

The Relationship between M-service Commitment, Positive Affect, and Mobile Advertising Acceptance: Mediating Effects of Experience and Credibility

Byunghwa Yang^{*1}, Jeong-Hyeon Won²

^{*1} Professor, Dept. of Psychology, Kangwon National University, 1 Gangwondaehakgil, Chuncheon, Gangwondo, 24341, South Korea

² Graduate Student, Dept. of Psychology, Kangwon National University, 1 Gangwondaehakgil, Chuncheon, Gangwondo, 24341, South Korea

byang@kangwon.ac.kr^{*1}, gaatl2@naver.com²

Corresponding author : Byunghwa Yang, E-mail : byang@kangwon.ac.kr

Abstract

Background/Objectives: The current study investigates the effect of positive affect on the mobile advertising acceptance through mobile credibility and user experience.

Methods/Statistical analysis: The 301 Korean undergraduate students participated in the survey research. We collected data from a quota sampling method based on demographics. CFA was conducted to investigate the research constructs. To examine the structural relationships of the research variables, we performed a path analysis and the PROCESS procedure using bootstrapping method with 95% confidence intervals.

Findings: The result in our study revealed that the proposed model was adequate fit to the data. Our results represented that the direct effect of positive affect on mobile advertising acceptance was significant, and the indirect effect of consumers' positive affect through ad credibility was also significant. Additionally, m-service commitment was directly related to consumers' positive affect and perceived credibility of mobile advertising. However, we did not find the indirect effect of positive affect on mobile advertising acceptance through mobile advertising experience. The results of this study imply that consumers' positive affect can reduce privacy concerns in m-commerce transactions.

Improvements/Applications: Further research should consider various m-commerce platforms, such as social networking services and branded apps, which may provide new findings.

Keywords: m-service commitment, positive affect, advertising experience, advertising credibility, advertising acceptance, privacy concern

1. Introduction

Communication strategies for mobile devices have provided new opportunities for global businesses to reach their customers. In the context of mobile commerce (m-commerce), mobile advertising has become a dominant channel for communicating with target audiences, based on the rapid development of wireless telecommunication technology.

Mobile advertising is defined as an advertising type that transmits advertising messages to users through smartphones and other mobile devices [1]. The personalized mobile communication allows individuals to access the most updated information and product-related sales promotions, at the right time. Mobile advertising provides a tailored message based on consumers' needs, preferences, and locations; therefore, it has the advantage of higher cost efficiency compared to other marketing platforms. Consequently, the goal of mobile advertising is to match the consumers' needs in shopping environments (location, time, delivery mechanism), market factors (partnerships, regulations, industry), and advertising elements (ad type, ad medium, promotional elements) [2].

Although short messaging service (or multimedia messaging service) is widely used forms of mobile advertising, they tend to be perceived as spam messages that are push-based advertising, which are not designed for personal consumer needs. However, pull-based mobile advertising is based on user permission and may effectively communicate relevant advertising messages, thereby fostering a high involvement level of customers. Pull-based types of mobile advertising may enable marketers to create customized strategies for consumers' preferences via mobile coupons and promotions. While mobile advertising can prove to be beneficial to both marketers and customers, previous research has indicated relatively mixed results [3]. In particular, audiences may not positively respond to mobile advertising when the ad messages are not targeted to their needs and interests. In addition, m-commerce may escalate the issue of privacy concern due to the transmission of personal information during a

mobile transaction.

Despite the advantages of m-commerce, mobile users are unfavorable toward receiving mobile advertising messages and are increasingly adopting technologies that may block unwanted mobile ads. Mobile users have a dilemma, known as the privacy paradox, which is a conflict between privacy attitudes and behaviors [4]. In other words, consumers may want to receive customized advertising messages through mobile devices, but, at the same time, they may be uncomfortable to providing personal information in m-commerce transactions. The nature of mobile advertising technology focuses on offering consumers with one or more recommended products and services that match their preferences [3]. Privacy concerns can negatively influence mobile advertising acceptance; therefore, we highlight the importance of finding ways to overcome consumer privacy concerns in mobile advertising. Although mobile advertising inherently increases the risk and uncertainty of consumer decision-making, firms may enhance consumer acceptance of mobile advertising by increasing consumers' positive affect and commitment.

Positive affect can directly and indirectly influence consumers' evaluation of advertising, a psychological process that is a type of self-construal based on memory [5]. In addition, positive affect may foster the amount of information that bring to mind in response to mobile advertising messages and may lead to more effective and flexible solutions. Recent research on 'emoji' has shown that consumer response to advertising messages can be mediated by positive affect [6]. Therefore, we expect that positive affect will reduce privacy concerns and thereby increase acceptance of mobile advertising messages.

