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MOBILE GAMES AS AN ADVERTISING MEDIUM: TOWARDS A NEW RESEARCH AGENDA

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Abstract

The field of advertising has witnessed an increase in the amount of mediums to carry the messages to end customers. The widespread popularity of the e-commerce and m-commerce has accelerated the increase in the number and quality of novel mediums such as mobile medium. Mobile games as an advertising medium is a pertinent field of advertising that is rarely studied, however practitioners have already realized the potential of mobile games to provide messages to a well targeted audience. Emboldened by this fact the purpose of the paper is to encapsulate the current knowledge regarding mobile games as an advertising medium. This is done by a review of mobile games research. This kind of contribution enables more precise research and development of managerial concepts and tools that benefits both managers and academics pursuing their noble quests for increased understanding of advertising and its effectiveness. The paper concludes by detailing the limitations of the study and illustrates some of the possible avenues for further research on this progressing and emerging topic.

Key words: mobile commerce, mobile games, mobile marketing, mobile advertising, mobile advertising games.

Introduction

The array and depth of suitable advertising mediums have expanded radically towards more interactive and engaging advertising formats. These already well known e-enabled formats are among others web based advertising (e.g. web sites, search engines), e-mails (subscribed or spam), banner ads, advertorials, chat room advertising, pop ups and pop-under ads (see e.g. Ducoffe, 1996; Parsons *et al.*, 2000; Dahlén *et al.*, 2003).

Not a long before the e-bubble burst the mobile phone technology providers have moved steadily forward from big and clumsy old phones into more portable and slimmer ones with better battery life, larger screen sizes, color displays and better CPU powers than ever before (see e.g. Steinbock, 2005). Many of the consumers using mobile phones especially in Europe are using ring tones, wallpapers, and jewels to personalize the phones. Besides the handset technology the development of telecommunication technology in general (e.g. from 1G to 3G) (see Eylert, 2005; Karjaluo, 2006) has enabled more sophisticated two-way interaction in the form of MMS, mobile browsing, visual radio and java, between marketers and consumers who have given their permission to two-way communication with a given marketer (Godin, 1999; The European Union, 2002; Barnes and Strong, 2002; Barnes and Scornavacca, 2004). It has been suggested that short-message-service (SMS) based m-marketing is likely to surpass internet-based advertising before the end of 2006 (Trappey III and Woodside, 2005). Sultan and Rohm (2005) highlighted that the objective of m-marketing campaigns is to increase brand awareness and revenue, improve customer loyalty, generate opt-in database and boost attendance at specific events.

The development of mobile handsets and mobile technology has lead to wider usage of mobile as medium for mobile marketing (m-marketing). M-marketing can be defined as: "Any form of marketing, advertising or sales promotion activity aimed at consumers and conducted over a mobile channel" (Mobile Marketing Association, 2003). Accordingly, mobile advertising games (m-

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advergaming) can be seen as subset of m-marketing (see Kavassalis *et al.*, 2003). M-advergame is defined here as a game application used by a company for advertising purposes in a mobile handset of a customer. Application can be downloaded computer software like a preinstalled game or it can be SMS based game played in a certain context (e.g. in a connection to a TV program). Also the online games like WAP based games (Shchiglik *et al.*, 2004) can be thought of as m-advergaming if ads are present. The interesting question that needs to be asked is what differentiates mobile games and m-advergaming. The preliminary answer given here is that m-advergaming are purposefully designed as ads and the main source of revenue for the game developer comes from the advertiser while the main revenue source for the mobile game developer in the case of mobile games are the downloading fees and playing fees.

Hence, it can be said that consumers are slowly but surely adopting different types of mobile services that provide entertainment and concrete value. As the widespread use of the m-marketing in the form of location based advertising, SMS, enhanced messaging service (EMS), and multimedia-messaging service (MMS) is here, the future seems to bring changes into the bewildering array of advertising mediums in the form of m-advergaming.

