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Content-related factors influence perceived value of location-based mobile advertising

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ABSTRACT

Location-based mobile advertising (LBA) is forecast to drive the growth of the mobile advertising industry. Although past research supports that advertising content influences their effectiveness, little research has identified content factors and examined their effects on users' perceived value of LBA. Analyzing web survey data from a national representative sample of 605 Singapore mobile consumers, partial least square results show that LBA content factors (contextualization, relevance, entertainment, and credibility) are positively related to perceived value, while irritation has a negative effect. Among them, credibility has the highest effect size to perceived value of LBA, followed by entertainment, which can be explained by context and culture. The results also show a positive relationship between LBA perceived value and use intention. Theoretical and practical implications are discussed.

Introduction

The ubiquity of Internet-enabled and location-aware mobile devices has reignited the industry's interests in location-based mobile advertising (LBA). According to Lin et al.[1], LBA is defined as advertisements containing geo-specific information sent to mobile device users near specific advertised vendors in forms of SMS, MMS, mobile websites, and mobile apps. It is advantageous to reduce the gap between consumers and advertisers by informing targeted customers of brands and products nearby. With the increasing adoption of LBA smartphones and mobile apps, market reports forecast a rapid growth of geo-targeted LBA revenues.[2] Although earlier SMS advertisements pushed commercial messages that caused consumers' negative attitude toward spam[3], latest app-based LBAs that are pull-based (on-demand) with relevant and geo-targeted information, incentives, and interactivity improve LBA's usage among innovative vendors and mobile consumers.[1] Location-based apps send requested or recommended advertising messages (e.g., discounts or vouchers) to mobile consumers when they enter geo-fenced areas near local businesses and reward them after they purchase products or check in the shops.[4] Some LBA apps allow users to have control and flexibility to customize advertisements based on user preferences. Overall, the improvement of LBA content is likely to enhance mobile consumer's perceived value and increase their intention to use these new mobile advertisements.

Although there is noticeable progress in the delivery of advertising content via LBA compared with traditional and early-generation mobile advertising (e.g., SMS, MMS), it is unclear what content-related factors influence users' perceived LBA value. In particular, there is little empirical research examining content-related factors and their relationships with mobile consumers' perceived value of LBA and intention to use LBA to purchase advertised products. To date, prior LBA studies focused on its technological development[1,5–7] including factors affecting consumer attitudes[3], acceptance[7], privacy concerns[2,8,9], and avoidance.[10] Moreover, despite having the capability to deliver contextualized advertisements, there are still problems associated with irrelevant LBAs that can cause feelings of irritation.[1] Thus, understanding content-related factors of LBA is crucial for advertisers to create effective advertising messages that can enhance consumers' perceived value. This is based on the premise that when consumers think that LBAs are valuable to them due to certain content-related factors, they might intend to use them leading to desirable user responses.[11,12]

To differentiate from previous LBA studies where theoretical frameworks were absent,[1,3,7] this study leverages on the Uses and Gratifications theory (UGT)[13,14] to investigate the relationships of content-related factors (i.e., contextualization, relevance, entertainment, irritation, and credibility) with perceived value of LBA. UGT is suitable for this study since it has been applied to examine traditional and technology-based advertisements.[15–17] Besides, the use of theory is essential in advertising research to determine if long-standing theoretical assumptions are still relevant to newer forms of advertising.[18] Overall, the results can extend existing knowledge on mobile advertising and LBA by understanding how content matters to mobile consumers' perceived value of LBA after mobile apps. In a practical sense, the results here can inform advertisers regarding key factors to consider when designing advertisements to be delivered through LBA.

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Theoretical background and hypotheses

Uses and gratifications theory

The uses and gratifications theory (UGT) posits that individuals use media technologies because of certain media characteristics that gratify user needs.[14] Traditionally, it has been used as a theoretical framework to examine the use of mass media such as television and radio.[13,19] Although prior studies have utilized Davis[20'] technology acceptance model as a framework to examine mobile advertising[21,22], UGT is a much relevant theoretical framework in this study because it has been used to examine traditional advertising[17] including technology-based advertising such as Internet[15] and mobile advertising.[16] Extending past studies, UGT is utilized as a theoretical framework to examine how intention to use LBA is an outcome of LBA value perceptions. Based on UGT, if a certain media technology presents inherent value, consumers are more likely to use them.

