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Item Type	Article (Version of Record)
UoW Affiliated Authors	Rezaei, Sajad
Full Citation	Rezaei, Sajad , Amin, M. and Herjanto, H. (2024) Pay-per-click (PPC) advertising and continuous banking service intentions. Journal of Financial Services Marketing. pp. 1-17. ISSN Print: 1363-0539; Electronic: 1479-1846
DOI/ISBN	<a href="https://doi.org/10.1057/s41264-024-00282-8">https://doi.org/10.1057/s41264-024-00282-8</a>
Journal/Publisher	Journal of Financial Services Marketing Palgrave Macmillan
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# Pay-per-click (PPC) advertising and continuous banking service intentions

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Received: 12 January 2024 / Revised: 9 April 2024 / Accepted: 14 May 2024  
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## Abstract

Despite the increasing popularity of pay-per-click (PPC) advertising and search engine optimization within the financial industry, there is a notable lack of research on the effectiveness of PPC on bank customers' continuous search intention and banking services intention. This study aims to fill this gap by investigating the use of PPC as a tool on customers' search intention and continuous services intention in a retail banking context. Utilizing a quantitative design, we collected data and employed maximum likelihood estimation (MLE) for path analysis to analyze the empirical data. Our findings reveal several substantial results. Firstly, continuous search intentions significantly influence continuous banking services intentions. Secondly, attitude toward PPC advertising significantly affects both continuous search and banking services intentions. Thirdly, satisfaction with PPC advertising is crucial in shaping attitudes toward PPC, continuous search intention, and continuous banking services intention. Fourthly, perceived usefulness directly influences attitudes toward PPC, satisfaction with PPC, and continuous search intention. Lastly, while PPC advertising's perceived ease of use and perceived confirmation are linked to perceived usefulness, they do not directly affect attitude toward PPC. By adopting a dual intentions approach, this study contributes to banking literature by highlighting the importance of understanding the distinct roles of PPC attributes in shaping short- and long-term customer behavioral intentions.

**Keywords** Pay-per-click (PPC) advertising · Continuous search intention · Continuous banking services intention · Bank marketing

## Introduction

The banking industry is considered one of the most competitive industries in the world. In such an environment, bank attempts to maintain their performance by intensifying and

remodeling their communication approach (Mogaji and Danbury 2017; Kim and Balachander 2023), including incorporating online advertising such as pay-per-click (PPC) advertising (Kireyev et al. 2016). PPC, an online advertising model, enables marketers to place ads on specific websites and pay the host a service fee for each click (Burke and Eaton 2016) to drive traffic to their website/apps. Consequently, PPC drives immediate traffic to banks, enhancing customer engagement and conversions (Lee et al. 2018). Despite the prevalence of paid search in retail banking marketing, its effectiveness in promoting specific products and services like personal loans, savings accounts/cards, credit accounts/cards, and mortgages to individual consumers is not well understood within the existing research. The Internet is considered a practical part of a firm's advertising media mix (Hanafizadeh et al. 2012) which enables firms to deliver and achieve information dissemination with a low-cost strategy (Chu 2006; Symitsi et al. 2022) specially in banking industry (Lom et al. 2023).

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In the context of financial industries, specifically banking, scholars found that search advertising improves market share and sales turnover (Kireyew et al. 2016; Lom et al. 2023), strengthening bank positioning and brand awareness (Aladeokin et al. 2017; Kim and Balachander 2023) and significantly leads more traffics to banks' website and increases the online visibility. Accordingly, in 2022 alone, US banks spent more than \$13 billion on online advertising, up more than 20% in 2021 (Akins 2023). In general, PPC offers significant benefits such as overperforming their competitors (Kapoor et al. 2016; Kondrashkina and Manin 2020), swiftly targeting specific target customers, enhancing online and localized visibility, scheduling ads to particular times and places, better budget and cost control, performing low-risk tests on keywords and landing page and more importantly, immediate results (Kapoor et al. 2016).