The aim of the article is to provide clarification and extension of current knowledge and guide research into pertinent future study areas in relation to mobile game usage as an advertising medium. This is done by firstly conducting a rigorous literature review on mobile games. After that the mobile game and m-advergame field is introduced to the reader. This will be followed by a working definition and a classification of the mobile games. Subsequently the authors illustrate how the developed classification can be used for mobile advertising planning purposes. This is followed by a suggested research agenda for mobile games in general and m-advergaming in particular. Finally, we present conclusions and limitations of the study.

Mobile marketing

M-marketing field has been studied for a decade now and from multiple perspectives (see e.g. Okazaki, 2005; Scornavacca *et al.*, 2005 for review). Many conceptual papers exist that address the general business logic of m-commerce and describe applications employed (Balasubramanian *et al.*, 2002; Varshney and Vetter, 2001), as well as discuss suitable business models (Lee, 2001; Yuan and Zhang, 2003). Also empirically grounded studies exist that describe m-marketing characteristics (Salo and Tähtinen, 2005), the consumers' acceptance of mobile services like text messaging, gaming, and mobile payment, and the effectiveness of text messaging (Nysveen *et al.*, 2005; Muntermann, 2005; Barwise and Strong, 2002; Barnes, 2002; Kavassalis *et al.*, 2003; Tsang *et al.*, 2004; Okazaki, 2005; Dickinger *et al.*, 2004), and some depict in detail the structure of the value chain or network of players involved and the role they play in m-marketing (Leppäniemi *et al.*, 2004; Becker, 2005; Facchetti *et al.*, 2005; Salo *et al.*, 2005; Virtanen *et al.*, 2005). However, none of these mobile marketing related studies explore mobile games as an advertising medium. Advertising mediums enabled by mobile medium and their relation to other advertising mediums are presented in Figure 1.

It is well known fact that mediums like TV, radio and newspapers are used to reach high number of people with low personalization. E-enabled mediums can be considered as halfway options between individualization and reach. For example, e-mails can be used to create personalized messages that include personalization such as respondents' name and other personal information related to customer data for instance. M-enabled mediums including m-advergaming can be used to reach higher individualization with a small amount of responses depending on the mobile application employed and game type. It is underscored here that while reach might be lower than in other mediums, at least people realize that they are playing a game of King Kong rather than passively skipping commercials while watching TV.

