

Dancing with Napster: Predictable consumer behavior in the New Digital Economy

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**DANCING WITH NAPSTER:
PREDICTABLE CONSUMER BEHAVIOR
IN THE NEW DIGITAL ECONOMY^a**

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ABSTRACT

The Internet is often characterized as a "disruptive technology," as recently argued by the music industry against Napster and by Sony against PC emulations of its PlayStation. Three questions are raised: 1) How much does the Internet replace traditional media? 2) As another information channel, does the Internet supplement traditional media? 3) How much do Internet users navigate the Web in order to download relevant information goods (news, music, movies) as part of their consumption and purchase strategies?

Data from the Pew Internet and American Life Project are used to test two competing hypotheses: 1) Easily copied and distributed digital content encourages consumers to exploit the "information wants to be free" character of the Internet, thereby hampering the growth of the market for information goods and services, and 2) Information consumers practice a sophisticated arbitrage process across different media, by weighing the value of online and offline information and thereby reinforcing active participation in the electronic marketplace.

The efforts of the music industry to obstruct the downloading of MP3s may represent a serious misunderstanding of consumer arbitrage practices, much as book publishers' characterize library use as a threat to book sales. Policy implications of this work extend into ongoing public and corporate policy debates about digital content and intellectual property.

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It looks like it will be another year of flat CD sales, and I think to some degree that's got to be attributed to the fact that there's so much music available online—Adams (2001).

During the Napster era, music sales were up 4 percent. Since the death of Napster, music sales are down 40 percent. The music industry seems to be ignoring this obvious relationship.... Napster was a promotional tool. Promotion sells music. No promotion, no sale. Hello! Blaming the downturn on piracy is ridiculous when the major conduits are shut off, underground, or scattered—Dvorak (2002).

When confronted with new media, old media quaver. Whether it was the telephone, the movies, the radio, television, videocassette recorders, cable or personal computers—each of them posed a challenge to the existing ecology of media. Some arrivals, like television, revolutionized American's daily life. Others—radio, VCRs, and cable—traumatized existing media by enabling new consumer behavior.

Yet, in each case, commercial media interests eventually absorbed the shock and adjusted to their new markets; and, in each case, consumers expanded the media mix available to them. For a broad overview, see Blum (1976); Comstock (1989); Dayan and Katz (1992); Fischer (1992); Marvin (1988); Mueller (1993); Pool (1983); and Spigel (1992). However, for the most part, consumer uses of different media have been treated as isolated phenomena. No overall pattern or interaction has been proposed to tie them together.

Likewise, the Internet is sometimes characterized as a “disruptive technology,” part of a wave of “creative destruction” for businesses. The origins of the Internet elicit multiple interpretations as in Abbate (1999); Friedheim (1999); Gillies and Cailliau (2000); Moschovitis (1999); Randall (1997); and Wolinsky (1999). Most recently, this argument has been put forth by the music industry against Napster-like services, and by Sony against PC software that emulates the Sony PlayStation. Yet, it may be that the Internet gives individuals a chance to fundamentally reshape how they obtain information—whether it is news or entertainment.

Drawing primarily upon data from the Pew Internet and American Life Project, this analysis examines the role of the Internet in peoples' information-gathering patterns, and raises the following questions:

- ◆ How many consumers substitute the Internet for traditional media?
- ◆ Does the Internet supplement traditional media by providing another means to retrieve information?

- ◆ How many Internet users navigate Internet content to download relevant information goods (news, music, movies), and, in so doing, develop interrelated strategies for the consumption and purchase of information?

More specifically, the analysis examines the extent to which Internet information gathering leads to *substitution* versus supplementation of consumption.

Two competing hypotheses about information consumption in the Internet age are addressed:

1. Easily copied and distributed digital content over the Internet further encourages consumers to exploit the “information wants to be free” character of the Internet; therefore, this process hampers the growth of the market for related information goods and services.
2. Consumers develop sophisticated arbitrage processes across previous and new media by weighing the value of online and offline information; by pursuing this strategy, consumers reinforce active participation in the electronic marketplace.

In the abstract, these are fundamentally opposite hypotheses, with the advent of the Internet forcing a re-framing of their implications for policy. As a case in point, the conflict between Napster and the music industry dramatically highlights the issues.

