

# Perceived Influence of Interactive Television Advertising Conceptual Design Model toward Impulse Purchase Tendency: A Survey

Siti Mahfuzah Sarif, Azizah Che Omar, Norshuhada Shiratuddi

*School of Multimedia Technology and Communication, College of Arts and Sciences, Universiti Utara Malaysia, 06010 UUM Sintok, Kedah, Malaysia.  
co.azizah@uum.edu.my*

**Abstract**—Impulse purchase (IP) is an imperative factor for consumer to purchase products. However, studies related to IP for interactive television (iTV) advertising are minimal. Literatures show that most of IP related studies are mainly focusing on other medium like website, traditional TV, and not to mention the traditional retail store. Due to that, through a systematic process, a design model for developing iTV advertising with influence towards impulse purchase tendency was developed and tested in this study. The design model is named as iTVAdIP and comprises of three main component; technology, impulse purchase, and development process. This paper describes a survey, which measures the perceived influence of iTVAdIP design model towards impulse purchase tendency. A total of 37 potential advertising designers were involved in the survey. The results indicate that the iTVAdIP is perceived as practical and workable in developing iTV advertisement that could influence consumer to buy the advertised product.

**Index Terms**—Interactive television advertising, impulse purchase

## I. INTRODUCTION

Advancement of technology has definitely changed the way consumers purchase their products/services and carried distinct impact to the consumers' behavior. Consequently, it urges the retailers and researchers in the area to be aware of this inevitable change and starting to develop strategies to keep up with it. Television has been a dominating technology when it comes to advertising, and with the emergent of interactive television (iTV) there are so much more can be offered to consumers in relation to advertising. Interactive television (e.g., IPTV, Internet TV, set-top boxes) provides television viewing experience that enable consumers to send or request information back to the programmer and advertiser. Programmes shown on iTV enable viewers to take immediate action when they see an advertisement including requesting for more information and items like coupons and samples. Hence, how impulsive behavior become the centre of attention in this study.

Impulse purchase is an important factor in consumer behavior. It is defined as an unplanned decision to buy a product or service, made just before the purchase. Over the years, researchers have been arguing on what could possibly fuel the impulse purchase among consumers. Many existing studies

have been focusing on proposing factors related to impulse purchase in medium like; traditional retail stores [1], websites [2,3,4,5] and traditional television [6,7,8,9]. However, minimal research focuses on formalising the design of the impulse purchase tendency for interactive television (iTV) advertising as supported in [10,11,12]. Hence, a systematic process was carried out to develop a conceptual design model for iTV advertising that could influence the impulse purchase tendency among consumers. The conceptual design model is known as Interactive Television Advertising for Impulse Purchase (iTVAdIP) [13,14]. The iTVAdIP design model was formulated with aim to enable advertising designers to develop iTV advertisement that consists of impulse purchase elements, which can attract and influence consumer to purchase the advertised product impulsively.

The sole purpose of this paper is to report on the evaluation of the proposed design model (i.e. iTVAdIP) via survey of perceived influence of iTVAdIP towards impulse purchase tendency. Data gathered from the survey are also used to affirm the hypotheses of this study as discussed in the findings' section.

## II. SURVEY DESIGN

In validating the iTVAdIP design model, three main phases have taken place, which are pre-evaluation (i.e., instrument development and hypotheses development), during evaluation (i.e., the survey), and post-evaluation (i.e., the analysis of findings). Prior to the survey, a questionnaire was formed as the main instrument for validating the proposed design model and a set of hypotheses were also developed for testing. Later, the data gathered from the survey were analysed statistically where Pearson's Correlation Coefficient tests were conducted to test majority of the hypotheses.

### A. Instrument Development: Questionnaire

In this study the proposed design model (iTVAdIP) is validated based on its perceived influence towards impulse purchase tendency. Hence, suitable dimensions were elicited and used for the validation. The dimensions were elicited from previous studies in several fields, such as general software development [15,16,17,18,19,20], information systems [21,22], multimedia applications [23], and project management [24,25].

The dimensions are also commonly used to evaluate conceptual design models [26]. Eight dimensions were put forward from the elicitation work as illustrated in Table 1.