Following Ducoffe's[23] study on internet advertising, Liu et al.[16] defined perceived value in mobile advertising as "the subjective evaluation of the worth or utility of advertising" (p. 24), which is adopted by this study. Aside from examining how perceived value of LBA can influence users' intention to use it, this study examines how content factors influence value perceptions of LBA. According to UGT, a certain media technology will have specific characteristics affecting its value to be utilized.[14] As argued by O'Donohoe[17], consumers actively seek gratifications with their exposure to advertisements and its content greatly influences how consumers perceive its value. Considering that LBA can provide consumers with targeted and value-added advertisement,[1,2] it is crucial to examine what content factors influence its value. In this study, we adopt several content-related factors proposed by O'Donohoe[17] (e.g., information relevance, entertainment) and Liu et al.[16] (i.e., entertainment, irritation, and credibility). The factors proposed by these scholars are relevant since they have been examined in the context of traditional[17] and mobile advertising[16] where UGT was used as the primary theoretical framework. Nonetheless, aside from content factors derived from these studies, this study adds contextualization as another content-related factor since LBA can deliver contextualized advertisements based on consumers' location and preferences.[1,2] Overall, this study aims to extend the applicability of UGT in the context of LBA and propose recommendations based on theory-driven findings.

Content-related factors influencing perceived value of LBA

Contextualization

Mobile devices differentiate themselves from desktop computers as the former offers portability and can easily be carried around.[24] Users consider their mobile devices as highly personalized objects since their device is a medium for them to express their interests and preferences.[25] The ubiquitous and personal characteristic of mobile devices, most especially the mobile phone, makes it a powerful advertising medium that creates new opportunities for vendors to target consumers.[26] Such characteristic is inherent to LBA since advertisements sent through this technology can be contextualized based on user location and preferences.

According to Capuano et al.[27], contextualization can be described as providing information to characterize a situation. With LBA, mobile advertising applications and traditional mobile advertising media such as SMS and MMS can be contextualized by synthesizing users' time and location data in addition to their preferences and interests.[28] With the proliferation of application-based LBAs running on smartphones, advertisers have more opportunity to deliver contextualized advertisements on a pull-basis.[1] However, for advertisers to send contextualized advertisements, consumers will need to provide advertisers with data such the consumer profiles, consumption patterns, and interests on an opt-in basis.[11] Prior studies have examined the impacts of contextualization on mobile advertising. For instance, Merisavo et al.[26] found that the utilization of contextual information increases consumers' acceptance of mobile advertising in Finland. On the other hand, Bauer et al.[29] found that the perceived utility of timely and customized mobile advertisements (i.e., contextualized advertisements) is correlated to consumers' willingness to receive mobile advertisements. Ensuring that an advertisement is sent to the right place and time increases its value.[30] Establishing the relationship between contextualization and perceived value, it is hypothesized that:

H1. Contextualized LBA content is positively related to consumers' perceived value of LBA.

Relevance

Relevance refers to the matching of advertisements to the lifestyle and interests of consumers.[11,31] Even in the context of traditional advertising, consumers depend on information displayed on advertisements to determine if their needs can be met by the advertised product.[17] Indeed, advertisements that are relevant to the immediate needs of consumers contribute to positive attitudes toward mobile advertising.[11]

Studies show that consumers have high expectations that mobile advertising content needs to be tailored and relevant to their interests.[1,16] As the mobile phone is a highly personalized device[3], receiving irrelevant content is damaging to both the advertisement and the advertiser. Therefore, it is wise for advertisers to increase content relevance by providing consumers with a mechanism to personalize advertisements that they receive.[12] Past studies found that consumers are interested in advertisements that are relevant to their consumption pattern.[11,17,31] In a similar vein, relevant advertisements sent through SMS improve users' attitudes.[32] Moreover, LBAs with high user involvement (e.g., highly relevant content) resulted to a more positive attitude towards LBA.[33] However, Richard and Meuli[34] found that personal relevance does not influence use intention of LBA. Although prior studies have mostly found that relevance has a positive relationship with most advertising outcomes, Richard and Meuli[34] found that it does not influence intention to use LBA. Nonetheless, previous studies suggest that a relevant advertisement delivered through LBA is a plus for consumers

that can translate to a greater perceived value of LBA.[1,12] Considering that few studies show the link between relevance and perceived value, especially in the context of LBA, it is hypothesized that:

H2. Relevant LBA content is positively related to consumers' perceived value of LBA.

Entertainment

Entertainment refers to the advertisement's capability to satisfy consumer's diversion and aesthetic needs.[35] Hoffman and Novak[36] note that computer media that provides entertainment and enjoyment has a positive effect on consumers' mood. For most UGT studies, incorporating entertainment is beneficial to the advertisement as it provides a means to trigger consumers' emotions and fulfills their need for enjoyment.[17,35] After triggering consumer's entertainment needs, advertisers can connect with consumers personally that can increase brand loyalty and perceived product value.[16]

Advertisers who integrate humor and entertainment may likely influence customers to use the promotion in the advertisement[34] and eventually purchase the product.[37] Past studies show that entertaining content is a significant predictor of value in Internet advertising[23] and mobile advertising-[11,16] as well as attitude toward mobile advertising.[38] Given the multimedia features inherent in smartphones, it is possible for advertisers to integrate entertaining content through LBA by providing humorous images and/or videos. Following UGT where the entertainment value of an advertisement can lead to favorable advertising outcomes[16,17], it is intuitive that an entertaining LBA can help increase an advertisement's value. Based on the following justifications, it is hypothesized that:

H3. Entertaining LBA content is positively related to consumers' perceived value of LBA.