NAPSTER VERSUS THE MUSIC INDUSTRY

Did Napster threaten CD sales or abet CD sales? The intensity of this debate stems from the erosion of a business model begun in the 1920s, when the music-industry model demonstrated great profitability. It did so through a simple relationship: the industry makes money by selling recordings (now CDs) containing music recorded by artists under contract. Consumers who want to hear music by these artists can do so by purchasing these recordings (Chanan 1995; Douglas 1987; Howland, Kenney and William 1999; Kennedy and McNutt 1999; and Negus 1999). Consumers may hear the same music on radio; but, to have it available on demand, they must purchase that recording.¹

Over the last four years, however, consumers have had an attractive alternative: via the Internet (or directly from CDs), they can download music files (MP3s) to their computers' hard drives. The debate emerging from this challenge to the music-industry business model is unusual in that the poles of the debate stand out so clearly.

In November 1999, *Wired News* outlined the issue from the perspective of the industry:

New music software that aims to make finding MP3 files easier may work a little too well. Some insiders say Napster promotes music piracy, while others say it raises security concerns.

Not surprisingly, copyright formed the legal and policy prism through which the industry interpreted this new development.

Still, industry betrayed some uncertainty. According to Sobel (2002), a lawyer at an intellectual-property law firm in Palo Alto, CA:

If you download a file, and weren't licensed [to do so], then there's going to be an infringement issue. Napster probably won't get sued for making the program, but individuals who use it to trade pirated copies could possibly be sued for copyright infringement.

The article ends with the hint of an alternative view, "Napster says it wants to help people sell more CDs" (Sullivan 1999).

Soon thereafter, the Recording Industry Association of America (RIAA) sued Napster. By February (2000), the *Los Angeles Times* had embraced the interpretation of Napster as a menace:

The latest technological threat to the music industry is a program called Napster ... Napster has overwhelmed almost everything in its path, demonstrating how swiftly a relatively simple piece of software can move from the desktop of a teenage programmer into an Internet phenomenon capable of threatening an entire industry (Miller and Huffstutter 2000).

While RIAA has been in court suing Napster since late 1999, only recently has Napster's theory of information and human behavior begun to be articulated in the press. "We see ourselves as the MTV of the Internet," said Napster CEO Richardson (2000), in making the case that downloading MP3s supplements CD purchases rather than substitutes for them (although the rest of the article exhibits no appreciation of her hypothesis) (Cohen 2000).

At about the same time, Petreley (2002) offered an alternative view, suggesting the music industry saw Napster as a glass half-full:

Nevertheless, the music business understandably hates Napster because it encourages piracy. The knee-jerk reaction is to make it more difficult to copy and distribute recorded music in order to crack down on the piracy. But I wonder if the music industry

ought to see a new opportunity when it tooks [sic] at Napster instead (Petreley 2000).

By mid-year 2000, the mainstream press was still announcing the threat to the industry, but dissident voices from within the industry began to emerge. Hip-hop and rap musician, Chuck D (2000), supported the business case for supporting Napster, indicating an understanding of consumers' use of information to supplement rather than substitute:

I believe that artists should welcome Napster. We should think of it as a new kind of radio—a promotional tool that can help artists who don't have the opportunity to get their music played on mainstream radio or on MTV (Chuck D 2000).

The argument against the music industry's business model also gained adherents from rap to computing, as in this critique from *InfoWorld*:

There's no rationalization for piracy; it is what it is. However, rampant music piracy online indicates that the music industry's distribution and pricing model is out of whack with what people want. The problem isn't the piracy; the problem is unhappy customers (Dugan 2000).

Beyond the business model came recognition of a new guiding concept from King (2000):

Regardless of the future of Napster, file-trading applications will continue to exist on the Web ... The amazing thing about Napster isn't the program, it's the idea. You can't litigate the idea. You can't tell people that they need to stop thinking about the idea. Already we've seen commercial alternatives pop up with the Scour Exchange, a commercial file-trading exchange. So even if Napster is sued out of existence, there are alternatives popping up everywhere.

