CELL PHONE USAGE AND ADVERTISING ACCEPTANCE AMONG COLLEGE STUDENTS: A FOUR-YEAR ANALYSIS

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Abstract:

This study employs five online surveys conducted over a four-year period to investigate college student cell phone usage, and mobile advertising acceptance. Results show that incentives are a key motivating factor for cell phone advertising acceptance; students are receiving more ads, but annoyance has not increased; consumption of mobile content has shown little growth; the perceived risks of receiving cell phone ads are not a barrier to ad acceptance; and the availability and use of cell phone cameras has increased significantly.

INTRODUCTION

The mobile phone is rapidly becoming one of the most influential mediums for marketing since the advent of the Internet. As Gerry Purdy, a leading mobile industry analyst, points out: "probably the most important medium for advertising in the 21st century is going to be the cell phone, not print media, not billboards…" (SMS Marketing, 2006). By leveraging the mobile phone, the mobile phone network and the cast of players within the mobile marketing ecosystem, brands, businesses and marketing agencies can intimately engage and interact with their target audience in a fashion that has previously been unavailable to them. Young people, as early adopters of new technology, have shown the highest incidence rates of cell phone usage and mobile content adoption, according to M:Metrics (2005). Students with jobs consume more mobile content than any other group, and are 42% more likely to use mobile email than the average subscriber, and 23% more likely than typical full-time workers. Working students also download mobile games and personalize content on their phones twice as often as other users (M:Metrics, 2005). ComScore Networks, who has labeled 18-24 year olds as the "Cellular Generation," says students see their cell phones as more than a means of voice communication; they can provide entertainment, convey social status and help express one's individuality (ComScore, 2006).

The practice of mobile marketing, defined as marketing through the mobile channel and via mobile enhanced traditional media (Becker 2005), can embody any number of different marketing activities. One very common form of mobile marketing is mobile advertising. Virtually unheard of just a few years ago, mobile advertising has drawn much attention recently. Leading companies like Procter & Gamble, Microsoft, ESPN, Disney, Coca-Cola, Sony Pictures, and McDonalds are embracing

mobile advertising and including it within their marketing budgets, often targeting teens and college students.

Since the first mobile text advertising was done in Scandinavia in 1997, mobile advertising has grown consistently (Becker, 2005). It's expected that by 2011 marketers will be spending $11.3 billion annually on mobile advertising, up from $871 million in 2006 (O'Shea, 2007). Jupiter Research predicts a somewhat less aggressive growth rate for mobile advertising: a 50% increase to $2.9 billion by 2011 (Jupiter Research, 2006). As a reference, it took two years for broadcast TV, four years for the Internet and five years for cable TV advertising to reach $1B in ad revenue, and five years for Internet and broadcast TV advertising to reach $5B. None crossed the $10B revenue mark in their first 10 years of existence (Sharma, 2007).

Mobile advertising can be targeted to the individual, personal and interactive, unlike traditional advertising that is considered to be a non-personal means of conveying a message via mass media for the purpose of informing and persuading a target audience (Ayanwale, Alimi, and Ayanbimipe, 2005). Marketers can engage consumers via mobile advertising in a number of ways. They may include a call-to-action in their traditional media advertising and encourage consumers to respond via text messaging, multimedia messaging, picture messaging, Bluetooth alerts, or voice channels on their cell phone. For instance, a consumer may be invited to send a text message, respond to a Bluetooth alert, dial a regular or toll-free number, interact with an instant voice response service, or send a picture message via the phone's multi-media messaging service. For consumers who have previously opted in and agreed to receive mobile messages, marketers may append an advertisement to any of these messaging or voice channels, both on a broadcast basis to specific demographic groups and to individuals. Another common way to advertise on a mobile phone is through embedded on-device applications and browsers. For example, it is very common for advertisers to include inline and interstitial ads on mobile Internet sites, embed advertisements in mobile radio, video clips, TV, and games, and place an ad within a mobile operator's dedicated portal. Ads may also be included within the interface of the phone, although this practice is not common.

Mobile advertising uses both "push" and "pull" advertising strategies, often in tandem with other direct-to-consumer marketing strategies and niche market advertising strategies. Because of the inherent regulatory and telecommunications delivery barriers of advertising through the mobile channel, the presentation or delivery of mobile advertising messages has restrictions that other advertising mediums do not. These restrictions force marketers, in most cases, to get prior approval from consumers before being able to send commercial messages to a mobile device. With mobile marketing, receiving prior approval from a consumer before delivering a message is critical because access to mobile consumers in the United States is dictated by federal law and industry best practices (Mobile Marketing Association, 2007; CAN-SPAM Act, 2003), while in many areas of Europe and the rest of the world prior approval is not always required.

What makes mobile advertising unique is the fact that the mobile medium is extremely personal and untethered (Tahtinen & Salo, 2003). Marketers have discovered through research that mobile devices – primarily cell phones – are personal communication tools that have become embedded in the social network and fabric of our digital society. According to a recent study by the Mobile Marketing Association, the mobile phone, across all age groups, has been found to be an important part of our every day lifestyle. The study found that 82% of all respondents indicated that their mobile phone is highly to moderately important to their daily life, and 79% say that they are highly to moderately dependent on their mobile phone (Mobile Marketing Association, 2007).

College students are increasingly willing to accept ads on their cell phones, especially if they are given incentives.

To many, a cell phone represents one of the few remaining unspoiled personal spaces they can use to communicate and socialize and still maintain control. It is, therefore, important for marketers to respect this personal space and learn to gauge consumers' perceptions of and willingness to accept mobile advertising. A recent study by Forrester Research found 79% of consumers said they would be irritated if an ad was sent to their mobile phones (Forrester Research, 2007). One-third (34%) of mobile Web users in the United States and internationally say they would watch advertisements on their cell phones in exchange for free mobile content, according to the Online Publishers Association (2007). A Harris Interactive study found 35% of U.S. adult cell phone users are willing to accept incentive-based mobile advertisements (Harris Interactive, 2007). Although there is a growing body of knowledge about consumer attitudes toward mobile advertising and the factors that may affect consumer acceptance of mobile advertising, no multi-year analysis of those factors exists.

The purpose of this study is to investigate college student cell phone usage and exposure to and acceptance of mobile advertising during a four-year period. Specifically, student cell phone content usage and cell phone ad acceptance is measured using five online surveys conducted between

November 2005 and February 2008. Ad acceptance is measured using the six mobile advertising acceptance factors postulated by Saran, Cruthirds and Minor (2004) in their Wireless Advertising Acceptance Scale.