Irritation

Irritation refers to the "negative, impatient, and displeasing feeling of individual consumers caused by various forms of advertising stimuli."[39] (p.11) Irritation tends to have a negative impact on any form of advertising.[40] In the context of LBA, there are several instances where consumers can be irritated. First, advertisements sent through LBA can irritate consumers when these interrupt their activities (e.g., sending text messages, making phone calls).[33] Second, advertising can be irritating when its content is poorly made.[41] For instance, videos advertisements that are set to autoplay and those that look unprofessional are irritating.[41] Finally, consumers can be irritated regardless of an advertisement's useful content, especially when they are bombarded with advertisements that they did not request to receive.[3]

Past studies have shown that negative consequences such as poor attitude toward web advertisements arise from irritating online advertisements.[42,43] In the context of mobile advertising, irritation is directly linked to spam due to unwanted push advertising.[12,29,44] As for LBA, although irritation due to push advertising can be alleviated by seeking prior permission

and increasing incentives in advertisements[44], advertisers are advised to practice pull advertising as it is less irritating to consumers.[12] In general, it is of utmost importance that advertisers avoid sending consumers with irritating LBA. As consumer feelings of irritation can reduce the perceived value of advertisements[43], it is hypothesized that:

H4. Irritating LBA content is negatively related to consumers' perceived value of LBA.

Credibility

Credibility refers to the consumers' perception of truthfulness and believability of an advertisement and the associated brand with it.[45] With this definition, credibility is divided into two subsystems, namely, advertising credibility (i.e., how the actual information in the advertisement is perceived to be truthful or credible) and advertiser credibility (i.e., the extent by which consumers perceive a company as a credible source of information).[16,46] According to Balasubramanian et al.[47], advertising credibility over wireless networks is important when providing time-critical information. When consumers receive unanticipated advertising, the extent to which the advertised information is perceived to be credible largely affects value perception.[48] In the context of LBA, credibility is weighed upon the company associated with the advertisement. Choi and Rifon[49] describe advertiser credibility as the confidence that consumers can rely on a company to design and deliver products and services that meet customer expectations. Therefore, the credibility of advertisements is crucial when consumers need to act on advertising information.[50]

Overall, research suggests that credible advertisements tend to generate positive advertising outcomes. For instance, past studies find that credibility has a significant positive effect on consumers' attitude towards mobile advertising[38] and on how consumers evaluate an advertisement.[11,48,51] Given the importance of a credible advertising content in any form of advertising, a credible LBA content is likely to increase an advertisement's value. Based on the following justifications, it is hypothesized that:

H5. Credible LBA content is positively related to consumers' perceived value of LBA.

Perceived value and intention to use LBA

In the context of advertising, value refers to the overall benefit offered by products or services in comparison to customer sacrifices to acquire and use such product or service relative to existing competition.[12] Following Ducoffe's[23] study on Internet advertising, Liu et al.[16] (p. 24) defined perceived value in mobile advertising as "the subjective evaluation of the worth or utility of advertising." Considering how consumers perceive an advertisement's value, such perception is believed to be an essential component to build a company's competitive advantage and predict purchase intention.[52] As such, advertising value is the perceived judgment of customers

on the advertisement, and it may be a parameter of customer satisfaction for the products of organizations.[23]

Past mobile advertising studies have established a positive relationship between perceived value on consumers' attitude-[16,48] as well as purchase intention.[11] A review of mobile marketing studies also shows that perceived value is a predictor of acceptance and use of mobile services such as mobile advertisements.[12] Despite the abundance of research in the context of early-generation mobile advertising (e.g., SMS and MMS)[12], few studies identify the relationship of perceived value and use intention of LBA. Rather than attitude[38,53], this study focuses on how perceived value is associated with intention to use LBA to purchase products. Following UGT, this study surmises that consumer perception of LBA as a valuable platform for advertisement delivery can lead to greater intention to use the advertisement. Based on the following justifications, it is hypothesized that:

H6. Perceived value of LBA is positively related to intention to use LBA.

Figure 1 shows the proposed conceptual model and hypotheses that illustrate the interrelationship of LBA content-related factors, perceived value, and intention to use LBA.

Methods

Survey procedure

With high smartphone and mobile Internet penetration rates, Singapore is a regional hub of LBA in Southeast Asia.[54] The growing LBA mobile app industry has brought new competition to traditional mobile advertising providers (telcos and advertising agencies) in this early adopter market.[1] Singapore is a suitable context to examine mobile consumers' perceived value of latest LBA and its content-related predictors. Thus, this study conducted a nationally representative web survey of Singapore locals (citizens and permanent residents) based on Nielsen's 2012 Media Mix panel. Respondents were selected from the cyber panel based on demographic quotas (i.e., gender, age, ethnicity, educational attainment, and monthly income) of Singapore mobile device users. An e-mail containing a link of the web survey was sent to selected respondents in March 2013. Before answering the survey, respondents watched a two-minute video about consumers' use of LBA to ensure their understanding of LBA. A total of 605 respondents completed the survey by end of March 2013. Prior to the national survey, the questionnaire was pretested among 44 undergraduate students enrolled in a comprehensive university in Singapore. Some of the items were modified based on student feedbacks. Table 1 summarizes the demographic profile of the respondents.