When Spring 2001 music sales figures came in, showing a decline from year 2000, however, the debate took on urgency beyond the arena of competing ideas and business models. The International Federation of the Phonographic Industry placed the global market at 36.9 billion US dollars in 2000, an overall decline of 1.3% from 1999. The biggest drop came in the US, where sales of CD singles plunged 39%, continuing a decline that had actually begun in 1998—before Napster (David 2001). Throughout 2001 and into 2002, press reports of surveys commissioned by all interested parties revealed no clear-cut

pattern of consumer behavior (Dugan 2000). The industry's woes continued as album sales sank 8% in the first half of 2001, winding up at 3% for the year (King 2000).

In October 2001, Napster negotiated an agreement with the music industry that blocked Napster from free file-sharing, and a subsequent injunction was upheld (Healey 2001; Kushner 2001). The music industry, however, continued to sue other similar services, amidst an artists' insurrection (Sandburg 2001; Kloer 2001). Moreover, intense lobbying by the industry paid off in proposed legislation—The Music Online Competition Act of 2001; this act guaranteed royalties to publishers from online music downloads (Yodaiken 2001). In the meantime, similar, free sharing services proliferated throughout the Internet (Bright 2002). By contrast, the industry launched its own online services (like MusicNet) that sought to preserve as much of the traditional profit structure as possible, by blocking transfers to portable appliances, exchanges with friends and permanent possession of downloaded songs. They failed (Mathews, Peers, and Wingfield 2002).

Influential voices within the industry still held fast to its traditional view of profitability. Goldstein (2002) wrote in *The Los Angeles Times*:

Things have gotten so bad that Michael Greene, the head of the industry group that puts on the Grammy Awards, devoted most of his recent Grammy telecast speech to lambasting music fans for 'stealing artists' livelihood,' calling file-sharing 'the most insidious virus in our midst.'

See also Lieberman (2002) and the satirical coverage in *Onion* (2002).

In late 2002, the story is far from over. The industry continues to challenge sharing services aggressively and shows no sign of shifting its paradigm or its model (Dvorak 2002).

Ironically, there really is only one side in this dispute, as sides go. The music industry is a 100-year-old, mature industry completely integrated into the mainstream economy. Opposition to this industry, if that is the correct term, lies in Napster—not really an opponent, but rather the live expression of information—supplementing behavior used by tens of millions of anonymous consumers. The industry had decided to concede no ground, accept no responsibility for misinterpretations, nor entertain the necessity of reinventing itself.

This "take-no-prisoners" strategy might offer the best option were the music industry locked in a bitter struggle with a weaker opponent bent on destroying it. When one opponent refuses to give ground, the other—if weaker—should eventually collapse.² So, it would appear that the industry positioned Napster within that frame, and, in that frame, the industry has bested Napster.

Implicit in the intensity of this debate is a consumer acting as a violator of conventions—a pirate, even a criminal. The consumer as information-seeker, going online to seek and to purchase, however, has been overlooked. The next section reviews some general Pew survey findings pertaining to consumer information gathering and online music.

DATA SOURCES

The Pew Internet Project has been conducting random-digit-dial (RDD) telephone surveys of all Americans, with monthly and bi-monthly surveys of 2000 respondents that focus on Internet users and their online surfing and search patterns. These data are incorporated into an econometric analysis of the relationships between online purchasing, information gathering, and online music listening and downloading.

As a multifaceted tool for information gathering, it is no surprise that Internet users engage in a range of online activities, including listening to music, buying goods and services online, and scratching various other information itches. The Pew Internet & American Life Project has documented how Internet users have embraced the Internet as an information utility and as a way to connect with family and friends.³

Indeed, notwithstanding the focus on online commerce during and after the dot-com speculative bubble, the Internet has remained primarily an information utility for people. Internet users go online to find out information that matters to them. Email remains the most popular online activity for online Americans, with 93% of Internet users being emailers and half of them checking their email on the average day. Other information-gathering activities among Internet users include the 66% of Internet users getting news online, the 60% getting health care information and government information online, and the 50% having done some online research for their jobs.

Even with the demise of many commercial online sites, more than half (55%) of all Internet users as of August 2001 had bought a product online at some point—up from the 48% having done so in March 2000. Half of all Internet users as of July 2002 had purchased a travel service online, up from 36% of Internet users in March 2000. Online banking was used by 32% of Internet users in July 2002, up from 17% in March 2000. With overall Internet penetration in the United States growing from 49% in mid-2000 to 61% by mid-2002, the absolute numbers of Internet users engaging in online transactions had grown significantly in the previous two years.