REVIEW OF LITERATURE

Even with the increased attention mobile advertising is getting in academic research and the popular press, the number of available studies that explain the theory and practice of mobile advertising are limited (Leppäniemi, Sinisalo & Karjaluoto, 2006). A small but growing body of research has investigated the factors that drive consumer acceptance of mobile advertising, but few studies have investigated if and how incentives would motivate consumer acceptance.

Early academic studies into the practice of mobile marketing and wireless advertising have been theoretical and conceptual in nature. A predominant amount of the existing academic research of mobile advertising has focused on establishing frameworks and conceptual models to help formulate a foundation for the field of study. Given that no specific mobile acceptance theory has yet to be broadly accepted, researchers, in an attempt to build models, have leveraged theory and practice from traditional advertising and Internet usability to determine if the theoretical lens of those fields will help illuminate mobile acceptance. The most common theoretical models employed by researchers include Fishbein and Ajzen's (1975) Theory of Reasoned Action, Hebb's (1955) Optimal Stimulation Theory, Roger's (2003) Innovation Diffusion Theory, the Theory of Cognitive Dissonance (Festinger, 1978), Technology Acceptance Model (Davis, 1989), Uses and Gratification Theory (Blumler & Katz, 1974), and Bettman's Theory of Perceived Risk (Wu & Wang, 2004; Tsang, Ho & Liang, 2004; Okazaki, 2004; Bauer, Barnes, Reichardt & Neumann, 2005).

Mobile Advertising Acceptance Theories

From these theories, frameworks and models a number of factors have been found to be influential in postulating consumers' acceptance of mobile advertising. Researchers have categorized these factors into three areas: industry, medium and consumer. Industry factors include technology (devices, networks and standards), transmission time, complexity, the increased use and adoption by practitioners, ease-of-use, compatibility, government regulation and industry guidelines (Leppäniemi & Karjaluoto, 2005; Wu & Wang, 2004; Sultan & Rohm, 2006). Medium factors consist of marketer-to-consumer interaction, context interaction (relevance, time and location), costs, presence of incentives and permissions (Martin & Marshall, 1999; Steward & Pavlou, 2002; Barnes & Scornavacca, 2004; Becker, 2005; Bauer et al., 2005). Consumer factors include the consumers' general attitude toward advertising, level of involvement, innovativeness, response to stimuli, trust and perceptions of utility, choice, control and risk. Demographic factors (age, gender, income and education) have also been found to be important control variables to consider when looking at consumer acceptance (Rettie & Brum, 2001; Barnes & Scornavacca, 2004; Dickinger, Haghirian & Murphy, 2004; Tsang et al., 2004; Bauer et.al., 2005; Carroll, Barnes & Scornavacca, 2005; Haghirian & Madlberger, 2005; Leppäniemi & Karjaluoto, 2005).

Other researchers offer a variety of factors that effect consumer acceptance of mobile advertising and a significant impact on the willingness by consumers to receive mobile advertising. The factors include advertising value and content (Haghirian & Madlberger, 2005), entertainment and information value (Bauer et al., 2005), permission, content, wireless service provider control and brand trust (Barnes & Scornavacca, 2004; Carroll et al., 2005). In addition, Krishnamurthy (2001) identifies other key factors impacting mobile marketing adoption, including message relevance, personalization, privacy costs, message processing costs and monetary benefits.

The Wireless Consumer Acceptance Scale developed by Saran et al. (2004) provides a practical alternative for determining acceptance of mobile advertising. Unlike purely theoretical and conceptual factors offered by other researchers, the Wireless Consumer Acceptance Scale is a short, reliable self-report scale designed to measure the concept of advertising acceptance over cell phones. It is meant to help measure ad acceptance and provide marketers with data to help determine the level and types of ads to deliver by segments. The scale is used in this research study to validate practical acceptance factors for mobile advertising acceptance.

Thus, determining the incidence of student exposure to cell phone advertising and student willingness to accept cell phone ads will be guided by the following research questions:

R1: What percentage of students report receiving advertisements on their cell phones?

R2: What types of advertisements were received on cell phones?

R3: Under which of the following conditions would students consider accepting advertisements on their cell phones?

R4: For students who received a cell phone advertisement, how did it make them feel?

R5: For students who received a cell phone advertisement, how did it affect future purchase of a product from the business sending the advertisement?

Monetary Incentives

The role of incentives as a provider of economic benefit and motivator for consumers to accept mobile advertising and messages has been investigated by several researchers. Rettie and Brum (2001) found that monetary benefits affected

willingness to receive mobile text messages. Barwise and Strong (2002) found that the motivation to accept mobile advertising through the receipt of an incentive was impacted by the age of the consumer. Younger consumers were more inclined to accept mobile advertisements than older consumers when given an incentive. A Nokia-sponsored survey of 3,300 people across 11 global markets in 2002 found that 86% of respondents agreed there should be a trade off for accepting ads on their cell phones. The study found that the core mobile phone market (ages 16 to 45) is receptive to experiencing mobile marketing in the form electronic coupons, especially if the user receives a reward (Pastore, 2002). Tsang et al., (2004) noted that providing incentives can increase the intention to receive SMS-based mobile advertisements (p7). The researchers examined the link between consumer attitude, intention and behavior in relation to mobile marketing. Through their investigation of Taiwan samples, they suggested that mobile advertising should require consumers' permission, and that entertainment and incentives are important variables to improving mobile advertising attitudes. Standing, Benson and Karjaluoto (2005) found that the intention to participate in mobile marketing is higher when incentives are offered and that financial incentives can substantially improve the level of participation. Varshney (2003) found that information is a very valuable incentive in mobile marketing because recipients react very positively to advertisements that transfer incentives.

Text message advertising is thought to be most effective when it invites a response and includes an incentive (Rettie, Grandcolas & Deakins, 2005). The researchers noted that advertising intrusiveness, long recognized as a cause of annoyance that negatively affects consumer attitudes, can be mitigated by the relevance and added value (discounts or special offers) of SMS advertising, which, consequently, can increase advertising acceptance. Drosos and Giaglis (2005) found that mobile text message advertising employs multiple sales promotion techniques that provide consumers with an economic incentive to participate in the mobile advertising campaign. Coupons, rebates, price packs, and contests are heavily employed by advertisers. Muller-Veerse et al. (2001) found that mobile coupons are effective at providing economic benefit at the moment of redemption. A Mobile Marketing Association survey of more than 11,000 U.S. mobile subscribers found that 11% of 18-24 youth are highly interested in receiving mobile coupons (Mobile Marketing Association, 2007). This suggests a positive relationship between economic benefits and attitude toward mobile coupons and incentives.

