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Mobile social commerce: The booster for brand loyalty?

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Jun-Jie Hew [a], Voon-Hsien Lee [a], Keng-Boon Ooi [b], Binshan Lin [c, *]

[a] Faculty of Business and Finance, Universiti Tunku Abdul Rahman, Kampar, Malaysia
[b] Faculty of Business and Information Science, UCSI University, Kuala Lumpur, Malaysia
[c] Business School, Louisiana State University, Shreveport, USA

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ABSTRACT

In view of the deficiencies in current literature, this study seeks to examine if mobile social commerce continuance usage influences brand loyalty among customers, and assessed the inhibitor role of privacy concern in mobile social commerce usage intention. Privacy concern was measured by using concern for social media information privacy (CFSMIP). Therefore, this study proposes and empirically validated a model that combines CFSMIP, brand loyalty, and Expectation Confirmation Model, in the Asian context. The results suggested that users' CFSMIP does not inhibit them from the continuous usage of mobile social commerce, and influences their perceived usefulness on mobile social commerce positively. Moreover, all the paths in the baseline model of Expectation Confirmation Model have been reconfirmed in this study. Besides, users' continuance usage and satisfaction on mobile social commerce are proven to be boosters for brand loyalty. Relevant managerial implications are then discussed.

1. Introduction

Social commerce has recently gained popularity among businesses and transformed the traditional manners of conducting electronic commerce (e-commerce) and marketing (Turban, Bolloju, & Liang, 2010). The rising of social media is the cornerstone in conducting social commerce (Gamboa & Gonçalves, 2014). Over the last decade, social media has redefined the living styles of individuals and business activities of organizations (Ngai, Moon, Lam, Chin, & Tao, 2015). Some social media, such as Facebook and Twitter, have been transformed into mobile application (Lin & Lu, 2015) in this mobile digital age. It is also learnt that 79% of the Fortune 100 Best Companies use social media and 54% have a Facebook fan page (Gamboa & Gonçalves, 2014). Businesses, especially small and medium enterprises, opined that Facebook is a platform for interaction with their customers, as well as a marketing tool (Chen, Papazafeiropoulou, Chen, Duan, & Liu, 2014). As a matter of fact, both mobile commerce and e-commerce have been fuelled by social networking sites, such as Facebook, Twitter, and LinkeIn (Lin & Lu, 2015). Social media allows businesses to interact with millions of customers at the same time, and businesses need not to invest a fortune for using social media (Gamboa & Gonçalves, 2014).

Adding to the above, even brick and mortar firms have increased the use of social media in brand communication, product promotion, and customer relationship management (Zhang, Lu, Gupta, & Zhao, 2014). Corporate giants, for instance, Dell and Starbucks have recognized social media as a sales booster (Turban et al., 2010). As noticed by Chua and Banerjee (2013), both Dell and Starbucks have embraced social media in their operations. The international coffee house chain, Starbucks has employed a number of social media services. Other than the well-known Facebook, Twitter, Foursquare, Starbucks is also hosting a discussion forum called MyStarbucksIdea, which serves as a corporate discussion forum that allows customers to discuss organization related issues.

Despite that social commerce is a hot topic, it is currently a sparsely researched area (Zhang et al., 2014), not to mention social commerce under mobile environment. Besides, it is worth to study consumer behaviour in the area of mobile social media, in addition to the effects brought by social media to businesses in Asian context (Lee & Phang, 2015). Moreover, "are customers really empowered by social media?" Turban et al. (2010, p.39) raised this interesting issue, which signifies that further investigation needs to be done. Lee and Phang (2015) further emphasized the need to access the inhibitor role played by privacy concern on social media use among Asians.

* Corresponding author.
E-mail addresses: hew.jun.jie@gmail.com (J.-J. Hew), leevoonhsien@gmail.com (V.-H. Lee), ooikengboon@gmail.com (K.-B. Ooi), Binshan.Lin@lsus.edu (B. Lin).

Recently, Casaló, Cisneros, Flavián, and Guinalíu (2009) discovered that a customer's participation in online social network could indirectly establish customer loyalty. This embarks the motive to study if mobile social commerce continuance usage could influence brand loyalty among customers. To shed light on the current unilluminated parts of literature, this study conceptualizes a model that based upon the Expectation Confirmation Model (ECM) by Bhattacherjee (2001) to comprehend mobile social commerce continuance usage under the Asian context, and has a twofold objective. The proposed framework seeks to examine if consumer brand loyalty is influenced by mobile social commerce continuance usage and post-usage satisfaction, so to understand the impacts delivered by mobile social media to businesses. Besides, the conceptual framework tries to integrate privacy concern into ECM, in order to apprehend its effects on mobile social commerce continuance usage. In view of the current literature, these integrations are considered as pioneer acts in the field.

2. Literature review

2.1. Mobile social media

Social media, has been referred by Chua and Banerjee (2013, p.239) as "a collection of online services that supports social interactions among users and allows them to co-create, find, share and evaluate the online information repository". Rauniar, Rawski, Yang, and Johnson (2014) classified social media into few categories, namely blogs (LiveJournal), communities (YouTube), collaborative projects (Wikipedia), social networking sites (Facebook), virtual game worlds (World of Warcraft), and virtual social worlds (Second Life). In addition, Kaplan and Haenlein (2010) opined that social media, which is built on the foundation of Web 2.0 technology, allows user generated content to be created and exchanged.

Web 2.0 allows the expansion of knowledge (Gamboa & Gonçalves, 2014), as the contents in Web 2.0 platforms (e.g. wikis and blogs) are modified by participating users on a continuous basis (Kaplan & Haenlein, 2010).

Social media is indeed a game changer that evolves the communication channel between businesses and stakeholders, such as consumers, suppliers, and employees (Rauniar et al., 2014). As Gamboa and Gonçalves (2014) elaborated, social media is a space where customers could exchange opinions with others and speak with the brand. Apart from offering multi-way communication, social media allows communications to be conducted in lower costs and higher efficiency (Chua & Banerjee, 2013). Other than serving for communication purpose, social media promises new business models to organizations as well (Ngai et al., 2015), as it has transformed businesses in terms of marketing, operations, and management (Rauniar et al., 2014). The example for transformation can be seen in Pizza Hut. The pizza maker has an order form on its Facebook page for users to place pizza orders (Chen et al., 2014).

He (2013) indicated that using mobile devices (m-devices) to access social media constitutes mobile social media usage. As m-devices are prevalent in this digital age (Humphreys, 2013), Kaplan and Haenlein (2010), who have long noticed the massive benefits that could be delivered by mobile social media, advised businesses to seize these opportunities. Therefore, businesses can consider to embrace mobile social media into their operation at this moment, if they perceive mobile social media to be beneficial and they have sufficient resources to invest in it.