Online Music Consumption: Internet users' online music habits might be seen as a hybrid of information gathering and transacting online. The Pew Project surveys ask both whether people download music from the Internet and whether people listen to music over the Internet (i.e., stream it to their

desktops). When first asked whether they downloaded music in July 2000, 22% of Internet users said they had done so. The number rose to 26% in August 2001. With Internet penetration growing over that time period, the number of Americans who had ever downloaded music grew substantially, from about 20 million to 30 million people.

With respect to streaming, 35% of Internet users said they listened to music online in July 2000, a number that increased to 38% in August 2001. In probing peoples' music-buying habits, Pew's September 2000 report "Downloading Free Music" found that 15% of online music downloaders had paid for the music they retrieved from the Internet. Roughly half of online music consumers said they wind up buying, "most" or "some" of the time, music they first sample online (Fox and Lenhart 2000).

Online Confidence Building: The preceding results represent snapshots at different points in time, when it comes to online transactions and information gathering. The Pew Project's panel study, re-interviewing the same set of users about their online experience over a year's time (March 2000 and March 2001), showed that Internet users are more likely to do online transactions and search for information online as they gain Internet experience. The "Getting Serious Online" report found that Internet users, with a year of additional online experience, were more likely to engage in online transactions, such as buying a product online or participating in online auctions.

They were also more likely to turn to the Internet for information, whether that was news or health care, and were more likely to listen to or download music or do other "new media" activities, such as stream an audio or video clip. Online transactions showed the sharpest increase, especially among new users. As new Internet users gained more comfort with the online world, they became more likely to trust the Internet to send a credit card number over the Internet to buy something. Some information-gathering activities, such as surfing for online health care information or going to government Web sites, experienced strong growth among both new Internet users and the earliest veteran surfers (Horrigan 2002).

In sum, even with the demise of many dot-com companies and the litigation surrounding online music, people continued to turn to the Internet not just as a source for music, but for information about music, information of all kinds, and transactions of all kinds. In fact, there has been a steady growth in using the Internet for transactions and for information gathering over the past two years. The precise relationship between information consumption and online consumption of goods and services is difficult to disentangle. Both are increasing, however; the next section will try to establish how the two may be related.

Multivariate Relationships between Information Gathering and Online Consumption: Data to sort out the relationships between online purchasing, online music listening, downloading and information gathering were collected in the Pew's August 2001 survey. In that survey, individuals were asked whether they had downloaded music from the Internet, or bought goods and services online—among a host of other Internet activities, such as looking for online religious information, healthcare information, hobby information, news, maps and sharing files with others online. That survey also included Pew's routine questions about respondents' media use, and a series of questions about how often people used search engines to find online information. With music listening being just one among many online activities, the survey allows online music listening to be situated within a range of online activities.

A factor analysis was performed to determine what kinds of commonalities exist within Internet users' surfing habits to simplify the variables to be entered into an econometric model that examines the predictors of online purchasing. The August 2001 Pew survey asked whether Internet users had ever:

1. sent or received email,
2. gotten news,
3. gotten health care information,
4. used instant messaging,
5. downloaded music,
6. listened to music online,
7. shared files over the Internet,
8. downloaded files other than music online,
9. gone to government Web sites,
10. done online research for their jobs,
11. done Internet searches,
12. used search engines,
13. looked up phone numbers online,
14. gotten religious information online,
15. bought books, music or toys, etc online,
16. gotten hobby information,
17. surfed online just for fun.

Other Internet-related questions include type of access (dial-up versus broadband), number of years of online experience and frequency of going online.

In addition to being asked about their Internet activities, survey respondents were asked about media use (i.e., whether they watched TV or TV

news, or read the newspaper, yesterday) and the standard demographic questions like race, income, marital status and educational attainment.

