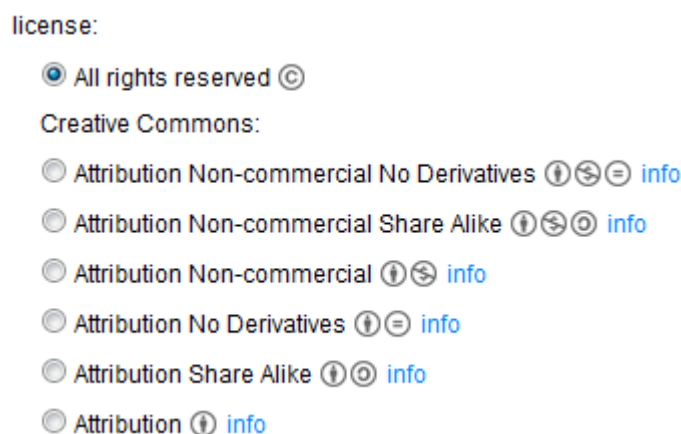


Figure 9 - Bandcamp Screenshot Displaying License Selection

The “info” hyperlinks shown above presents the user with a block of text providing an explanation for what each of the Creative Commons licenses specifically allows others to do with the artists works without the need to obtain explicit permission from the artist themselves. However, when asked “Which option best defines the reason you chose to license your music under a traditional

Copyright, as opposed to Creative Commons?”, 18 respondents stated that they were unaware of Creative Commons as a way to license music, as seen in Table 11.

Table 11 - Responses Given Regarding Reason for Selecting traditional Copyright over Creative Commons

Reason for Selecting Traditional Copyright	Total Responses	Percentage of Total Respondents
Not Familiar Enough with Creative Commons	50	56%
Unaware of Creative Commons	18	20%
Dislike Certain Aspects	3	3%
Dislike All Aspects	5	6%
Other	13	15%

The third most common response to the rationale behind selecting Traditional Copyright over a Creative Commons license was “Other”, with 13 total responses. Any artists that selected “Other” as the reason for licensing their works under Creative Commons were asked to provide a brief explanation for their choice. A majority of the responses in the “Other” category, or for those that provided text for the aspects of Creative Commons which they disliked, artists appeared to have a misunderstanding of what the license is, what the different options available were, or were forced into Traditional Copyright through contract. One artist even stated that they “don’t know whether I chose creative commons or copyright”. Of all the expanded explanations given, only one artist explicitly stated that they “don’t have a problem with traditional copyright”.

This misunderstanding of what is possible through the use of Creative Commons is further exemplified by the responses to follow-up questions directed at determining what rights provided through traditional Copyright that an artist is comfortable relinquishing without providing expressed permission. When asked the following question: “Would you be OK with fans sharing your music with others without your expressed permission?” an overwhelming 85 respondents stated that they would be comfortable with their fans sharing their works with others, as shown

in Table 12. This is especially important in relation to Creative Commons, as the ability to share creative works is an aspect prevalent in all six of the licenses which are offered.

Table 12 - Responses Given Regarding Allowing Fans to Share Music without Expressed Permission

OK with Fans Sharing Work Without Permission	Total Responses
Yes	85
No	1

Artists were also asked about whether they would be comfortable with an individual or organization using their works for commercial purposes. This question received a significant negative response compared to the question of sharing, with only nine artists being comfortable with their works being used in this fashion without their expressed permission, as shown in Table 13.

Table 13 - Responses Given Regarding Allowing Individuals or Organizations to Use Music Commercially without Expressed Permission

OK with Work Being Used Commercially Without Permission	Total Responses
Yes	9
No	78

Artists were also asked about whether they would be OK with other artists remixing their works without their expressed permission. This question received a mixed response from artists, with only slightly more (46) artists being comfortable with the idea of their works being remixed without their permission, compared to 41 who were unwilling to give up this right granted under traditional Copyright, as shown in Table 14.

Table 14 - Responses Given Regarding Allowing other Artists to Remix Music without Expressed Permission

OK with Work Being Remixed without Permission	Total Responses
Yes	46
No	41

Artists who chose to license their music under Creative Commons were also asked to provide a reason for why they applied Creative Commons in general to their work, as well as why they chose their specific license. Unfortunately for the survey, very few responses were given to these questions, with only 11 artists completing this portion of the survey. However, of the 11 responses given, all but one artist mentioned the idea of allowing their music to be shared with others and the licenses being more in line with their personal philosophies when it comes to making music. A majority of the respondents also specified that it was important for them to retain a certain amount of control for how their works were used, most often in relation to being used for commercial purposes without their permission.

The original intent for questions regarding which license artists decided to apply to their works was to test several hypotheses regarding the success the licenses were receiving in regards to traditional Copyright. However, as mentioned previously, an insufficient number of responses were received from artists who applied Creative Commons to their works to achieve the normality with the responses given. Due to this lack of responses, these hypotheses were untested as they would be unable to provide any significant statistical information.