Despite the prevalent use of advertising across various industries (Ratchford 2015; Atmojo et al. 2019; Kim and Balachander 2023), a considerable portion of search advertising fails to achieve its intended impact (Lepkowska-White et al. 2014; Kim and Cheong 2009; Prendergast et al. 2010; Banerjee and Pal 2023). Search advertising, which targets potential buyers at the "top of the purchase funnel," shares objectives like display advertising, commonly used to create brand awareness and educate the target audience (Rezaei et al. 2018; Kim and Balachander 2023). However, the PPC effectiveness in banking is complex due to factors such as market saturation, ethical considerations, and consumer behavior. While traditional advertising allows firms to control the features of marketing stimuli, the Internet enables potential and existing customers to shape their viewing behavior to satisfy their needed information (Gieure et al. 2020; Luk et al. 2002; Lepkowska-White et al. 2014; Ramos et al. 2021).

Shachak et al. (2019) suggest that traditional technology adoption models such as technology acceptance model (TAM) and unified theory of acceptance and use of technology (UTAUT) may no longer accurately predict intention behavior. Conceptually, TAM and UTAUT predict adoption behavior based on customers' cognitive perceptions of the technology (Lan 2017). According to Saghafian et al. (2021), this approach is incomplete because these models overlook other factors that could influence such behavior. Lan (2017) proposes that researchers should integrate the traditional TAM model with the expectation confirmation theory (ECT) model to predict technology adoption behavior more accurately. By combining these two models, researchers can gain a more comprehensive understanding of technology adoption behavior.

Therefore, this study adopts the proposed model as our foundational theoretical framework to forecast PPC adoption behavior within the banking sector. To address this research gap, this study aims to expand current knowledge

by concurrently examining customer satisfaction with PPC, continuous search intention, and continuous banking services intention. The extended model of information technology continuation (EMITC), as proposed by Bhattacharjee et al. (2008a, b), integrates the Expectation Confirmation Theory (ECT) developed by Oliver (1980) to model users' ongoing intentions and behaviors regarding information systems. While this model delineates distinct behaviors of users accepting an IS and those endeavoring to continue using it. However, Liao et al. (2009) further augmented this framework by incorporating the Technology Acceptance Model (TAM) (Davis 1989), the Expectation Confirmation Model (ECM), and the Cognitive Model (Oliver 1980), resulting in the development of the Technology Continuance Theory (TCT). TCT includes perceived usefulness (PU), perceived ease of use (PEOU), satisfaction, attitude, IS continuance intention, and confirmation (Bhattacharjee et al. 2008a, b; Liao et al. 2009; Zheng et al. 2013). The significance of TCT reclines in its amalgamation of attitude and satisfaction into a single model of continuance, catering to users at different stages of adoption, including long- and short-term users (Liao et al. 2009; Ramos et al. 2021). The process of expectation formation, performance comparison, and equity decisions typically involves determined, manifest activities that consumers may or may not accept (Oliver 1993). Hence, our study seeks to explore the impact of PPC advertising on search intention and continuous service intention within the retail banking context. This investigation leads to the following research questions:

**RQ1** To what extent are PPC advertising confirmation, perceived ease of use, and perceived usefulness associated with satisfaction with PPC and attitude toward PPC advertising?

**RQ2** How strongly are satisfaction and attitude toward PPC advertising linked to continuous search intention and continuous banking services intention?

Recognizing the varying effects of different intentions will enrich our understanding of the PPC adoption phenomenon, aiding banks in identifying and devising appropriate strategies to bolster their customers' intention to utilize their banking services. Therefore, the purpose of this study is to investigate the role of PPC advertising on search intention and continuous services intention in a retail banking context. The structure of this research is therefore organized as follows. The next section presents the theoretical development and proposed research hypotheses developments. The research methodology section (third section) presents the methods and procedures employed within this study, then the findings are presented (fourth section). Finally, the conclusion of this article is presented with a discussion of the findings, implications, limitations, and further research.