2.2. Mobile social commerce

Zhang et al. (2014, p.1017) referred social commerce as "the use of social media for commercial transactions and activities that are driven primarily by social interactions and user contributions", while Turban et al. (2010) viewed social commerce as a subcategory of e-commerce. In addition to social media platforms (Facebook, Google+, and Twitter), social commerce is accomplished through diverse toolsets, such as ratings and reviews, recommendations, and forums (Kucukcay & Benyoucef, 2014). All these toolsets enable multi-way communication. Several e-commerce dominant players, such as Amazon and eBay, are practicing social commerce by embedding social media in their websites (Chua, 2011; Levy, 2009).

Kucukcay and Benyoucef (2014, p.2) have newly coined the term "mobile social commerce" and defined it as "the set of e-commerce activities performed in a mobile environment and enhanced by user-generated content". As far as this study is concerned, this definition of mobile social commerce is adopted. As proposed by Zwass (2003, p.8), e-commerce has been described as "sharing business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks". From this viewpoint, e-commerce seems to contain a wider range of business activities, such as marketing, rather than just buying and selling online. The same goes for mobile social commerce, businesses are not only using it for transaction purposes, but for other objectives, such as marketing and promotion. This can be seen in the case of Pinterest, a social media platform for businesses to deliver promotions. Businesses are embracing Pinterest to connect with their community, as it was learnt that 59% of Pinterest users purchased the items they discovered on Pinterest (Wilkinson, 2013).

2.3. Expectation Confirmation Model

ECM (Bhattacherjee, 2001) in Fig. 1 was founded on the Expectation Confirmation Theory (ECT) by Oliver (1980), and named it as information systems continuance model. ECM was then labelled as ICT continuance model by some researchers (e.g: Thong, Hong, & Tam, 2006).

As noticed by Bhattacherjee (2001), prior to the development of ECM, researchers viewed technology continuance as the consequence of technology acceptance behaviour. In association with that, researchers tried to explain technology continuance by using some acceptance constructs from technology acceptance models. Furthermore, researchers failed to access users' post acceptance psychological motivation, which has potential effects on the technology continuance decision. In view of these deficiencies, Bhattacherjee (2001) proposed ECM as an information systems continuance model. Ever since its emergence, ECM has been employed and extended by researchers in explaining continuance behaviour of various mobile technologies, such as mobile commerce (Chong, 2013); mobile data service (Boakye, 2015; Kim, 2010); and mobile payment (Zhou, 2013). Considering these applications of ECM, this study employs it to explain continuance usage of mobile social commerce.

2.4. Privacy concern

Privacy concern "reflects a user's attitude towards personal information" (Zhou, 2011, p.213). Smith, Milberg, and Burke (1996) noticed that there was a need to create some unified dimensions to measure information privacy concern, as previously various dimensions were used and these dimensions were different from one study to another. Consequently, Smith et al. (1996) have developed and empirically tested four dimensions for measuring concern for information privacy (CFIP). These dimensions are collection, unauthorized secondary use (both internal and external), improper

access and errors. Stewart and Segars (2002) then theorized all the dimensions as first-order factors, and CFIP as second-order factor. It has been proven empirically that CFIP was precisely measured by all the first-order factors.

Recently, Osatuyi (2015a) validated CFIP under the social media context as CFSMIP. Following the works done by Stewart and Segars (2002), CFSMIP was conceptualized as second-order factor and assessed by first-order factors of collection, unauthorized access, errors, and secondary use. However, it was discovered that unauthorized access and secondary use were loaded on the same construct, which referred by Osatuyi (2015a) as information access. Furthermore, the CFSMIP instrument (measured by 3 first-order constructs) was found to be superior to CFIP (measured by 4 first-order constructs) in the social media context. The restructured CFSMIP instrument was further validated by Osatuyi (2015b) on social media users. This study follows the CFSMIP instrument in measuring privacy concern, as it has been modified for social media context. Compared to another approach that measures privacy concern as a unidimensional constructs (Dinev & Hart, 2004, 2006; Mohamed & Ahmad, 2012; Qureshi, Megias, & Rifa-Pous, 2015; Zhou & Li, 2014), this conceptualization is able to capture the complex concepts of privacy concern (Polites, Roberts, & Thatcher, 2012).

2.5. Brand loyalty

Brand loyalty has been defined by Oliver (1999) as a commitment that causes same-brand purchasing behaviour, disregard the marketing efforts delivered by other brands that might lead to switching behaviour. Customers have lesser sensitivity towards prices and therefore intend to pay more, if they have strong brand loyalty. This helps businesses to develop competitive advantages and keep current customers, in highly competitive market these days (Lee, 2011).

Chaudhuri and Hoibrook (2001) posited that brand loyalty consists of two different perspectives, namely behavioural and attitudinal. Behavioural loyalty represents the repeated purchase of a brand, while attitudinal loyalty refers to the degree of dispositional commitment that held internally towards a brand. These two perspectives were then referred by Yi and Jeon (2003) as the two-dimensional measurements of brand loyalty, and they are more precise in determining the future behaviour of customers. Moreover, Felix (2014) noticed that numerous recent researches favours this way to conceptualize brand loyalty, such as the work done by Esmaeilpour (2015) and Lee (2011). Hence, this study follows this behaviour-plus-attitude two-dimensional measurements in conceptualizing brand loyalty.

3. Hypotheses development

Under the premise of ECM, Bhattacherjee (2001) posited that information systems continuance intention is mainly affected by satisfaction that resulted from prior usage, while satisfaction is predicted by users' confirmation of expectation and perceived usefulness after usage. Besides satisfaction, perceived usefulness also has the ability to drive continuance intention during post-acceptance stage, and it is influenced by confirmation as well.

Thong et al. (2006) opined that if users have obtained expected benefits from the IT usage experience, their expectations are confirmed, and this positively affects their satisfaction with the IT products. Moreover, the confirmation experience might adjust the post-acceptance perceived usefulness of IT, especially when users are uncertain on the perceived usefulness of IT during pre-acceptance stage.

On the other hand, Hong, Thong, and Tam (2006) concluded that

under the light of marketing literature, the satisfaction level is the main reason for customers to make product repurchase decision, which is identical to continuance intention towards IT usage. Moreover, perceived usefulness denotes as the post-adoption expectation under ECM framework and it was discovered that the subsequent satisfaction level varies according to users' expectation in past consumer behaviour literature. Lastly, Yuan, Liu, Yao, and Liu (2014) considered perceived usefulness as a salient predictor of behavioural intention under numerous contexts (such as information systems, Internet, and mobile commerce), therefore it is posited that perceived usefulness has influencing power over continuance intention under ECM.

The relationships in ECM have been supported by numerous past studies in mobile-related research areas. In a mobile banking study conducted by Yuan et al. (2014), all the relationship stipulated under ECM have been confirmed. Confirmation positively influences both perceived usefulness and satisfaction, while continuance intention is predicted by perceived usefulness and satisfaction jointly in a positive way. Satisfaction is also influenced by perceived usefulness positively. Gao and Bai (2014) concluded that perceived usefulness affects satisfaction positively, and continuance intention is predicted by perceived usefulness and satisfaction in a positive manner, under a mobile social networking services study. On the other hand, Hsu and Lin (2015), who studied on the continuance intention to pay for mobile applications (apps), discovered that users would be satisfied if they are able to confirm their expectation on mobile apps through usage. Satisfied users would then continue to buy mobile apps in the future. From another mobile data service continuance by Kim (2010), it was found that confirmation of expectations associates with perceived usefulness and satisfaction positively.