Several recent studies have found increasing but still mixed enthusiasm in the United States for accepting mobile ads unless an incentive is included. A Harris Interactive study found 35% of U.S. adult cell phone users are willing to accept incentive-based advertisements (Harris Interactive, 2007). The Mobile Marketing Association in its 2007 Mobile Attitude and Usage Survey indicated that more than 41 percent of those who view or intend to view mobile video agreed they would watch advertisements in order to watch free mobile video. Additionally, 20 percent agree they would watch ads in order to watch mobile TV or video for a reduced fee. (Mobile Marketing Association, 2007). A Jupiter Research survey in May 2005 found that 20 percent of consumers say they might be induced to receive promotions if it comes with free airtime, ringtones, games, or a free cell phone (Kharif, 2006). An In-Stat survey in 2005 found that 20 percent of wireless phone users would find some form of advertising on their handsets to be acceptable. Of that group, however, roughly half were open to having advertisers subsidize the cost of premium services such as directory assistance, ringtones and messaging (In-Stat, 2005). Amp'd, a cell phone marketing company targeting 18 to 24 year olds, will begin offering an opt-in advertising service in late 2007. Customers who sign up will gain access to free shows and other content for agreeing to view advertisements (Story, 2007).

Thus, the use of incentives has been determined to be increasingly effective in motivating consumers to accept mobile advertisements, and consumers are reported to be more willing to accept mobile advertisements when incentives are offered. Accordingly, support of Factor 1 of the Wireless Consumer Acceptance Scale will be guided by the following research questions:

R6: What incentives would motivate students to accept cell phone advertisements?

R7: What would the acceptance level be for coupons as an incentive to receive mobile advertisements?

Control Over Mobile Ads

Bauer et al. (2005) note that many researchers claim consumers will only accept mobile marketing if they perceive a benefit in receiving advertising messages on their mobile phone. They cite the information economic model of communications as providing a theoretical basis for the claim. The model assumes the consumer, as an active organism, consciously decides which advertising stimuli to receive. Additionally, they found a positive relationship between "perceived utility" and "attitude toward mobile marketing." Perceived utility, or usefulness, was determined to be the central driver of consumer acceptance of mobile marketing. Perceived entertainment value and perceived information value were among the utility types determining overall utility perceptions.

Another theoretical approach that offers an explanation for the perceived utility of mobile marketing as a prerequisite for advertising acceptance is uses and gratification. According to this concept consumers consciously select and use certain media and contents to gratify specific information, entertainment or social needs. Katz, Haas and Gurevitch (1973) identify needs related to strengthening information, knowledge and understanding as one of three important categories. The uses-and-gratification approach

implies that consumers will only accept mobile marketing if it is perceived as an opportunity to gratify the needs for specific information (i.e. types of ads), knowledge and social acceptance.

Other authors have identified the level of control when receiving mobile advertisements as a key variable in acceptance of mobile ads. Leppäniemi and Karjaluoto (2005) listed receiver control over messages as a key feature of consumer willingness to accept mobile advertisements. A Nokia (2001) study identified four key factors contributing to mobile advertising acceptance: choice (mobile advertising should allow users to decide whether or not to receive a message), control (users could bypass sales messages easily), customization (users should be able to filter the messages received), and mutual benefit (users want something in return). Wehmeyer and Muller-Lankenau (2005) looked at the service attributes associated with consumer's acceptance of and preferences for mobile coupons and found the configuration channel to have the greatest relative importance, followed by the types of coupons, possibility to personalize or filter the coupons offered, and the location-awareness of the coupon service.

Thus, consumers want mobile content to be tailored to their interest (Robins, 2003), and desire the ability to control the types of ads received.

R8: What types of mobile services are available on students' cell phones?

R9: What types of mobile sites or services did students access on their cell phones?

R10: What types of mobile content did students download or purchase on their cell phones?

R11: What types of mobile content did students send on their cell phones?

Perceived Risks of Accepting Mobile Advertisements

Perceived risk has been identified by many researchers as a significant contributor to negative attitudes toward mobile advertising acceptance. Bauer et al. (2005) confirmed that perceived risk has a negative influence on the attitude toward mobile marketing. The risk associated with mobile marketing was perceived mainly as data security. Users of digital communication devices, like cell phones, have concerns about viruses, spam, unauthorized access of data, and tracking of usage patterns. Mitchell (1999) found that a consumer's risk perception can determine this behavior. This is especially true when adopting or using a new technology because consumers often lack the knowledge or experience needed and find themselves in situations of high risk. The result can be a refusal to try new innovations or, in the case of cell phones, to accept mobile ads.

Van der Heijden, Ogertschnig and van der Gaast (2005) looked at two antecedents of attitude toward using a mobile information service: perceived risk and context relevance. They found there was a significant negative influence of perceived risk on utilitarian value, although none on hedonic value. The implication was those who considered the service to be a greater risk also perceived it to be less useful. In consumer research, perceived risk has been defined as the user's subjective function of the magnitude of adverse consequences and the probabilities that these consequences may occur if the product is acquired (Dowling & Staelin, 1994). Finally, Buellingen and Woerter (2002) highlighted four critical success factors for the use of mobile services: transmission rate, personalization, data security, and user-friendliness.

Thus, the risks associated with using a mobile device can have a negative impact on mobile advertising acceptance and the growth of mobile marketing.

R12: For those who received a cell phone advertisement, are they concerned about how the business got their cell phone number?

METHOD

Online surveys were conducted with students at a Midwestern university in November 2005 (n=669), October 2006 (n=682), February 2007 (n=270), September 2007 (n=784) and February 2008 (n=467). A message was sent via campus email to all students inviting them to participate in an online survey about cell phone advertising. Respondents in the convenience samples were directed via a link in the email message to an Internet-based survey site to complete the survey questionnaires. No incentives were offered to participate. The February 2007 response rate was below the mean response rate of the other four surveys (M=650) due to a technical error in sending the emails to students. An incorrect Web site URL for the survey site was included in the emails that resulted in many students abandoning the survey. A corrective email was sent the following day which resulted in the final response total (n=270). Slight modifications were made to the survey instruments during the five data collection periods in order to introduce new questions or expand existing questions.