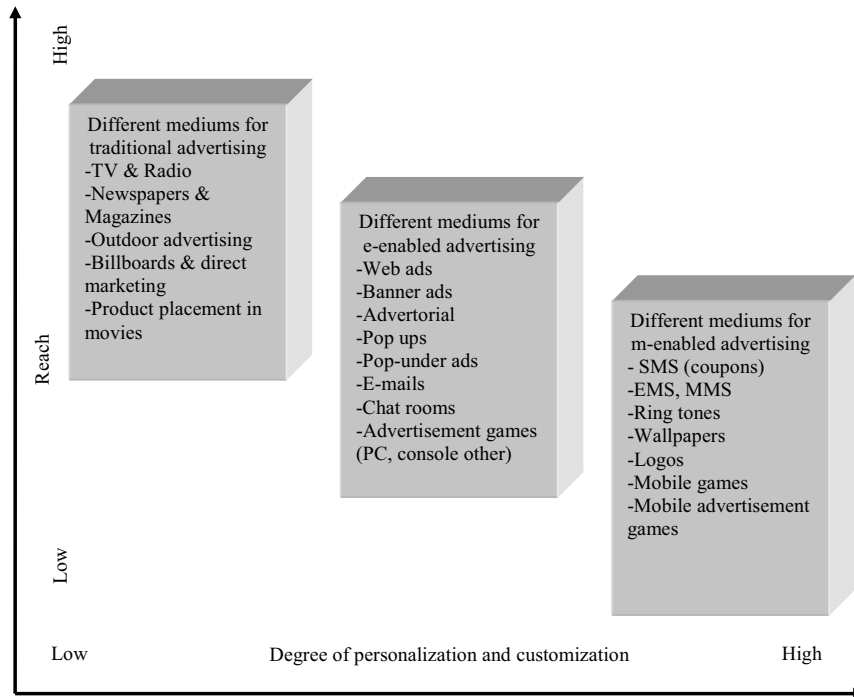


Fig. 1. Advertising mediums and their relation to personalization and reach

State of the art on mobile games

It was assumed right from the beginning of the research that contributions to the mobile gaming field are scattered across various journals due to its multidisciplinary nature. Therefore, we conducted a broad and rigorous literature review on various online databases including the following: ABI/INFORM database, EBSCOhost, Academic Search Premier, Elsevier Science Direct, IEEE Explore, Wiley, InderScience, and ACM Digital Library. We also performed a keyword search on the Google Scholar (<http://scholar.google.com>) and on M-lit the mobile business literature web site (<http://www.m-lit.org>). The keywords used were “mobile games”, “advertising games” and “mobile advertising games”. Several publications studied mobile games from a purely technical perspective and were thus excluded from our analysis. Listed in Table 1 are those that provided a contribution to mobile game advertising. The table shows mobile gaming publications detailed by the publication type, number of publications per year and total number of publications. It is noted that specifically, mobile advertising games did not yield any results from the databases.

Table 1

Metrics of the current academic literature on mobile games

Publication type	Publications per year					Total (18)
	2002	03	04	05	06	
Journal	1	-	1	1	1	4
Book	2	-	-	-	-	2
Conference proceeding	-	-	6	6	-	12

A total of 18 publications were found which were selected for further analysis. The number of conference proceedings contributions is still relatively high as can be expected from an emerging field. Table 2 provides detailed synopsis and review of each of the publication.

Table 2

Synthesis of the current academic literature on mobile games

Author(s)	Publication type	Research theme	Methodology	Findings
MacInnes <i>et al.</i> (2002)	Journal	Mobile gaming field and actors involved	Qualitative	Telecommunication operators are gatekeepers while cooperation is needed with content providers
Kleijnen <i>et al.</i> (2004)	Journal	Consumer adoption of wireless services (games)	Quantitative	Perceived risk is a crucial factor in the adoption process
Scharl <i>et al.</i> (2005)	Journal	Diffusion and success factors of mobile marketing	Qualitative and quantitative	Mentions location based games and games as good entertainment possibility
Raschid <i>et al.</i> (2006)	Journal	Location based games (on the move gaming)	Qualitative, Technical literature review, developed a game similar to PACMAN	Besides Bluetooth also RFID (Radio Frequency Identification) can be used in positioning
Haig (2002)	Book	Discusses mobile games, especially SMS games and downloadable games	A brief review with example	Mobile games will have positive future especially those developed with Java
Paavilainen (2002)	Book	Developing games for N-Gage	-	Easy to use games are highlighted
Mitchell <i>et al.</i> (2003)	Conference proceeding	A mobile IPv6based context-aware game	Qualitative, with prototype Real Tournament game using	Described the infrastructure. States that further development of the game is needed
Shchiglik <i>et al.</i> (2004)	Conference proceeding	Mobile WAP games	Qualitative (focus groups)	Illustrated consumer perceptions towards WAP games
Mansley <i>et al.</i> (2004)	Conference proceeding	Location aware games	Qualitative, with prototype game using Bluetooth	Handover between interfaces needs more studies
Hall <i>et al.</i> (2004)	Conference proceeding	Discusses about light-weight rule-based AI engine for mobile games	Qualitative analysis with prototype game of Texas Hold'em	A lightweight rule-based AI can be used in turn based strategy games
Piller <i>et al.</i> (2004)	Conference proceeding	Toolkits and user centric design	Qualitative, Technical literature review, developed application	Customer without Java knowledge can create a game with the toolkit
Paelke <i>et al.</i> (2004)	Conference proceeding	Mobile interaction	Qualitative and 30 test users	Camera phones can be used in mobile game like soccer to detect kick
Wong and Hiew (2005)	Conference proceeding	Review of mobile entertainment	Literature review	Mobile games are identified as important area of mobile entertainment
Chehimi <i>et al.</i> (2005)	Conference proceeding	Focuses on 3D game development on mobile phones	Qualitative with some tests	Evolution of devices and supporting software will enable 3D gaming sooner than thought
Han <i>et al.</i> (2005)	Conference proceeding	Location-based gaming environment	Qualitative with prototype	Location-based advertising games are pinpointed as future research area
Wolf and Wang (2005)	Conference proceeding	Peer-to-peer application development	Qualitative, Technical literature review, developed application	Develops a framework for effective P2P application development
Petrak <i>et al.</i> (2005)	Conference proceeding	Evaluation of networked mobile games	Qualitative with simulations	Proposes a new mobility model
Tan <i>et al.</i> (2005)	Conference proceeding	Game mobility in first person shooter games	Qualitative analysis of games and simulations	Contribution to application layer workloads