Most of the respondents use smartphones (92%) and have used them for 3.36 years on average. Most of the respondents received LBA messages on their smartphones (60%) followed by tablets (29%) and feature phones (22%). Most (52%) received LBAs via SMS. In addition, correlation analysis shows that intention to use LBA is related to age and monthly income. Specifically, younger respondents ($r = -.07$, $p < .05$) and those with higher monthly income ($r = .12$, $p < .01$) have higher intention to use LBA. No significant relationships for gender, ethnicity, and educational attainment were noted.

Measurements

The survey items used were adopted from past studies and were slightly modified to fit the context of this study. All items were measured using a Likert scale where respondents selected 1 for "strongly disagree" to 7 for "strongly agree".
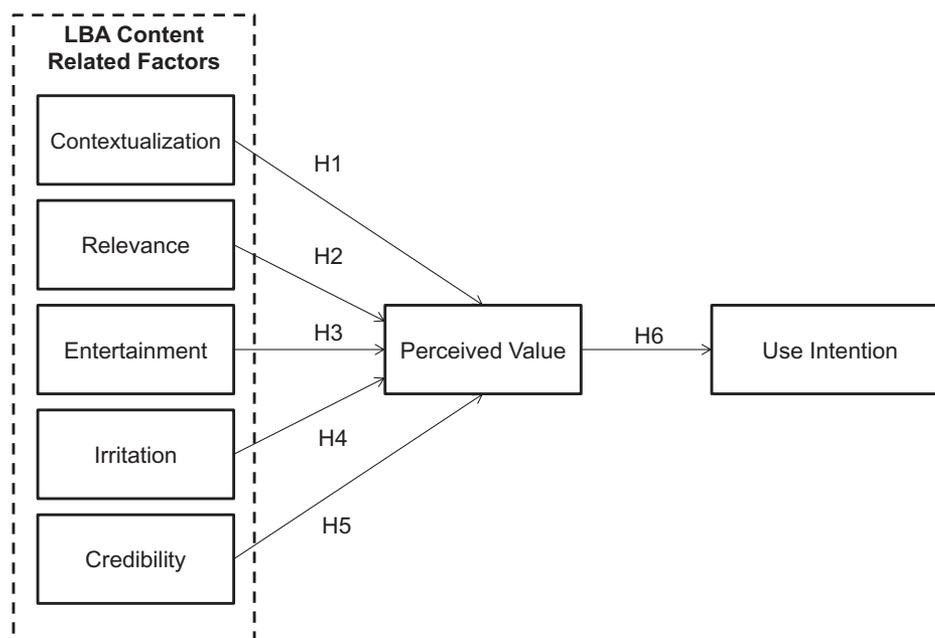

Figure 1. Conceptual model and hypotheses.

Table 1. Respondents' demographic profile (N = 605).

Category		Frequency	Percentage
Gender	Male	310	51.24
	Female	295	48.76
Age	18–29	137	22.64
	30–39	140	23.14
	40–49	188	31.07
	> 50	140	23.14
Ethnicity	Chinese	460	76.03
	Malay	61	10.08
	Indian	57	9.42
	Eurasian	8	1.32
	Others	19	3.14
Educational Attainment	Primary level/PSLE and below	9	1.49
	Secondary level/"O" levels or equivalent	150	24.79
	Junior college/"A" levels of equivalent	28	4.63
	Polytechnic/Diploma	166	27.44
	College/University undergraduate	192	31.74
	Master's degree	53	8.76
	Doctoral degree	7	1.16
Monthly Income	Dependent/No income	74	12.23
	$1,000 and below	46	7.60
	$1,001– $3,000	188	31.07
	$3,001–$5,000	162	26.78
	$5,001–$7,000	59	9.75
	$7,001–$9,000	33	5.45
	$9,001–$10,000	12	1.98
	$10,001 and above	31	5.12

Table 2 provides a summary of descriptive and reliability results for each construct.

Contextualization. Contextualization (M = 4.72, SD = 1.18) was measured using three items (e.g., "When LBAs are related to me being in a specific location (e.g. stores, parking), I consider them useful.") adapted from Merisavo et al.[26] The Cronbach's alpha suggests good internal consistency (α = .88).

Relevance. Relevance (M = 4.56, SD = 1.16) was measured using four items (e.g., "LBA provide products that match my personality and interests.") adapted from Liu et al.[16] and Merisavo et al.[15] The Cronbach's alpha suggests excellent internal consistency (α = .92).

