Association for Information Systems AIS Electronic Library (AISeL)

2013 International Conference on Mobile Business

International Conference on Mobile Business (ICMB)

2013

Mobile Advertisements in Disguise and Their Effect on Trust Propensity and Intention to Use

Mihai Calin *ETH Zürich*, mcalin@ethz.ch

Basil Hess ETH Zürich, bhess@ethz.ch

Juliana Sutanto ETH Zurich, jsutanto@ethz.ch

Follow this and additional works at: http://aisel.aisnet.org/icmb2013

Recommended Citation

Calin, Mihai; Hess, Basil; and Sutanto, Juliana, "Mobile Advertisements in Disguise and Their Effect on Trust Propensity and Intention to Use" (2013). 2013 International Conference on Mobile Business. 3. http://aisel.aisnet.org/icmb2013/3

This material is brought to you by the International Conference on Mobile Business (ICMB) at AIS Electronic Library (AISeL). It has been accepted for inclusion in 2013 International Conference on Mobile Business by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

MOBILE ADVERTISEMENTS IN DISGUISE AND THEIR EFFECT ON TRUST PROPENSITY AND INTENTION TO USE

- Calin, Mihai, ETH Zürich, Management Information Systems, Weinbergstrasse 56/58, 8092 Zürich, Switzerland, mcalin@ethz.ch¹
- Hess, Basil, ETH Zürich, Management Information Systems, Weinbergstrasse 56/58, 8092 Zürich, Switzerland, bhess@ethz.ch¹
- Sutanto, Juliana, ETH Zürich, Management Information Systems, Weinbergstrasse 56/58, 8092 Zürich, Switzerland, jsutanto@ethz.ch

Abstract

Advertisements (ads) are prevalent in almost anyone's life. In exchange for consuming ads, the user gets free access to online and mobile platforms, thus constituting a fragile symbiosis between platform, user and marketer. We shed light on a critical factor that affects this fragility: advertisements in disguise, also called covert advertisements. By varying the discernibility of ads with visual indications and intrusiveness, we measure the perceived trust propensity and the perceived intention to use. The concerning application is a novel, location-based iPhone app – Local FAQ - that allows to ask and to answer questions about nearby places. Our methodology is threefold: first, two focus group discussions each with 6 smartphone users influenced the design and functionality of the Local FAQ app, and raised concern in privacy and trust propensity in mobile, location-based apps. Second, an exploratory survey with 46 respondents aimed at substantiating some focus group claims. Third, a systematic survey with 114 respondents manipulates ad discernibility and measures variations of trust propensity and intention to use. Regression analysis shows that trust and intention to use fall the more intrusive the ads are. Further, results indicate that covert ads may not lead to loss of trust if they are informative. After detection that they were actually ads, they however still lead to loss of trust.

Keywords: Mobile advertisement, Advertisement in disguise, Discernibility, Trust propensity, Intention to use

¹ The first two authors are joint first authors, listed alphabetically.

1 Introduction

Business models of major companies representing the "Web 2.0" are to a large extent based on integrating advertisements (ads) to a certain level of discernibility in their content (O'Reilly 2007). In case of Google, ad spots are sold to marketers relating to the keyword a user enters. Their technology enables marketers to place sponsored links both on Google's own platforms (AdWords) as well as on third-party websites (AdSense) links. AdSense and AdWords ads are visually separated to "algorithmic" search results, and displayed in a box marked as "sponsored links". A trust relationship between Google, the marketers and the users has been established over time (Au et al. 2008). In this setting, the user trusts Google for their placement of ads, getting access to their platform for free in exchange. Marketers profit from the large user base Google platforms have. This example of symbiotic marketing (Adler 1966; Varadarjan and Rajaratnam 1986) is evident, considering the immense commercial success of Google.

Marketing in the "Web 2.0" marketing is widely explored by both research and has been proven to be successful. Growth with resulting research challenges are however predicted mainly in the mobile area with smartphones and tablets (Gartner 2013). Today however, platforms like Facebook face difficulty in monetizing their mobile users (Forbes 2012), thus leading to the question for research on investigating "mobility" and its influence on IT artefacts. Major IS journals like EJIS or MISQE (Leidner et al. 2012) are indeed just recently giving increased attention to mobility with dedicated special issues. For the case of advertisement, the Facebook case gives an indication that there are factors from mobility that disturb the symbiotic marketing.