5. Discussion

The goal of this research project was to perform an exploratory analysis on the ways in which New Zealand musicians are currently releasing music in the post-Napster digital age, and determine if any factor could be identified as having a significant impact on the amount of exposure an artist has achieved. Within this research, exposure was measured by the number of audio streams or downloads an artist had achieved on their Bandcamp page, as these measurements were theorized to increase the impact that the awareness effect would have on a musician. This was done by first creating a null hypothesis and attempting to reject the hypothesis at a statistically significant level.

H_0 = No factors which differentiate one group of artists from another will have an effect on the number of streams or downloads an artist receives on their Bandcamp website.

Using New Zealand musicians who currently have at least one song available on Bandcamp for download as the survey pool, several hypotheses were tested in an attempt to reject the null hypothesis using the results from an online survey distributed through both social networking sites and artist's email addresses. The hypotheses tested, as well as the results from the analysis, can be found in Table 15.

Table 15 – Results of Hypotheses Tested

Number	Hypothesis	Supported at the 95% Level
H ₁	Artists with Physical Copies of their Music will Receive a Different Amount of Audio Streams than Artists with Only Digital Copies Available	No
H ₂	Artists with Physical Copies of their Music will Receive a Different Amount of Downloads than Artists with Only Digital Copies Available	No
H ₃	Artists Who Contact Fans More Often Will Receive More Audio Streams than Artists who Infrequently Contact Fans	No
H ₄	Artists Who Contact Fans More Often Will Receive More Total Downloads than Artists who Infrequently Contact Fans	No
H ₅	Artists Who Contact Fans More Often Will Receive More Visits to their Bandcamp Site than Artists who Infrequently Contact Fans	No
H ₆	The Longer an Artist Has Been Performing under their Current Name, the More Audio Streams they will Receive	No
H ₇	The Longer an Artist Has Been Performing under their Current Name, the More Downloads they will Receive	No
H ₈	The Longer an Artist has Music Available on Bandcamp, the More Audio Streams they will Receive	Yes
H ₉	The Longer an Artist Has Music Available on Bandcamp, the More Downloads they will Receive	Yes
H ₁₀	Artists Allowing Free Downloads will Receive More Audio Streams than Artists Charging for Downloads	No
H ₁₁	Artists Allowing Free Song Downloads will Receive More Downloads of their Most Popular Song than Artists Charging for Single Song Downloads	Yes
H ₁₂	Artists Allowing Free Album Downloads will Receive More Downloads of their Most Popular Album than Artists Charging for Album Downloads	Yes
H ₁₃	Artists Allowing All Music for Free Download will Receive More Total Downloads than Artists Charging for All Downloads	Yes

The analysis of the data supplied in the survey strongly supported that two variables have significant effects on the number of downloads that an artist receives on their Bandcamp website, the length of time they have been present on the site at the 95% level and the pricing model which they have chosen at the 99.9% level, thus rejecting the null hypothesis at a statistically significant level. This research also established that the only variable found to have a statistically significant impact on the total number of audio streams that an artist receives is the length of time since a musician first uploaded their works to Bandcamp itself. The number of audio streams a musician receives was unaffected by the pricing model an artist applied to download their works, which is theorized to be caused by the functionality of Bandcamp as a music hosting site. It is speculated that this result is due to Bandcamp allowing a user to stream any song as much as they desire, regardless of the price to download the file, thus negating any discernable difference between the groups when utilizing this function of the website.

Determining that artists on Bandcamp which are allowing their music to be downloaded for free are receiving more downloads than artists which require a minimum price for their downloads would be less noteworthy if musicians which were charging for their works were generating a significant income from their recorded music. However, using the data reported in regards to the total revenue which artists have received on Bandcamp, the histogram shown in Figure 10 was created.