MacInnes *et al.* (2002) are identified as the earliest contribution to the field of mobile gaming. They provide a description of the players of the field and their roles. Kleijnen *et al.* (2004) examined the adoption of wireless games and illustrated that perceived risk is a crucial factor in the adoption process. In brief, this means that risks related to mobile gaming have to be further decreased in order to increase the number of gamers. Scharl *et al.* (2005) and Wong and Hiew (2005) mentioned mobile games as the generator of growth in mobile entertainment sector. Raschid *et al.* (2006) focus on location based gaming that can be seen as a subset of mobile games. Their focus was technical in nature. Mobile advertising possibilities related to location based games are limited at the moment due to many constraints, but the future looks bright for this area.

Haig (2002) discusses the great possibilities of mobile games with examples and discusses the future of Java based mobile games. Paavilainen (2002) presents in his book the specific case of N-Gage games and business development. From the conference proceedings papers the most interesting contribution was made by Shchiglik *et al.* (2004) since they provide a more clear contribution to a WAP game field as they discuss the consumer perceptions towards WAP games.

To sum up the previous studies, it is visible that there is some preliminary research on consumer perceptions towards mobile games. Based on this it can also be concluded that there is limited research on the m-advergame field and future research guidelines are needed.

Mobile games

The development of the mobile game field

Many of the research institutes and consulting companies made predictions about the growth of the e-commerce and m-commerce. Some of the predictions provided good directions while others failed miserably. Today, similar predictions are made concerning mobile game growth. According to the eMarketer the revenues of the mobile gaming field will grow from current \$2.5 billion to \$11 billion by 2010 (eMarketer, 2006a). Furthermore, the United States is a significant growth market for mobile gaming as revenue streams rise from \$600 million in 2005 to \$1.5 billion in 2008 (eMarketer, 2006b). Among other players in the field the service providers place high hopes on the mobile games as predictions concerning its growth are very optimistic. The deal between Vodafone Group and Sony's PlayStation division provides clear indications of the value of mobile gaming in the near future. Besides developing and providing new games these two are going to develop new mobile phone devices and services to go with (Vodafone, 2001).

Today, 3G users, the largest pool of potential mobile gamers, represent a small portion of all mobile phone users. However, the consumption of mobile content and applications is growing steadily (M:Metrics, 2006). Especially the 3G users in the Europe (UK and Germany combined) are downloading three times more games to their handsets than non-3G users (M:Metrics, 2006). The combined consumption of UK and Germany still runs less than three million downloads per month. The number of people downloading games in the United States has increased to 6 million since the end of 2004 (M:Metrics, 2006). Most of the games downloaded are puzzle games rather than adventure games which would provide ongoing revenue stream for the developer and seller as new levels and additions to an existing game can be sold to existing customers. Paintball provides a good example of selling more to an existing customer base. In the future 3D games will be adopted as the technology matures. Basically, the device development and increased sophistication of supporting software enables more rich games to be played (Chehimi *et al.*, 2005).