One potential factor that could influence the symbiotic marketing is the small screen size of mobile devices compared to desktop computers. The resulting challenge is to place ads in such a way that the user still has an incentive to click on it, but without making the app unusable and untrustworthy. Indeed, the example of the Facebook iPad app shows that the ads resemble to original wall posts and occupy a larger percentage of the overall screen compared to ads on desktop websites like AdWords.

Ads that resemble the original content on the publishing platform are called advertisements in disguise, or covert marketing. Although generally considered as unethical (Lacher 1994) because of their deceptive nature. Still covert marketing would generally be in the interest of marketers: the hardness of distinguishing them from the original source gives them the (high) credibility of the source. There are numerous examples for advertisement in disguise, mainly in TV, movies or newspapers (Adiyta 2001; Kautish 2010; Lacher 1994): TV commercials that appear to be genuine TV shows or documentaries, products that are promoted during TV shows, movies where protagonists use products of a certain, well visible brand, or advertisements in newspapers that have similar layout than journalistic news articles. An illustration of such ads, along with Google and Facebook ads is visible in Figure 1.

Another factor that potentially distinguished desktop from mobile is the possibility to target ads to the location where the user is situated at a certain time. Research has both identified new marketing opportunities given the location-based nature (Dhar and Vahrsney 2011), as well as arising privacy issues that also implies higher trust requirements in the service (Barkhuus and Dey 2003).

Given the varying discernibility in different forms of marketing and the marketing challenges in mobility, our research aims at contributing with a study on trust propensity and intention to use of a mobile, location-based app. The app is called Local FAQ and allows to ask and to answer questions to specific locations, but also allows marketers to place sponsored entries. As independent variable we choose the degree of discernibility of the placed ads. The paper is structured as follows: section 2 gives an overview of streams of related work; section 3 introduces our methodology with focus groups and two surveys. Section 4 presents the data analysis and section 5 finally discusses the results and their implications for research and practice.



Figure 1. Ads with varying discernibility: Google, newspaper, 007 movie and Facebook.

2 Related Work

Our study relates to several streams of research from marketing research, information systems, psychology, trust research, mobile computing and mobile services.

The first stream comes from marketing research and focuses on covert advertisements and marketing in disguise. Meenaghan (1998) gives an overview of such marketing practice and exemplifies this in TV, movies and newspapers. Adiyta (2001) remarks that covert advertising is usually used by marketers to raise their own credibility by using the credibility from the publisher (e.g., TV channel, movie, newspaper, website or mobile app). This is thus disturbing symbiotic marketing (Adler 1966; Varadarjan and Rajaratnam 1996). Several examples and types of advertisements have been discussed in marketing research, such as in TV, movies and newspapers (Adiyta 2001; McDaniel 1996; Lacher 1996; Kautish 2010). A special form of covert marketing is called ambush marketing (Meenaghan 1998; McDaniel 1996), where advertisers attempt to "hijack" the credibility of official sponsors of events like the Olympic games. To our knowledge, there is no literature on covert advertising on online and mobile platforms.

Other research investigates the effects when users detect of "being treated wrongly", as when the user detects a covert ad. Such deception is depicted as perceived contract violation (PCV), which can happen in organizational (Robinson and Rousseau 1994) as well as in information systems context (Pavlou and Gefen 2005), as well as in electronic commerce with counterfeiting (Mavlanova and Benbunan-Fich 2010). PCV is found to have negative effect on trust, price premiums and perceived transaction risk (in case of e-commerce) (Pavlou and Gefen 2005). In our case of free services without monetary concern for the user, our main PCV measure is hence trust.

Trust research distinguishes three concepts: trustworthiness ("a dispositional willingness to rely on others"), trust propensity ("ability, benevolence, and integrity of a trustee") and trust ("the intention to accept vulnerability to a trustee based on positive expectations of his or her actions") (Colquitt et al. 2007; van Dyne 2000. applied to organizational context; Lee 2001, applied to Internet shopping). In our case of advertising, we use trust propensity as construct.