The factor analysis yielded meaningful commonalities among items clustered as: 1) fervent Internet users, 2) online music listeners and downloaders and 3) Net information searchers (i.e., frequent users of online search engines). Fervent Internet users (with factor loadings above .50 recorded for these variables) are defined as those who had been online for three or more years, users with college degrees, those who did online research for work, and those who typically logged on daily. Online music listeners and downloaders are defined as Internet users who had downloaded music, listened to it online, shared files of any sort, and downloaded other files; factor loadings here exceeded .60. The third group of Net information searchers is defined as Internet users who say they had searched for information online, used an online search engine, and sought hobby information online.

A logit model was then used to identify the main predictors of the dependent variable of purchasing products on the Internet, such as books, music, clothing, or toys³/₄ item 15 above. Some 55% of Internet users answered “yes” to this question in August 2001, and they were coded as 1, the remainder as 0. Independent variables in the model include the three common factors above (fervent users, online music listeners, Net information searchers), along with various social and demographic characteristics³/₄ such as race, sex, income, employment or student status, and the measures of people’s offline media use.

RESULTS

Table 1 summarizes results of the logit model of factors behind Internet users’ decision to purchase something online. The concordance rate for the model is 74%, which is well above the rate of 50% reflecting no explanatory power (i.e. no better than flipping a coin would predict). In other words, the model improves on random coin flipping by 24 percentage points.

The nonlinear functional form of these logit models to express the relationship between the explanatory variables and the dependent variable makes it difficult to interpret the estimated coefficients directly. Consequently, the marginal relationship between each explanatory variable on online buying is expressed in terms of an “odds ratio.” This ratio represents the odds in favor of having bought something online (over not having bought) that can be attributed to a given explanatory variable, holding all other explanatory variables constant at their mean value.⁴ An odds ratio above 1 for a variable means a user having that behavioral characteristic associated with that variable has a greater chance of having bought something online. Thus the odds ratio of 1.30 in Table 1 means that a person living in a household whose income exceeds \$50,000 annually is 30% more likely to have bought something online. The odds ratio on the variable “Sex” (coded for 1 if the respondent is male) of .72 means that being a male

TABLE 1: PREDICTORS OF ONLINE PURCHASING FOR 2001

Internet and Media Usage	Coefficients	Odds Ratios
Fervent Internet Users	.899	2.46**
Internet Info Searchers	.933	2.54**
Music Listeners	.239	1.27*
Home Broadband User	.495	1.64*
Read Newspaper (yesterday)	-.098	.91
Watch TV News (yesterday)	-.674	.51**
Demographic/Social Variables		
White	.571	1.77**
Sex (male=1)	-.314	.72**
Age	-.086	.92
Parent with child online	-.209	.81*
Student	-.246	.78
Income (household inc > \$50K)	.258	1.30
Married	.495	1.64**
Employment Status	-.324	.72
Intercept	.549	1.73*
Percent Concordant (N=899)	74%	
* Statistically significant at 5% confidence level		
** Statistically significant at 1% confidence level		
Note: All variables are dichotomous (dummy) variables with the exception of age, which is continuous.		

lowers the odds of making an online purchase by 28%. The use of odds ratios in Table 1 thus allows direct comparison of the magnitude of predictive impact across variables.

The fervency and Net information-searching indices from the factor analysis emerge as the strongest predictors of peoples' online purchasing. If people listen to music online or download it, they are more than twice as likely to have bought a product online. Other positive predictors of online purchasing are whether one has a home broadband connection, marital status (married people are 64% more likely to buy online) and race (whites are 77% more likely to buy online than non-whites). Measures of offline media use had negative

effects, with watching of TV news significantly lower than chance as a predictor of whether a person had bought a product online. Previous studies of the Pew Internet Project have found that the items in the fervency of Internet use factor^{3/4}like number of years online and frequency of use, accompanied with high levels of educational attainment—to be strong predictors of users' decisions to buy things online.

Nearly all of the Pew Internet Project's studies show that online experience is a strong predictor of the frequency and scope of online activities. That broadband connectivity is a significant predictor of online buying is hardly surprising, because it increases the convenience and speed of conducting an online transaction.

The positive effect on Internet buying of online information searching suggests that the wealth of information available on the Worldwide Web empowers users to make not only better informed purchases, but also encourages them to make those purchases online. The effect identified here is strongly positive and independent of factors such as income, gender and Internet experience. It may not necessarily be the case that information searching fosters purchases of music, but it seems clear that the information available on the Web is broadly beneficial to the electronic marketplace.