Hence, in the context of this study, it is expected that after the usage of mobile social commerce, users would develop their confirmation on initial expectations. This extent of confirmation would then adjust their perceived usefulness on mobile social commerce. Subsequently, the post-adoption perceived usefulness would influence satisfaction, together with the confirmation developed. Lastly, users would form their continuance intention to use mobile social commerce, based upon their post-adoption perceived usefulness and satisfaction. The following hypotheses are formed accordingly:

H1. *Confirmation on expectations positively influences perceived usefulness.*

H2. *Confirmation on expectations positively influences satisfaction.*

H3. *Perceived usefulness positively influences satisfaction.*

H4. *Perceived usefulness positively influences continuance intention to use mobile social commerce.*

H5. *Satisfaction positively influences continuance intention to use mobile social commerce.*

Eid (2011) agreed that information privacy is a critical success factor for e-commerce services. Zhou and Li (2014) expressed that if users have high level of privacy concern, they might have low confidence on service providers' ability to protect their private information. Xu and Gupta (2009) described this fear of losing control over private information could diminish their performance expectancy on a technology, and revealed that privacy concern has negative effect on performance expectancy of location-based services. Performance expectancy is an equivalent construct of perceived usefulness (Martins, Oliveira, & Popovič, 2014). In another location-based services study done by Yun, Han, and Lee (2013), it is demonstrated that privacy concern does restrain the

continuous usage of location-based services, and the positive impact of performance expectancy on continuance intention is lower for those users with high level of privacy concern. This implies that privacy concern could somehow lessen the performance expectancy of users. Besides, Zhou and Li (2014) have recently discovered that privacy concern has negative effect on mobile social network services continuance usage. Likewise, CFSMIP of users influence their perceived usefulness and continuance intention to use mobile social commerce, and the following hypotheses are developed:

H6. *Concern for social media information privacy negatively influences perceived usefulness.*

H7. *Concern for social media information privacy negatively influences continuance intention to use mobile social commerce.*

If customers are satisfied with an e-commerce website, they would subsequently develop loyalty towards that website, such as make further purchases from the site and recommend it to others (Eid, 2011). Gamboa and Gonçalves (2014) urged companies to raise customer satisfaction through Facebook, if they wish to achieve customer loyalty. In accordance to them, Facebook is a communication channel that could drive customer satisfaction through frequent interaction with customers. In association with that, it is reasonable to argue that the satisfaction generated from using mobile social commerce could eventually drive brand loyalty. Further empirical evidence was provided by Luarn and Lin (2003), who believed that the consumers' online experience with e-service could affect their satisfaction with e-service, which later on influences customer loyalty towards the e-service provider. According to the result of the study, customer satisfaction affects loyalty in a positive manner. The following hypothesis is then developed:

H8. *Satisfaction positively influences brand loyalty.*

As noted earlier, the participation of customers in social networks helps to establish customer loyalty (Casaló et al., 2009). This was later proven by Laroche, Habibi, and Richard (2013) empirically, who proclaimed that one's participation in social virtual communities has positive impact on brand loyalty. They further claimed that social media is a useful platform for business brands to gain more loyal customers. Hudson, Huang, Roth, and Madden (2015) then broadened the current knowledge on the effects of social media to a greater extent. They disclosed that consumers who interact with their favourite brands through social media have stronger relationship with the brands, compared to those who do not. On top of that, Georgescu and Popescul (2015) discovered that customers are more willing to recommend a company, if that particular company has integrated social media in its communication channel. In light of these evidences, it is predicted that one's continuance intention to participate in mobile social commerce activities does influence brand loyalty in a positive direction, and a hypothesis is formed accordingly:

H9. *Continuance intention to use mobile social commerce positively influences brand loyalty.*

Fig. 2 pictures the conceptual model and the relationships among all the constructs. In line with past literature, CFSMIP was conceptualized as a second-order construct and measured by first-order constructs of information access, errors, and collection.

4. Methodology

4.1. Data collection and sampling technique

This study has a target population of mobile social commerce

users, as they are experienced and able to provide relevant insights. Self-administered questionnaire survey was distributed in a large and well known shopping mall in Selangor that specializes in IT products. The choice of Selangor state as the sampling location is due to its highest percentage of mobile users as compared to other states in Malaysia and relatively high mobile penetration rate (Malaysian Communications and Multimedia Commission, 2015). Besides, as Selangor is a well-developed state and provides more promising working opportunities, it has thus attracted citizens from other states to establish their working career in it. Owing to the fact that this state has citizens from other states of Malaysia, it is then reasonably to assume that the sample drawn is diversified.

In view of the unavailability of sampling frame, non-probability judgmental sampling technique was used. A simple definition and example of mobile social commerce were first explained to the target respondents, and they were asked if they have experience in mobile social commerce. If the answer is positive, then the respondents would be invited to answer the survey. 208 complete sets of questionnaire survey were received at the end.

4.2. Measurement of constructs

There are two parts to the survey, demographic profiles of respondents being the first part, while the second part consists of items that use to measure the constructs in this study. All the items were adapted for mobile social commerce context from past researches, and measured by using Likert scale (starting from 1 "Strongly Disagree" to 7 "Strongly Agree"). Table 1 shows the sources of the items, while Appendix A lists the items.

5. Data analyses

5.1. Demographic profiles

Table 2 shows all the demographic variables for this study. Majority of the respondents are male and from the age group of 20–24. It is also reported that respondents with "Bachelor Degree/ Professional Qualifications" occupy a major percentage in the sample. Besides, quite a number of them are privately employed and the monthly income of these respondents are mainly below RM 5000. Lastly, a great number of them have more than five years' experience in mobile social media use and 90.4% of them are frequent mobile social commerce users.

5.2. Results of statistical analyses

The research model shown in Fig. 2 was analysed using the partial least square structural equation modelling (PLS-SEM) method in Smart-PLS 2.0 (Hsu & Lin, 2015; Ringle, Wende, & Will, 2005). PLS is great for studies with small sample sizes as it does not require multivariate normal distribution (Hew, Lee, Ooi, & Wei, 2015). Furthermore, Akter, D'Ambra, and Ray (2013) suggested that PLS-SEM is pertinent for complex model with second order and first order factors. For such reasons, PLS-SEM is fitting for this study. A two-step approach was used in the analysis, as suggested by Wong, Tan, Tan, and Ooi (2015). Reliability and validity of the measurement model are firstly assessed, followed by structural model assessment and hypotheses testing. Prior to this two-step approach, the common method variance in the measurement model is evaluated. Besides, the mediating effects played by mediators, predictive relevance and effect sizes of the endogenous latent variables are reported after the two-step approach.