Respondents were asked 18 questions about their cell phone usage habits and exposure to cell phone advertising messages, and four demographic questions. To determine what factors would influence cell phone advertising acceptance, the Wireless Advertising Acceptance Scale developed by Saran et al. (2004) was used in the survey. A question (R3) was asked that listed the six scale factors and two non-factors. Respondents were asked, "Under which of the following conditions would you consider accepting ads on your cell phone?" Wording of the response factor options was modified from the original version of the scale for purposes of statement clarity and to shorten each factor length. The original acceptance factors and edited factor statements were:

Original factor statements:

- I shall accept ads on my cell phone only if there are

freebies, like minutes, free upgrades, free access to the web, free ringer downloads, gifts etc.

- The type of ads will determine my acceptance of advertising on my cell phone.
- I would accept ads over my cell phone if I have control over the types of products and services advertised.
- I would like to have the ability to save the ads to view at a later time.
- I would accept ads over my cell phone if I have the ability to turn them off without turning off the phone.
- I would accept ads over my cell phone if I can be assured that no viruses can be downloaded at the same time.

Edited factor statements:

- If I get something free
- Depends on the type of ad
- If I have control over what is advertised
- If I could save the ads to look at later
- If I can turn ads off without turning off my phone
- If I am assured no viruses can be downloaded at the same time.

Non-factor response options:

- I won't accept ads on my cell phone
- Don't know

Additional questions were asked in the surveys that pertained to the types of cell phone products or services that students would accept for free to allow ads on their cell phones, and the amount of monetary incentive it would take for respondents to accept ads on cell phones.

RESULTS

The gender distribution mean of respondents for the five surveys compared to all on-campus students (2005-2008) was 64.1% (55.5%) female, 28.4% (45.5%) male. (Percentages may not total 100% due to refusal to answer.) Respondent age mean ranges were 14.4%, 18 years old; 16%, 19 years old; 13.3%, 20 years old; 15.3%, 21 years old; 10.7%, 22 years old; 5.9%, 23 years old; and 17.1% , 24 or older (age comparisons of respondents and all on-campus students were not made because university statistics aggregates ages 18-19, 20-25 and over 25). Grade-in-school means for respondents were: 24.2% (27.9), freshmen; 14.2% (20.4%), sophomores; 16.7% (19.2%), juniors; 20.7% (20.4%), seniors; and 16.6% (10.2%), graduate students. Ethnicity was white or Caucasian, 83.9% (87.9%); black or African American, 3% (4.3%); Hispanic or Latino, 1.6% (1.5%); Asian American, 1.4% (0.7%); Native American, 0.3% (0.3%); and self-described bi-racial or mixed race, 2.4% (1%).

R1: What percentage of students report getting ads on their cell phones?

Participants were first asked, "Do you have a cell phone?" Mean response of "Yes" was 97.8% (SD=1.31). The range was from 95.9% in November 2006 to 98.9% in February 2008. Participants were then asked, "Have you ever received an advertisement on your cell phone?" The definition of advertisement was not qualified or further explained. Mean response of "Yes" was 34.8%. The range increased 9.2 percentage points during the study, with the largest increase (6.5 percentage points) happening between September 2007 and February 2008: November 2005 (33.6%), November 2006 (32.6%), February 2007 (36.7%), September 2007 (36.3) and February 2008 (42.8%).

R2: What types of ads were received on cell phones?

Those students responding "Yes" to receiving an ad on their cell phone were then asked, "If yes, what type of advertisement was it?" Most types of ads received showed a modest increase during the study (see Figure 1). Text message ads increased the most, rising 8.9 percentage points.

Figure 1 Text Message Ads

Figure 1. If yes, what type of advertisement was it? (Check all that apply.)	**Feb. '08** N=467	**Sept. '07** N=784	**Feb. '07** N=270	**Nov. '06** N=682	**Nov. '05** N=669	**Mean**	**SD**
Text message	37	33.6	34.4	28.9	28.1	32.4	3.79
Link to Internet	3.6	2.5	3.7	3.8	0.7	2.9	1.32
Audio advertisement	2.4	1.2	3	4.8	0	2.3	1.82
Visual advertisement	1.1	1.1	0.7	1	1.3	1.0	0.22
All types	0.9	0.6	1.1	0.4	2.3	1.1	0.74
Don't know/Does not apply to you	1.3	1.1	0.7	0.7	1.4	1.0	0.33
Other	1.0	0.6	1.1	0.6	0	0.7	0.43

R3: Under which of the following conditions would students consider accepting ads on their cell phone?

Subjects were asked to select from the six factor statements contained in the Mobile Advertising Acceptance Scale developed by Saran et al. (2004). Two non-factor statements, "I won't accept ads on my cell phone," and "Don't know/Does not apply," were added to give subjects who might not want to accept mobile ads a response option. Responses clustered into five distinct segments (see Figure 2). The largest segment (M=50%) were those who said they would not accept ads on their cell phones. The use of incentives ("If I get something free") was the largest factor statement with a mean response of 33.7%. The third cluster of responses included being able to turn off ads without turning off the phone (M=27.4%) and protecting against viruses downloaded with ads (M=26.1%). "Depends on the type of ad" received (M=17.1%) and "If I

have control over what is advertised" (M=18.4%) had similar response rates. The lowest factor response segment involved saving an ad to look at later (M=5.2%).

Figure 2

Figure 2. Under which of the following conditions would you consider accepting ads on your cell phone? (Check all that apply.)	Feb. '08 N=467	Sept. '07 N=784	Feb. '07 N=270	Nov. '06 N=682	Nov. '05 N=669	Mean	SD
I won't accept ads on my cell phone	52.2	48.2	53	47.4	49.1	50.0	2.48
If I get something free	39.9	37.3	31.5	31.7	27.9	33.7	4.84
If I can turn ads off without turning off my phone	33.6	28	25.9	27.4	22.2	27.4	4.13
If I'm assured viruses can't be downloaded at the same time	32.4	27.8	24.4	25	20.8	26.1	4.32
If I have control over what is advertised	25.6	18.9	17	17.4	13.1	18.4	4.56
Depends on the type of ad	20.4	18.4	16.3	14.9	15.5	17.1	2.27
If I could save the ads to look at later	6.8	5.5	5.9	4.1	3.7	5.2	1.28
Don't know/Does not apply to you	1.8	4	4	6	7	4.6	2.02

R4: For students who received a cell phone advertisement, how did it make them feel?