Similarly, customer commitment is one of the crucial factors for predicting the firm-customer dyad. The construct of commitment includes psychological attachment, personal identification, and loyalty, which facilitates trust and reciprocity [7]. The committed customers are likely to report close and long-term relationships with a company. Research on customer commitment has indicated that commitment is associated with customer satisfaction, trust, and loyalty [7]. Furthermore, mobile service quality may directly affect customer commitment and, in turn, may influence emotional response to the service content. Recent literature has shown the link between positive affect and commitment to a brand corresponding to the psychological process of affect congruence [8]. Therefore, the present study extends the previous research on commitment by considering the effects of m-service commitment and positive affect on mobile advertising adoption.

We further postulate the mediating roles of credibility and user experience in mobile advertising. In the context of m-services, user experience is considered a key driver for attitude formation and the intention to adopt mobile services [9]. Experienced users tend to minimize the privacy concerns in m-commerce transactions because they believe that experience may help them distinguish the information quality of mobile services. In addition, experienced individuals are likely to depend on systematic evaluation of the m-service information, whereas inexperienced individuals are likely to rely on heuristic evaluation of the information.

The literature on m-commerce has revealed that user experience can affect the use of mobile shopping applications [10]. In addition, user experience can mediate the impacts of antecedents (informativeness, advertising value, design quality, etc.) of purchase intention on mobile advertising. Moreover, positive affect can strengthen consumers' consumption experience and consequently foster brand credibility and brand loyalty [10]. Therefore, the research model in the present study assumes that user experience of mobile advertising can mediate the linkage between m-service commitment, positive affect, and mobile advertising acceptance.

The perceived credibility of advertising is another source of the attitudes toward mobile advertising and purchase intentions. Advertising credibility can facilitate the willingness to accept mobile advertising and foster the behavioral intention to m-commerce [9]. Trust reduces the perceived risk of m-commerce adoption because a higher level of trust can induce a lower level of perceived risk and uncertainty [11]. In the same vein, information disclosure online can be affected by perceived wireless security and perceived privacy, suggesting that greater perceived credibility will reduce the privacy concern in an m-commerce transaction.

The literature on privacy paradox indicates that user credibility in social media services is associated with engagement of social media services, whereas privacy concern is related to privacy protection behaviors that may reduce the adoption of m-commerce [12]. Furthermore, empirical evidence proves that credibility in m-commerce can mediate the relationship between perceived risk and perceived privacy on behavioral outcomes such as attitudes, satisfactions, and intentions [7]. In our research model, we assume that the effects of m-service commitment and positive affect on mobile ad acceptance will be mediated by advertising credibility.

This current research proposes a structural model of m-advertising acceptance that confirms the mediating effects of mobile ad experience and mobile ad credibility on the linkage between commitment, positive affect, and mobile advertising acceptance in the vein of m-commerce. Figure 1 illustrates our research model.

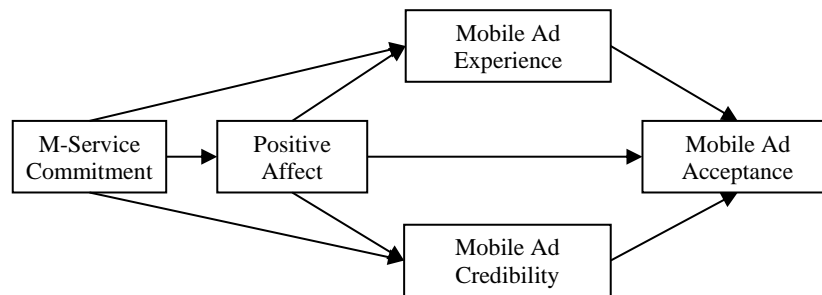


Figure 1. Research Model

2. Methods

2.1. Sample

To test our research model, a cross-sectional survey questionnaire was implemented at several large universities in South Korea. Respondents for the survey were recruited via the online community of the university students, and they were all mobile subscribers. We collected data from a quota sampling approach based on the demographics of the university population. In total, 324 students participated in the present study through online and offline questionnaires. We excluded 23 incomplete responses. The rest of the 301 usable responses were contained in the analysis, leading to a 92.2% response rate. The sample comprised 48.2% male ($n = 145$) and 51.8% female ($n = 156$). The mean age of the research sample was 22.15 ($SD = 2.36$).