Wong (2013) held that 91 is the adequate minimum sample size for PLS-SEM analysis, even under the most complicated model with ten arrows pointing to a construct. Alternatively, based on the
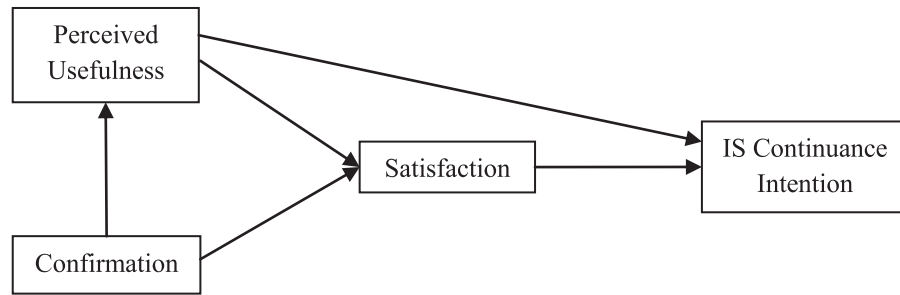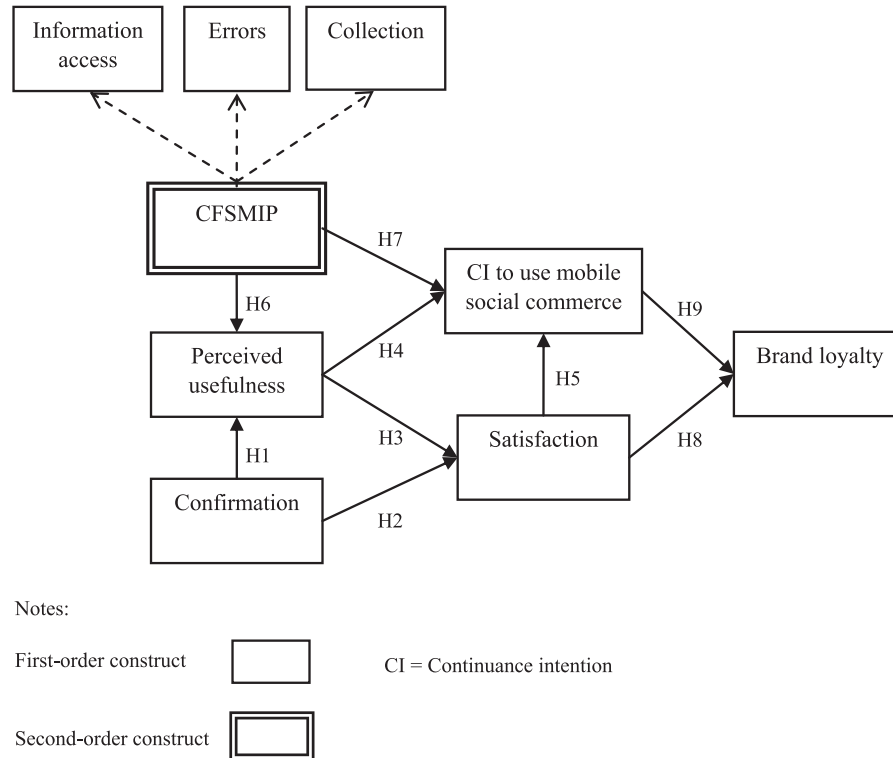
Fig. 1. Expectation confirmation model.

Fig. 2. Research model.

Table 1
Sources of measurement items.

Constructs	Dimensions	Number of item	Source
CFSMIP	*Information access*	7	Osatuyi (2015b)
	Errors	3	Osatuyi (2015b)
	Collection	4	Osatuyi (2015b)
CF		3	Bhattacherjee (2001)
PU		5	Chong (2013); Sharma and Crossler (2014)
SA		4	Hsu and Lin (2015); Lim, Widdows, and Park (2006)
CI		5	Bhattacherjee (2001); Chong (2013); Thong et al. (2006)
BL		5	Lee (2011); Yi and Jeon (2003)

Note: BL = brand loyalty, CF = confirmation, CI = continuance intention, PU = perceived usefulness, SA = satisfaction.

calculation method suggested by Soper (2015) and Westland (2010, 2012), the minimum sample size required is 100, with nine latent or unobserved variables in the model and 36 observed variables. Anticipated effect size was set to 0.3 (Dutot, 2015); desired statistical power level was set to 0.8 (Cohen, 1998); and significance probability level was set at default value of 0.05 (Fisher, 1925). It is then concluded that the 208 sample size is deemed sufficient for this study.

5.2.1. Common method variance in measurement model

The concern for common method variance (CMV) arises when the responses for both dependent and explanatory variables

Table 2
Demographic profiles of respondents.

Variables	Total	Percentage
Gender		
Male	131	63.0
Female	77	37.0
Education		
PMR/SPM/STPM	46	22.1
PreU/Foundation/Matriculation	38	18.3
Diploma/Advanced diploma	42	20.2
Bachelor degree/Professional qualifications	63	30.3
Postgraduate degree	15	7.2
Others	4	1.9
Age		
Below 15	3	1.4
15–19	30	14.4
20–24	65	31.3
25–29	40	19.2
30–34	41	19.7
35–39	12	5.8
40–44	7	3.4
45–49	5	2.4
50 and above	5	2.4
Occupation		
Unemployed	18	8.7
Self-employed	46	22.1
Privately employed	69	33.2
Public servant	7	3.4
Student	64	30.8
Housewife	3	1.4
Retiree	1	0.5
Income level		
Less than RM1000	62	29.8
RM1000 to RM3000	62	29.8
RM3001 to RM5000	60	28.8
RM5001 to RM7000	13	6.3
RM7001 to RM9000	7	3.4
More than RM9000	4	1.9
Experience in mobile social media		
Less than 3 years	35	16.8
3–5 years	71	34.1
More than 5 years	102	49.0
Mobile social commerce usage in a month		
Nil	20	9.6
1–2 times	102	49.0
3–4 times	43	20.7
More than 4 times	43	20.7

measures are acquired from the same target respondent (Chang, Witteloostuijn, & Eden, 2010). In order to control the CMV, this study has adopted two primary approaches advised by Podsakoff, MacKenzie, Lee, and Podsakoff (2003), namely procedural remedy and statistical remedy. These approaches were endorsed by Lin and Lu (2015). Several procedural remedies were done during designing and administering the questionnaire, which are guaranteeing the anonymity of respondents, assuring the respondents that there are no correct or incorrect responses to the items, being concise in the items, and simple in the language used. Statistical remedy was done after the data collection, by conducting the Harman's single-factor test. Xu, Peak, and Prybutok (2015) agreed with this approach to test for CMV too. The test reported that the single factor is 37.24%, which is lesser than 50% threshold (Wong et al., 2015), thus this study is not affected by CMV pervasively.

5.2.2. Inspecting the measurement model

In order to access the measurement model for a reflective model, it is necessary to ensure both reliability and validity are achieved. Reliability could be assessed through Cronbach's alpha and composite reliability (CR); while validity is inspected by evaluating a constructs' convergent validity and discriminant validity (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014).