Entertainment. Entertainment (M = 3.99, SD = 1.14) was measured using three items (i.e., "LBAs are entertaining"; "LBAs are enjoyable"; "LBAs are pleasing") adapted from Liu et al.[16] The Cronbach's alpha suggests excellent internal consistency (α = .94).

Irritation. Irritation (M = 4.34, SD = 1.21) was measured using two items (i.e., "LBAs are annoying"; "LBAs are irritating") adapted from Liu et al.[16] The Cronbach's alpha suggests excellent internal consistency (α = .95).

Credibility. Credibility (M = 4.01, SD = 1.04) was measured using two items (i.e., "LBAs are convincing"; "LBAs are

credible") adapted from Liu et al.[16] The Cronbach's alpha suggests good internal consistency (α = .86).

Perceived value. Perceived value (M = 4.18, SD = 1.14) was measured using three items (i.e., "LBAs are useful"; "LBAs are valuable"; "LBAs are important") adapted from Ducoffe[23] and Liu et al.[16] The Cronbach's alpha suggests good internal consistency (α = .89).

Intention to use LBA. Intention to use LBA (M = 3.75, SD = 1.32) was measured using three items (e.g., "I intend to purchase products/services on LBAs during the next three months.") adapted from Mallat et al.[55] The Cronbach's alpha suggests excellent internal consistency (α = .95).

Data analysis

This study used Partial Least Squares (PLS) for data analysis as it has gained popularity and is frequently used in marketing and business-related studies.[56] Beyond its popularity, PLS is suitable in this study because it can be used to explore and test the relationships among constructs in model that is in the early stages of development.[56] As a full-fledged structural equation modeling (SEM) technique, PLS allows simultaneous analysis of multiple independent and dependent variables in a complex research model that is not possible in typical regression analyses.[57] In this study, SmartPLS 3.2.7[58] was used to perform PLS for the data analysis. Aside from computing the standardized path coefficients and its respective p values, each path coefficient's bias corrected 95% confidence interval and effect size ($f^2 > .02$ = weak effect, $f^2 > .15$ = moderate effect, $f^2 > .35$ = strong effect) were also computed.[57]

Results

Measurement and model assessment

Prior to hypothesis testing, the measurement items used in the model underwent validity and reliability testing using guidelines proposed by Hair et al.[56] Results show that each item's factor loadings ranged from .85 to .98, which suggests good indicator reliability.[59] Next, we evaluated convergent validity by assessing each construct's composite reliability (CR > .70) and average variance extracted (AVE > .50). Table 2 shows that all constructs satisfy the requirements of convergent validity. Similarly, Table 2 shows that the constructs are normally distributed because its skewness (within ± 1) and kurtosis (within ± 3) are within range.[60]

Since perceived value has multiple predictors, the data was also assessed for multicollinearity. Accordingly, Table 2 shows

Table 2. Reliability and validity indicators.

Construct	M	SD	α	S	K	CR	AVE	Q²	VIF	T	1	2	3	4	5	6	7
1. Contextualization	4.72	1.18	.88	−.41	1.24	.93	.81	.81	1.38	.73	**.90**						
2. Relevance	4.56	1.16	.92	−.32	1.45	.94	.80	.80	1.98	.51	.51 (.56)	**.89**					
3. Entertainment	3.99	1.14	.94	−.56	1.45	.96	.89	.89	2.39	.42	.36 (.40)	.57 (.62)	**.94**				
4. Irritation	4.34	1.21	.95	.03	.68	.97	.95	.95	1.19	.84	−.25 (.28)	−.31 (.33)	−.31 (.39)	**.97**			
5. Credibility	4.01	1.04	.86	−.46	2.26	.93	.88	.87	2.54	.39	.39 (.45)	.63 (.70)	.74 (.82)	−.30 (.33)	**.94**		
6. Perceived Value	4.18	1.14	.89	−.49	2.24	.93	.82	.61	-	-	.48 (.53)	.67 (.75)	.77 (.85)	−.39 (.42)	.80 (.91)	**.91**	
7. Use Intention	3.75	1.32	.95	−.35	.43	.97	.92	.36	-	-	.38 (.41)	.57 (.61)	.58 (.61)	−.37 (.38)	.58 (65)	.63 (.68)	**.96**

Notes: M = mean. SD = standard deviation. α = Cronbach's alpha. S = skewness. K = kurtosis. CR = composite reliability. AVE = average variance extracted. Q² = Stone-Geisser criteria. VIF = variance inflation factor. T = tolerance. Values in the parentheses reflect results of the heterotrait-monotrait ratio. Diagonal elements in bold are results of the square root of AVE and should exceed the inter-construct correlations to establish discriminant validity.