Generally speaking the m-advergame is based on computer software that is customized for a brand so it can be easily played on a mobile phone or hybrid device. The software has not necessary to be customized for a particular brand and advertising space from the m-advergame can be sold to any advertiser seen suitable. For example the Infospace is planning to sell advertising space during "For Prizes" multiplayer game tournaments. M-advergames can be acquired from a variety of sources including the mobile network operators (i.e. their portals) and specified dealers via the internet. These can also be loaded into a mobile phone when purchased and those can be downloaded via infrared and Bluetooth. In the future those can be shared between users in peer-to-

peer sharing from however, the billing mechanisms needs to be solved first (see Wolf and Wang, 2005). In this light mobile games and m-advergames seem to have very promising future ahead.

Mobile game platforms and technologies

In order to mobile games succeed the uncertainties related to the market and technology must be overcome. Technology uncertainty relates to technology used to download the games (e.g. WLAN, infrared, Bluetooth, 3G, GPRS, EDGE), technology used to develop the games (e.g. Symbian OS) and most importantly technology used to play the games (mobile handsets).

In the market worldwide there are multiple wireless protocols and handset technologies. The mobile handset technology has moved toward bigger and color screens with a much better battery life time (Chehimi *et al.*, 2005). To add this complexity there are several platforms for mobile games including J2me (Java 2 Micro Edition), Brew (Binary Runtime Environment for Wireless), Symbian OS based software and others. These platforms enable different software languages including C++, Java, XML, Flash and others to work in a mobile device. The increase in available bandwidth and the development of mobile devices as well as the increased adoption of mobile gaming will most likely lead to increase in the number and quality of mobile games available. Most likely games that deliver real value to customers are embraced (Kangas, 2003).

More importantly, the biggest news is that many of the industry giants including Activision, Digital Chocolate, EA, Microsoft, Samsung, Texas Instruments, and Nokia are part of a coalition to develop mobile gaming architecture that enables games to be developed faster and more effectively than before as the level of platform fragmentation decreases (Texas Instruments TI, 2006). Moreover, this could also lead to more exciting game development and better games.

Classification of mobile games

Currently there are several mobile games on the market varying from first person shooting games to puzzle games. According to IGN (2005) hardcore mobile gamers value multiplayer options and color screens. NPD (2005) indicates that women favor puzzle games and spend more money on those than other gamers.

Roughly speaking games can be categorized under single and multiplayer games (Wong and Hiew, 2005). Within single and multiplayer games there are variations of games ranging from 2D games to 3D games (Chehimi *et al.*, 2005). There are several mobile game genres and those are same to computer or console games varying from sports to action and adventure. To further illustrate, a mobile version of Who Wants to Be a Millionaire was launched in late 2005 as mobile phone version in more than 24 countries by Codetoy and at least a million people are playing the game. In 2004 Ferrari launched Ferrari Experience 3D to attract more audience and boost Ferrari brand. Additionally, the Electronic Arts (EA) has plans to launch Madden NFL 06 in combination of PC and mobile. A clear indication of importance of the mobile future was given in the late 2005 when the EA acquired mobile game leader and entertainment developer Jamdat Mobile. The future will show what kind of m-advergame combinations will appear from the interesting combination.

There are variations within multiplayer games as there is possibility to play over Bluetooth with up to four close friends or you can play online with thousands of players simultaneously as is the case with the Hinter Wars. Malaysian telecommunication company Digi launched the Hinter Wars which is the first massive mobile multiplayer online game that was developed by Activate for Nokia (www.channelnewasia.com). Thousands of players are now using it. The game is a cross-platform strategy game that can be played both on PC and mobile phones. There is also a genre of games that can be labeled location aware mobile games that are group of games in which players are heavily involved physically by running and interacting with mobile game interface (see e.g. Raschid *et al.*, 2006). At this point these are not thought of as ideal candidates for advertising due to a small market. Figure 2 attempts to provide a seminal classification of different types of mobile games according to the number of players, physical distance and genre of the game.