A construct's convergent validity denotes "the extent to which

two or more attempts to measure the construct are consistent with one another" (Liu & Wei, 2003, p.234), and could be confirmed "by examining both the average variance extracted (AVE) and indicator loadings" (Zhang et al., 2014, p.1023). On the other hand, the discriminant validity represents "the extent to which the construct is empirically distinct from other constructs or, in other words, the construct measures what it is intended to measure" (Hair et al., 2014, p.112), and it is established when "the square root of the AVE for each construct is greater than the correlations between that construct and all other constructs" (Chen & Shen, 2015, p.60). Besides, discriminant validity could also be established, if "the loadings of each indicator on its construct are higher than the cross loadings on other constructs" (Hair et al., 2014, p.112). Following are some rules of thumb for Cronbach's alpha, CR, AVE, and indicator loading:

- Cronbach's alpha values should be greater than 0.70 (Nunnally & Bernstein, 1994)
- CR should have at least 0.60 (Bagozzi & Yi, 1988)
- AVE should have more than 0.50 (Kline, 1988)
- indicator loading achieves 0.70 and above (Fornell & Larcker, 1981)

As recorded in Table 3, the validity for all constructs are established, as the values for CR and Cronbach's alpha have exceeded the rules of thumb. Moreover, convergent validity is achieved as well, since the indicator loadings and AVE are all looking great. In the matter of discriminant validity, Table 4 has shown that it has been attained for this study. Besides, Table 5 shows that the indicators are loaded highly on their respective construct, which again displays discriminant validity.

5.2.3. Investigating the structural model

The results of structural model investigation are listed in Table 6 and illustrated in Fig. 3. All hypotheses are supported, except for H6 and H7, which are pertaining to the negative influences of CFSMIP on perceived usefulness and continuance intention to use mobile social commerce respectively. The relevant explanations for these outcomes are further elaborated in later discussion section.

The results showed that CFSMIP has direct positive effect on perceived usefulness ($\beta = 0.2267$, $p < 0.001$, $R^2 = 0.3546$) and no substantial influence on continuance intention ($\beta = 0.1184$, $p > 0.05$, $R^2 = 0.4662$). Besides, all the paths in the ECM baseline model are confirmed. Confirmation is able to predict perceived usefulness ($\beta = 0.4799$, $p < 0.001$) and satisfaction ($\beta = 0.2696$, $p < 0.01$), and perceived usefulness ($\beta = 0.4566$, $p < 0.001$) has influence over satisfaction ($R^2 = 0.4181$) as well. Continuance intention is then jointly affected by both perceived usefulness ($\beta = 0.2170$, $p < 0.01$) and satisfaction ($\beta = 0.4716$, $p < 0.001$). Moreover, the results further indicate that brand loyalty ($R^2 = 0.2883$) are able to be explained by both satisfaction ($\beta = 0.3486$, $p < 0.001$) and continuance intention ($\beta = 0.2415$, $p < 0.01$). Confirmation has stronger effect on perceived usefulness than CFSMIP; while perceived usefulness acts as a stronger predictor for satisfaction in comparison with confirmation. Moreover, satisfaction makes strongest impacts to both continuance intention and brand loyalty in relative to other stimulants.

5.2.4. Evaluating the mediating effects

Corresponding with Chen and Shen (2015), this study follows the steps proposed by Baron and Kenny (1986) in testing the mediating effects. Three regressions were formed and tested for coefficient separately. The first equation consists of independent variable and dependent variable; while the second equation comprises of independent variable and mediating variable. Lastly, the

Table 3
Indicator loadings, AVE, CR and Cronbach's alpha of constructs.

Constructs	Scale type	Loadings	AVE	CR	Cronbach's α
First Order					
Brand Loyalty	Reflective		0.7469	0.9364	0.9149
BL1		0.8859			
BL2		0.8992			
BL3		0.8360			
BL4		0.8780			
BL5		0.8192			
Confirmation	Reflective		0.8254	0.9342	0.8943
CF1		0.9035			
CF2		0.9123			
CF3		0.9098			
Continuance intention	Reflective		0.7131	0.9254	0.8988
CI1		0.8161			
CI2		0.9013			
CI3		0.8432			
CI4		0.8687			
CI5		0.7882			
Collection	Reflective		0.7845	0.9357	0.9082
CO1		0.8925			
CO2		0.8541			
CO3		0.9157			
CO4		0.8795			
Errors	Reflective		0.8614	0.9491	0.9196
ER1		0.9232			
ER2		0.9408			
ER3		0.9203			
Information access	Reflective		0.7554	0.9558	0.9459
IA1		0.8766			
IA2		0.8587			
IA3		0.8663			
IA4		0.8304			
IA5		0.8891			
IA6		0.8971			
IA7		0.8639			
Perceived usefulness	Reflective		0.6948	0.9192	0.8901
PU1		0.8001			
PU2		0.8447			
PU3		0.8224			
PU4		0.8416			
PU5		0.8576			
Satisfaction	Reflective		0.7463	0.9216	0.8862
SA1		0.8649			
SA2		0.8775			
SA3		0.9027			
SA4		0.8077			
Second Order					
Concern for Social Media Information Privacy	Reflective		0.6068	0.9556	0.9498
Collection		0.8333			
Errors		0.8191			
Information access		0.9313			

third equation incorporates all types of variable. Baron and Kenny (1986) further highlighted that there are a few conditions to be fulfilled before establishing the mediating effect:

i. independent variable should have influence on dependent variable in the first equation
ii. independent variable should affect the mediating variable in the second equation
iii. mediating variable must have effect on dependent variable in the third equation

iv. in third equation, the path coefficient of the independent variable on the dependent variable should be lesser than the first equation

If the independent has no influencing power over dependent variable when the mediator is present (equation (3)), this suggests full mediating effect of the mediator (Baron & Kenny, 1986). On the other hand, if the incorporation of mediator reduces the influencing power of independent variable on dependent variable, this suggests partial mediating effect (Sheng & Teo, 2012).

Table 7 shows the path coefficients of the three equations for each mediating case. It can be concluded that these results fulfilled

Table 4
Discriminant validity test.

	BL	CF	CI	CO	ER	IA	PU	SA
BL	***0.8642***							
CF	0.3776	***0.9085***						
CI	0.4661	0.4309	***0.8445***					
CO	0.3028	0.3193	0.2699	***0.8857***				
ER	0.3772	0.3367	0.2814	0.6091	***0.9281***			
IA	0.1809	0.2592	0.3684	0.6367	0.6497	***0.8691***		
PU	0.4976	0.5559	0.5489	0.3510	0.3583	0.3250	***0.8335***	
SA	0.5042	0.5234	0.6442	0.2304	0.3350	0.3301	0.6065	***0.8639***

Notes: Off-diagonal elements show the inter-correlations between the first-order constructs, while diagonal elements in bold and italic are the square root of the AVE for each first-order construct; BL = brand loyalty, CF = confirmation, CI = continuance intention, CO = collection, ER = error, IA = information access, PU = perceived usefulness, SA = satisfaction.

Table 5
Indicator loadings and cross-loadings.

