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Yanbin Tu

Robert Morris University, tu@rmu.edu

Min Lu

Robert Morris University, lu@rmu.edu

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A STUDY OF PRODUCT SAMPLING AND REVIEW OF ONLINE DIGITAL MUSIC

Yanbin Tu

Robert Morris University
tu@rmu.edu

Min Lu

Robert Morris University
lu@rmu.edu

ABSTRACT

Many music retailers use online product sampling and online customer reviews to help potential buyers evaluate music on the Internet. In this study, we investigate the profiles of music consumers in the presence of the Internet, and explore how consumers use online sampling and/or online review for music evaluation. Some interesting insights into digital music evaluation are discovered and discussed in this on-going study.

Keywords

Online product sampling, product review, digital music, online product evaluation

INTRODUCTION

With information technology progresses, digital music becomes an important industry. Music is a hedonic product. To help potential buyers evaluate music on the Internet, many music retailers like Amazon.com and iTunes use two tools, 1) online product sampling, i.e., releasing samples of their music products via the Internet to consumers, and 2) online customer reviews, i.e., posting consumer-generated comments on music products online. Product sampling is an important marketing strategy for experience goods like music. After consumers have really experienced the product, will they know its real value. Online product reviews become popular in recent years as more consumers count past users' experience into their purchase decisions. BizRate conducted a survey on consumer attitudes to online product reviews, in which it found among 5,500 online consumers, 44% of them said they had checked online product review sites before making a purchase, and 59% of them thought that online product reviews are more valuable than expert reviews (Piller, 1999). For certain product such as electronics, online consumer product reviews have greater impact on consumer behavior than any other media (DoubleClick, 2004). Online product reviews have some advantage over word of mouth: they can be permanently available and be distributed instantly around the world via the Internet. Through multiple exchanges, online product review can reach and potentially influence many reviewers (Lau and Ng, 2001).

To better utilize online digital music sampling and online customer reviews for music product sales, it is necessary to investigate music consumer behavior and understand how they evaluate online digital music. The understanding of the digital music consumer behavior and the critical factors for online digital music evaluation will help music retailers design and adopt optimal online digital music promotion strategies. This study explores this area by addressing the following questions: What are the current profiles of music consumers in the presence of online digital music? How do consumers behave towards online digital music sampling and online product reviews for music product evaluation? What factors determine music evaluation during digital music sampling? How to utilize online digital music sampling and online review in the electronic commerce?

BRIEF LITERATURE REVIEW

The existing literature shows that product sampling is an effective marketing strategy that can be used to stimulate current and future consumption. Product sampling is an effective tool to introduce a new product in the initial stages of a product's life cycle (Freedman, 1986; Jain, Mahajan, and Muller, 1995). Only upon trial can consumers' weak beliefs in products be converted into strong ones and result in commitment to purchases (Micu, 2006). Sometimes, sampling is a more effective marketing technique than some forms of marketing communications. Product trial is more useful than pre-trial advertising in product evaluations (Deighton and Hindler, 1988; Hoch, and Ha, 1986; Kempf and Smith, 1998). The relationship between online product reviews and product sales was investigated in the literature. For example, Chevalier and Mayzlin (2003) showed the differences in book sales between Barnes & Noble and Amazon.com can be contributed to the differences between consumer book reviews posted on Barnes & Noble website and those posted on Amazon.com. Godes and Mayzlin (2004) demonstrated the highly positively relationship between the "dispersion" of discussions about TV shows on the Internet and the popularity of these TV shows. Dellarocas, Zhang, and Awad (2007) showed that online product reviews can be used to increase forecasting accuracy in motion picture sales compared to the benchmark model including prerelease marketing, theater availability and professional critic reviews. Duan et al. (2005) investigated the movie box office sales were

influenced by the number of online movie reviews. Sen and Lerman (2007) found that in the utilitarian case, consumers took negative reviews more useful than positive reviews for product evaluation on average. Clemons et al. (2006) observed that the growth of craft beers was impacted by online product ratings.