Table 1  
Evaluation dimensions of perceived influence of iTVAdIP model towards impulse purchase tendency

No.	Dimensions	Descriptions
1	Perceived Ease of Use	The model is clear, understandable, easily to interpret and can be implemented easily.
2	Perceived Usefulness	The model is useful for understanding the development of iTV advertising.
3	Clarity	The model is organized and structured well.
4	Flexibility	The model is flexible and capable to being managed and controlled. The model is adaptable for future use.
5	Visibility	The model is visible to the iTV advertiser so that it will assist the advertiser to develop iTV advertising. The model also provides specific guide upon the development of iTV advertising. In general the model provides complete and detail information for iTV advertising development.
6	Applicability	All elements in the model are relevant and give a complete representation of the iTV advertising. The model provided adequate information that gives benefit to advertiser.
7	Satisfaction	The model is effective in providing the information The model is good, interesting, informative and valuable.
8	Motivation	The model could produce results that will increase the impulse purchase level for iTV advertising.

### B. Hypotheses Development

Having identified the eight dimensions for validating iTVAdIP's perceived influence towards impulse purchase tendency, a list of hypotheses was constructed (see Table 2).

### C. Subject Demographics

There were 37 potential advertising designers involved in the survey, in which 29 samples were female (representing 78.4% of the total), and another 8 were male (i.e., 21.6%). They were gathered through purposive sampling.

### D. The Setup

The survey was carried out in a controlled setting where tasks are specifically designed for the survey. The subjects were tasked to develop an interactive advertisement based on any guideline they prefer. Upon completing the task, one designer and one expert were asked to assess the advertisements developed by the potential designers, to see whether it conforms to the iTVAdIP elements in terms of impulse purchase tendency. The percentage result for each advertising design was noted. Then, the potential designers were briefed about the iTVAdIP design model.

After that, three samples of iTV advertisements (in video format), which consist of interactive elements (e.g., hand gesture, touch screen and remote control) were shown to them. The purpose of showing the samples is to show them the execution of impulse purchase elements and interactivity for iTV advertising. Later, the potential advertising designers were

given the questionnaire to assess the perceived influence of the elements in iTVAdIP design model towards impulse purchase tendency.

Table 2  
Hypotheses of eight proposed dimensions of perceived influence of iTVAdIP towards impulse purchase tendency

Descriptions	Statistical Tests
<b>H<sub>1</sub></b> : There is positive relation between perceived ease of use and overall perceived influence of iTVAdIP design model towards impulse purchase tendency.	Pearson's Correlation Coefficient Test
<b>H<sub>2</sub></b> : There is positive relation between perceived usefulness and overall perceived influence of iTVAdIP design model towards impulse purchase tendency.	
<b>H<sub>3</sub></b> : There is positive relation between clarity and overall perceived influence of iTVAdIP design model towards impulse purchase tendency.	
<b>H<sub>4</sub></b> : There is positive relation between flexibility and overall perceived influence of iTVAdIP design model towards impulse purchase tendency.	
<b>H<sub>5</sub></b> : There is positive relation between visibility and overall perceived influence of iTVAdIP design model towards impulse purchase tendency.	
<b>H<sub>6</sub></b> : There is positive relation between applicability and overall perceived influence of iTVAdIP design model towards impulse purchase tendency.	
<b>H<sub>7</sub></b> : There is positive relation between satisfaction and overall perceived influence of iTVAdIP design model towards impulse purchase tendency.	
<b>H<sub>8</sub></b> : There is positive relation between motivation and overall perceived influence of iTVAdIP design model towards impulse purchase tendency.	
<b>H<sub>9</sub></b> : The mean score of overall perceived influence of iTVAdIP design model towards impulse purchase tendency is high.	Descriptive Analysis

## III. ANALYSIS OF SURVEY FINDINGS

This study uses Pearson's correlation coefficient to test the correlation between evaluated dimensions and overall influence of iTVAdIP design model towards impulse purchase tendency. Pearson's correlation coefficient test is example of parametric tests. Many parametric tests rely on the assumption that data need to be normally distributed. This study uses One Sample Kolmogorov-Smirnov test, which test the data for normal distribution. Having normalized all the gathered data, the analysis proceeded with the selected parametric test for hypotheses testing.

### A. Testing H<sub>1</sub> to H<sub>8</sub>: Pearson's Correlation Coefficient Tests

Hypotheses H<sub>1</sub> to H<sub>8</sub> suggest that positive correlation is expected in each relationship. Positive correlation indicates directions. Therefore, the predictions are one-tailed. Significant correlations are highlighted with an asterisk (\*) for a significance of p < .05 and double asterisks (\*\*) for p < .01.