## Literature review and hypothesis development

### Banking and understanding customer behavior

Banks are crucial financial institutions that help customers in achieving their financial goals, such as making investments, or securing loan (Wong and Rahman 2020). However, modern bank customers are getting more demanding and expecting banks to customize their products and services to suit their individual needs (Madan et al. 2015). To meet these demands, banks mainly use (1) psychological tactics, like recruiting employees who resemble customers in appearance and lifestyle (Gaur et al. 2012), (2) cultural approach, such as applying intercultural strategies that allows bankers to adjust their interactions to the culture of the buyers (Herjanto and Gaur 2012) and acculturation approach (Gaur et al. 2017), and (3) cognitive approach, like implementing knowledge management that allows bankers to both share and acquire information from their customers (Herjanto et al. 2024). More recently, banks rely on advanced technologies such as bank apps (Yang et al. 2019), AI (Omoge et al. 2022), and controlled advertising technology such as PPC (Obianime et al. 2022) to maintain communication, and improve customer satisfaction. According to Gibbons (2024) a tech blogger and writer, PPC generates revenue by allowing banks to efficiently reach a wider and more targeted audience at a lower cost.

Moreover, customer attitudes and behavioral intention is emerging as a cornerstone for success in the rapidly transforming landscape of banking (Islam et al. 2024; Nurul Fazleen et al. 2022). To navigate this new environment in a digital age, banks are increasingly turning to understand customers attitudes, expectations and their intention (Ali KA and Subramanian 2023; Gupta and Prusty 2023; Hübner et al. 2023). Traditional bank marketing models used to be based on an offline marketing technique with limited alternatives, however, this dynamic has been disrupted by a several factors including consumer psychology and behavior (Nurul Fazleen et al. 2022; Ray et al. 2023). This changes a shift in banks' approach placing a strategic approach in understanding customer behavior toward their services (Gupta and Prusty 2023; Hübner et al. 2023). Unlike other sectors, capitalizing on customer behavior requires banks to address several challenges (Islam et al. 2024), thus, understanding and catering to customer behavior offers a clear path forward for banks seeking to thrive in the digital age (Ali KA and Subramanian 2023; Ray et al. 2023). This tailored approach goes beyond simply offering new services; it allows banks to build deeper relationships with their customers and positioning themselves as trusted financial partners. Therefore, paid search

advertising insights can inform the development of more engaging user experiences, fostering customer loyalty and satisfaction.

### PPC advertising confirmation

A consumer's expectation can confirm when a commodity or service is built around their expectations; it could, negatively, be disconfirmed when it is worse than their expectations or in a positive way confirmed when it is better than expected (Hong et al. 2006). Since they are used to satisfy decisions, an individual's expectation about product performance, although established, also appears as a degree of adaptation (Oliver 1980). Consequently, subjective disconfirmation may illustrate the sophisticated process of customer satisfaction and disconfirmation establishment. It has been debated that customer satisfaction is a measure of customer expectations toward what companies perform rather than truly determining what consumer wants. Cognitive processing is a growing subject connected with the request which draws in the concepts of behavior, cognitive, and computer system, as well as sciences for vision toward consumer shopping behaviors. Since it is based on a satisfaction decision, an individual's expectation about the product performance, although established, also appears as a degree of adaptation (Oliver 1980). Figure 1 depicts the theoretical research model.

Generally, advertising would lead to more excellent consumer knowledge of the product, which indicates a lower opportunity consumers must satisfy regarding their confirmation. In expanding recent thoughts about post-purchase reaction, it is argued that although satisfaction features and dissatisfaction are isolated determinants, they are not fully reflected in cognitive or affective paradigms (Rezaei et al. 2018; Oliver 1993). The TCT demonstrates considerably more development than TAM, ECM, and COG theories (Liao et al. 2009). Disconfirmation, as well as expectations, additively impacts the consumer's level of satisfaction along with the product/service. Then, the consumer's level of satisfaction can determine his or her repurchase intention (Hong et al. 2006). Nevertheless, whenever both performance and expectations have been evaluated during the post-purchase level, the performance perception can impact post-adoption expectation, generating a positive and strong relationship between these two variables. Therefore, this study hypothesizes:

**H1** PPC advertising confirmation is related to PPC advertising usefulness.

**H2** PPC advertising confirmation is related to satisfaction with PPC.



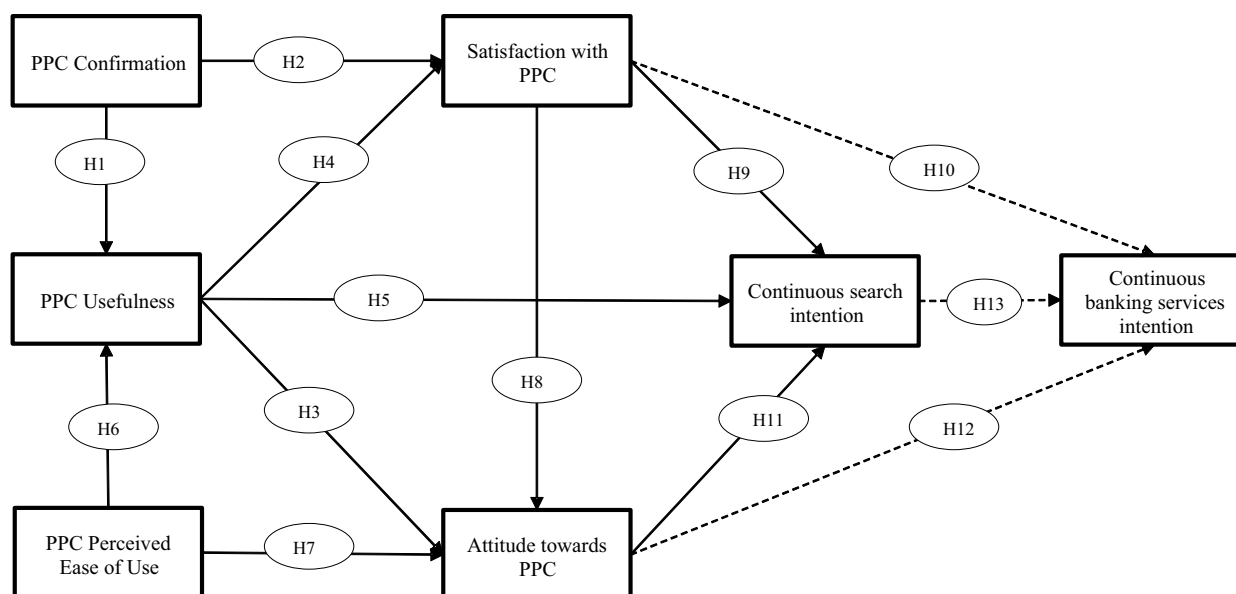


Fig. 1 Theoretical research model

### PPC advertising PU and PEOU, satisfaction with PPC, attitude toward PPC, and continuous search intention

PEOU and PU are often considered critical determinants of system-use behavior (Wu and Holsapple 2014). TAM (Davis 1989) helps to understand personal adoption and the utilization of information technology (IT). PU is defined as the level to which an individual accepts that IT can improve his/her performance in doing his/her job. PEOU is the extent to which an individual accepts that applying IT is 'effortless' (Venkatesh and Bala 2008). TAM2 (Venkatesh and Davis 2000) indicated that ease of use perception and the outcome can powerfully and positively impact PU (Venkatesh and Bala 2008). Moreover, empirical evidence supports the validity of TAM as a parsimonious model (Xiao 2010), while a study (Liu et al. 2012) declared that TAM lacks the explanation of users' intention to use technology. Thus, the integration of various theoretical perspectives is suggested. In addition, usefulness reflects people's belief in using technology to enhance their performance and productivity (Xiao 2010). Usefulness, thus, reflects perceptions that using the Internet would develop and enhance the results of consumers' shopping and information-seeking efforts (Charles et al. 2009). The original TAM (PU and PEOU) is positively associated with behavioral intention in online learning adoption.