Intention to use in mobile context (Kim 2010) has been conceptualized mainly in terms of Technology Acceptance Model TAM (Davis 1989), and has been further extended with the trust propensity concept (Zhou 2011). The literature on mobile marketing is considered to still be in an exploratory state (e.g., McCoy et al. 2007; Hosbond and Skov 2007), and comparatively less attention has yet been given to the role of trust (Varnali and Toker 2009). More established research is found in mobile computing, for example regarding commercialization (Barnes 2002; Rao and Mnakakis 2002; Dhar and Vashney 2011).

Recent concern has been given to "banner blindness" and that users, although they tend to automatically oversee ads, still complain about too much ads (Burke et al. 2005). One way to overcome negative perceptions is to make ads more informative (Wehmeyer 2007), and to make them less intrusive (McCoy et al. 2007; Li et al. 2002). For our study we vary the intrusiveness and discernibility of ads in order to measure the effect of intention to use and trust propensity.

3 Methodology

As methodology we used an iterative approach combining exploratory and explanatory steps. The exploratory step first consisted of the implementation of a location-based app. After an initial suggestion of an app that allows users to ask and answer questions regarding a location, mock screenshots were created and presented during two focus group discussions. The focus group discussions fed back to the final implementation of the app. Next, an exploratory survey was executed that aimed at delivering descriptive statistics, whose results lead to hypotheses for a second, explanatory survey.

3.1 Local FAQ iPhone Application

Local FAQ is a location-based iPhone app with the following functionality: (1) The user can either select a location on a map or he can use the iPhone localization functionality to determine his own location. (2) The app shows questions that are related to the selected location. An example question near the train station is: "Are there stores open on Sundays?". (3) The user can either select a question and write or edit the answer, or he can create a new question regarding the selected location.

The FAQ (frequently asked questions) functionality is implemented in a way that the ordering is determined by the number of clicks to a question in close proximity (depends on the zoom level of the map) to the selected location. Screenshots of the final app are visible in Figure 2.

3.2 Focus Group

Two focus group discussions each with 6 undergraduate students (12 in total) from ETH Zürich were conducted. In each discussion, 3 female and 3 male students participated to avoid gender bias. All students were furthermore users of smartphones with a data plan subscription.

The first part of the focus groups was an open discussion on location-based apps and advertisements. Questions were: (1) what are general perceptions of ads in mobile apps, (2) in which circumstances are they accepting mobile advertisements and (3) what the concerns about location-based mobile app should have.

In the second part, we showed mock screenshots of the Local FAQ app. The focus group then discussed about how ads should be placed in the app so that there is still an intention to use the app, that it is still useful and can be trusted by users. Furthermore, several FAQ entries were coded as ad or as genuine entry.

For question (1) there was general agreement that "we accept ads if the app is free", which is in line with the concept of symbiotic marketing (Adler 1966). For question (2), answers were that ads are accepted and useful if they "provide some values like coupons", if they are "informative" or "entertaining". The discussion about (3) ranged mainly concerned privacy issues, that were however weighted differently: some would "never share their location with the app", while others have no issue to do so given the app is useful. All participants would feel tricked if they would detect covert ads, would loose the trust in the app and discontinue using it. Trust and intention to use was here used interchangeably.

After presenting the Local FAQ app, participants considered it useful and that they would use it given there are sufficiently informative questions and answers available. For placements of ads there was an accordance that it should be easy to skip them, and that they should be in a relation to the rest of the content. One discussant preferred a full-screen banner that appeared once and could be clicked away immediately. Nobody liked ads that took a dedicated space on the screen, and three third considered it as useful if the ads are appearing in the list of results given they are informative and are clearly marked as such. An example of such an informative ad was given as an entry that recommends a specific shop to the question "Are there any shops open on Sundays?". Even when the answer to this question was a specific business, it was not recognized as ad by the focus group.