2.2. Measurement

The survey items were drawn from previous literature, which were modified to fit the mobile advertising context. The majority of measurement items were adopted on a five-point scale, encompassing m-service commitment, mobile ad experience, mobile ad credibility, and mobile ad acceptance. Positive affect was measured on a seven-point semantic differential scale.

Commitment is characterized as an “enduring desire to maintain a valued relationship” [7, p. 316]. According to this definition, m-service commitment was measured using four items adopted from previous literature [13]. Internal consistency of the four items in the present study was .884. The sample items were “I am proud to be a customer of the current m-service” and “I feel a sense of belonging to the current m-service.”

Positive affect was measured using seven modified items adopted from a prior study [14], corresponding to an opposite dimension from negative affect (-3) to positive affect (+3). Internal consistency of the seven items in the present study was .827. The sample items were “unpleasant – pleasant,” “disgusting – enjoyable,” “dull – exciting,” and “uncomfortable – comfortable.”

Advertising credibility can be considered as the degree to which mobile users believe that m-advertising is credible [9]. The scale of mobile ad credibility consisted of three items adopted from previous literature [9]. The sample items were “I trust mobile advertising” and “I believe that mobile ad is a good reference for purchasing products and services.” The internal consistency of mobile ad credibility in the current study was .802. In addition, the mobile ad experience was measured using five items adopted from prior literature [9]. The experience items contained user experience of different types of mobile advertising, including SMS, banner ads, rich media ads, keyword search ads, and in-app ads. The internal consistency of user experience in the present study was .654.

Finally, mobile advertising acceptance was measured using four modified items proposed in previous studies [3]. The sample items were “I plan to click on mobile advertising in the near future” and “Using a mobile advertising is a good idea.” Internal consistency of the four items in the present study was .899.

2.3. Data Analysis

Before analyzing the structural model, we first performed confirmatory factor analysis (CFA) for the constructs. The result showed that measurement model fits the data adequately: $RMSEA = .085$, $IFI = .847$, $TLI = .823$, $CFI = .845$. The standardized coefficients of the constructs in our model ranged from .331 to .890. Averaged variance extracted (AVE) values ranged from .837 to .925. The AVE values for each construct exceeded .50, supporting convergent validity. Also, the squared root for AVEs is greater than the correlations of other variables, thus satisfying discriminant validity (Table 1).

To investigate the structural relationships in the research model, we performed path analysis using AMOS 24.0. The constructs of the path analysis were aggregate scores of the observed variables and were evaluated by a statistical test of the proposed relationships. Subsequently, we performed multiple regression analysis, to investigate the parallel mediation effects of mobile ad experience and ad credibility on the linkage between positive affect and mobile ad acceptance. At this stage, we adopted the PROCESS bootstrapping procedure using SPSS 24.0, with a subsample of 5,000 and a 95% confidence interval [15].

3. Results and Discussion

Given the satisfactory measurement model, eight structural paths in the research model were tested. Using a bootstrapping procedure, we calculated r-square estimates, unstandardized path coefficients, standard path coefficients, and t-statistics for structural relationships (see Table 2). The fit statistics revealed that the structural model offered a good fit ($\chi^2_{(2)} = 6.757$, $p = .034$, RMSEA = .089, IFI = .982, TLI = .905, CFI = .981). As indicated in Table 2, R^2 estimates were greater than the recommended .02 [33], except for the mobile ad experience. In particular, the R^2 value for mobile ad acceptance showed that the theoretical proposed model explained 47.1% variance of the endogenous construct, suggesting a satisfactory level of predictability. In addition, the structural model explained 2.4% of positive affect and 16.5% of mobile ad credibility.

Table 1: Correlations, Descriptive Statistics, and AVE for Constructs

	Mean	SD	1	2	3	4	5
1. m-service Commitment	2.381	.754	.916				
2. Positive Affect	3.089	.793	.155**	.851			
3. Mobile Ad Experience	3.542	.716	.015	-.033	.837		
4. Mobile Ad Credibility	2.007	.678	.328**	.287**	.064	.929	
5. Mobile Ad Acceptance	2.129	.712	.310**	.470**	.039	.613**	.925

* $p < .05$ ** $p < .01$

Diagonals represent the Average Variance Extracted (AVE)