	BL	CF	CI	CO	ER	IA	PU	SA
BL1	***0.8859***	0.2898	0.3791	0.2014	0.2701	0.1123	0.4205	0.4442
BL2	***0.8992***	0.3693	0.4069	0.2343	0.3133	0.1510	0.4739	0.4737
BL3	***0.8360***	0.3104	0.3856	0.3224	0.3679	0.2316	0.4090	0.4154
BL4	***0.8780***	0.3886	0.4468	0.3234	0.3717	0.1761	0.4535	0.4392
BL5	***0.8192***	0.2648	0.3932	0.2266	0.3070	0.1112	0.3881	0.4028
CF1	0.3215	***0.9035***	0.3985	0.3079	0.3388	0.2652	0.4790	0.4837
CF2	0.3561	***0.9123***	0.3792	0.3043	0.3120	0.2272	0.5167	0.4866
CF3	0.3509	***0.9098***	0.3974	0.2579	0.2672	0.2149	0.5188	0.4563
CI1	0.3020	0.3363	***0.8161***	0.2912	0.3815	0.4156	0.4577	0.5377
CI2	0.4201	0.4064	***0.9013***	0.3105	0.2910	0.3800	0.5332	0.5925
CI3	0.4885	0.3753	***0.8432***	0.2091	0.1824	0.2194	0.4690	0.5532
CI4	0.3872	0.3757	***0.8687***	0.1876	0.1447	0.2620	0.3965	0.5118
CI5	0.3543	0.3189	***0.7882***	0.1293	0.1866	0.2801	0.4504	0.5178
CO1	0.2671	0.3015	0.2311	***0.8925***	0.5659	0.5987	0.3466	0.2340
CO2	0.2773	0.2708	0.2651	***0.8541***	0.4968	0.5423	0.2780	0.1989
CO3	0.2813	0.2688	0.2627	***0.9157***	0.5609	0.5688	0.2963	0.1901
CO4	0.2470	0.2896	0.1978	***0.8795***	0.5317	0.5441	0.3208	0.1922
ER1	0.2710	0.2390	0.2226	0.5366	***0.9232***	0.5728	0.3107	0.2718
ER2	0.3750	0.3749	0.3082	0.6242	***0.9408***	0.6408	0.3581	0.3375
ER3	0.4018	0.3178	0.2486	0.5306	***0.9203***	0.5925	0.3268	0.3212
IA1	0.1342	0.2407	0.3404	0.5693	0.5809	***0.8766***	0.3547	0.3177
IA2	0.1576	0.1849	0.3218	0.5751	0.6098	***0.8587***	0.2729	0.2776
IA3	0.1829	0.2385	0.3249	0.5659	0.5592	***0.8663***	0.2650	0.2888
IA4	0.1169	0.1501	0.2923	0.4558	0.5210	***0.8304***	0.1987	0.2416
IA5	0.1663	0.2826	0.3519	0.5341	0.5379	***0.8891***	0.3358	0.3194
IA6	0.1661	0.2504	0.3014	0.6128	0.5689	***0.8971***	0.2583	0.2563
IA7	0.1739	0.2240	0.3079	0.5510	0.5719	***0.8639***	0.2861	0.3051
PU1	0.3817	0.4868	0.4798	0.3716	0.3542	0.3528	***0.8001***	0.4723
PU2	0.4435	0.5119	0.4865	0.3206	0.3200	0.2681	***0.8447***	0.5488
PU3	0.4237	0.4374	0.4626	0.1978	0.2255	0.1886	***0.8224***	0.5077
PU4	0.4182	0.4336	0.4527	0.3011	0.2957	0.2728	***0.8416***	0.4594
PU5	0.4045	0.4379	0.3999	0.2627	0.2909	0.2667	***0.8576***	0.5343
SA1	0.4435	0.4541	0.5245	0.3329	0.4286	0.3696	0.6235	***0.8649***
SA2	0.4485	0.5040	0.5921	0.1734	0.2363	0.2884	0.5267	***0.8775***
SA3	0.4352	0.4599	0.5980	0.2160	0.3205	0.3070	0.5068	***0.9027***
SA4	0.4143	0.3830	0.5076	0.0556	0.1567	0.1602	0.4282	***0.8077***

Note: BL = brand loyalty, CF = confirmation, CI = continuance intention, CO = collection, ER = error, IA = information access, PU = perceived usefulness, SA = satisfaction.

the conditions set by Baron and Kenny (Baron & Kenny, 1986), and suggest that the direct effect of CFSMIP on continuance intention is partially mediated by perceived usefulness. The same explanation goes to the other three cases.

5.2.5. Predictive relevance and effect size

Table 8 shows the predictive relevance of endogenous variables, which is measured by using Stone-Geisser's Q^2 value, together with the variance explained (R^2). Cohen (2013) suggested that the Q^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large predictive relevance. All the endogenous variables in the model

Table 6
Results of hypotheses testing.

Hypotheses	Structural path	Path coefficients	T Statistics	Supported
H1	CF -> PU	0.4799***	6.6414	Yes
H2	CF -> SA	0.2696**	3.0610	Yes
H3	PU -> SA	0.4566***	6.3645	Yes
H4	PU -> CI	0.2170**	3.0655	Yes
H5	SA -> CI	0.4716***	5.1376	Yes
H6	*CFSMIP -> PU*	*0.2267*****	*3.3140*	*No*
H7	*CFSMIP -> CI*	*0.1184*	*1.4792*	*No*
H8	SA -> BL	0.3486***	4.2401	Yes
H9	CI -> BL	0.2415**	2.7837	Yes

Notes: ***p < 0.001; **p < 0.01; R^2 = 0.2883 (BL); R^2 = 0.4662 (CI); R^2 = 0.3546 (PU); R^2 = 0.4181 (SA); BL = brand loyalty, CF = confirmation, CI = continuance intention, CO = collection, ER = error, IA = information access, PU = perceived usefulness, SA = satisfaction.

have ample level of predictive relevance, since the Q^2 values are more than 0.15 and some are closed to 0.35. It is then concluded that this model has solid predictive power in explaining users' continuance intention to use mobile social commerce and their brand loyalty.

There are two types of effect size computed in Table 9, namely f^2 and q^2. These two effect sizes representing the research model's statistical power. The effect size f^2 assesses the contribution made by an exogenous latent variable to an endogenous latent variable's R^2 value, while the effect size q^2 evaluate how much an exogenous latent variable contributes to an endogenous latent variable's Q^2 value. The values of 0.02, 0.15, and 0.35 imply small, medium, and large effect size for both effect sizes (Hair, Sarstedt, Ringle, & Mena, 2012). All the exogenous latent variables have passable effect sizes.

6. Discussion

Fundamentally, all the paths (H1 to H5) in the baseline model of ECM have been reconfirmed in this study. If users are able to confirm their initial expectation on mobile social commerce, they will then perceive mobile social commerce as a useful platform and satisfied with it. The perceived usefulness on mobile social commerce later on affects satisfaction on usage in a positive manner and drives the continuance intention. Besides, satisfaction on usage has a significant role in developing continuance intention as well. These results are expected, and consistent with Bhattacherjee (2001), Chong (2013), and Thong et al. (2006).