Referring to the results, it was found that there were enough evidences not to reject H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, H<sub>4</sub>, H<sub>5</sub>, H<sub>6</sub>, H<sub>7</sub>, and H<sub>8</sub>. These results also indicate the following:

- As PERCEIVED EASE OF USE increases, OVERALL PERCEIVED INFLUENCE of iTVAdIP design model towards impulse purchase tendency also increases, which is a positive correlation.
- As PERCEIVED USEFULNESS increases, OVERALL PERCEIVED INFLUENCE of iTVAdIP design model towards impulse purchase tendency also increases, which is a positive correlation.
- As CLARITY increases, OVERALL PERCEIVED INFLUENCE of iTVAdIP design model towards impulse purchase tendency also increases, which is a positive correlation.
- As FLEXIBILITY increases, OVERALL PERCEIVED INFLUENCE of iTVAdIP design model towards impulse purchase tendency also increases, which is a positive correlation.
- As VISIBILITY increases, OVERALL PERCEIVED INFLUENCE of iTVAdIP design model towards impulse purchase tendency also increases, which is a positive correlation.
- As APPLICABILITY increases, OVERALL PERCEIVED INFLUENCE of iTVAdIP design model towards impulse purchase tendency also increases, which is a positive correlation.
- As SATISFACTION increases, OVERALL PERCEIVED INFLUENCE of iTVAdIP design model towards impulse purchase tendency also increases, which is a positive correlation.
- As MOTIVATION increases, OVERALL PERCEIVED INFLUENCE of iTVAdIP design model towards impulse purchase tendency also increases, which is a positive correlation.

Table 3 shows the finding of H<sub>1</sub> to H<sub>8</sub>.

Table 3  
Parameters display by OSD

Hypotheses	Results
H <sub>1</sub>	Correlation Coefficient $r = .519, p = .000$
H <sub>2</sub>	Correlation Coefficient $r = .693, p = .000$
H <sub>3</sub>	Correlation Coefficient $r = .777, p = .000$
H <sub>4</sub>	Correlation Coefficient $r = .747, p = .000$
H <sub>5</sub>	Correlation Coefficient $r = .890, p = .000$
H <sub>6</sub>	Correlation Coefficient $r = .819, p = .000$
H <sub>7</sub>	Correlation Coefficient $r = .817, p = .000$
H <sub>8</sub>	Correlation Coefficient $r = .630, p = .000$

Figure 1 illustrates the results further.

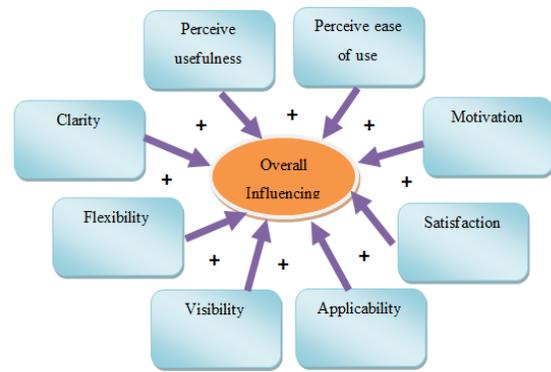


Figure 1: Relationships of all dimensions of perceived influence of iTVAdIP design model towards impulse purchase tendency

**B. Testing H<sub>9</sub>: Descriptive Analysis**

In validating H<sub>9</sub>, descriptive analysis was performed. Table 4 displays the result in mean and standard deviation values.

Table 4  
Descriptive analysis of overall perceived Influence of iTVAdIP design model towards impulse purchase tendency

Dimension	N	Mean	Std. Deviation
Overall perceived influence	37	5.632	.154

As shown in Table 4, the mean score for overall perceived influence is 5.632. In interpreting this score, the gap classification of interval scales is considered. As explained in [27], the gap classification of interval scales used in research instrument may follow the formula below:

$$\begin{aligned} \text{Gap} &= (\text{highest score} - \text{lowest score}) / \text{number of scale} \\ &= (7-1) / 7 \\ &= 0.86 \end{aligned}$$

Therefore, for a 7-point Likert scale, the following classifications are obtained for the response gap (as illustrated in Table 5). So, in order to support H<sub>9</sub>, the mean scores of the overall perceived influence have to be at least 5.35 or more.