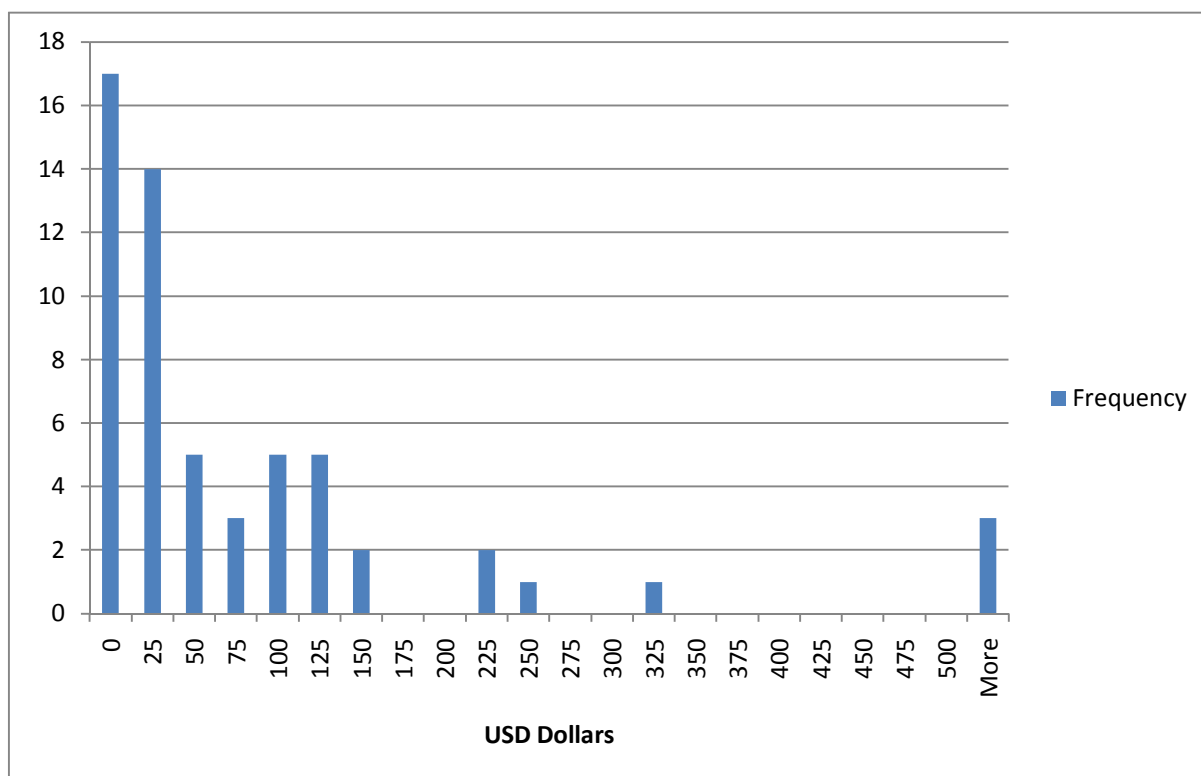


Figure 10 – Histogram of Amount Earned (USD) from Bandcamp Purchases

Figure 10 includes artists which allow their music to be downloaded for free, but have found fans to donate to download their music through the Name Your Price Model. This figure shows that over 75% of artists which reported any revenue from Bandcamp have received less than \$100 USD revenue for their downloaded works. Furthermore, three of the 14 artists which have earned more than \$100 USD have employed the Name Your Price Model, allowing them to obtain the benefits given to artists who allow their works to be downloaded for free, while still earning significant revenue from their works.

The results of the hypotheses tested indicate a clear distinction must be made for artists uploading their works to Bandcamp as to whether the musician's current goals is to achieve the maximum amount of exposure for their work or attempt to achieve monetary gains from the downloads. This decision is especially important to consider for artists who have yet to achieve a high level of exposure, as many artists who required a set price for their works received significantly less downloads than artists who allowed fans to download their works for free. However, several artists whom responded to this survey were able to achieve a significant amount of downloads and revenue from their Bandcamp site, but these musicians appeared as outliers in the data. These results suggest that Bandcamp does allow for musicians

to achieve high levels of downloads and revenue from their works, but that these results were not common for a majority of the artists.

When examining the results of this research, it is apparent that the Name Your Price Model is the most successful in achieving exposure for an artist's music, while still allowing the distribution of their recorded music to generate income. This is especially true for musicians who have yet to achieve a large amount of exposure to their work, as many artists employing this model reported valuing exposure over potential income from their downloaded music. This model allows artists to increase the amount of exposure which they receive by allowing consumers who would otherwise not pay to download their works to become familiar with the artist, and allowing fans to donate and support artist if they wish to do so. As previously reported, several artists utilizing this method were able to achieve a significant amount of financial success, with fans donating over \$100 USD to the artist in exchange for digital copies of their music.

The examination of Creative Commons as factor affecting the amount of exposure which a musician has achieved was unable to be tested due to the small sample size of artists which applied the licenses to their works. However, in examining the cause for this small sample size, several significant findings were discovered. All but one respondent who applied traditional Copyright to their work identified that they would be willing to allow fans to share their music files without expressed permission needed under traditional Copyright. This result found that New Zealand musicians' beliefs in regards to sharing music directly align with that of the Creative Commons licenses, and specifically the Attribution-Non-Commercial-No Derivative Works license. The Attribution-Non-Commercial-No Derivative Works is described as the "the most restrictive of our six main licences, allowing redistribution. This licence is often called the "free advertising" licence because it allows others to download your works and share them with others as long as they mention you and link back to you, but they can't change them in any way or use them commercially." (Creative Commons New Zealand, 2011). Although this license would align with 99% of the respondents' personal views on music sharing, there are several other licenses which artists could apply to their works which apply less restrictions in terms of remixing and using commercially than traditional Copyright, which several artists indicated they would be comfortable with in this survey.