The effects of CFSMIP on both perceived usefulness (H6) and continuance intention (H7) are surprising, as these results contradict with the past literature reviewed. CFSMIP was found to have significant positive effect on perceived usefulness, which is against the hypothesis developed. This suggests that one's privacy concern in mobile social commerce environment increases his or her perceived usefulness on mobile social commerce. Besides, the result also implies that for those users with higher privacy concern, they would perceive mobile social commerce to be more useful, in contrast with those with lower privacy concern. Tan, Qin, Kim, and Hsu (2012), who found that privacy concern moderates the effect of perceived usefulness on behaviour intention to use social networking sites has provided some relevant insights to this result. They discovered that the effect of perceived usefulness on behaviour intention is stronger for the group with higher privacy concern, and they explained that the decision for this group to use social networking sites is mainly depending on perceived usefulness, so as to justify the potential loss of privacy. In addition, CFSMIP was also found to have no significant influence over continuance intention to use mobile social commerce, which is again against with the past studies reviewed. However, this result conforms to the study done by Tan et al. (2012) and Zhou (2012). Tan et al.
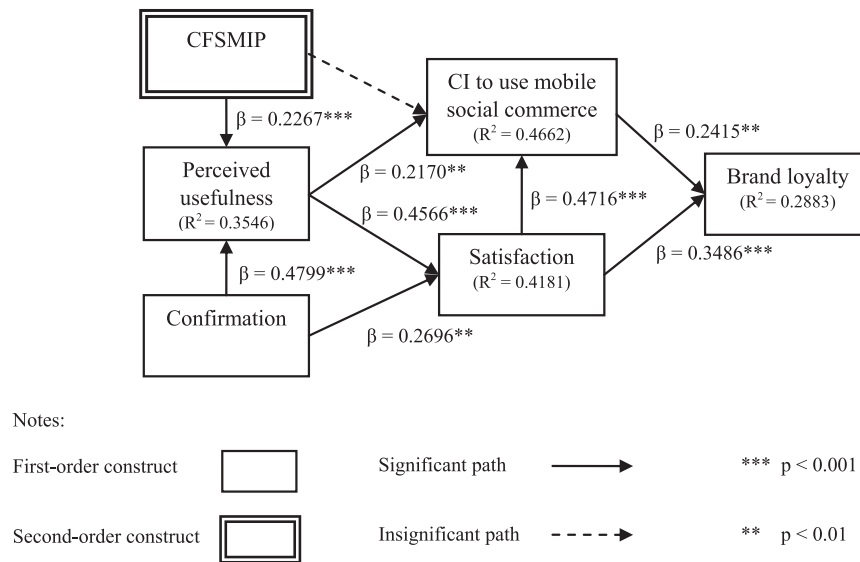
Fig. 3. Results of hypotheses testing.

Table 7
Testing for mediating effects.

IV	MV	DV	IV -> DV	IV -> MV	IV + MV -> DV		Mediating effect
					IV -> DV	MV -> DV	
CFSMIP	PU	CI	0.388***	0.398***	0.186*	0.480***	Partial
CF	PU	SA	0.525***	0.557***	0.267**	0.463***	Partial
SA	CI	BL	0.504***	0.645***	0.347***	0.243**	Partial
PU	SA	CI	0.552***	0.614***	0.250***	0.492***	Partial

Note: ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; BL = brand loyalty, CF = confirmation, CI = continuance intention, PU = perceived usefulness, SA = satisfaction.

Table 8
Predictive relevance of endogenous variables.

Endogenous variable	R^2	Q^2
BL	0.2883	0.2119
CI	0.4662	0.3295
PU	0.3546	0.2431
SA	0.4181	0.3102

Note: BL = brand loyalty, CI = continuance intention, PU = perceived usefulness, SA = satisfaction.

inseparable from social media use, and this study has made extra confirmation to this phenomenon. Concisely, as social media has blended into our daily living, CFSMIP is unable to stop users from using mobile social commerce. In spite of potential privacy loss, users with higher privacy concern tend to value perceived usefulness higher, with the purpose of justifying their continued usage. Moreover, this also explains the partial mediating effect of perceived usefulness in the linkage between CFSMIP and continuance intention.

Table 9
Effect sizes.

Endogenous latent variable	Exogenous latent variable	Path coefficient	f^2	q^2
BL	CI	0.2415	0.0468	0.0316
	SA	0.3486	0.0988	0.0661
CI	PU	0.2170	0.0528	0.0294
	SA	0.4716	0.2552	0.1442
PU	CF	0.4799	0.3170	0.1864
	CFSMIP	0.2267	0.0707	0.0412
SA	CF	0.2696	0.0844	0.0542
	PU	0.4566	0.2476	0.1554

Note: BL = brand loyalty, CF = confirmation, CI = continuance intention, PU = perceived usefulness, SA = satisfaction.

(2012) reasoned that this result might explain why SNS users are still continuing their usage, even after some reports and incidents of privacy violations have been exposed.

All the evidences indicate that social media users nowadays are

On the other hand, consistent with past studies reviewed, the results supported that satisfaction on mobile social commerce use and continuance intention to use mobile social commerce have direct linkage with brand loyalty. Besides, it was also found that

users would have higher brand loyalty level, if they are satisfied with the mobile social commerce provided. Moreover, the effect of satisfaction on brand loyalty is partially mediated by continuance intention. Therefore, it has been confirmed that consumers' participation in mobile social commerce helps in developing their loyalty towards a brand, and this again verifies the statement made by Casaló et al. (2009).

7. Implications

7.1. Theoretical implications

Considering the status quo of literature, this study has made several contributions. With the aim of expanding current literature on mobile social media, understanding the role of privacy concern, and comprehending the significance of mobile social media to businesses, this study proposes two integrations into the ECM framework, namely CFSMIP and brand loyalty. The unforeseen roles of CFSMIP on perceived usefulness and continuance intention are deemed to have contributed new philosophy to the current state of literature. Besides, the successful incorporation of brand loyalty into the ECM is another accomplishment made by this study.

7.2. Managerial implications

Businesses should be aware of the effects of CFSMIP, although it has no significant influence on continuance intention to use mobile social commerce. From the mediating effects analysis, it was learnt that perceived usefulness partially mediates the effect of CFSMIP on continuance intention, and the results show that CFSMIP has direct positive influence on perceived usefulness. Therefore, businesses are advised to pay close attention to users' privacy concern, as this particular concern affects continuance intention to use mobile social commerce indirectly. Particularly, businesses should disclose transparently their policy on handling users' privacy, as this could raise awareness on privacy for users with low level of privacy concern, and assures users with high level of privacy concern. Besides, businesses should also make sure that the policy statement is delivered to every user, such as by sending emails, showing a link to policy statement in their company's website or mobile social commerce user interface, and so on. Moreover, a simplified version of the policy with all the important key points should be prepared as well, as users might not have the time and patience to go through a lengthy policy. However, a link to the full policy should always be provided, should the users need further information.