3.2.1 Hypotheses

Following the focus group discussion, an informative ad with relation to the user location as in Screen-1/1 might not be discovered as such. We hypothesize that this should thus not lead to a loss in trust:

H1: Screen-1/1 has no negative effect on trust propensity compared to baseline

The more intrusive and obvious covert ads are, the more likely it is that the covert ad is detected. Screen-2/1 and Screen-3/1 were detected as such in the focus groups. Adapting perceived contract violation (PCV) (Pavlou and Gefen 2005) to the mobile marketing context, we should measure a loss of trust compared to baseline. Hence we hypothesize:

H2: Screen-2/1 has a negative effect on trust propensity compared to baseline

H3: Screen-3/1 has a more negative effect on trust propensity than Screen-2/1

The following hypotheses concern the situation when we disclose that some of the entries were actually ads: In H1 we hypothesize that an informative ad related to user context should not be detected and hence not lead to a loss of trust. In accordance with PCV, the exploratory survey and the focus group, disclosing an ad that was not detected before should lead to a loss in trust propensity:

H4: Screen-1/2 has a negative effect on trust propensity compared to Screen-1/1

Supported H2 and H3 would lead to the conclusion that covert intrusive ads are detected as such. The more intrusive, the more the loss of trust would be. We hypothesize that this will be the case even after disclosure of the ads.

H5: Screen-2/2 and Screen-3/2 have a negative effect on trust propensity compared to baseline

The focus group's positive perception of discount and informative ads, along with Wehmeyer (2007) lead to the following hypothesis: despite loss of trust incurred by ads, there is still an intention to use. This is also supported by Zhou (2011) that sees TAM and trust propensity as determinants for mobile intention of use:

H6: trust propensity doesn't drop with the same rate as intention to use from Screen-0/1 to Screen-3/1

3.3 Exploratory Survey

The exploratory survey in form of an online questionnaire followed the focus group discussion and aimed at confirm central messages from the focus group. The survey was answered by 46 respondents (80% male, 64% having a data plan on their smartphones), so we do not claim strong representativeness of this survey.

The main items we selected were visual separation of ads with original content, and their level of intrusiveness. Then we asked for perceived loss of trust, once a covert ad is detected. We summarize the results: 75% wanted ads to be visually separated from original content. 63% want ads to be visually separated even if they are interesting. 70% would feel tricked after noticing a hidden ad.

Another question we raised was to whom they would attribute a loss of trust once they detect a covert ad. The result was that 60% attribute it to the publisher (the platform), while 40% attribute it to the marketer that creates the ad. We keep in mind this split when we investigate in the explanatory survey the loss of trust.



Figure 2. Screens shown in the survey (Screen-0/1, Screen-1/1, Screen-2/1, Screen-3/1 in the upper row, and Screen-0/2, Screen-1/2, Screen-2/2, Screen-3/2 in the lower row), with increasing intrusiveness from left to right. During the first survey stage, ads were covert and had same background as user-generated Q&A (first row). Ads are disclosed by adding a yellow background (second row).

3.4 Explanatory Survey

For the explanatory survey, we first measured the effect of different stages of ad intrusiveness (Li et al. 2002) on trust propensity and intention to use the Q&A service, using covert ads. The survey was conducted as online questionnaire. We note that by using Local FAQ, an app previously unknown to all survey participants, we can exclude potential bias in form already existing trust propensity of a known app. Screenshots of the app as shown are visible in Figure 2.

For this first stage of the survey, we display entries with covert (undisclosed) ads. As baseline, we showed a screen without ads (Screen-0/1). One out of four entries as ad is shown in Screen-1/1, which the focus group has coded as informative and less intrusive. Another screen (Screen-2/1) an ad similar to the previous one and another one promoting a special discount. The last screen (Screen-3/1) shows only ads, perceived as most intrusive by the focus group. The order of showing Screen-(0..3)/1 was randomized to avoid time effects. For those four screens, we asked entries measuring trust propensity in the app and the intention to use it. The items are measured by a 7-point Likert scale; trust items are "The questions and answers were added by users" and "The displayed content looks suspicious" (the second item is negatively-keyed), and intention to use item is "I would use this app".