Subjects reporting being annoyed by receiving a cell phone ad increased slightly during the study, rising from 29.8% in November 2005 to 35.1% in February 2008. Less than 1% were pleased to receive an ad (M=0.5%). The slight increase in annoyance corresponded to an increase in the percentage of students who reported receiving an ad during the same period.

R5: For students who received a cell phone advertisement, how did it affect future purchase of a product from the business sending the advertisement?

Of the 42.8% of students who in February 2008 reported receiving a cell phone ad, 25.1% (M=20%) said they would be less likely to purchase a product from the business sending the ad; 0.6% said they would be more likely to purchase; and 14.6% said they would be neither more or less likely to purchase from the business (see Figure 3).

Figure 3

Figure 3. If you have received a cell phone advertisement, has it made you more likely or less likely to purchase a product from the business?	Feb. '08 N=467	Sept. '07 N=784	Feb. '07 N=270	Nov. '06 N=682	Nov. '05 N=669	Mean	SD
More likely to purchase	0.6	0.8	1.1	0.9	1.1	0.9	0.21
Less likely to purchase	25.1	17.5	18.1	20	19.4	20.0	3.01
Neither more or less likely to purchase	14.6	13.8	14.8	19.4	17	15.9	2.28
Don't know/Does not apply to you	59.7	67.9	66	59.7	62.5	63.2	3.71

R6: What incentives would motivate students to accept cell phone advertisements?

The use of incentives was the single most important factor in motivating students to accept ads on their cell phones. This is further supported in the academic literature and by several cell phone industry studies. Eight of the nine free product or services categories increased in the February 2008 survey. Free ringtones was the incentive most selected with a mean of 43.7% (see Figure 4). Free minutes had the largest increase, a 7.9 percentage point jump from 25.7% in September 2007 to 33.6% in February 2008. This reverses a nearly 10 percentage point decline in free minutes between November 2005 and September 2007, and may reflect an increasing value placed on cell phone minutes even with the increased usage of monthly calling plans. Free video downloads was the only category to decline in February 2008, dropping 0.5 percentage points. During the five survey periods, all incentive categories except one rose less than 10 percentage points; free gifts increased the most, rising 11.8 percentage points.

Figure 4

Figure 4. If you would accept cell phone ads by getting something free, what types of free products or services would you accept? (Check all that apply.)	Feb. '08 N=467	Sept. '07 N=784	Feb. '07 N=270	Nov. '06 N=682	Nov. '05 N=669	Mean	SD
Free minutes	33.6	25.7	26.3	34.2	35.5	31.1	4.67
Free upgrades	32.1	23.5	24.4	27	25.9	26.6	3.37
Free access to the Internet	30.7	23.1	22.2	23.8	23.9	24.7	3.40

Table 4: Continued							
Free ringtones	50.9	43.2	37.4	44.2	42.7	43.7	4.82
Free music	30.4	26.1	25.2	24.4	27.4	26.7	2.35
Free wallpaper or screensavers	24.3	21.8	19.3	25.8	N.A.	22.8	2.86
Free video downloads	9.7	10.2	9.3	13	N.A.	10.6	1.67
Free gifts	38.9	30.7	23	27	27.1	29.3	6.00
Don't know	26.8	21.3	26.7	33.1	36.3	28.8	5.90
Other: Gifts, money, won't accept ads	18.0	12.1	7.4	4.4	5.1	9.4	5.67

N.A.: Question not asked during survey; Mean and SD based on four surveys.

In order to further determine the types of incentives that might impact ad acceptance, students were asked if they would consider accepting ads on their cell phones if they were paid to accept ads. Nearly two-thirds (M=60.1%, SD=2.83) said they would accept ads if paid. Responses ranged from 59.3% (Nov. 2005) to 63.7% (Feb. 2008). Students were then asked how much money it would take for them to accept each cell phone ad. (Due to data correlation errors, the results from the November 2006 survey for this question were not usable.) Responses ranged from a mean low of 0.2% to accept each ad for 1¢, to 48.7% to accept each ad for $1.00. Responses were not, however, evenly distributed across the range. There were four distinct monetary amount acceptance ranges: 1¢ and 5¢; 10¢; 25¢ and 50¢; and $1.00 (see Figure 5). Interestingly, a mean of 1.8% said they would not accept ads for any price. That compares to a mean of 50% who said they would not accept ads on their cell phones when queried in R2 (see Figure 2), a difference of 48.2%. Offering incentives appears to be a significant motivating factor for college students to accept cell phone ads.

Figure 5					
Figure 5. If yes, how much money per ad would it take for you to accept ads on your cell phone?	**Feb. '08** N=467	**Sept. '07** N=784	**Feb. '07** N=270	**Mean**	**SD**
1¢	0.2	0.4	0	0.2	0.20
5¢	2.1	1.3	4.4	2.6	1.61
10¢	9.6	8.6	8	8.7	0.81
25¢	17.4	17.7	19.9	18.3	1.37
50¢	20.6	16.4	24.2	20.4	3.90
$1.00	49.1	53	44.1	48.7	4.46
I won't accept ads for any price	1.1	2.4	2	1.8	0.67

R7: What would the acceptance level be for coupons as an incentive to receive mobile advertisements?

Students were asked if they would accept text messages notifying them of coupons or discounts available via their cell phones. One in four students (M=24.2%, SD=4.12) responded "Yes." The response rate increased nearly eight percentage points from November 2006 (20.1%) to February 2008 (27.9%). Students were then asked what type of product coupon or discount they would like to receive on their cell phone (see Figure 6). Sit-down restaurant coupons received the highest mean response of 20.7% and showed the largest increase, rising from 17.2% (Nov. 2006) to 22.9% (Feb. 2008). Movie tickets and fast-food restaurant coupons were second and third, respectively, with mean responses of 18.8% and 17.7%. Movie tickets showed the second largest increase, rising 5.4 percentage points from 15.8% (Nov. 2006) to 21.2% (Feb. 2008).