The connection between listening to and downloading music online (combined with other factors such as file sharing and general data downloading) is not as obvious. Among several possibilities, first is that the process of listening to and downloading music online requires a degree of technical sophistication. Buying something online requires a modest amount of technical sophistication and a substantial dose of trust in the technology. Usually, however, such technical sophistication and online trust are associated with Internet experience and education^{3/4}attributes already captured in the "fervent Internet users" variable. A second possibility, then, is that online music listening is a signal of qualities of Internet users not captured in the data.

A third possibility, of course, is that downloading and listening to music online^{3/4}as well as sharing and downloading other types of files^{3/4}prompts people to buy online, because what they buy online is, at least sometimes, music. The survey question about online buying prompts people with such goods as books, music and toys. This may place music purchasing prominently in their minds when responding to the question. To the extent that is the case, it supports a "sampling leads to buying" hypothesis for online music.

Whatever the precise relationship between online buying, information searching online and online music listening (and associated file sharing and downloading), it seems clear that information-rich Internet users are more likely to buy things over the Internet. Efforts to restrict the flow of information^{3/4}whether erecting "walled gardens" imposed by Internet service providers or shutting down file-sharing services^{3/4}may harm electronic commerce, by taking valuable information away from ardent consumers.

IMPLICATIONS

The twists and turns in the Napster story illustrate the upheaval that ensues when a new paradigm arises. Here, the music industry is not unique.⁵ Concurrently, publishing has undergone a less dramatic, but nevertheless still-heated, debate over the lending role of libraries, as abettors of book sales or as detractors. Although following a different course, this debate between publishers and librarians revolves around the same fundamental issues as Napster (Berry 2001; Bonamici 2001, 2002; Bowman 2001; Jenkins 2002; Lynch 2001; Shulman 2001; Weeks 2001). Other conflicts over substituting vs. supplementing seem less dramatic.

In other words, manipulating media in the Internet Age has set off debates across the information landscape. The next section suggests three fundamental reasons why individuals participate in the electronic marketplace by manipulating information across media.

1. Information-Supplementing Behavior as Innate: What motivates consumers to acquire so many media, and then to pursue a supplemental strategy requiring a multimedia mix? One fundamental answer may lie in our genes:

Over the past several decades, evidence has accumulated from many diverse areas that the infant, from birth, will seek out stimulation and even work for it. In fact, the seeking of stimulation has by now achieved the status of a drive or motivational tendency not unlike that of hunger, an analogy that is not farfetched. Just as food is needed for the body to grow, stimulation is needed to provide the brain with the “raw materials” required for the maturation of perceptual, cognitive and sensory-motor processes. The infant is provided with the tendencies to look for and get this needed ‘brain food’ (Stern 1977).

Granted, the stimulation of infants seems a long way from downloading the latest Bruce Springsteen album. However, given the human compulsion for information, it may well be that downloading satisfies an innate need, along with all other information-seeking behaviors (Basch 1988; Bruner 1973; Stern 1977).⁶ If so, the music industry has no hope of controlling what is an inherently human behavior.

2. Information-Supplementing Behavior and the Idea of Information: The fundamental condition that gives meaning to the information age is the ease with which people think of information as a commodity. It is taken for

granted that libraries, clocks, spying and plagiarism all have to do with information. In terms of information as an influence on behavior, one must weigh the advantages of specific information before making a decision. As a result, economic innovations, like new markets for information and the accompanying social behaviors (e.g., downloading MP3s in order to decide whether to buy the album), have become so common that one does not recognize them as a social construction. However, thinking about information in this way is a social construction, and the social attitude that considers information as an abstract essence and treats it as a commodity encourages a lower regard for the medium used in the human quest for information.

In this sense, the vulnerability of the music-industry business model results from its failure to accept the marketing value of information. The music industry is in the business of selling containers and using information as the bait. In contrast, music consumers seek information without commitment to any particular type of container. That Internet users adopted sharing services in such astounding numbers indicates that they understood, however imperfectly, the distinction between information and its container. For the industry to persist in attempting to thwart this separation, and to continue to confuse the information with its package, indicates a basic failure of market understanding.

To generalize, the idea of information is the fundamental social unit of the information age. Consumers will increase behaviors that access information from one source in order to access information from another, because it makes sense to them—even if it doesn't to the music industry.