The other significant finding determined when examining artists' reasons for applying traditional Copyright to their works is that most artists are unfamiliar, unaware, or uninformed about what the Creative Commons licenses are and what they mean when applied to an artist's work. This finding suggests that the Creative Commons organization of New Zealand needs to find ways to inform musicians about what choices they have in regards to the licenses they apply to their works. This research would suggest that nearly all respondents to this survey would have applied one of the six Creative Commons licenses to their music had they been properly informed the licenses before uploading their music to Bandcamp.

This research also found a significant presence of musicians on Facebook, not only as a tool for communicating with fans but also for hosting music, a recently added feature for the popular networking site. As seen in Tables 2 and 9, a total of 89% of musicians which responded to this survey mentioned Facebook as a tool for contacting fans, with 78% mentioning that they used Facebook to host their music as well. These results are especially interesting when compared to the 89% of musicians reporting using Myspace as a music hosting site, but only 45% using the site to contact their fan base. Myspace was once determined to be the leader in social networking for musicians, with one study conducted in early 2007 finding that 80% of musicians releasing an album also maintained a Myspace Music profile (Dhar & Chang, 2009). Twitter, which began in 2006 and began gaining popularity at the time of the previously cited Myspace study, reported that 53 artists used it as a tool for contacting fans. These results suggest the need for further studies in regards to social networking, as this research would suggest that previous research finding Myspace as the most popular site for musicians appears to need to be re-evaluated, especially where New Zealand musicians are concerned.

One surprising result of this research, given the statistics obtained from the RIANZ in regards the falling number of physical sales and the surging digital download numbers, is that over half of the artists which created physical copies of their works, in addition to providing digital downloads, found a larger number of physical copies of their works sold than digital copies. Although not enough data was collected in regards to this reported result to draw strong conclusion in regards to physical purchase sales for up and coming artists, this result suggests the need for further research in this area. Follow-up questions with regards to which types of physical pressings are being created (vinyl, cassette, CD) and where a majority of

these records are being successfully sold from could help to provide additional information on this result which seemingly contradicts the current trends in music sales.

5.1 Further Research

In addition to the need for further study on the points mentioned revolving around physical music sales and social networking presence of upcoming artists, there is further opportunity for significantly expanding this research to remove some limiting factors of these results. By expanding the examination of artists to include other countries, such as the United States and Australia, greater comparisons could be formulated as to where New Zealand sits in terms of digital success, as well as creating a bigger picture of overall success on the website. Additionally, other online stores, such as iTunes, Amazon, and Amplifier New Zealand could be examined to determine what results Kiwi artists are finding on these sites. Finally, an examination of P2P networks, torrent sites, and file-hosting sites could be examined in an attempt to gauge how often music is still be pirated in the digital age, and if employing either the Free Model or Name Your Price model appears to significantly reduce the amount of unauthorized trading of files, so that artists are able to collect more information regarding their success.

Additionally, Bandcamp is a relatively new service, having only been launched in September of 2008 (Bandcamp, 2008), which suggests that another study performed in a few years time may give a better picture of what the long term results that musicians can expect from the site. As can be seen in Figure 5, a majority of the artists have only begun to use Bandcamp in the last year, with the oldest entry being over two and a half years since January of 2011. This is especially relevant to the results found in H_8 and H_9 regarding the number of streams and downloads an artist has received as a function of days since initial upload of music to Bandcamp.

5.2 Research Limitations

This research focuses solely on one of the many websites available for artists to allow their music to be downloaded and streamed, and the results determined in this research may not succeed when applied to different platforms. Several features of Bandcamp may inadvertently influence the results of this research, which was not

testable within the parameters of this project. Although Bandcamp was identified by a majority of musicians in both streaming and downloading as the most successful of all the sites which the artists utilized, there is an inherent bias present in this response, given that only artists who were currently on Bandcamp were asked to participate in this survey. Additionally, 15% of artists were unable to identify the website which provided them with the highest amount of audio streams for their music, while 10% of artists were unable to identify which website provided them with the highest amount of downloads. These figures suggest a certain amount of artists are unaware of what success they are achieving through various music hosting websites.

Artists were also assumed to be providing truthful information in regards to the data they supplied to this survey, as Bandcamp doesn't allow the number of audio streams and downloads that an artist has received to be public. Although participants were assured that the data supplied would be kept confidential between my supervisor and I, it is possible that a certain amount of the data supplied in the surveys was inaccurate. This inaccuracy in the data could be caused either intentionally to allow the artist to appear more successful than they actually are, or accidentally through a mistake in transferring the information to the survey or being uninformed about the true value.

The results of this survey also suggest that Bandcamp is a tool used far more often by new and upcoming musicians than established ones. Nearly all the musicians which responded to this survey had begun recording music within the last five years, and are likely seeking a young, technologically savvy audience to comprise their fan base. These results suggest that artists who are looking to attract an older demographic may encounter different results when applying the same strategies as the artists in this research.