Other than disclosing policy on privacy handling, businesses should also make sure that mobile social commerce services provided are useful to the users. If users are able to confirm their initial expectation on mobile social commerce services after usage, they will be delighted and satisfied, and most importantly, they will find the services to be useful in their lives. Since different business has different types of customers, businesses should always look into the needs of their customers, so as to decide on what mobile social commerce services they should deliver. This can be done through social interactions with customers in social media platform. A specialized team should be set up to handle this function.

In brief, businesses should disclose their policy on privacy handling and make the current mobile social commerce useful on a continuous basis. These efforts would eventually delight users, drive their continued usage, and above all these, boost customer loyalty to a higher level.

8. Limitations and recommendations

In view of the sampling method employed and sample size, the sample of this study might not be representative of the population, therefore caution should be practiced in generalizing the results of this study. Future studies can consider employing quota sampling and go for larger sample size. Besides, this study successfully incorporated brand loyalty into the ECM framework; however its variance explained by continuance intention and satisfaction is relatively low in the research model. This implies that brand loyalty is most likely explained by other unknown factors. In association with that, future studies are advised to incorporate more factors that could help explain brand loyalty. Moreover, this study did not incorporate any moderator into the research model. Hence it is recommended that future researchers should examine the moderating roles of personal characteristics, such as age, gender, and educational level, in order to deliver a better understanding to businesses. Last but not least, since this study was solely focused in Malaysia, researchers could consider making a cross country comparison in future, especially within the Asia countries, so as to comprehend and explore the cultural differences of mobile social commerce users.

9. Conclusion

On the whole, this study proposes two integrations, namely CFSMIP and brand loyalty, into the ECM framework; and the proposed model is tested empirically. The effects of CFSMIP were quite surprising, as the results differed from the expected outcome that is of the past literature. Instead of having direct effect on continuance intention, CFSMIP was found to have an indirect effect on continuance intention, through perceived usefulness. Moreover, it was also learnt that CFSMIP affects perceived usefulness in a positive manner. On the other hand, the incorporation of brand loyalty was successful, and it was discovered that both continuance intention to use mobile social commerce and satisfaction on mobile social commerce are influencing brand loyalty positively. This shows that one's participation in mobile social commerce does increase his or her loyalty towards a brand.

Acknowledgements

Appendix A. Measurement items and sources

Constructs	Measurement items	Sources
Brand loyalty	BL1 − If a business brand provides mobile social commerce service, I like it more than other brands.	Yi and Jeon (2003)
	BL2 − If a business brand provides mobile social commerce service, I have a strong preference for it.	
	BL3 − If a business brand provides mobile social commerce service, I give prior consideration to it when I have a need for a product or service of this type.	
	BL4 − If a business brand provides mobile social commerce service, I would recommend it to others.	
	BL5 − If a business brand provides mobile social commerce service, I will stay with the brand.	Lee (2011)

(*continued on next page*)

(*continued*)

Constructs	Measurement items	Sources
Collection	CO1 — It usually bothers me when business brands that provide mobile social commerce service ask me for personal information. CO2 — It usually bothers me when business brands that provide mobile social commerce service ask me to like or follow their mobile social media sites during transactions. CO3 — It bothers me to give personal information to so many people on the mobile social media sites I am registered with. CO4 — I am concerned on business brands that provides mobile social commerce service is collecting too much personal information about me through the mobile social media sites I am registered on.	Osatuyi (2015b)
Confirmation	CF1 — My experience with using mobile social commerce was better than what I expected. CF2 — The service level of mobile social commerce provider was better than what I expected. CF3 — Overall, most of my expectations from using mobile social commerce were confirmed.	Bhattacherjee (2001)
Continuance intention	CI1 — I intend to continue using mobile social commerce rather than discontinue its use. CI2 — If I could, I would like to continue my use of mobile social commerce. CI3 — I will strongly recommend others to use mobile social commerce. CI4 — I will keep using mobile social commerce as regularly as I do now. CI5 — I will always try to use mobile social commerce in my daily life.	Bhattacherjee (2001) Chong (2013) Thong et al. (2006)
Errors	ER1 - Business brands that provide mobile social commerce service should take more steps to make sure that personal information in their files is accurate. ER2 - Business brands that provide mobile social commerce service should have better procedures to correct errors in personal information. ER3 - Business brands that provide mobile social commerce service should devote more time and effort to verifying the accuracy of the personal information in their computer databases.	Osatuyi (2015b)
Information access	IA1 — Computer databases that contain personal information should be protected from unauthorized access, no matter how much it costs. IA2 — Business brands that provide mobile social commerce service should take more steps to make sure that unauthorized people cannot access personal information in their computer databases. IA3 — Computer databases that contain personal information should be stored in a highly secured location. IA4 — Business brands that provide mobile social commerce service should delete a user's account for illegally accessing other users' personal information. IA5 — Business brands that provide mobile social commerce service should not use personal information for any purpose unless it has been authorized by the individuals who provide the information. IA6 — When people give personal information to a business brand that provides mobile social commerce service for some reason, the providers should never use the information for any other purpose. IA7 — Business brands that provide mobile social commerce service should never share personal information with other providers unless it has been authorized by the individual who provided the information.	Osatuyi (2015b)
Perceived usefulness	PU1 — Using mobile social commerce makes my life easier. PU2 — I find mobile social commerce useful in my life. PU3 — Using mobile social commerce for purchasing would enable me to discover the right product at the right price. PU4 — Using mobile social commerce for purchasing would improve my performance in finding the right product at the right price. PU5 — Using mobile social commerce for purchasing would enhance my effectiveness in finding the right product at the right price.	Chong (2013) Sharma and Crossler (2014)
Satisfaction	SA1 — My choice to use mobile social commerce was a wise one. SA2 — I am happy that I use mobile social commerce. SA3 — Using mobile social commerce makes me feel very satisfied. SA4 — Using mobile social commerce makes me feel very delighted.	Lim et al. (2006) Hsu and Lin (2015)

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Jun-Jie Hew is a tutor in Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR), Perak, Malaysia. He is also an M.phil scholar in the same university currently. His research areas include information technology adoption and continuance. Email: hew.jun.jie@gmail.com

Voon-Hsien Lee is a senior lecturer at the Faculty of Business and Finance, Universiti Tunku Abdul Rahman, Malaysia. She received both her Bachelor and Master's degrees in Accounting from Monash University. She is currently pursuing her PhD in the area of Total Quality Management (TQM) in Universiti Tunku Abdul Rahman, Malaysia. Her current research interests include TQM, information technology adoption, human resource management, and organizational learning. Email: leevoonhsien@gmail.com

Keng-Boon Ooi is a Professor at the Faculty of Business & Information Science, UCSI University, Malaysia. He has published over 90 articles in international refereed journals. Email: ooikengboon@gmail.com

Binshan Lin is the BellSouth Corporation Professor at Louisiana State University in Shreveport. He received his PhD from the Louisiana State University. He is a nine-time recipient of the Outstanding Faculty Award at LSUS. He has published over 270 papers in refereed journals. Email: Binshan.Lin@lsus.edu