LABORATORY EXPERIMENT

A laboratory experiment was designed for this study, involving 88 college student (the age distribution: students with 17-18 years old occupy 9%, 19-20 years old: 46%, 21-22 years old: 35%, and older than 22 yes old: 10%). 42 students are male and 46 students are female. Students are appropriate subjects for this study since they represent the largest group of music listeners and consumers (Mehler, 1987). The experiment required about 15 minutes, and each subject was offered a box of chocolate as gift for participation. The experiment was composed of two parts. In the first part, a small survey regarding each subject’s background vis-à-vis music preference, music access pattern (i.e., radio, my own collection, paid for MP3 files, and free unauthorized MP3 files, etc), average annual expenditure on music products, and factors that affect the subject’s music purchases was conducted. In the second part, digital music samples for the song Make a Plan to Love Me selected from one recently released album Cassadaga was provided. The music samples that were heard by the subjects were randomly chosen by the computer. After getting to know the basic information about the new album, subjects were asked to listen to one music sample until they felt they had completely evaluated or discovered the value of the song. After subjects finished sampling, they were asked to evaluate the song and answer other relevant questions.

PROFILES OF MUSIC CONSUMERS: MUSIC PREFERENCE, MUSIC ACCESS SOURCE AND EVALUATION CHANNEL

In the first part of the experiment, the survey shows that 34 subjects “always” listen to music, 46 subjects “very often” listen to music and 8 subjects “sometimes” listen to music. None of the subjects never or seldom listen to music (see Figure 1 for the percentages for each category). Overall, we observe that the majority of subjects are music lovers. The subjects are different in their music genre preferences. The survey indicates the genre ranking from the highest preference to the lowest one as follows: Rock, Hip-hop/R&B, Pop, Country, Others, Rap, Classical, and Jazz (see Figure 2). The album Cassadaga used for the experiment belongs to the genre of Rock-Pop, which fall into the top favorite genres of the subjects. The survey also shows the average music expenditure is \$67 for each consumer with a standard deviation of \$75, suggesting there exists the diverse expenditure among the subjects. The histogram of music expenditure is listed in Figure 3. For music access sources, the survey produces the ranking in terms of frequencies as follows: Radio, My Own Collections, Free Legal MP3 Files, Borrowed Items, Free Unauthorized MP3 and Paid MP3 Files (see Figure 4). Two aspects about music access sources are worthwhile mentioning here. First, most people use free radios as their main music source. How to persuade them to buy music products is an important issue to music retailers. Second, music piracy is still a big problem for the music industry. More importantly, the pirated music dominates over the paid digital music as a music source. How to reduce the music piracy and encourage more consumers to pay for online digital music is another important issue to music retailers.