The selection of New Zealand as a restricting variable for this research could also have untested effects on the outcomes of this research which were not visible due to the scope of this project. In addition to the unique characteristics mentioned in the Methodology section, New Zealand also limits the downloading capabilities for all private Internet connections, a factor which may have an impact on the behaviour of the end-users, many of which are assumed to be based in New Zealand.

Finally, there are a few key assumptions about the research question which must be considered when examining the results of this research. In addition to the

inherent difficulties in measuring the exposure that an artist has received, the awareness effect used as the basis for this research also does not guarantee success for an artist, only increases the probability of success. Additionally, a key assumption that downloads are more likely to increase the impact of the awareness effect could also be incorrect in the unlikely event that all downloads are never played, thus nullifying any additional influence that downloads would have on the awareness effect.

6. Conclusion

This research sought to discover what methods New Zealand musicians were presently employing to get their music in the hands of their current and potential fan base, and to test whether any factor had a significant impact on the amount of exposure a group of artists were able to achieve. As a result, two factors were found to have a significant impact on the number of downloads an artist receives on their Bandcamp website, the initial upload date and the pricing model applied to the music. Examining these results, it was determined that artists which employ a pricing model which allows their fans to download their music for free or donation results in a significantly increased amount of exposure for a musician's work, when compared to an artist charging a minimum price to download their music. Additionally, this research found that a considerable majority of New Zealand musicians were uninformed about the Creative Commons licenses which could be applied to their music to allow fans greater freedoms with how they use the music they obtain from the artist. This result is especially concerning given the results which suggest that New Zealand musician's values strongly align with those held by the licenses. In conclusion, this research has shown that musicians cannot simply rely on traditional Copyright and price models to provide their work with the exposure and protection that they desire, and that artists need to be more informed than ever about what choices are available when publishing music and what effect those choices will have on themselves and their fans.

7. References

- Anderson Jr, H. (2008). "Criminal Minded?": Mixtape DJs, The Piracy Paradox, and Lessons for the Recording Industry. *Tenn. L. Rev.*, 76, 111-993.
- Andrés, A. (2006). The relationship between copyright software protection and piracy: Evidence from Europe. *European Journal of Law and Economics*, 21(1), 29-51.
- Arewa, O. B. (2005). From JC Bach to Hip Hop: Musical Borrowing, Copyright and Cultural Context. *North Carolina Law Review*, 84, 547.
- Baker, M., Roussopoulos, M., Shah, M., Maniatis, P., Bungale, P., Rosenthal, D. S. H., et al. (2006). A fresh look at the reliability of long-term digital storage. *Operating systems review*, 40(4), 221-234.
- Bandcamp (2008). Hello, Cleveland Retrieved 27/02/2011, 2011, from <http://blog.bandcamp.com/2008/09/16/hello-cleveland/>
- Bandcamp (2011). Bandcamp Home Page Retrieved 27/02/2011, 2011, from <http://bandcamp.com/>
- Besek, J. (2005). *Copyright issues relevant to digital preservation and dissemination of pre-1972 commercial sound recordings by libraries and archives*: Council on Library and Information Resources.
- Bhattacharjee, S., Gopal, R. D., Lertwachara, K., & Marsden, J. R. (2006). Impact of Legal Threats on Online Music Sharing Activity: An Analysis of Music Industry Legal Actions. *Journal of Law and Economics*, 49.
- Blackburn, D. (2004). On-line piracy and recorded music sales. *Harvard University*.
- Blackburn, D. (2006). The Heterogenous Effects of Copying: The Case of Recorded Music. *Job Market Paper (Harvard Ph. D. Programme)*.
- Brown, J. D., Bauman, K. E., & Padgett, C. A. (1990). A validity problem in measuring exposure to mass media campaigns. *Health Education & Behavior*, 17(3), 299.
- Buchanan, M. (2009). iPods and Young People Have Utterly Destroyed Music Retrieved 24/02/2011, 2011, from <http://gizmodo.com/#!5166649/ipods-and-young-people-have-utterly-destroyed-music>
- Charness, G., & Rabin, M. (2002). Understanding Social Preferences with Simple Tests*. *Quarterly journal of Economics*, 117(3), 817-869.
- Ciccariello Maher, G. (2005). Brechtian Hip-Hop: Didactics and Self-Production in Post-Gangsta Political Mixtapes. *Journal of Black Studies*, 36(1), 129-160.
- Cohen, J. E. (1962). Information theory and music. *Behavioral Science*, 7(2), 137-163.
- Connolly, M., & Krueger, A. (2006). Rockonomics: The Economics of Popular Music. *Handbook on the Economics of Art and Culture*, 1, 667-719.
- Creative Commons (2010). History Retrieved 27/02/2011, 2011, from <https://creativecommons.org/about/history>
- Creative Commons (2011). Case Law Retrieved 27/02/2011, 2011, from http://wiki.creativecommons.org/Case_Law
- Creative Commons Aotearoa New Zealand (2010). About Creative Commons Retrieved 23/01/2011, from http://www.creativecommons.org.nz/about_1
- Creative Commons New Zealand (2011). Licences Explained Retrieved 27/02/2011, 2011, from http://www.creativecommons.org.nz/licences_explained_1
- DeVoss, D. N., & Porter, J. E. (2006). Why Napster matters to writing: Filesharing as a new ethic of digital delivery. *Computers and Composition*, 23(2), 178-210.
- Dhar, V., & Chang, E. A. (2009). Does Chatter Matter? The Impact of User-Generated Content on Music Sales. *Journal of Interactive Marketing*, 23(4), 300-307.
- Ehlke, T. (1988). Disc, DAT and Fair Use: Time to Reconsider. *California Western Law Review*, 25, 97.