that the model has no multicollinearity issue because the variance inflation factor (VIF < 5) and tolerance (T > .20) values were within benchmarks.[61] Discriminant validity was also assessed through the Fornell-Larcker criterion and the heterotrait-monotrait ratio of correlations.[57] Table 2 shows that each construct had adequate discriminant validity as the square root of AVE exceeds the inter-construct correlations, thus satisfying the Fornell-Larcker criterion.[59] Similarly, Table 2 shows that the heterotrait-monotrait ratio of correlations for each factor was less than 1, which suggests discriminant validity.[57] Moreover, all constructs have positive Stone-Geisser values (Q^2), indicating adequate predictive relevance.[25,56] Finally, common method bias is absent since Harman's single factor tests showed that no single factor reached >50% of the variance.[62]

Hypothesis testing

As PLS does not automatically produce *t*-values, we performed bias-corrected and accelerated bootstrapping using 5,000 bootstrapping samples to acquire *t*-values to test our hypotheses.[57] The complete bootstrapping procedure produced *t*-values that were significant at 95% ($p < .05$), 99% ($p < .01$) and 99.9% ($p < .001$) confidence levels. Figure 2 shows the results of the PLS analysis that indicates the squared multiple correlations (R^2) and statistical significance of path coefficients. Moreover, the adjusted R^2 values for perceived value (89%) and intention to use LBA (46%) (see Figure 2) suggest that the model has strong explanatory power as they exceed the recommended value of at least 10%.[63] Overall, the model has good fit because its standardized root mean square residual (SRMR = .04) value is less than .08.[57]

In evaluating the path coefficients, we found that contextualization (β = .10, $p < .01$, 95% CI = .08–.17), relevance

(β = .12, $p < .05$, 95% CI = .003–.22), entertainment (β = .25, $p < .01$, 95% CI = .08–.41), and credibility (β = .55, $p < .001$, 95% CI = .38–.75) were positively related to perceived value, thus supporting H1, H2, H3 and H5, respectively. In addition, H4 was also supported since irritation (β = -.07, $p < .01$, 95% CI = -.13–-.02) was negatively related to perceived value. Finally, H6 was also accepted as perceived value (β = .68, $p < .001$, 95% CI = .60–.75) was positively related to use intention of LBA.

In terms of the effect size of perceived value's predictors, results showed strong effect size for credibility ($f^2 = .71$) and moderate effect size for entertainment ($f^2 = .18$). On the contrary, predictors such as relevance ($f^2 = .06$), contextualization ($f^2 = .07$), and irritation ($f^2 = .04$) had weak effect size. Interestingly, perceived value had a strong effect size ($f^2 = .86$) to use intention of LBA.

Discussion

This work is one of the few studies that utilized UGT as a framework to examine how content-related factors of LBA influenced perceived value of LBA—an important step prior to intention to use. Using constructs adapted from previous mobile advertising studies[16,17], we found that contextualization, relevance, entertainment, irritation, and credibility could predict consumers' perceived value of LBA. Consequently, the model also supported the positive relationship between consumers' perceived value of LBAs and its intention to use them.

Although LBA content-related factors were significant predictors of perceived value of LBA, there were differences in terms of the influence they exert. This study finds that credibility has the highest effect on perceived LBA value among others. This suggests that an LBA's credibility make consumers think or feel about its value. Although past mobile
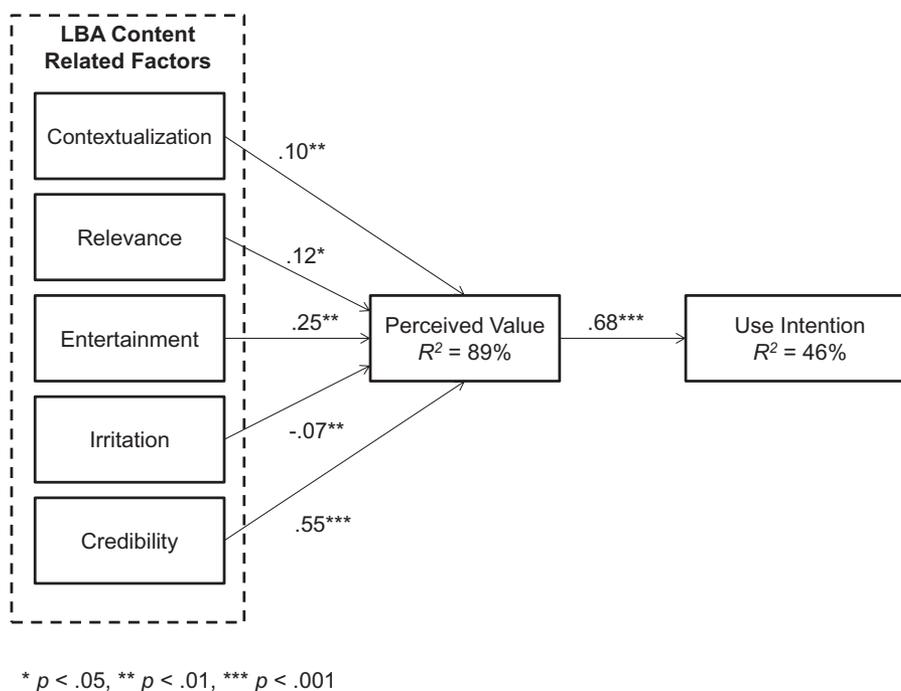

* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 2. Results of PLS analysis.

advertising studies found that content credibility was positively associated with users' willingness to access[46] and attitude[38], they did not show that credibility was the strongest predictor of perceived value. Nonetheless, in the mobile advertising study of Liu et al.[21], credibility is found to have the highest influence on perceived value among their Japanese sample. These similar results can be explained: both Singaporean and Japanese cultures emphasize the importance of credibility which reflects on content priorities of their perceived value of LBAs. In particular, as these advertisements can directly reach their smartphones, the most attached, personal device, users in these two countries take a self-scrutinizing attitude to prioritize trustworthy and believable content. Additionally, because of the regulatory requirements[2], mobile advertisers need not ask for Singapore consumers' consent before sending advertising messages. Because consumers are only given the chance to opt out, they are prone to receive unwanted LBAs without their permission.[1,2] To safeguard themselves from counterfeit advertisements, consumers use the principle of credibility to quickly filter out false or dubious advertisements.[50] Considering that credibility can stem not only from the message itself but also from the sender of the advertisement[16,46], reputable and trustworthy advertisers are likely to benefit from using LBA as an advertising tool. Therefore, it is crucial for unknown or less noted advertisers to exert more effort in improving other aspects of LBA content (e.g., relevance, contextualization, and entertainment).

Although irritation is a significant negative predictor of perceived value, our results show that its path coefficient is relatively low. A mobile advertising study in China also found that content irritation had the lowest path coefficient with consumer attitude.[38] Liu et al.[16] shared similar results among both Japanese and Austrian respondents toward mobile advertising as well. One potential reason for its weak influence is due to the growing number of homegrown pull-based LBA mobile application LBAs where consumers can have more control over the types of LBA they receive. Moreover, looking back at the survey results, 29% received one to two LBAs, while 23% received three or more LBAs; the rest did not receive any LBA during the week of data collection. Because LBA is just an emerging way of advertising in Singapore[1,2], consumers are less exposed to it, thus creating less irritation whenever they receive one. Another way of looking at it is that Singapore's LBA providers might be cautious enough to avoid bombarding consumers with excessive LBAs with irritating content. Thus, the respondents feel less irritated that just slightly affects perceived LBA value.

Consistent with previous works[38,46], the study supports the positive relationship between entertainment and perceived value. However, many studies find that entertainment, instead of credibility, has the strongest effect on perceived LBA value.[38,46] However, in Liu et al.'s mobile advertising study[16], our findings share similar results because entertainment had the second highest effect on Japanese respondents' perceived advertising value. These again show the cultural similarities in Singapore and Japan because consumers there place entertainment as the second important advertising content factor, showing their interests to receive well-designed, intriguing LBA with multimedia, gaming, or location features.

Additionally, it is also interesting to note that when entertainment is removed as a factor in the model, the path coefficient of irritation toward perceived value increases from -.07 to -.12. This suggests that entertainment has a mitigating effect on the influence of irritation on perceived value, as compared with contextualization, relevance, and credibility. Compared with SMS or MMS advertisements, LBA mobile applications can use compelling multimedia and gaming components with locational capabilities to enhance LBA's entertainment and further engage users. For instance, Foursquare[64] provides some entertaining user experience by giving users awards and incentives after "checking-in" to a particular location. Aside from entertainment derived from check-in rewards, social media functions (e.g., recommend a store in Twitter, share promo details to Facebook friends) in homegrown LBA mobile applications in Singapore like Perx[65] and Spotti[66] tend to increase the entertainment factor of these applications. With the entertainment features, LBA mobile applications are more likely to increase value while decreasing the level of irritation it brings to users. This entertainment advantage of LBA applications is the key to change negative user attitude toward simple SMS or MMS mobile advertisements. For advertisers, this finding emphasizes the significance to develop entertaining LBA applications because this LBA content factor has a strong impact on reducing consumer irritation.

Consumers have preconceptions of what they need and want. In this study, the findings show that relevant content tends to have a positive influence on perceived value of LBA. Previously, Gao and Zang[38] also found that personalized mobile advertising content had a positive relationship to Chinese users' attitude toward mobile advertising. Lee et al.'s[33] LBA study in South Korea also supports similar results that LBA users who received relevant advertising messages (i.e., personalized advertisements) in sync with their preferences tend to have positive attitudes. The implication of this finding suggests that LBA advertisers should put emphasis on pull-based LBA rather than push one, as the former is created in compliance with user interests and personal preferences. To date, pull-based LBA applications enable consumers to control their receiving of different types and sources of ad messages, after setting personal preferences such as interest and lifestyle.[1] Although push-based LBAs can help advertisers reach as many potential customers as possible, low advertising relevance can reduce advertising effectiveness because it intrudes mobile consumers' privacy. In contrast, with prior consent, pull-based LBA users can reduce the chances of receiving irrelevant advertising which causes key complaints and annoying attitude from push-based LBA users.[2] This basically means that such content relevance will improve users' perceived value of LBA and turn their attitudes to favorable ones.