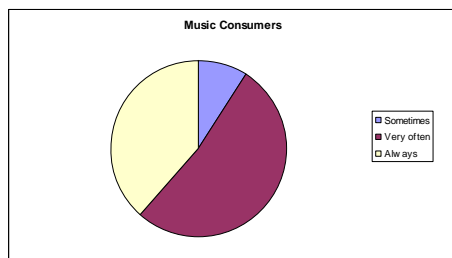


Figure 1. Music Consumers

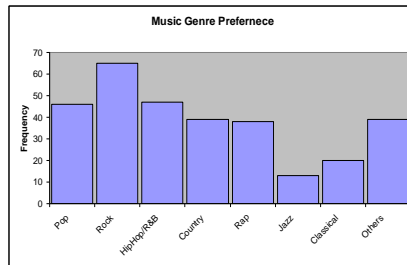


Figure 2. Music Genre Preference

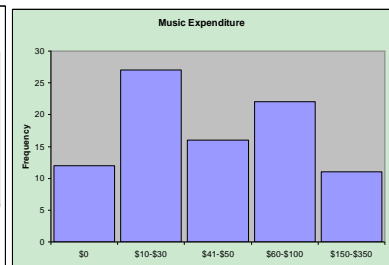


Figure 3. Music Expenditure

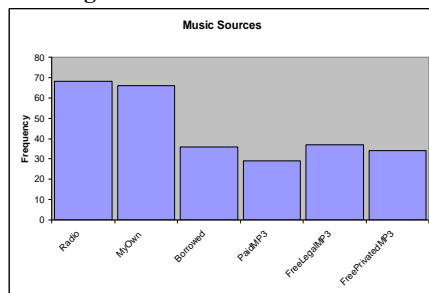


Figure 4. Music Access Sources

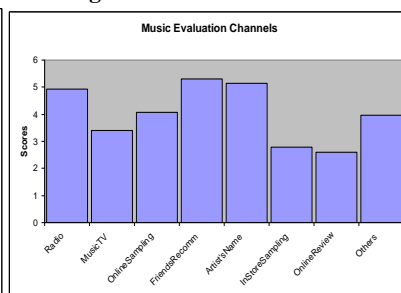


Figure 5. Evaluation Channels Choices

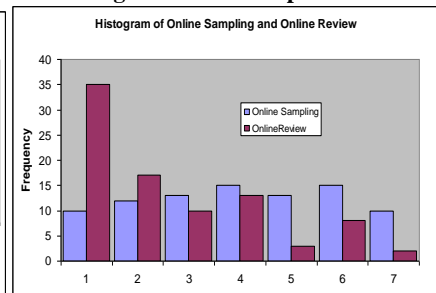


Figure 6. Online Sampling and Review

In this experiment, we asked subjects to list their music evaluation channels. That is, which music assessment sources do influence their purchase decisions? On average, the survey ranks the channels from the highest scores out of the 7 Likert scales to the lowest one as follows: Friends' Recommendation, Artist's Name, Radio, Online Sampling, Others, Music TV, In-Store Sampling, and Online product reviews (see Figure 5). This ranking suggests even when online digital music becomes popular; consumers still depend on traditional word of mouth for music evaluation. The two online music evaluation channels do not play more important role than some other channels to many consumers in their purchase decisions online.

On the 7 Likert scales, the mean value of online sampling as a music evaluation channel is 4.1 out of the 7 Likert scales, which is significantly higher than 3.5, suggesting online sampling do play some roles in consumer music evaluation. However, the value of online product review as a music evaluation channel is 2.6 out of the 7 Likert scales, which is significantly less than 3.5, suggesting online product review does not play an important role in music evaluation. Figure 6 draws the histograms of online sampling and online review. The histograms indicate the distribution of online review is left-skewed compared to that of online sampling.

As we mentioned before, online sampling and online review are the focus of this study. To compare the difference between these two online music evaluation channels and other channels, we conduct the mean comparisons for online sampling and online review respectively. In table 1, except for "Others", the t-values for mean comparisons for online sampling are significant. This suggests online sampling is significantly different in music assessment from the other music evaluation channels except for "Others". Table 1 also shows that for online review, the other music evaluation channels except for In-Store Sampling are significantly different from online review in music assessment. Obviously, online sampling plays a more important role than online review.

Pair	t-value	p-value
OnlineSampling - OnlineReview	5.7016	0.000
OnlineSampling - Radio	2.9956	0.004
OnlineSampling - MusicTV	2.6356	0.010
OnlineSampling - FriendsRecomm	5.2684	0.000
OnlineSampling - ArtistsName	4.3131	0.000
OnlineSampling - InStoreSampling	4.8445	0.000
OnlineSampling - Others	0.3722	0.711
OnlineReview - Radio	8.4342	0.000
OnlineReview - MusicTV	3.2367	0.002
OnlineReview - FriendsRecomm	11.6825	0.000
OnlineReview - ArtistsName	10.7680	0.000
OnlineReview - InStoreSampling	0.9731	0.333
OnlineReview - Others	6.0564	0.000

Table 1. Paired Mean Comparison

The consumer might use one or several music evaluation channels together for new music assessment. The relevant questions are: Which channels are supplementary to each other? Which channels are substitutes to each other? To address these questions, we conduct coefficient correlation analysis. Based on the Pearson and Spearman correlations for these music evaluation channels, we get the following results:

Supplementary paired channels: Radio - MusicTV, MusicTV - InStoreSampling, OnlineReview - In-Store Sampling, OnlineReview - Others, MusicTV - Artist'sName, Artist'sName - Others.