Table 2: Structural Results

Dependent Variable	Independent Variable	B	SE	β	t	R^2
Positive Affect	m-service Commitment	.163	.060	.155	2.724**	.024
Mobile Ad Experience	m-service Commitment	.019	.055	.021	.351	.002
	Positive Affect	-.033	.053	-.036	-.621	
Mobile Ad Credibility	m-service Commitment	.262	.048	.291	5.446**	.165
	Positive Affect	.206	.046	.241	4.520**	
Mobile Ad Acceptance	Positive Affect	.289	.039	.322	7.335**	.471
	Mobile Ad Experience	.016	.042	.016	.376	
	Mobile Ad Credibility	.546	.046	.520	11.834**	
Goodness-of-Fit Indices				$\chi^2_{(2)} = 6.757$, $p = .034$, RMSEA = .089 IFI = .982, TLI = .905, CFI = .981		

* $p < .05$ ** $p < .01$

Note. B = Unstandardized coefficient, SE = Standardized error, β = Standardized coefficient

For the structural relationships, the direct effect of m-service commitment on positive affect was supported at a significance level of .01 ($\beta = .155$, $t = 2.724$). M-service commitment had a direct effect on mobile ad credibility ($\beta = .291$, $t = 5.446$, $p < .01$), but not a direct effect on mobile ad experience ($\beta = .021$, $t = .351$, $p > .05$). Similarly, the direct effect of positive affect on mobile ad credibility was supported at a significance level of .01 ($\beta = .241$, $t = 4.520$, $p < .01$), but not on mobile ad experience ($\beta = -.036$, $t = -.621$, $p > .05$). Although mobile ad experience did not directly relate to mobile ad acceptance ($\beta = .016$, $t = .376$, $p > .05$), positive affect and mobile ad credibility were significantly and directly related to mobile ad acceptance (positive affect $\beta = .322$, $t = 7.335$; mobile ad credibility $\beta = .520$, $t = 11.834$, all $p < .01$).

Table 3. Regression Results of Parallel Mediation

	Mobile Ad Experience (M ₁)			Mobile Ad Credibility (M ₂)			Mobile Ad Acceptance (Y)		
	B	SE	t/95%CI	B	SE	t/95%CI	B	SE	t/95%CI
Positive Affect (X)							.289	.039	7.298**
Mobile Ad Experience (M ₁)							.016	.042	.374
Mobile Ad Credibility (M ₂)							.546	.047	11.774**
Total effect							.422	.046	9.219**
Indirect effect: Bootstrapping	-.001	.003	-.011, .003	.135	.035	.074, .209	.134	.035	.073, .209
Indirect effect: Sobel Test	.002	.004	Z = -.388	.134	.028	Z = 4.727**			

Goodne-of-fit

 $R^2 = .471, F(3,297) = 88.198^{**}$ * $p < .05$, ** $p < .01$ Note. B = Unstandardized coefficient, SE = Standardized error, M_1 = Mediator 1, M_2 = Mediator 2

For the estimation of parallel mediation, we first tested a direct effect of positive affect on mobile ad acceptance and then examined the overall indirect effect on the relationship between positive affect and mobile ad acceptance via mobile ad experience and ad credibility. Table 3 represents the regression results of parallel mediation analysis. The regression results showed that the direct effect of positive affect (X) on mobile ad acceptance (Y) was statistically significant ($B = .289, t = 7.298, p < .01$). The results further indicated that the indirect effect via mobile ad credibility (M_2) on the relationship between positive affect (X) and mobile ad acceptance (Y) was significant ($Z = 4.717, p < .01$; 95% CI = .074, .209). As the bootstrapped 95% confidence interval did not involve zero, the indirect effects via mobile ad credibility were strongly supported. However, the specific indirect effect via mobile ad experience (M_1) included zero in the 95% confidence interval, thus not supporting indirect effect ($Z = -.388, p > .05$; 95% CI = -.011, .003). Therefore, our findings suggest that consumer's positive affect directly influences mobile ad acceptance as well as indirectly influences through mobile ad credibility, thus providing evidence of a partial mediation model.

Our results suggest that positive affect may increase efficient information processing and minimize privacy protective behaviors in the vein of m-commerce. Our findings are also in line with the assertions of previous research streams that perceived credibility as a key component of the mobile commerce ecosystem. Given that mobile advertising is deemed as credible information, it is likely to be accepted by consumers. Moreover, our findings confirmed that advertising credibility can mediate the impact of positive affect on mobile advertising acceptance, while mobile advertising experience does not. Therefore, marketing communication via mobile platforms should lead to consumers' positive affect and consequently lead to positive attitudes toward m-advertising. Thus, marketers should endeavor to provide advertising messages with entertainment and enjoyment factors that increase consumers' positive affect.