Finally, those students not willing to accept text message coupons on their cell phones were asked why. Four out of 10 (M=43.5%, SD=1.33) said they were not interested in receiving coupons; a mean of 9% (SD=1.89) cited privacy concerns; a mean of 1.9% (SD=0.63) said their cell phone can't receive text messages; and a mean of 9.7% (SD=2.20) stated other reasons, including the cost of receiving a text message and annoyance.

Figure 6						
Figure 6. What type of product coupon or discount would you like to receive?	**Feb. '08** N=467	**Sept. '07** N=784	**Feb. '07** N=270	**Nov. '06** N=682	**Mean**	**SD**
Fast-food restaurant coupon (pizza, hamburger, chicken, Mexican food, etc.)	19.7	19.5	15.9	15.5	17.7	2.26
Sit-down restaurant coupon (Applebee's, Chili's, Friday's, Olive Garden, etc.)	22.9	23.3	19.3	17.2	20.7	2.93
Grocery coupons	15.8	17.7	16.3	11.8	15.4	2.53
Movie ticket coupons	21.2	21.1	17	15.8	18.8	2.79
Dry cleaning coupons	3.6	3	4.8	3.2	3.7	0.81
Car wash coupons	8.1	8.8	7	8	8.0	0.74
Don't know/Does not apply to you	0.9	0.4	0.4	0.7	0.6	0.24
Other	2.1	0.9	1.1	1.3	1.4	0.53

R8: What types of mobile services are available on students' cell phones?

Students were asked which of four mobile services were available on their cell phones (see Figure 7). The ability to send and receive text messages received the highest response (M=88.2%), rising from 82% (Nov. 2005) to 94.4% (Feb. 2008). Take and send photographs, and take and send video both increased significantly during the study. Take and send photographs grew from 31% (Nov. 2005) to 83.5% (Feb. 2008). Take and send video increased from 4% (Nov. 2005) to 55.2% (Feb. 2008). Accessing the Internet declined from 70% (Nov. 2005) to 54.1% (Feb. 2008), reflecting in part the additional cost of accessing the Internet from a cell phone, which is not normally part of a basic monthly service plan.

Figure 7							
Figure 7. Which of these services are available on your cell phone? (Check all that apply.)	**Feb. '08** N=467	**Sept. '07** N=784	**Feb. '07** N=270	**Nov. '06** N=682	**Nov. '05** N=669	**Mean**	**SD**
Send and receive text messages	94.4	88.7	88.1	87.9	82	88.2	4.39
Take and send photographs	83.5	75.6	64.7	61.5	31	63.3	20.05
Take and send video	55.2	47.9	37.2	32.7	4	35.4	19.65
Access the Internet	54.1	52.6	61	59.6	70	59.5	6.88

R9: What types of mobile sites or services did students access on their cell phones?

A small percentage of students reported using their cell phones to access various mobile sites or services (see Figure 8). Accessing weather sites was the most popular activity with a mean of 11.7%. Buying a product or service was second with a mean 10.1%. Finding a location with a GPS-enabled phone increased 4.5 percentage points in the February 2008 survey. Location-based services are identified within the mobile marketing industry as a key growth area. Interestingly, accessing entertainment-type sites showed very low levels of participation, again possibly reflecting the additional costs associated with accessing the sites.

Figure 8							
Figure 8. Do you use your cell phone to access any of the following sites or services?	**Feb. '08** N=467	**Sept. '07** N=784	**Feb. '07** N=270	**Nov. '06** N=682	**Nov. '05** N=669	**Mean**	**SD**
Buy a product or service	8.9	7.9	9.3	12.4	12	10.1	1.99
Entertainment or concerts sites	5.8	5.2	3	5.5	5.4	5.0	1.13
Check your horoscope	2.2	2.3	2.2	4.1	3.1	2.8	0.83
Find a location with a GPS-enabled phone	9.1	4.6	3	2.9	2.7	4.5	2.70
News sites	8.5	7.3	6.3	6.9	6.1	7.0	0.95
Play fantasy sports	1.3	1.4	0.4	1.2	1.4	1.1	0.42
Sports sites	5.8	5	4.1	3.6	5.4	4.8	0.91
Sweepstakes	0.9	0.7	0.7	1.2	0	0.7	0.44
Video clips	3.8	5.2	3.7	2.5	1.7	3.4	1.34
Weather Sites	14	12.2	12.2	9.1	11.1	11.7	1.80

R10: What types of content did students download or purchase on their cell phones?

Students were more active using their cell phones to download or purchase mobile content than to access mobile sites or services (see Figure 9). One-half (M=50.8%) of students downloaded or purchased ringtones to their phones. Ringtone usage increased 12.9 percentage points from November 2005 (42.5) to February 2008 (55.9%). Music showed moderate growth, increasing from 4.6% in November 2005 to 9.6% in February 2008. Download or purchase of wallpaper or screensavers and mobile video games declined slightly during the study. Nearly four in 10 students (M=36.7%) said they did not download or purchase any mobile content. That response nearly doubled between November 2005 (21.5%) and February 2008 (41.4%). Many mobile content categories had responses below 1%. This can be partially attributed during the study period to the low saturation among students of second- or third-generation cell phones and high speed cell phone service. Without a phone capable of sending or receiving graphical content like photographs, video and graphics, or being able to access the Internet, much of the mobile content in Figure 9 could not be downloaded or purchased.

Figure 9							
Figure 9. Do you ever use your cell phone to download or purchase any of the following?	**Feb. '08** N=467	**Sept. '07** N=784	**Feb. '07** N=270	**Nov. '06** N=682	**Nov. '05** N=669	**Mean**	**SD**
Ringtones	55.9	53.5	51.5	50.4	42.5	50.8	5.07
Wallpaper or screensavers	11.8	15.9	18.1	18.7	19.4	16.8	3.08
Music	9.6	10.2	7	6.9	4.6	7.7	2.27
Movies	0.2	1	0.4	1.2	0.1	0.6	0.49
Movie previews	0.2	0.7	0.7	0.4	0.3	0.5	0.23
Mobile video games	8.9	11.2	13.3	10.1	14.1	11.5	2.17
Music videos	0.2	1.7	0.7	0.6	0.3	0.7	0.60
Sporting event video highlights	0.2	1	1.1	0.7	0.6	0.7	0.36
Mobile gambling	1.1	0.8	0.4	1.5	0.4	0.8	0.47
Adult content	0.2	0.4	0.4	0.4	0.3	0.3	0.09
TV shows	0.2	1.2	0.4	0.4	0.1	0.5	0.43
News	1.3	2.3	1.9	1.9	0	1.5	0.90
Books	0.2	0.3	0.4	0.4	0.1	0.3	0.13
None of the above	41.4	38.7	38.9	43.2	21.5	36.7	8.72

R11: What types of mobile content did students send on their cell phones?