Substitutive paired channels: MusicTV - Others.

These finding have the following managerial implication: when music retailers provide one music evaluation channel, which the other channels should they also provide so that consumer can better evaluate the music products? For example, the supplementary relationship of Radio and MusicTV suggests that music retailers should use both channels for consumer music evaluation.

ONLINE MUSIC SAMPLING: PRE- AND POST- RESULTS

In the second part of the experiment, we provided the subjects with the basic information of the album used. The album Cassadaga received 4.5 stars at Amazon.com. We asked the subjects "What do you think about the average customer review listed above for this album?" The subjects' answers are 4.35 out of the 7 Likert scales on average with the histogram of their responses listed in Figure 7. The histogram suggests the overall online review on Cassadaga at Amazon.com is recognized by many consumers. However, when we asked "Do you like to read each customer review on this song?" the overall responses are 2.56 out of 7 scales on average. Figure 8 shows the histogram of the subjects' responses to this question.

Obviously, consumers are less likely to spend more time to investigate the review details even if they believe in the overall product review summary to certain extents.

To study whether the subjects' responses to the above two questions are conditional on whether they know the artists of Cassadaga or not, we list and compare the average answers under people knowing artists and people not-knowing artists respectively. For the first question "What do you think about the average customer review listed above for this album?", the answers under knowing artists are not significantly different from those under not-knowing artists (See Table 2). For the second question "Would you please read each review available online?", we find people not-knowing artists are more likely to read the detailed reviews than those knowing artists (See Table 2).

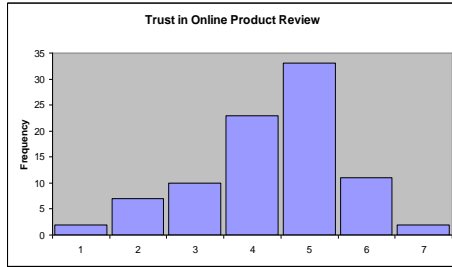


Figure 7 Music Evaluation Channels

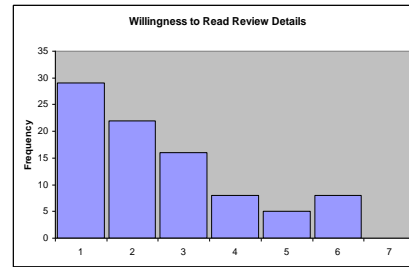


Figure 8. Online Sampling and Review

	Belief in Overall Customer Review Summary	Read Review Details
Not Knowing Artists (N=58)	4.345	2.810
Knowing Artists (N=30)	4.367	2.1
t-value	0.177	1.743
p-value	0.861	0.092
Average	4.352	2.568

Table 2. Different Attitudes to Online Review

	Not Knowing Artists	Knowing Artists	Total
Online Sampling	26	21	47
Online Review	1		1
Both of them	24	8	32
None of them	7	1	8

Table 3. Online Music Evaluation Channel Choices

To further investigate how consumers value online sampling and online review for their music evaluation, we asked the question "In order to evaluate the songs in the album online, which one you think is more important to you?" The subjects' responses, along with their responses under not-knowing artists and knowing artists, are summarized in Table 3. The histograms of online music evaluation channels choices are listed in Figure 9 and Figure 10. From the table and figures, we can see that consumers are more likely to trust online sampling than online review. Many consumers would like to use both online evaluation channels together for their music assessment. The histogram for the subjects not knowing artist shares the similar pattern as the one for the subjects knowing artists in Figure 10. Two possible factors to explain why consumers are less likely to use only online review to evaluate music value: 1) Music is a hedonic product, fulfilling experiential needs, feelings, or pleasure which is decided subjectively (Babin, Darden, and Griffin 1994). Others' experiences are not reliable reference. 2) Consumer-generated reviews may not represent actual product quality due to "forum manipulation," in which producers hire professional reviewers (or encourage friends and colleagues) to artificially boost the ratings of their products (Dellarocas 2006).