In the second stage of the survey, screenshots with the same entries, but this time with disclosed ads (Screen-(1..3)/2). Disclosure was done by visually separating ads by using a distinct background color. Participants were again asked for trust propensity.

4 Data Analysis

The data for the second survey was collected between 29th of December 2011 and 7th of January 2012. During this time, 114 people have taken the survey, however only 73 answered all questions. Hence, for the following data analysis we have considered only the 73 completed surveys. Table 1 lists demographic information about the surveyed sample.

Property	Statistics	
Age	Median: 26, Mean: 25.8, StDev: 3.5	
Gender	37% Female, 63% Male	
Smartphone	IPhone: 36%, Android: 27%, Other: 37%	
Data Plan	71% have a data plan	

Table 1.Demographic and statistic information about the surveyed sample

In order to ensure internal consistency of the survey, we have used two items (one positive and one negative) to measure the trust at each level of manipulation. The values of these two items were tested for consistency using Cronbach's Alpha and obtained a value of 0.71.

At first we have conducted descriptive statistic analysis on the data set to determine the trend in the trust assessment experiment. The statistics in Table 2 shows that for both experiments (covert and discernible ads) the trust in the application decreases with the intensity of presented ads. To be more precise, the level of trust decreases the more ads are shown, both when showing covert ads and when showing discernible ads. This first finding establishes evidence that people are able to identify covert ads even if they are not visually identified as ads by the design of the mobile application.

Screen	Trust			
	Mean	St.Dev.		
covert Ads				
Subtle Ad	5.03	1.19		
Subtle and Prominent Ads	4.49	1.46		
Only Prominent Ads	3.87	1.77		
Discernible Ads				
Subtle Ad	4.73	1.43		
Subtle and Prominent Ads	4.59	1.55		
Only Prominent Ads	4.02	1.82		

Table 2.Descriptive Statistics of trust over different manipulations

To gain a more rigorous insight of the initial findings we conducted a regression analysis on the data set using trust as the dependent variable and the screen as a categorical independent variable. Table 3 lists the regression results for the case of covert ads where Table 4 lists the regression results for the case of discernible ads. The data was organized as panel data, running a random-effects GLS regression grouped by respondent.

In Table 3, the baseline Screen-0/1 is the one presenting no ads, Screen-1/1 contains only a subtle and, Screen-2/1 is the screen containing subtle and more intrusive ads, while Screen-3/1 contains only intrusive ads. Table 3 also contains control variables char_age and char_gender which stand for the age and the gender of the respondent respectively. Although only marginally significant, we have not removed them from the regression, as they are jointly significant with 5% confidence (F-test: $chi^2 = 6.21$, Prob>chi² = 0.04).

Table 4 represents observations after the disclosure and misses Screen-0/2 with no ads. Hence the baseline is now Screen-1/2, followed by Screen-2/2 and Screen-3/2. Table 4 does not contain the control variables char_age and char_gender as their joint significance is below 5% confidence (F-test: $chi^2 = 2.72$, Prob>chi² = 0.26).

Variables	Coef.	Std. Error	Z	
Independent Variables				
Screen-0/1	Baseline			
Screen-1/1	185	.159	1.17	
Screen-2/1	726	.159	4.58***	
Screen-3/1	-1.342	.159	8.46***	
Control Variables				
Char_age	.063	.037	1.71	
Char_gender	.452	.288	1.57	
Observations: 292; R-sq overall 0.1709				
Wald $\text{Chi}^2 = 93.14$; Prob>Chi ² = 0.000				
*-p<0.05; ** - p < 0.01; *** - p < 0.001;				

Table 3.Regression on Trust – covert Ads

Variables	Coef.	Std. Error	
Independent Variables			
Screen-1/2	Baseline		
Screen-2/2	144	.177	.81
Screen-3/2	712	.177	4.02***
Observations: 219; R-sq overall 0.04			
Wald $Chi^2 = 18.05$; Prob>Chi ² = 0.000			
*- $p < 0.05$; ** - $p < 0.01$; *** - $p < 0.001$;			

Table 4.Regression on Trust – Discernible Ads

As we can see from Table 3, the decrease of the level of trust is significant, proving that consumers are able to recognize the subtle and prominent ads displayed by the application, even if these ads blend in visually with real, non-commercial content. However we also observe how the drop in trust from Screen-0/1 to Screen-1/1 is statistically not significant, showing that people have not recognized the presence of a subtle ad, thus supporting H1.