Table 5  
Response Classification

Gap	Classification
1.00 - 1.86	Very low
1.87 - 2.73	Low
2.74 - 3.60	Fairly low
3.61 - 4.47	Average
4.48 - 5.34	Fairly high
5.35 - 6.21	High
6.22 - 7.00	Very High

From the above classification it was found that the mean score (i.e., 5.632) of overall perceived influence of iTVAdIP design model falls under “High” category, which implies that H<sub>9</sub> is supported.

## IV. CONCLUSION AND FUTURE WORKS

This study has proposed the iTVAdIP design model that can be helpful for the advertising designers to create iTV advertisement that can attract and influence consumer to purchase the advertised product impulsively. This study also validates the proposed design model based on eight dimensions namely: perceived ease of use, perceived usefulness, clarity, visibility, perceived semantic quality, satisfaction, and motivation. Through a survey, the results of Pearson's Correlation Coefficient Tests show sufficient evidence to conclude that all the above mentioned dimensions have a positive relations to the overall perceived influence of the iTVAdIP design model and the high mean score also shows that the elements in the proposed design model are perceived as practical and workable in designing an iTV advertisement that could influence the impulse purchase tendency.

The result presented in this paper show that the proposed eight dimensions can indeed be used for evaluation of perceived influence of a design model towards impulse purchase tendency. The survey does not show, however, if the dimensions proposed were comprehensive. First, only several fields of research were referred for the elicitation works of the dimensions. Other fields of research may be more suitable for similar studies. Future work needs to compare these dimensions to others from more fields of research and establish their strengths and limitations. Second, the sampling of respondents should be extended to other group of developers in commercial and industry environment. Such considerations could provide richer information and deeper discussion.

## ACKNOWLEDGEMENT

Authors would like to express their gratitude to Ministry of Higher Education for funding this research under Research Acculturation Grant Scheme (RAGS).