Although the present study proposes a comprehensive understanding in reducing privacy concerns in m-commerce transactions, there are several limitations. First, the interpretation of our results could be restricted to young students by using a nonprobability sample as opposed to a probabilistic sampling method. Second, consumers' affective states can be induced by an experimental approach in order to measure consumers' current positive affect corresponding to mobile ads. Further research is needed to conduct an experiment on affect induction, confirming the internal validity of an experiment. Finally, future studies should consider other m-commerce platforms, such as social networking services (Facebook, YouTube, Instagram) and branded applications, which may provide new findings that extend our results.

4. Conclusion

The current study integrates mobile advertising communication, which induces consumers' positive affect, influencing the acceptance of advertising information, and credibility, which mediates the relationship between consumer affect and advertising performance. Based on the privacy paradox, our findings provide an extended theoretical model that represents a chain linking consumers' affect, advertising credibility, and adoption of mobile advertising. Beyond the technology acceptance model, the present study suggests that positive affect can be one of the key drivers for advertising performance and a solution for the privacy concern.

5. References

- Chen P. T. & Hsieh H. P. (2012). Personalized mobile advertising: Its key attributes, trends, and social impact. *Technological Forecasting and Social Change*, 79(3), 543-557. DOI:10.1016/j.techfore.2011.08.011
- Grewal D., Bart Y., Spann, M. & Zubcsek P. P. (2016). Mobile advertising: A framework and research agenda. *Journal of Interactive Marketing*, 34, 3-14. DOI:10.1016/j.intmar.2016.03.003
- Gironda J. T. & Korgaonkar P. K. (2018). iSpy? Tailored versus invasive ads and consumers' perceptions of personalized advertising. *Electronic Commerce Research and Applications*, 29, 64-77. DOI:10.1016/j.elerap.2018.03.007
- Barth S. & De Jong M. D. (2017). The privacy paradox – Investigating discrepancies between expressed privacy concerns and actual online behavior – A systematic literature review. *Telematics and Informatics*, 34(7), 1038-1058. DOI:10.1016/j.tele.2017.04.013
- Lynch Jr J. G. & Srull T. K. (1982). Memory and attentional factors in consumer choice: Concepts and research methods. *Journal of Consumer Research*, 9(1), 18-37 DOI:10.1086/208893
- Das G., Wiener H. J. & Kareklas I. (2019). To emoji or not to emoji? Examining the influence of emoji on consumer reactions to advertising. *Journal of Business Research*, 96, 147-156. DOI:10.1016/j.jbusres.2018.11.007
- Moorman C., Zaltman G. & Deshpande R. (1992). Relationships between providers and users of market research: The dynamics of trust within and between organizations. *Journal of Marketing Research*, 29(3), 314-328. DOI:10.1177/002224379202900303
- Thürridl C., Kamleitner B., Ruzeviciute R., Süßenbach S. & Dickert S. (2020). From happy consumption to possessive bonds: When positive affect increases psychological ownership for brands. *Journal of Business Research*, 107, 89-103.

DOI:10.1016/j.jbusres.2019.10.019

9. Yang B., Kim Y., & Yoo C. (2013). The integrated mobile advertising model: The effects of technology-and emotion-based evaluations. *Journal of Business Research*, 66(9), 1345-1352. DOI:10.1016/j.jbusres.2012.02.035
10. Chopdar P. K., Korfiatis N., Sivakumar V. J. & Lytras M. D. (2018). Mobile shopping apps adoption and perceived risks: A cross-country perspective utilizing the Unified Theory of Acceptance and Use of Technology. *Computers in Human Behavior*, 86, 109-128. DOI:10.1016/j.chb.2018.04.017
11. Luo X., Li H., Zhang J. & Shim J. P. (2010). Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: An empirical study of mobile banking services. *Decision support systems*, 49(2), 222-234. DOI:10.1016/j.dss.2010.02.008
12. Mosteller J. & Poddar A. (2017). To share and protect: Using regulatory focus theory to examine the privacy paradox of consumers' social media engagement and online privacy protection behaviors. *Journal of Interactive Marketing*, 39, 27-38. DOI:10.1016/j.intmar.2017.02.003
13. Karjaluoto H., Shaikh A. A., Saarijärvi H. & Saraniemi S. (2019). How perceived value drives the use of mobile financial services apps. *International Journal of Information Management*, 47, 252-261. DOI:10.1016/j.ijinfomgt.2018.08.014
14. Igarria M., Parasuraman S. & Baroudi J. J. (1996). A motivational model of microcomputer usage. *Journal of Management Information Systems*, 13(1), 127-143. DOI:10.1080/07421222.1996.11518115
15. Hayes A. F. (2015). An index and test of linear moderated mediation. *Multivariate Behavioral Research*, 50(1), 1-22. DOI:10.1080/00273171.2014.962683