- Eric, P. C., & Djeto, A. (2007). Determinants of music copyright violations on the university campus. *Journal of Cultural Economics*, 31(3), 187.
- Fivelsdal, H. (2005). Moving toward a balanced and effective response to Internet music piracy. *International Journal on Media Management*, 7(3), 121-126.
- Frith, S. (1988). Copyright and the music business. *Popular Music*, 7(01), 57-75.
- Garofalo, R. (1999). From music publishing to MP3: Music and industry in the Twentieth Century. *American Music*, 318-354.
- Gayer, A., & Shy, O. (2006). Publishers, artists, and copyright enforcement. *Information Economics and Policy*, 18(4), 374-384.
- Goetsch, C. C. (1980). Parody as Free Speech-The Replacement of the Fair Use Doctrine by First Amendment Protection. *Western New England Law Review*, 3(1), 3.
- Gopal, R., & Sanders, G. (2006). Do artists benefit from online music sharing? *Journal of Business*, 79(3), 1503-1534.
- Hendricks, K., & Sorensen, A. T. (2006). Information spillovers in the market for recorded music. *NBER working paper*.
- Hudson, J. (2010). Thom Yorke Predicts Record Industry Will Crumble in 'Months': Really? Retrieved 24/02/2011, 2011, from <http://www.theatlanticwire.com/opinions/view/opinion/Thom-Yorke-Predicts-Record-Industry-Will-Crumble-in-Months-Really-3928#>
- Huygen, A., Helberger, N., Poort, J., Rutten, P., & Van Eijk, N. (2009). Ups and Downs; Economic and Cultural Effects of File Sharing on Music, Film and Games. *Institute for Information Law (IViR, University of Amsterdam)*.
- IFPI (2010). IFPI Digital Music Report 2010. Retrieved from <http://www.ifpi.org/content/library/DMR2010.pdf>
- Jason, T. (2006). Copyright, The Work and Phonographic Orality in Music. *Social & Legal Studies*, 15(1), 77.
- Jenkins III, H., & Driscoll, K. (2009). Stepping your game up: technical innovation among young people of color in hip-hop.
- Jenkins III, H., & Driscoll, K. E. (2009). *Stepping your game up: technical innovation among young people of color in hip-hop*. Massachusetts Institute of Technology, Boston.
- Joseph, R., & Kitlan, D. (2007). Key Issues in E-Government and Public Administration. *Handbook of Research on Public Information Technology*.
- Kim, M. (2008). The Creative Commons and copyright protection in the digital era: Uses of Creative Commons licenses. *Journal of Computer Mediated Communication*, 13(1), 187-209.
- Liebchen, T. (2004). *An introduction to MPEG-4 audio lossless coding*. Paper presented at the Acoustics, Speech, and Signal Processing, Technical University of Berlin.
- Liebowitz, S. (2006). File-Sharing: Creative Destruction or Just Plain Destruction? *Center for the Analysis of Property Rights Working Paper No, 4, 03*.
- Liebowitz, S. J. (2006). File-Sharing: Creative Destruction or Just Plain Destruction? *Center for the Analysis of Property Rights Working Paper No, 4, 03*.
- Loren, L. P. (2002). Copyright in the Digital Age: Reflections on Tasini and Beyond: Untangling the Web of Music Copyrights. *Case Western Reserve Law Review*, 53, 673.
- Loren, L. P. (2007). Building a Reliable Semicommons of Creative Works: Enforcement of Creative Commons Licenses and Limited Abandonment of Copyright. *George Mason Law Review*, 14, 271.
- Lysonski, S., & Durvasula, S. (2008). Digital piracy of MP3s: consumer and ethical predispositions. *Journal of Consumer Marketing*, 25(3), 167-178.
- McCourt, T., & Burkart, P. (2003). When creators, corporations and consumers collide: Napster and the development of on-line music distribution. *Media, Culture & Society*, 25(3), 333.
- Medjahed, B., Rezgui, A., Bouguettaya, A., & Ouzzani, M. (2003). Infrastructure for e-government web services. *IEEE Internet Computing*, 7(1), 58-65.