3. Information Behavior as Social Construction: The more one goes online, the more one purchases online. The easier it is to go online, the more one purchases online. The more one understands going online, the more one purchases online. On the surface, these findings fall into the category of discovering the obvious.

Yet, there is more going on here than just purchasing. Information seeking on the Internet serves to create an impression of possibilities. The act of downloading provides an experience that translates into expectations and expertise. If the Internet is to develop as a major digital marketplace, consumers will have to learn what to expect from it and how to behave in it. In this case, facility comes from experience. Consequently, those teenagers who download MP3s are being socialized as future users the Internet, something suspected all along.

SOME POLICY SUGGESTIONS

It is clear that policy makers need to seriously reconsider their policy options—to move away from a simple tendency to support existing interests by accepting their point of view. Instead, they should explore the consequences of

competing interpretations. In the case of the music industry, such consideration would mean more carefully documenting the claim that those who download do not reduce their purchases of CDs. The losses in revenue have been less than 5%, occurring during a period of recession and stagnant economy, one in which the most expert Internet users may have been among the first to lose their jobs. The considerable research that has been conducted on this question needs to be subjected to a *meta* analysis.

Secondly, the data suggest caution, if not avoidance, in adopting any business strategies that treat customers as an enemy. When the music industry rails against its customers as pirates and describes downloading as a virus, those they seek help from should think twice before offering wholehearted support.

Finally, the results suggest the need to think more strategically. If those who download are also in training as future purchasers on the Internet, then the stakes go well beyond treating downloading as a simple act of piracy. The future of the Internet as a marketplace and music source depends on capabilities of future consumers. Considering downloading as an advance model of future Internet consumer behavior could lead to more constructive—and profitable—strategies in the long run.

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ENDNOTES

- ^a Revision of: Horrigan, John B. and Schement, Jorge Reina (2002). "Consuming Information More or Less: An Examination of Information-Consumption Behavior as a Strategy for Replacing, Displacing, or Supplementing the Consumption of Other Information Goods," Telecommunications Policy Research Conference, Washington DC, Oct. 2002.
1. Throughout this article, recorded music media refers to CDs, although this designation is not strictly accurate. Americans have been purchasing recorded music since the 1890s, when Edison cylinders (made from Bakelite) went on the market. Since then, recorded music has been available on 16, 78, 45 and 33.33 rpm records, as well as on 2- and 8-track cassettes, while Compact Disks (CDs) have retailed since the early 1980s. Magnetic tapes for recording were developed in the 1930s and available for home use since the late 1950s. Thus, copying took place with industry toleration for several decades. The potential conflict only came to a head with the proliferation of personal computers and digitizing/downloading software in the 1990s.
 2. For similar interpretations, see Clausewitz (1989) and Sun-tzu (1963).
 3. The Pew Internet & American Life Web site summarizes the project's numbers on the online users' Internet activities at:
http://www.pewinternet.org/reports/chart.asp?img=Internet_Activities.jpg
 4. "Odds" are calculated as $p/(1-p)$, where p =the probability of buying a product online. The odds ratio is the probability of buying online divided by the probability of not doing so. When the explanatory variable is a binary indicator, as most of the variables here are, p =the probability of buying a product online—given $x_j=1$ and given that all other explanatory variables not equal to j are set at their mean values, all divided by the probability of not buying conditioned in an identical fashion.
 5. The metaphor of a paradigm shift comes to mind because of the parallels between the responses of music industry executives, and scientists who cling to an old paradigm upon the arrival of a new one. A vast literature focuses on paradigm shifts; for the main entry point see Kuhn (1962); Kuhn (1977); and Suppe (1974).
 6. The point at which stimulation becomes information is not clear. One might hypothesize, for example, that the stimulation an infant receives from being held tightly by the mother contributes to its bonding, and is essentially non-informational, whereas the stimulation an infant experiences by hearing language leads to the formation of symbols, the basis for information. Consequently, it would appear that not all forms of stimulation elicit the changes in the brain that develop to process information and form thoughts, yet, at some point, the processing engages and takes off. So, though it seems obvious that infants don't have fully formed thoughts, the transition from stimulation to information is anything but clear.