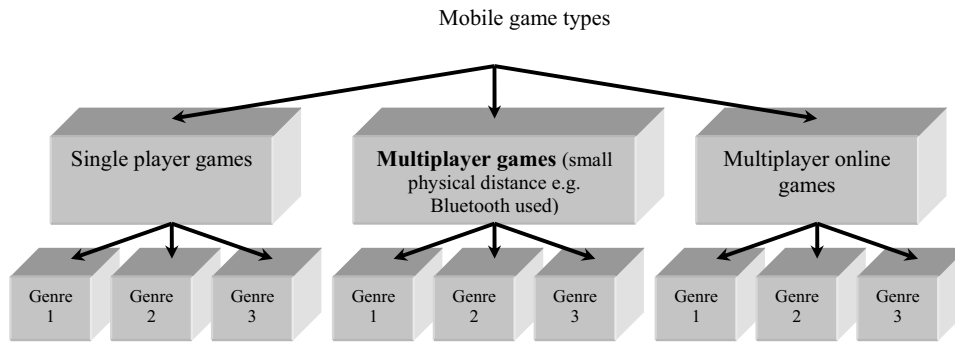


Fig. 2. Classification of mobile games

Mobile games can be categorized under three broad classes and multiple subsets according to genres. Only three genres are visible in Figure 2 but in reality there are a lot of more genres available. To give an example of each mobile game class, the King Kong was the most downloaded mobile game in UK in December 2005 and it is a single player game with action adventure genre. King Kong game is used to advertise the movie and other products as well as sell more the same with the help of the mobile game. Similarly mobile game was used to promote Planet of the Apes (Haig, 2002). The Asphalt Urban GT 2 is multiplayer racing game (maximum four players) that can be played over Bluetooth which means that distance of the players is less than 32 feet away from each other. Asphalt 2 provides one vehicle for car manufacturers to promote their brand as dream cars are showed on the game. Multiplayer online or real-time game the Hinter Wars strategy game was introduced earlier. Basically, the Hinter Wars is traditional mobile game that is developed for thousands of users and revenue is generated elsewhere than advertising.

Even clearer cut example of m-advergame is the DaimlerChrysler Jeep Off Road Jam in which players can upgrade their cars from Wrangler to Sport Jeep to even to Rubicon by excelling in the game (see <http://www.thumbworks.com/apps/jeepoffroadjam.shtml>). The game was developed by a Thumbworks that is one of the m-advergame developers. Figure 3 provides an illustration of the Jeep Off Road Jam.



Fig. 3. Jeep Off Road Jam developed for DaimlerChrysler by Thumbworks

We have provided a simple and embryonic classification of mobile games and currently there exists overlap between the classes as games may have multiple functionalities as opposed to described above. Thereby, further work and conceptualization are needed to catch the reality faced by game developers, advertisers and consumers.

Towards a novel research agenda

The future of mobile games and m-advergames seems to be very promising. There is a plethora of issues that impact the development of mobile game and m-advergame industry. Figure 4 outlines the main issues that will impact the development of the mobile gaming market.



Fig. 4. Factors influencing mobile game and m-advergame industry

Illustrated in Figure 4 are the underlying endogenous and exogenous factors that have an impact on the development of mobile game and m-advergame field. The figure provides an overall framework through which the development of the field can be approached. Both endogenous and exogenous factors can be further divided into smaller factors that impede or accelerate mobile game and m-advergame industry developments. However more refined suggestions are needed to initiate measures.