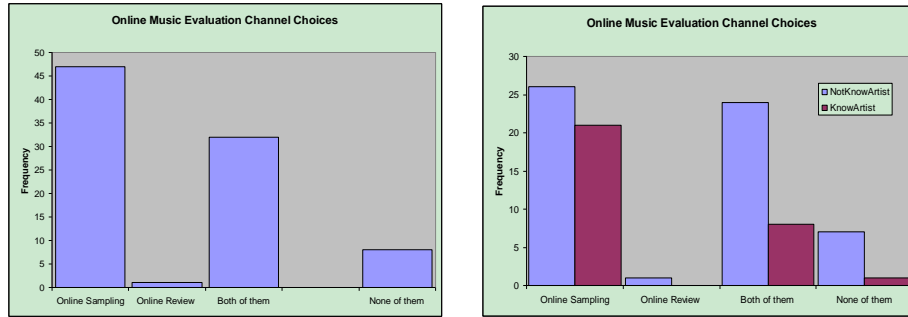


Figure 9. Online Music Evaluation Channels Figure 10. Histograms of Online Sampling and Review

After subjects listened to music samples, we asked them follow-up questions about their music evaluation, willingness to pay (WTP), likelihood of being a free rider (i.e., using the free music sample instead of buying the music), enjoyable sampling process, perceived usefulness of online sampling, knowing the true music value, further reading online review, using other music evaluation channels, and willingness to write product reviews after sampling. The first row in Table 4 lists the mean values of responses for these questions on the 7 Likert scales (except for WTP). On average, the response of song evaluation is 3.3908, WTP is \$0.7355, free rider is 3.5977, enjoyable sampling experience is 4.0344, helpful online sampling is 5.7356, knowing true music value is 4.7701, further checking online review is 3.0114, further using other music evaluation channels is 4.0459, and writing review after this sampling is 1.7931.

	Song Evaluation	WTP (\$)	Free Rider	Sampling Experience	Helpful Online Sampling	Know True Value	Read Online Review	Use other Evaluation Channels	Write Review
Overall Mean	3.3908	0.7355	3.5977	4.0344	5.7356	4.7701	3.0114	4.0459	1.7931
NotKnowArtist	3.2759	0.7522	3.7586	3.9138	5.6207	4.7586	3.1897	4.0345	1.8448
KnowArtist	3.5667	0.7120	3.3667	4.3000	5.9667	4.7667	2.6333	4.0000	1.6667
t-value	-0.8295	0.0770	0.9013	-1.1841	-1.1119	-0.0216	1.2194	0.0754	0.6699
30"	3.2917	0.5661	3.4722	4.0139	5.6528	4.6111	2.9167	3.9583	1.7500
60"	3.7500	1.5144	4.3125	4.1875	6.1250	5.4375	3.3750	4.3125	1.9375
t-Value	-1.1792	-1.6533*	-1.7551*	-0.4755	-1.3675	-2.0344**	-0.8995	-0.6979	-0.6338

*. Correlation is significant at the 0.10 level (2-tailed).
 **. Correlation is significant at the 0.05 level (2-tailed).