In the case of discernible ads, Table 4, the results are only statistically significant for Screen-3/2 (only intrusive ads). One explanation could be that the Kurtosis of the distribution of trust values for Screen-2/2 decreases as people become aware that all screens shown in the case of covert ads contained hidden ads. Further research will clarify this abnormal break in the decrease of trust.

Based on concerns that the level of trust might behave differently in the two distinct cases (covert and discernible ads) we decided to run a second regression analysis on the trust, this time combining the trust levels of the two cases into a single regression. Organizing the data again into panel form, this time we introduce the variable 'experimentno' which has the value 0 for the covert Ads case and value 1 for the Discernible Ads case. Table 5 shows how the variable 'experimentno' has no statistical significance, suggesting again that people recognize the presence of covert ads and show no difference in their trust level.

Variables	Coef.	Std. Error		
Independent Variables				
experimentno	14	.111	.12	
Observations: 438; R-sq overall 0.00				
Wald Chi2 = 0.02; Prob>Chi2 = 0.9022				
*-p<0.05; ** - p < 0.01; *** - p < 0.001;				

Table 5.Regression on Trust difference between the two cases

After running a joint regression, which shows that the trust drops similarly for the two cases (covert and Discernible ads), in order to test hypothesis H4 we want to see if this behavior applies particularly for Screens 1/1 and 1/2. Because the number of answers is over 50 we can run a paired T-Test to test the two levels of trust, grouping by respondent. The results of the paired T-Test are displayed in Table 6. Based on this result, we cannot reject hypothesis H4 at 5% probability.

Variables	Mean	Std. Error	Std. Dev.	
Trust-Screen-1/1	5.027	.140	1.120	
Trust-Screen-1/2	4.733	.167	1.429	
Observations: 73; t = 2.0602				
Mean(diff) = mean(trust-Screen-1/1 - trust-Screen-1/2)				
Pr(mean(diff))<0 = 0.978, Pr(mean(diff))=0.043, Pr(mean(diff))=0.0215				

Table 6.Paired T-test comparison between trust in Screen-1/1 and in Screen 1/2

In order to test for the hypothesis H3, Figure 2 plots the evolution of the trust and the intention to use across the different screens of the app shown in this sequence: No Ads, Subtle Ad, Subtle and Intrusive Ads, Only Prominent Ads. The ads were covert i.e. they were not visually distinguishable from user-generated information.



Figure 2. Trust and Intention to Use against the intrusiveness of displayed Ads (covert ads).

We see from Figure 2 that the slope of intention to use, especially when ignoring screen 4 (in the previous notation Screen-3/1), is much leaner than that of the trust. This finding shows that people, although they loose their trust in the application, still have the intention to use it. If this finding is proven to be statistically significant, it raises questions as why people would use an application although they do not trust its content.

In order to examine this finding more thoroughly, we have conducted a statistical analysis using Linear Growth Modeling (LGM). Table 5 shows the result of this analysis. We can see how the effect of the slope of the intention to use is positively influencing the slope of the trust by 0.62. As in our case the intention to use is negative, the effect is a more negative slope for the trust. The implications of this finding on future research are discussed in the next section.

Variables	Coef.	Std. Error	Z	
Influencing Effects				
II on IT	1.344	.225	5.983***	
SI on ST	.62	.163	3.799***	
Joint Effects				
SI on II	108	.323	.333	
ST with IT	.05	.11	.452	
Observations: 73				
RMSEA = 0.152				
Chi^2 Test= 24.206; Prob> $Chi^2 = 0.004$				
*-p<0.05; ** - p < 0.01; *** - p < 0.001;				

Table 6.Regression in Trust difference between the two cases

5 Conclusion and Implications

This study aims at explaining the perception of covert mobile advertisement and it's repercussions on the user's trust. Using the results of a survey conducted with 73 people we have run regression analysis to test the hypotheses H1 to H6, which are the fruits of a theoretical debate on this topic.