## REFERENCES

- [1] Beatty, S. E. and Ferrell, M. E. "Impulsive Buying: Modeling Its Precursors. *Journal of Retailing*". Vol. 74(2), pp. 169–191, 1998.
- [2] Liu, Y. Li, H. and Hu, F. "Website attributes in urging online impulse purchase: An empirical investigation on consumer perceptions. *Decision Support Systems*. Vol. 55(3), pp. 829–837, 2013.
- [3] Fan, X. Tian, X. and Xiao, S. A. "Study on the Operation Mechanism of Website Brand Equity Based on S-O-R Paradigm". *International Conference on Service Systems and Service Management (ICSSSM)*. pp. 566-569, 2012.
- [4] Koo, D.M. and Ju, S.H. "The interactional effects of atmospherics and perceptual curiosity on emotions and online shopping intention". *Computers in Human Behavior*. Vol. 26(3): pp. 377–388, 2010.
- [5] Eroglu, S. A., Machleit, K. A. and Davis, L. M. "Atmospheric Qualities of Online Retailing: A Conceptual Model and Implications". *Journal of Business Research*. Vol. 54: pp. 177–184, 2001.
- [6] Boyland, E.J., Harrolf, J.A., Kirkham, T.C. and Haford. "Persuasive techniques used in television advertisements to market foods to UK children". *Elsevier Appetite*. Vol. 58, pp. 658-664, 2012.
- [7] Wicks, J., Warren, R., Fosu I. and Wicks, R. H. "Dual-modality disclaimers, emotional appeals, and production techniques in food advertising airing during programs rated for children. *Journal of Advertising*. Vol. 38, pp. 93–105, 2009.
- [8] Lee, M. S. "Television shopping: the effect of persuasive strategies on parasocial interaction, subjective well-being, and impulse buying tendency among older women". (Master Dissertation, Iowa State University, 2008), 2008.
- [9] Park, J. and Lennon, S. J. "Psychological and environmental antecedents of impulse buying tendency in the multichannel shopping context". *Journal of Consumer Marketing*. Vol. 23(2), pp. 56–66. 2006.
- [10] Azizah, C.O., Norshuhada, S. and Siti Mahfuzah, S. "Impulse Purchase in iTV Advertising: a Conceptual Model of Gap Analysis". *International Journal of Computer Application*. Vol. 91(11), pp. 20-26. 2014.
- [11] Azizah, C.O., Norshuhada, S., Siti Mahfuzah, S., Ariffin, A.M., and Sabrina, M.R. "Identification of Research Gap: T-Commerce Impulse Purchase for iTV advertising". *International Conference on Informatics and Creative Multimedia 2013 (ICICM'13)*. Kuala Lumpur, Malaysia. 3-6 September 2013. 119-122. 2013.
- [12] Siti Mahfuzah, S., Sabrina, M.R., Ariffin, A.M., and Azizah, C.O. 2013. Diffusion of iTV advertising in Malaysia: the industry players' perspectives. *International Conference on Informatics and Creative Multimedia 2013 (ICICM'13)*. Kuala Lumpur, Malaysia. 3-6 September 2013. 99-103.
- [13] Azizah, C.O., Norshuhada, S. and Siti Mahfuzah, S. "Conceptual Design Model of Interactive Television Advertising Towards Impulse Purchase". *ARNP Journal of Engineering and Applied Sciences*. 10(3): 1427-1437. 2015.
- [14] Azizah, C.O., Norshuhada, S. and Siti Mahfuzah, S. "Conceptual Design Model of Interactive Television Advertising: Experts Review on Impulse Purchase Tendency". *International Journal of Conceptions on Management and Social Sciences*. Vol. 3(2), pp. 40-45. 2015(b).
- [15] Henderson-Sellers, B. 1995. Who needs an object-oriented methodology anyway? *Journal of Object Oriented Programming*. 8(6): 6-8.
- [16] Riemenschneider, C. K., Hardgrave, B. C. and Davis, F. D. "Explaining software developer acceptance of methodologies: A comparison of five theoretical models". *IEEE Transactions on Software Engineering*. Vol. 28(12), pp. 1135-1145. 2002.
- [17] Yu, E. and Cysneiros, L. M. "Agent-oriented methodologies-towards a challenge exemplar". *4th International Workshop on Agent-Oriented Information Systems (AOIS'02)*. 2002. Toronto.
- [18] Ciconte, B., Devgan, M., Dunbar, S., Go, P. and Prem, J. 2003. *J2EE software development methodologies. InformIT*. Retrieved Jan 22, 2009 from <http://www.informit.com/articles/printerfriendly.aspx?p=102017>
- [19] Bonner, N. 2008. *Acceptance of systems development methodologies: Testing a theoretically integrated model*. (Doctoral dissertation, University of Texas Arlington, 2008)
- [20] Kitchenham, B. "Evaluating software engineering methods and tool". *ACM SIGSOFT software engineering Notes*. Vol. 23(5), pp. 21-24, 1998.
- [21] Moore, G. C., and Benbasat, I. "Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation". *Information Systems Research*. Vol. 2(3), pp. 192-222. 1991.
- [22] Garrity, E. J. and Sanders L. G. "Dimensions of Information Systems success In Garrity E. J. and Sanders L. G. (eds.)", *Information Systems Success Measurement (pp. 13-45)*. Hershey: Idea Group Publishing (IGP). 1998.
- [23] Lang, M. and Barry, C. 2001. Techniques and methodologies for multimedia systems development: a survey of industrial practice. In N. L. Russo, et al. (Eds.), *Realigning Research and Practice in Information Systems Development, Proceedings of IFIP WG 8.2 Conference (pp. 77-86)*. Boston: Kluwer.
- [24] Hecksel, D. 2004. *Methodology evaluation and selection*. White Paper. Sun Microsystems. Retrieved Jan 22, 2008 from <http://www.davidhecksel.com/projectcontext/whitepaper.html> (2004).
- [25] Barclay, C., Osei, B., and Kwek, M. An Exploratory Evaluation Of Three I.S. Project Performance Measurement Methods). *ECIS 2009 Proceedings*. 2009, vol. 63.
- [26] Kashif, M. and Samira, S.C. *Evaluating the functionality of conceptual models*. In C.A. Heuser & G.Pernul (Eds.), *Advances in Conceptual Modeling - Challenging Perspectives*, Berlin: Springer Berlin Heidelberg. 2009, pp. 222-231.
- [27] Zulkarnain, Z. *Statistik pengurusan*. Sintok: Penerbit Universiti Utara Malaysia. 2001