Table 4. Post-Sampling Results

To check whether knowing artists and not knowing artists plays different roles in post-sampling results, we list the mean values under not knowing artists and knowing artists separately. The t-tests in Table 4 indicate no significant difference between not knowing artists and knowing artists. We also investigate the difference in the post-sampling results under different lengths of music samples. Table 4 also lists the mean values of responses for the music sample in 30 seconds and in 60 seconds, respectively. We observe there exists significant differences in WTP, free rider, knowing true value between them. The sample in 60 seconds has a higher WTP, lets consumers be more confident in knowing the music true value than the one in 30 seconds. However, the sample in 60 seconds incurs more samplers to be a free rider than the one in 30 seconds.

We conduct coefficient correlation analysis to check relationships among different factors. Based on the analysis of the Pearson and Spearman coefficient correlation, we provide some managerial interpretations in Table 5.

	Positive Correlation	Managerial Interpretation
1	Artists' fan <u>and</u> enjoyable sampling experience	Artists' fan more likely enjoys music sampling.
2	Writing review <u>and</u> WTP	The samplers who more likely write review after sampling have a higher WTP.
3	Enjoyable sampling experience <u>and</u> perceived helpful sampling	People enjoying sampling process also perceive the sampling helpful in music evaluation.
4	Music Evaluation <u>and</u> WTP	Increasing music evaluation can increase WTP.
5	WTP <u>and</u> Artists' fan	Artists' fans are willing to pay more on the artists' products.
6	Enjoyable sampling experience <u>and</u> music evaluation	Design enjoyable music sampling process which will lead to higher music evaluation.
7	Enjoyable sampling experience <u>and</u> WTP	Let consumer enjoy music sampling, and they are willing to pay more.
8	Knowing true value <u>and</u> perceived helpful sampling	People believing in sampling also believe they understand music values by using digital music sampling
9	Reading online review later <u>and</u> music evaluation	People having higher music evaluation more likely need further read online review.
10	Reading online review later <u>and</u> enjoyable sampling experience	People enjoying sampling also more likely read online reviews.
11	Checking other music evaluation channels <u>and</u> music evaluation	People having higher music evaluation more likely check other music evaluation channels.
12	Checking other music evaluation channels <u>and</u> enjoyable sampling experience	People enjoying sampling also more likely check other music evaluation channels.
13	Checking other music evaluation channels <u>and</u> reading online review later	People checking other music evaluation channels more likely read online reviews.
14	Writing review <u>and</u> reading online review later	People writing review after sampling more likely read online reviews.
15	Writing review <u>and</u> checking other music evaluation channels	People writing review after sampling more likely use other music evaluation channels.

Table 5. Positive Correlation and Interpretation

CONCLUSION AND FUTURE STUDY

In this study, we investigate the profiles of music consumers in the presence of online digital music, and explore the pre- and post-sampling results. The survey indicates diversified genre preferences and music product expenditure. We also find most people use free radio as their main music source, and music piracy is still a big problem for the music industry. More importantly, the pirated music dominates the paid digital music as a music source. We also find, currently, consumers still depends on traditional word of mouth for their music evaluation. The two online music evaluation channels, i.e., online sampling and online review, do not play more important roles than some other channels to many consumers in their purchase decisions. We also discuss the important managerial implications of correlations among some music evaluation channels. This study also shows that consumers are more likely to trust online sampling than online review. Many consumers would like to use both online evaluation channels together for their music assessment.

We also investigate post-sampling results such as music evaluation, WTP, free rider, enjoyable sampling process, perceived usefulness of online sampling, knowing the true music value, further reading online review, using other music evaluation channels, and writing product reviews after sampling. We do not find significant differences in these post-sampling results between not knowing artists and knowing artists. We do find a longer sample has a higher WTP, leads to more confidence in knowing the true music value, but more likely incurs a free rider problem. We conduct coefficient correlation analysis for post-sampling results and provide some managerial interpretations.

This is an on-going research project. In the current draft, we provide preliminary analysis for the research project. Next, we are going to conduct an in-depth path analysis in which several dimensions of online sampling effectiveness will be investigated. More insightful results are expected from the next step for this study in the near future.

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