The model also supports the hypothesis that contextualized advertisements increases perceived value of LBA. The results add to literature because scholars were only able to establish the positive effect of contextualized advertisements to the acceptance[26] and willingness to receive mobile advertisements.[29] Compared to traditional mobile advertisements, LBA provides more value as it takes into consideration

the relative locations of the vendors and consumers.[1,2] However, contextualization has the lowest positive path coefficient to perceived LBA value. A probable reason is that LBA advertising agencies and application developers have not produced enough highly contextualized LBAs in the early adopter stage. During data collection, only a few retail businesses, primarily international brands and major shopping malls in Singapore, used LBA as an advertising medium[1], particularly those featured in LBA mobile applications. For instance, one user at the comments section of Perx requested for more shops to be included, so that there would be more offers to choose from.[65] To create highly contextualized LBAs, advertisers and agencies have to make use of consumers' personal data including location information, demographics, and interests[67], which might trigger concerns about privacy invasion and worried about unauthorized personal data collection and misuse for commercial purposes.[2] The amount of information that consumers are willing to provide depends on the confidence that they give to advertisers and LBA providers.[24,68] Pulled-type LBA applications or LBA with prior consent are more likely to solve such problems.

Finally, this study found that an increased perception of an LBA's value will likely increase the intention to use LBA to purchase advertised product or services. The findings are consistent with UGT as the results showed that the perceived value of a media technology influence consumers' usage intentions.[14] Moreover, the results extend previous works since perceived value has a strong effect on intention to use LBA aside from attitude towards mobile advertising.[16] The findings suggest that advertisers should invest time and efforts on LBA content to increase users' perceived value and thus improve use intention. Overall, this study highlights that aside credibility, advertisers need to develop LBA with high entertainment and relevancy, as well as harness the locational capability to enhance contextualized ad content. Moreover, to avoid irritation, advertisers are highly encouraged to seek prior permission to consumers before sending LBAs, and thus pull-based LBA applications are more likely to improve user attitude and increase ad effectiveness.

Contributions and future studies

In general, this study contributes to the emerging field of LBA consumer studies in several ways. At the theoretical level, this study is one of the few attempts to utilize UGT as a framework to test a conceptual model describing the effects of content-related factors on perceived value and use intention in the context of LBA. It is also one of the few studies that examined the concept of relevance as a separate LBA content-related construct. Practically, this study provides several insights to LBA practitioners to serve as a guide to improve LBA content and perceived value that will benefit in boosting LBA take-up. Moreover, this study contributes to the growing use of PLS to test models in the early stages of development.

This paper acknowledges several recommendations for future studies. First, studies on actual purchases due to LBAs must be conducted to determine the extent of influence of perceived value as well as content-related factors. Experimental approaches may be considered when doing

this study. For instance, perceived value can be determined by manipulating advertising content as such that they may have either low or high relevance, contextualization, credibility, or entertainment. Second, although perceived value of LBA accounts for 46% of the variance for use intention, future studies may need to look for additional factors that can further explain it. In terms of the mode of delivery, this study did not differentiate between pull and push-based LBAs. Future studies may want to investigate the difference between these two in terms of content-related factors. Lastly, as culture is seen to create differences in use and behavior toward mobile advertising in general[16,26], this study calls for cross-country comparisons to determine our finding's generalizability across nations and cultures.

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Ethics Approval

This study was approved by the Institutional Review Board of Nanyang Technological University.

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Appendix

Survey items
Contextualization (Merisavo et al. 2007)

- When LBAs are related to me being in a specific location (e.g., stores, parking), I consider them useful.
- When LBAs are related to me in a specific time or date (e.g., anniversary, changes in stock prices), I consider them useful.
- When LBA matches my needs, I spend time on providing necessary information (e.g., personal profile).

Relevance (Liu et al. 2012; Merisavo et al. 2007)

- Find products that match my personality and interests
- Buy the best brand for a given price
- Provide useful product/service/brand information
- Provide incentives for purchasing products or services

Entertainment (Liu et al. 2012)

- LBAs are entertaining
- LBAs are enjoyable
- LBAs are pleasing

Irritation (Liu et al., 2012)

- LBAs are annoying
- LBAs are irritating

Credibility (Liu et al., 2012)

- LBAs are convincing
- LBAs are credible

Perceived Value (Ducoffe, 1995; Liu et al., 2012)

- LBAs are useful
- LBAs are valuable
- LBAs are important

Use Intention (Mallat et al. 2006)

- I intend to purchase products/services on LBAs during the next three months
- I believe I will use LBAs to purchase products/services during the next three months
- I believe my interest toward LBAs will increase during the next three months