Text messages dominated the type of mobile content sent

by students. Eight of ten students (M=82.1) reported sending text messages (see Figure 10). Text message usage increased 10 percentage points during the period. Sending a photo message to a phone or email grew 31.2 percentage points. Sending video messages to a phone or email grew 18.6 percentage points. Sending instant messages was the only category to decline, dropping 2.9 percentage points from November 2005 (23.2%) to February 2008 (20.3%).

Figure 10

Figure 10. Do you ever use your cell phone to send any of the following? (Check all that apply.)	**Feb. '08** N=467	**Sept. '07** N=784	**Feb. '07** N=270	**Nov. '06** N=682	**Nov. '05** N=669	**Mean**	**SD**
Send text messages	92	85.1	78.5	77.8	77.1	82.1	6.39
Send instant messages	20.3	18.9	12.2	15.2	23.2	18.0	4.32
Send or receive email	16	12.6	8.1	8.2	10.8	11.1	3.31
Send photo messages to phone or email	61.5	56.6	40.4	42	30.3	46.2	12.71
Send video messages to phone or email	22.9	21.1	11.5	9.1	4.3	13.8	7.96
Send vote to TV show, contest or game	13.8	13.3	14.1	12.4	11.5	13.0	1.07
Send a response to an ad or text message promotion sent to your phone	3.1	4	1.5	1.8	1.7	2.4	1.08
None of the above	7.8	9.4	14.9	17.2	16	13.1	4.19

R12: For those who received a cell phone advertisement, are they concerned about how the business got their cell phone number?

About one-third of students who have received a cell phone ad (M=14.3, SD=3.40) reported being very concerned about how the business got their cell phone number. The "very concerned" response percentages remained relatively stable throughout the study, varying from 12.7% (Nov. 2005) to 19.1% (Feb. 2008). "Concerned a little" had a mean response of 13.5% (SD=1.61). "Does not concern me" declined 5.4 percentage points, from 10.8% (Nov. 2005) to 5.4% (Feb. 2008).

DISCUSSION

This study contributes to contemporary research on cell phone usage and advertising acceptance by analyzing the mobile content usage trends and factors that affect college student cell phone advertising acceptance. Based on the Saran et al. (2005) Wireless Advertising Acceptance Scale and findings gathered from five surveys administered from 2005 to 2008, six factors that contribute to cell phone advertising acceptance, corresponding mobile content usage trends, and the influence of incentives to motivate cell phone ad acceptance are investigated.

Six important findings emerged from this study:

1. Incentives are a key motivating factor for cell phone advertising acceptance.

College students are acknowledged to be early adopters of new digital technologies and one of the heaviest user cohorts of cell phones (Mobile Marketing Association, 2007). As marketers attempt to enter the mobile marketing field many of their initial efforts are being targeted at college students who view their cell phone as a personal device (Tahtinen & Salo, 2003) and are reluctant to allow ads to be delivered to their phones. This study found, however, that college students are increasingly willing to accept ads on their cell phones, especially if they are given monetary incentives. Of the six Wireless Advertising Acceptance Scale factors tested, incentives ranked highest for motivating cell phone ad acceptance. When offered incentives, especially monetary incentives, two-thirds of students say they would consider accepting ads on their cell phone. Without incentives, the acceptance rate falls below half (M=49.4%). Incentive types include free mobile content (minutes, ringtones, music, wallpaper, screensavers, Internet access), money for accepting each cell phone ad, and coupons. Free ringtones was the leading mobile content incentive; $1.00 for each ad accepted was the leading monetary incentive; and students chose coupons for a sit-down restaurant as the most desirable coupon or discount. The use of incentives is supported by a recent Harris Interactive (2007) survey that found 35% of adult mobile phone users are willing to accept incentive-based ads; 78% say the best incentive would be cash. Incentives are important, in part, because mobile is the only interactive medium where the user pays for the cost of network access (primarily in monthly usage fees) and for the content consumed. Except for early adopters and mobile enthusiasts, mobile carriers and content providers are finding it difficult to motivate average mobile users to pay for content not included in monthly usage fees. (Harris Interactive, 2007).

2. Students are receiving more cell phone ads, but annoyance has not shown a corresponding increase.

One-third of students (M=34.8%) report receiving ads on their cell phone. The incidence increased 9.2 percentage points during the study. Annoyance, however, measured by asking those who had received ads how it made them feel, only increased 5.3 percentage points. Those who said they were neither pleased nor annoyed to get an ad decreased less than one percentage point. Similarly, for those students receiving ads, future purchases

of products from businesses sending the ads was not greatly impacted. In fact, those reporting that they were less likely to purchase grew by only 5.4 percentage points during the study.

3. The consumption of mobile content has shown little growth.

The ability of students to access, download or purchase mobile content allows for the personalization of a cell phone, which has been a key contributor to the use of cell phones (Tahtinen & Salo, 2003). From 2007 through 2012, the U.S. mobile content market, primarily mobile media and entertainment, is projected to increase from $3.1 billion to $6.6 billion (Bond, 2008). Consequently, it was anticipated that consumption of mobile content would show a significant increase in the study, due primarily to the availability of premium mobile content and the increased use of the cell phone as a personal communication device; results, however, were mixed. Growth of more than 1 percentage point during the study in the areas of mobile content access, download or purchase was reported in only six categories: find a location with a GPS-enabled phone, news, ringtones, music, video clips, and weather sites. Declines of more than 1 percentage point were recorded in three categories: buy a product or service, wallpaper or screensavers, and mobile video games. Thirteen categories showed growth or decline of less than 1 percentage point. Reasons for the lack of growth or declines may include usage of cell phones that could not access or download premium content, the additional cost of purchasing mobile content not included in monthly service plans, cell phone usability and interface issues (hard to use, poor quality screen) (Sarker & Wells, 2003), and a declining desire to use the cell phone for entertainment. As users migrate to newer, higher quality phones, and new broadband 3G (third generation) cellular networks become accessible, the mobile content experience and sales of mobile products should improve.