Conclusion

The study provided both academic and practical literature review of mobile games and m-advergame particularly. We presented the mobile games and m-advergames as the future growth areas in the mobile entertainment field. The development of common platforms and software i.e. the convergence of underlying mobile gaming technology will pave the way for more successful and effective m-advergames and campaigns. We have attempted to describe the potential of the field and illustrated the technologies available. Furthermore, we provided an elementary definition for m-advergames and explored the nature of m-advergames by a novel m-advergame classification that was later on used to illustrate some advertising possibilities. All these concepts and con-

ceptualizations developed here merit further research on their own. The limitation of the paper is that the literature review could have included more databases that would strengthen our contribution considerably.

Future research agenda

For academics, we provided a preliminary review of existing research on mobile games and m-advergames. As a limited amount of papers exists in this emerging area we have proposed following research streams that could deepen and crystallize our understanding considerably, in a way that would further benefit both the academics and companies involved in the mobile game and m-advergame industry. Specifically answers to following intriguing questions would benefit us all:

- ◆ conceptual papers on mobile games (e.g. definitions)
- ◆ effectiveness of m-advergames compared to other advertising mediums
- ◆ consumer attitudes towards m-advergames
- ◆ user groups
- ◆ barriers and facilitators of the adoption of m-advergames

These areas could be studied with both qualitative and quantitative methods. Longitudinal and mini case studies of actual use of m-advergames are important to broaden and deepen our current body of knowledge but also surveys and interviews are equally welcome. After some conceptual studies and pilot studies more solid surveys are needed to validate obtained results.

Managerial implications

For the advertiser the paper provided mobile game classification that provides insights into the m-advertising possibilities. The advertiser can decide to develop their own m-advergame similar to Jeep Off Road Jam or to buy advertising space in the existing mobile games.

Basically, products or services can be advertised for individual consumers or a large group of consumers using different game types. Puzzle games with tailored ads could be used for single players. For example games like the Wheel of Fortune could be used as m-advergame where prizes won by the player are product placements. Also a small targeted group of consumers e.g. barflies can be reached via small distance multiplayer games that could be downloaded in bars with infrared by pinpointing a hypertext tag that enables the download of the game. Dating games and different types of competitions from Trivial Pursuit (Codetoy) to Weakest Link could be used as platforms for ads. Multiplayer online m-advergame example For the Prizes was mentioned above.

Nysveen *et al.* (2005) suggest that companies should use SMS/MMS channel addition in three main ways that are the following: 1) to build an emotional relationship with their customers, 2) strive to be important part of the customers' daily life, and 3) strive to make their customers use their added services frequently. In similar line m-advergames could be used to build emotional relationship, to be part of daily life and most importantly make consumers use more services.

For the game developers, mobile network operators, and mobile phone manufacturers these games provide constant revenue streams. Game developers receive money from the advertisers and gamers as they download games and individual levels for games. Mobile network operators get their revenue from the bandwidth used for downloading the game and they also may receive payments from the mobile game developers if game is placed on their portal. More solid illustration of the revenue possibilities related to mobile games is available from Forum Nokia (2003).

Furthermore, mobile gamers are more likely to download almost two to three times more mobile content than other users (NPD, 2005). Manufacturers receive their share from the increased use of money to mobile phones as indicated by NPD group (NPD, 2005) and gamers replace their phone almost twice a year (IGN, 2005). Additionally, one of the purposes of the coalition to develop mobile gaming architecture discussed previously is to urge mobile gamers to update their phones more often as the games are becoming more fanciful (TI, 2006).

All in all, various combinations from number of players to their location and distance could be used as ways to provide different types of m-advergemes. Today, it seems that most efficient m-advergemes are those targeted to younger generation and which provide a lot of entertainment and real value. Therefore, companies especially serving those segments should be among the pioneers to embrace this novel opportunity to reach their customers via unique and memorable way.

All aforesaid leads to a conclusion that mobile games and m-advergemes are a pertinent future research area and an opportunity for businesses. As Thumbwork's Holland puts it in his interview on m-advergemes with Mathieson (2005) "It sure beats SMS campaign". Thus, m-advergemes and mobile games are part of the wireless future that is becoming more entertaining and interesting for advertisers.

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