After showing people a screen containing no covert advertisements followed by a screen displaying one subtle advertisement, we compared the values of their self-stated trust level and discovered there is no statistically significant difference in the level of trust. Thus we fail to reject hypothesis H1. Using the same approach for the next two screens (Screen-2/1 and Screen-3/1) we show that the more intrusive the shown advertisement is, the more trust is lost. The result of this regression is statistically significant (Table 3) thus we also fail to reject hypotheses H2 and H3. Regarding the loss of trust when trusted information is disclosed as being a covert ad, we fail to reject hypothesis H4 showing that people lose their trust more when they discover they have been fooled. This also comes to support hypothesis H1 that claims that users have not observed the hidden add in Screen-1/1. As we have seen from table 4, there is no statistically significant value of trust for Screen 2/2 hence we cannot compare the evolution of trust from Screen-2/2 to screen 3/2, thus we can either accept or reject H5. To check for hypothesis H6 we look at the self-assessed level of intention-to-use of the user. By running a LGM regression on the dataset we observe how the slope of the intention-to-use curve is positively influencing the slope of the trust; hence the two slopes don't drop with the same rate. Thus we fail to reject hypothesis H6.

The implications of these results are two-fold. For academics, this study brings the topic of covert advertisement to the mobile ecosystem and delivers concrete results for the on-going debate on covert advertisements. While in classical media, the phenomenon of advertisement in disguise is well-researched, there is a lack of this research in the mobile context. Our results confirm the concept of

PCV by measuring a loss of trust if a covert ad is detected. This is especially the case for ads with low intrusiveness. Even if the ad is perceived as informative, disclosure that it was actually an ad leads to the loss of trust as predicted by PCV. We therefore advocate for further research on antecedents of ad discernibility. Another finding is that although trust propensity falls with increased intrusiveness of ads, the intention to use the mobile app does not necessarily. The loss of trust due to displaying covert advertisements is not proportional to the decrease in intention-to-use; the intention-to-use drops less steep than the trust in the application. Also here, further research on modelling the relationship between trust and intention to use would be gainful.

For practitioners it is important to realize that users of mobile applications are able to recognize covert ads and such ads have a negative impact on the trust in the application and on the intention-to-use. However, they should also acknowledge that subtle advertisements, which provide useful information to the user, are not always recognized as covert advertisements, in contrast to more intrusive and obvious ads. In this case of subtle ads it is however remarkable that if users remark at a later time that the entry was in fact an ad, there is a significant loss of trust propensity. In the age of social media, rumours on covert advertisement are likely to spread fast. Considering the following loss of trust propensity, it is besides ethical considerations also not commercially advisable to cover even informative ads.

References

- Aditya, R.N. (2001). The psychology of deception in marketing: a conceptual framework for research and practice. Psychology and Marketing, 18 (7), 735-761.
- Adler, L. (1966). Symbiotic marketing. Harvard Business Review, 44, 59-71.
- Au, I., Boardman, R., Jeffries, R., Larvie, P., Pavese, A., Riegelsberger, J., Rodden, K. and Stevens, M. (2008). User experience at google: focus on the user and all else will follow. CHI'08 Extended Abstracts on Human Factors in Computing Systems, 3681-3686.
- Barkhuus, L. and Dey, A. (2003). Location-based services for mobile telephony: a study of users' privacy concerns. Proceedings of INTERACT 2003.
- Barnes, S.J. (2003). Developments in the m-commerce value chain: adding value with location-based services. Geography, 88 (4), 277-288.
- Burke, M., Hornof, A., Nilsen, E. and Gorman, N. (2005). High-cost banner blindness: ads increase perceived workload, hinder visual search, and are forgotten. ACM Transactions on Computer-Human Interaction, 12 (4), 423-445.
- Colquitt, J.A., Scott, B.A. and LePine, A. (2007). Trust, trustworthiness, and trust propensity: a metaanalytic test of their unique relationships with risk taking and job performance. Journal of Applied Psychology, 92 (4), 909-927.
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, an user acceptance of information technology". MIS Quarterly, 13 (3), 319-340.
- Dhar, D. and Varshney, U. (2011). Challenges and business models for mobile location-based services and advertising. Communications of the ACM, 54 (5), 121-129.
- Forbes (2012). Facebook struggles with monetizing its mobile users Accessed at: http://www.forbes.com/sites/greatspeculations/2012/07/27/facebook-struggles-with-monetizing-itsmobile-users/
- Gartner (2013). Gartner Says Worldwide Mobile Advertising Revenue to Reach \$11.4 Billion in 2013. Accessed at: http://www.gartner.com/newsroom/id/2306215
- Hosbond, J.H. and Skov, M.B. (2007). Micro mobility marketing: two cases on location-based supermarket shopping trolleys. Journal of Targeting, Measurement and Analysis for Marketing, 16 (1), 68-77.
- Kautish, P. (2010). Covert Marketing: A Virtual Media Communication Vehicle. The Romanian Economic Journal, 13 (35), 35-54.
- Kim, C., Mirusmonov, M. and Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. Computers in Human Behavior, 26 (3), 310-322.