- Mortimer, J. H., & Sorensen, A. (2007). Supply Responses to Digital Distribution: Recorded Music and Live Performances.
- Nelson, D. (2005). Free the Music: Rethinking the Role of Copyright in an Age of Digital Distribution. *Southern California Law Review*, 78, 559-1573.
- Norek, J. (2004). You Can't Sing without the Bling: The Toll of Excessive Sample License Fees on Creativity in Hip-Hop Music and the Need for a Compulsory Sound Recording Sample License System. *UCLA Entertainment Law Review*, 11, 83.
- Oberholzer-Gee, F., & Strumpf, K. (2007). The effect of file sharing on record sales: An empirical analysis. *Journal of Political Economy*, 115(1), 1-42.
- Peitz, M., & Waelbroeck, P. (2005). An economist's guide to digital music. *CESifo Economic Studies*, 51(2-3), 359.
- Peitz, M., & Waelbroeck, P. (2006). Why the music industry may gain from free downloading--The role of sampling. *International Journal of Industrial Organization*, 24(5), 907-913.
- Power, H. S. (2010). *Copyright (Infringing File Sharing) Amendment Bill*. from <http://www.legislation.govt.nz/bill/government/2010/0119/latest/DLM2764312.html>.
- Rainie, H., & Madden, M. (2004). *Preliminary findings from a web survey of musicians and songwriters*: Pew Internet & American Life Project.
- Rainie, L., Madden, M., Hess, D., & Mudd, G. (2004). *The state of music downloading and file-sharing online* Pew Internet & American Life Project.
- Regner, T., & Barria, J. (2009). Do consumers pay voluntarily? The case of online music. *Journal of Economic Behavior & Organization*, 71(2), 395-406.
- Regner, T., Barria, J., Pitt, J., & Neville, B. (2009). An artist life cycle model for digital media content: Strategies for the Light Web and the Dark Web. *Electronic Commerce Research and Applications*, 8(6), 334-342.
- Regner, T., Barria, J., Pitt, J., & Neville, B. (2010). Governance of digital content in the era of mass participation. *Electronic Commerce Research*, 10(1), 99.
- Regner, T., & Barria, J. A. (2009). Do consumers pay voluntarily? The case of online music. *Journal of Economic Behavior & Organization*, 71(2), 395-406.
- Reich, J. (2010). The Class Defense: Why Dispersed Intellectual Property Defendants Need Procedural Protections. *Duke Law & Technology Review*, 2010, 9-10.
- Reynolds, D. (2008). The RIAA Litigation War on File Sharing and Alternatives More Compatible with Public Morality. *Minn. JL Sci. & Tech.*, 9, 977, 980-981.
- RIAA (2010). Who We Are Retrieved 21/02/2011, 2011
- RIANZ (2009). Total Industry Trade Revenues Retrieved 11/01/2011, 2011, from http://www.rianz.org.nz/rianz/rianz_about_marketstats.asp
- RIANZ (2010). Introduction Retrieved 21/02/2011, 2011, from http://www.rianz.org.nz/rianz/rianz_about.asp
- Richard, J., & Euan, C. (2005). Full fat, semi-skimmed or no milk today - creative commons licences and English folk music. *International Review of Law, Computers & Technology*, 19(3), 259.
- Rob, R., & Waldfoegel, J. (2006). Piracy on the high C's: Music downloading, sales displacement, and social welfare in a sample of college students. *Journal of Law and Economics*, 46.
- Rutten, P., Huveneers, S., Limonard, S., Leenheer, J., Janssen, K., & Helberger, N. (2009). Ups and downs Economic and cultural effects of file sharing on music, film and games.
- Schultz, M. (2006). Fear and Norms and Rock & Roll: What Jambands Can Teach Us About Persuading People to Obey Copyright Law. *Berkeley Technology Law Journal*, 21(2), 651-728.
- Seidenberg, S. (2010). The Record Business Blues. *ABA Journal*, 96, 55, 59.
- Shuker, R. (2008). New Zealand popular music, government policy, and cultural identity. *Popular Music*, 27(02), 271-287.
- Shuker, R., & Pickering, M. (1994). Kiwi rock: popular music and cultural identity in New Zealand. *Popular Music*, 13(03), 261-278.

- Statistics New Zealand (2010). *Subnational Population Estimates: At 30 June 2010*. Wellington.
- Straub, D., Boudreau, M. C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *Communications of the Association for Information Systems, 13*(24), 380-427.
- Tanaka, T. (2004). Does file sharing reduce music CD sales?: A case of Japan. *IIR Working Paper*.
- Todosichuk, M. (2009). *Understanding Musical Artists Motivation to Share Creative Commons Licensed Musical Works: Applying Social Capital and Social Cognitive Theory*. National Cheng Kung University, Tainan, Taiwan.
- Yoffie, D., & Kim, R. (2010). Apple Inc. in 2010. *Harvard Business School*.
- Zentner, A. (2006). Piracy and File Sharing: Measuring the Effect of File Sharing on Music Purchases. *J. Law & Econ., 49*, 63-681.