4. Text messaging remains the most pervasive mobile content application.

Since the first text message mobile advertisement was sent in 1997 (Becker, 2003), text messaging has become the most used non-voice component of cell phones. Its growth can be attributed primarily to the ubiquity of cell phones capable of sending and receiving SMS (simple message service) text-only messages: 98% of cell phones in the United States can send and receive SMS messages, and, therefore, text-based advertising messages. Youth 18-24 represent just 19% of all U.S. text message users (CellSigns, 2007), but have the highest usage of sent and received text messages per week (Mobile Marketing Association, 2007). In this study, text messaging was available on nearly nine out of 10 cell phones (M=88.2%) and used by 8 out of 10 students (M=82.1%). The use of text messaging grew 14.9 percentage points, from 77.1% (Nov. 2005) to 92% (Feb. 2008). During the same period Internet-based instant messaging (IM) declined 2.9 percentage points, which reflects the growth of cell phone text and IM usage.

5. The perceived risks associated with receiving cell phone ads appear not to be a significant barrier to ad acceptance.

The use of digital communication devices like cell phones often increase concerns about viruses, spam, and unauthorized use of data. Many researchers have found perceived risk to be a factor in mobile content usage and advertising acceptance. In this study, students who received cell phone ads were asked how concerned they were about how the business got their cell phone number. "Very concerned" remained stable throughout the study and "Concerned a little" declined four percentage points. Students were also asked, as part of the Wireless Advertising Acceptance Scale questions, about being able to control risks associated with their cell phone usage by being able to turn off ads without having to turn off their phones, and being assured viruses would not be downloaded with ads. Both questions were selected by about one-fourth of students, and recorded slight growth during the study. Two scale factor questions, "Depends on the type of ad" and "If I have control over what is advertised," relate to the opt-in provisions of mobile marketing campaigns as popularized by Godin (1999). When a consumer gives prior permission, or opts in, to receive a cell phone ad, they tacitly agree to the type of ad they will accept and agree to give up control, at least temporarily, to the marketer. Perceived risk, in turn, should be mitigated by the prior approval of receiving an ad

6. The availability and use of cell phone still and video cameras has increased significantly.

The most significant increase in cell phone technology availability has been with cell phone still and video cameras. Cell phones with the ability to take and send photographs were reported by three-fourths of respondents; the ability to take and send video was available on one-half of respondent phones. The increases are a result of the availability of more advanced mobile devices and the replacement of older phone models. Interestingly, the increased availability of phone still cameras and video recorders did not correlate to a similar increase in usage of the devices with the phone. While 83.5% of students in February 2008 reported the ability to take still pictures with their cell phone, only 61.5% reported ever sending photo messages; 55.2% reported being able to send video, while only 22.9% reported ever sending a video message. The reason for the difference may be that the cost of sending still and video messages are not normally part of a monthly service plan, and it is an additional cost to send each message. The increase in cell phone camera and video capabilities is important because certain cell phone advertising methods rely on the delivery of visual images by consumers. Image recognition software is being used on cell phones to enable direct response capabilities by consumers. For example, a consumer can take a photo of an object or advertisement and send the photo to an advertiser to receive an incentive or information about a product or service. As new high-speed cellular networks are introduced and more MMS

(multimedia messaging service) phones capable of sending and receiving images, photos and video are adopted, the use of cell phones for advertising will increase.

MANAGERIAL IMPLICATIONS

Mobile marketers and advertisers are experimenting with various methods to deliver personal advertising and marketing messages to cell phone users. Several findings in this study could help direct advertisers toward mobile message deliver techniques and mobile technologies relevant to college students. The high incidence of text message usage reported by college students, the highest of all age demographics, should point marketers to the importance of texting in the daily lives of students. Text messaging is the only current mobile content that can be simultaneously delivered across all major cell phone carriers, making it the best cell phone delivery technique to reach a mass market.

The use of incentives shows a strong correlation to motivate cell phone advertising acceptance. Marketers may consider offering various combinations of incentives to test the optimum type and amount needed to motivate wanted behaviors. Mobile content, money and ways to reduce perceived risks of accepting cell phone ads could be tested by marketers to achieve the most effective but economical ways to motivate ad acceptance.

Finally, the surge of cell phone still and video camera availability and usage presents an opportunity for marketers to help students socialize. Since the cost of sending photos or videos is currently not included in many cell phone plans, marketers could experiment by sponsoring a free photo- or video-sharing site, or subsidizing the costs of photo or video delivery by having students view an advertisement prior to free delivery. The use of the still camera with image recognition technologies, where a person takes a photo of an object or advertisement and has information or incentives delivered to their cell phone, is also a growing area and presents opportunities for marketers to experiment with different types of products and services. Image recognition coupled with GPS location-based mobile services, such a finding the location of a restaurant through a cell phone map, offer marketers the opportunity to test these cell phone capabilities together in industries such as travel, tourism and sports.

LIMITATIONS AND FUTURE RESEARCH

This study employed five convenience samples of students at a Midwestern university. The cultural differences and technology usage patterns of respondents may not represent students from across the country. Respondents were 64.1% female and 83.9% white or Caucasian, over indexing those demographic segments in the student population. African American consumers have the highest cell phone usage of all ethnic groups (Telephia, 2006). Our study included only 3% African Americans, under indexing the group in the university population.

This study focused on student cell phone usage and advertising acceptance. It did not, however, consider the implications of the advertising medium, such as SMS, mobile Internet, voice, MMS, mobile email or Bluetooth. Future studies should consider the implications of usage and acceptance across all mobile technologies.

While many of the survey questions related to cell phone advertising, no operational definition of cell phone advertising was given to respondents to use as a basis for context or comparison. It is possible that students may have misidentified content on their cell phone to be an advertisement, or not identified actual advertisements. Anecdotally, many consumers' first reaction to mobile advertising is to consider it spam. Since most do not consider the impact of opt-in permission marketing on the cell phone as an advertising experience, continued analysis of student cell phone usage and ad acceptance usage trend analyses should be conducted.

Finally, this analysis of cell phone usage and ad acceptance is intended to be a snapshot of actual usage and exposure to mobile content and advertising. While survey data collection is an appropriate methodology, future research should integrate a hypothetical analysis of the Saran et al. (2005) Wireless Advertising Acceptance Scale with cross-tabulations of respondent mobile content usage and advertising exposure.

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