- Lacher, K.T. and Rotfeld, H.T. (1994). Newspaper policies on the potential merging of advertising and news content. Journal of Public Policy & Marketing, 13 (2), 281-289.
- Lee, M.K.O. and Turban, E. (2001). A trust model for consumer internet shopping. International Journal of Electronic Commerce, 6 (1), 75-91.
- Leidner, D., Pan, S., Sutanto, J. and Brown, C.V. (2012). Editors' Comments: Managing Mobility for Business Value. MIS Quarterly Executive, 11 (4), 3-4.
- Li, H. and Bukovac, J.L. (1999). Cognitive impact of banner ad characteristics: an experimental study. Journalism and Mass Communication Quarterly, 76 (2), 341-353.
- Li, H., Edwards, S.M., Lee, J. (2002). Measuring the intrusiveness of advertisements: scale development and validation. Journal of Advertising, 31 (2), 37-47.
- Mavlanova, T. and Benbunan-Fich, R. (2010). Counterfeit products on the Internet: The role of sellerlevel and product-level information. Intenational Journal of Electronic Commerce, 15 (2), 79-104.
- McCoy, S., Everard, A., Polak, P. and Galletta, D. (2007). The effects of online advertising. Communications of the ACM, 50 (3), 84-88.
- McDaniel, S.R. (1996). Ambush marketing revisited: an experimental study of perceived sponsorship effects and brand awareness, attitude toward the brand and purchase intention. Journal of Promotion Management, 3 (1/2), 141-168.
- Meenaghan, T. (1998). Ambush marketing: corporate strategy and consumer reaction. Psychology and Marketing, 15 (4), 305-322.
- O'Reilly, T. (2007). What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software. Communications & Strategies, No. 1, 17-38.
- Pavlou, P.A. and Gefen, D. (2005). Psychological contract violation in online marketplaces: antecedents, consequences, and moderating role. Information Systems Research, 16 (4), 372-399.
- Rao, B. and Mnakakis, L. (2003). Evolution of mobile location-based services. Communications of the ACM, 46 (12), 61-65.
- Robinson, S.L. and Rousseau, D.M. (1994). Violating the psychological contract: not the exception but the norm. Journal of Organizational Behavior, 15 (3), 245-259.
- van Dyne, L., Vandewalle, D., Kostova, T., Latham, M.E. and Cummings, L.L. (2000). Collectivism, propensity to trust and self-esteem as predictors of organizational citizenship in a non-work setting. Journal of Organizational Behavior, 21 (1), 3-23.
- Varadarjan, P. and Rajaratnam, D. (1986). Symbiotic marketing revisited. Journal of Marketing, 50 (1), 7-17.
- Varnali, K. and Toker, A. (2009). Mobile marketing research: the state-of-the-art. International Journal of Information Management, 30 (2), 144-151.
- Wehmeyer, K. (2007). Mobile ad intrusiveness the effect of message type and situation. BLED 2007 Proceedings.
- Zhou, T. (2011). Examining the critical success factors of mobile website adoption. Online Information Review, 35 (4), 636-652.