8. Appendix

8.1 Appendix A

1a) Which band are you participating in this survey for?

Questions Regarding Music Hosting Sites

2a) What other websites have you posted your music to, for either downloading or streaming?

[Select All Which Apply]

- a) Youtube
- b) Facebook
- c) Soundcloud
- d) Myspace
- e) iTunes
- f) Amazon
- g) Personal Band Website
- h) Reverb Nation
- i) Vimeo
- j) Amplifier New Zealand
- k) None (Only Bandcamp)
- a) Other (Please Specify)

2b) Which of the sites that host your music do you receive the most streams? [A-L] M)

Unknown

2c) Which website do you receive the most downloads from? Note: It is possible sites that host your music other than Bandcamp do not allow for downloading. If this is the case, please select Bandcamp as the answer to this question. [A-L] M) Unknown

2d) Are you currently signed to a record label? If so, which record label?

Questions Regarding Fan base Contact

3a) What methods do you use to update fans on upcoming events or releases? [Select All Which Apply]

- b) Email/Mailing List
- c) Facebook
- d) Myspace
- e) Twitter
- f) None
- g) Other (Please Specify)

3b) Approximately how often do you contact your fan base?

- a) Weekly
- b) Monthly
- c) Infrequently
- d) Big Events or Releases
- h) Other (Please Specify)

Questions Regarding How Long the Band Has Been Together

4a) Approximately what year did you begin performing music under your current band name?

Questions Directly Regarding Bandcamp Success [Screen Shot Instructions also Included]

4a) What are your total plays from Bandcamp all-time?

4b) What are your total embedded plays from Bandcamp all-time?

4c) Which song has the highest number of plays all-time?

4d) What are the total plays for that song all-time?

4e) What date was this song uploaded to Bandcamp? (DD/MM/YYYY)

4f) How many of the plays from your most popular song came from an embedded player on another website?

4g) What are the total visits that your band's Bandcamp website has received?

4h) What website has lead to the most links to your website? (Copy and paste from your stats page)

4i) What is the count that website has produced for your band?

4j) What website has led to the most embedded plays of your music? (Copy and paste from your stats page)

4k) What is the count of embedded plays that website has produced for your band?

4l) What is your total downloads from Bandcamp?

4m) Which song has the highest downloads all-time?

4n) What is the total number of downloads for that song all-time?

4o) Which album has the highest number of downloads all-time?

4p) What is the total number of downloads for that album all-time?

4q) If Artists Were Unable to Access their Bandcamp Page

4r) Why are you unable to access your band's Bandcamp website?

Questions Regarding Choice of Album Payment [Artists Received One of Four]

5a) **Free Albums:** You chose to allow fans to download your album for free, as opposed to allowing fans to name their price or setting a price for the download, why?

5b) **Name Your Price:** You chose to allow fans to download your album for a price they chose, instead of specifying a specific value for your music, why?

5c) **Set Price Downloads:** You chose to allow fans to download your album for a set price, as opposed to giving away your music or allowing fans to name their own price, why?

5d) **Set Price or More Downloads:** You chose to allow fans to download your album for a price they chose, above a minimum set price, instead of giving away your music or simply setting a price, why?

Questions Regarding License Artist Chose to Release Music [Artists Received Either Creative Commons Questions or Traditional Copyright Questions]

Creative Commons

6a) You chose to license your music under Creative Commons, as opposed to traditional Copyright. What attracted you most to the Creative Commons license?

6b) What was your motivation for choosing the specific Creative Commons license that you applied to your music, as opposed to the other five Creative Commons options available?

Traditional Copyright

7a) Would you be OK with other artists remixing your works without your expressed permission? [Y/N]

7b) Would you be OK with fans sharing your music with others without your expressed permission? [Y/N]

7c) Would you be OK with an individual or organization using your music commercially without your expressed permission? [Y/N]

7d) Which option best defines the reason you chose to license your music under a traditional Copyright, as opposed to Creative Commons?

- a) Unaware of Creative Commons
- b) Not familiar enough with Creative Commons
- c) Familiar with Creative Commons, but dislike aspects of the license
- d) Familiar with Creative Commons, but dislike all of the license
- i) Other (Please Specify)

Questions Regarding Physical Copies of Music

8a) Is your music available in physical form for purchase?

8b) If so, how do the sales of physical copies of your music compare to those of digital sales?

- a) More Physical Sales than Downloads
- b) More Downloads than Physical Sales
- c) Approximately Equal
- d) Unknown

8c) Other than online, where can physical copies of your album be purchased? [Select All That Apply]

- a) Concerts
- b) Record Stores
- c) Other Retailers
- j) Other (Please Specify)
- d) None

Questions Needed for Follow-up

9a) If you wish to be contacted with a copy of the key findings of this research, please provide an email address that can be used for further contact.

9b) If you have any further comments that you wish to make about anything regarding this survey or methods which your band employs to increase exposure, please include them here.