Online advertising advances a shopper's assessment of the advertised product or service (Keng and Liu 2013). It is proposed that there are two significant effects of an individual's attitude toward technology: PU and PEOU and actual

use (Schepers and Wetzels 2007). Liu et al. (2012) suggested that PU and PEOU directly predict Chinese online game users' intentions. Lu et al. (2009) also integrated the TPB (Ajzen 1991), the TAM, and the flow theory to explore Chinese users' acceptance of instant messaging. Purnawirawan et al. (2012) examined the role of PU on the relationship between recalled review information, impression and attitude, and behavioral intention. Furthermore, usefulness significantly influences attitudes toward online retail and significantly influences intentions to use (Hyun-Hwa et al. 2006). PU reflects a series of benefits that users expect from system interaction such as performance improvement and productivity. It was argued that PU directly effects user's attitude toward search intention (Ayanso and Karimi 2015) and purchasing of products. For bank customers, to whom convenience and speed are prerequisites, online banking services have become an important type of channel. Therefore, this study hypothesizes:

**H3** PPC advertising usefulness is related to the attitude toward PPC.

**H4** PPC advertising usefulness is related to satisfaction with PPC.

**H5** PPC advertising usefulness is related to continuous search intention.

According to Hyun-Hwa et al. (2006), ease of use is an important determinant of technology or system usage. Xiao



(2010) argued that ease of use refers to a person's beliefs and attitudes that using a new IS and technology would not require physical and mental effort. Sun et al. (2010) considered ease of use as the exogenous construct in prior E-Commerce experiences. Concerning convenience, the efficiency as a value is achieved via convenience and involves the consumer doing something, continuously and actively which functions to bring efficiencies, such as the use of time-saving products and services (Kim and Balachander 2023). It was assumed that the ease of use of navigational physiognomies of the online retail or website is expected to be affected by his experience with other similar retails or retailers (Goutam et al. 2021). Alongside this, convenience is relevant to difficulty in processing and performing complex stimuli and allocating attention to information on tasks in which both might be necessary when using the systems (Venkatesh et al. 2003a). Therefore, this study hypothesizes:

**H6** PPC advertising ease of use is related to PPC advertising usefulness.

**H7** PPC advertising ease of use is related to the attitude toward PPC.

### Satisfaction with PPC

Customer satisfaction may be regarded as a customer's response to consumption experiences (Terpstra and Verbeeten 2013; Goutam et al. 2021), while scholars have examined different standpoints of how customer satisfaction is attained through customer needs' fulfilment (Wu and Liang 2009). The ECT hypothesizes that purchase intention is influenced by the degree of consumer's satisfaction with a product/service which determines his/her repurchase intention (Thong et al. 2006). In addition, there is inconsistency in the way satisfaction is defined whereby some literature shows satisfaction as mainly an emotional and affective response while other pieces of the literature consider satisfaction as a cognitive response (Wien and Olsen 2012; Chang et al. 2013). Other scholars are mostly viewed as a cognitive evaluation process (Goutam et al. 2021), and it constitutes two separate components comprising cognitive and affective components. A consumer's expectation can confirm when a commodity or service is built around their expectations; it could, in a negative way, be disconfirmed when it is worse than their expectations, or in a positive way (Hong et al. 2006).

However, consumer satisfaction has its potential influence on behavioral intentions (Amin 2016; Amin and Nasharuddin 2013) including recommendation, loyalty, and willingness to pay more (Amin et al. 2021; Roca et al. 2006; Seiders et al. 2005) and tend to vary significantly under different conditions (Anderson and Srinivasan 2003). There are

internal factors such as customer satisfaction and disconfirmation that have been viewed and found to be associate to customers' inner measurement judgment (Liao et al. 2009). Similarly, the literature argues that the factors that motivate consumers to purchase through online channels reflect the firms' attributes such as strategy, technology, and marketing decisions and tactics as well as website design (Forsythe et al. 2006). Overall customer satisfaction is a purpose of the extent of the multiple attribute disconfirmations and usually conciliates their effects on consumer's behavioral intentions (Finn et al. 2009) such as attitude, search, and purchase intention. Therefore, this study hypothesizes:

**H8** Satisfaction with PPC is related to the attitude toward PPC advertising.

**H9** Satisfaction with PPC is related to continuous search intention.

**H10** Satisfaction with PPC is related to continuous banking services intention.

### Attitude toward PPC advertising, continuous search intention, and continuous banking services intention

"Attitude toward the advertisement refers to a consumer's predisposition to respond favorably or unfavorably to a particular advertising stimulus" (Wu et al. 2015: p. 265). Attitude involves a person's positive or negative evaluation of a behavior (Doane et al. 2014). Attitude refers to the entire constructive or maybe adverse evaluation connected with performing the behavior such as online payment method preference (See-To et al. 2014). An attitude is defined as the extent to which a person has a favorable or unfavorable evaluation or appraisal of the behavior (Schepers and Wetzels 2007). By this meaning, behavioral intention is a way of measuring the effectiveness of one's motivation to undertake a certain behavior (Ajzen 1991), while attitude refers to "the degree of a person's positive or negative feelings about performing the target behavior" (Davis et al. 1989, p. 984). Behavioral intention is usually seen as a vital predictor connected with technology use (Venkatesh et al. 2003b; Birch and Irvine 2009). Therefore, attitudes tend to be connected with the philosophy about a selected object which can result in understanding this act (Mishra et al. 2014).

Tan and Chia (2007) found that consumers' attitude toward advertising is "an abstract level construct," while attitude toward television advertising and attitude toward print advertising is "experience-based constructs." There are two inner emotional variables known as attitude and behavior intention, which have a direct impact on user behavior (Liao et al. 2009; Valaei et al. 2016). Ajzen and Fishbein (1977)



support the contention that solid attitude-behavior relations tend to be attained only within large correspondence among at least the target and action portions of these attitudinal and behavioral agencies. Based on this theory, people's attitudes toward a particular behavior along with the norms that represent their perception involving other people will determine their behavioral intention, which may result in behavioral performance (Guo et al. 2007). The post-purchase model can be expanded further by including purchase intentions (Oliver 1980). Advertisement positively influences consumers' attitudes toward a product (Ching et al. 2013). Tan and Chia (2007) found that there is a significant positive reciprocal relationship between attitude toward television advertising and attitude toward advertising in general. The attitudes that are formed toward advertising through the Internet would influence the consumers' purchase intention (Goldsmith and Lafferty 2002). Shim et al. (2001) hypothesize that search intentions play a central role in predicting the future purchasing intention of online shoppers. According to the previous study (Taylor 2011), effective advertising highly depends on the consumers' perceptions. Thus, this study hypothesizes that:

**H11** The attitude toward PPC advertising is related to continuous search intention.

**H12** The attitude toward PPC advertising is related to continuous banking services intention.

### Continuous search intention and continuous banking services intention

According to online pre-purchase intentions model (Shim et al. 2001), information search would lead to online purchase intention. The model implies that Internet search intention is considered a main factor for researchers in understanding and predicting consumers' online purchasing intentions. Similarly, the interaction model of pre-purchase consumer information search proposes that information search facilities can facilitate product search. Baye and Morgan (2009) argue that advertising would cause a consumer's behavior to continue. Consumers who often search for online information might buy products online (Jiménez and Mendoza 2013; Scarpi 2012; Soh et al. 2017). Huang et al. (2013) suggest similarities between IS users' continuance decisions and consumers repurchase decisions in ECT. Repurchase intentions and patronage intentions are often treated as key indicators of loyalty, which refer to behavioral loyalty rather than attitudinal loyalty (Amin and Nasharuddin 2013; Rezaei 2018). Online consumer search behavior is like how the physical retail market might result in shopping (Rezaei et al. 2018). However, customers may rely on the Internet only to obtain information for pre-purchase search,

and not to make the purchase itself (Lu et al. 2014). So et al. (2005) found that Internet search intention would positively relate to purchase intention. Peterson and Merino (2003) argue that the Internet will not increase the number of information consumers will search for when a search is directed or conducted in conjunction with a planned purchase. Further, a study (Moon 2004) reveals that Internet search influences continuous banking services intention. Therefore, this study hypothesizes:

**H13** Continuous search intention is related to continuous banking services intention.

## Methods

### Questionnaire design and data collection approach

Data were gathered via an online survey using Google Forms deploying a cross-sectional design. According to previous studies (Shiu and Dawson 2004; Pavlou 2003), the use of online data collection is appropriate when the objective of the study is online users. Therefore, this study applied a quantitative online approach utilizing purposive sampling technique and constructed a questionnaire that consisted of three key sections. Followed by the initial survey information (i.e., a cover page), the first section of the questionnaire was designed to collect data relating to bank customers' demographic characteristics such as gender, age, educational background, monthly income/allowance, and ethnicity. The second section of the questionnaire established the respondents' level of familiarity with PPC and ascertained whether they have clickthrough PPC to further search for retail banking products and services such as personal loans, savings accounts/cards, credit accounts/cards, mortgages, and other financial products designed specifically for individual consumers. It included an explanation of the meaning of PPC, and then, two questions (i.e., frequency of banking using PPC-enabled search and last banking activities prompted by PPC) were embedded to ensure that consumers have experienced and are highly familiar with PPC in the retail banking context (e.g., Maybank, CIMB, Public Bank Berhad, RHB Bank, Hong Leong Bank, AmBank, UOB Malaysia, Bank Rakyat, OCBC Bank Malaysia, HSBC Bank Malaysia, Bank Islam Malaysia and Affin Bank). Table 1 depicts the sample characteristics. To measure continuous search intention and continuous banking services intention, items were adopted from Bhattacharjee et al. (2008a); to measure PPC PU, PPC PEOU confirmation, attitude toward PPC, and satisfaction items were adopted from Liao et al. (2009). Table 2 depicts the measurement items. To measure the respondents' responses, close-ended questions using 5-point Likert scales



**Table 1** Sample characteristics ( $N=337$ )

	Characteristics	Frequency	%
1	<i>Gender</i>		
	Male	165	49.0
	Female	172	51.0
2	<i>Age</i>		
	Below 18	53	15.7
	18 to 25	108	32.0
	26 to 32	113	33.5
	Above 32	63	18.7
3	<i>Educational background</i>		
	Undergraduate	179	53.1
	Postgraduate	158	46.9
4	<i>Ethnicity</i>		
	Malay	122	36.2
	Chinese	154	45.7
	Indians	50	14.8
	Other	11	3.3
5	<i>Income/allowance (monthly)</i>		
	Below RM1000	69	20.5
	RM1001 to RM2000	168	49.9
	RM2001 to RM3000	73	21.7
	More than RM3000	27	8.0
6	<i>Frequency of online banking using PPC</i>		
	1 to 3 time/s	51	15.1
	4 to 6 times	137	40.7
	7 to 10 times	107	31.8
	More than 10 times	42	12.5
7	<i>Last online banking through PPC</i>		
	Last week	50	14.8
	Last month	156	46.3
	Last 3 month	97	28.8
	Last 6 month	34	10.1

anchored by “strongly disagree” to “strongly agree,” which is widely used in survey methodology, were designed.

To determine efficient sample size, two-tailed statistical procedures were conducted before and posted the data collection technique. Prior to data collection, the initial statistical process used an a priori sample size calculator for structural equation models (SEM) to calculate the sample size (Soper 2015). Consequently, the minimal sample size for the model structure is 131 instances, and the suggested minimum sample size is 131 cases for purposive sampling technique. This study's overall sample size is 337 respondents (response rate: 56.16%) as indicated in Table 1. Following the completion of data collection, principal component analysis—an exploratory statistics analysis—was used. The extraction sum of square loading findings indicates that the model contains more than one component, and Kaiser–Meyer–Olkin (KMO), a measure of sampling

adequacy, gives a value of 0.892. Additionally, the Cronbach alpha values and average variance extracted (AVE) numbers presented in Table 2 indicate that the data set collected is adequate.

### Common method variance (CMV)

Common method bias or common method variance (CMV) is attributable to using a single questionnaire method (Podsakoff et al. 2003; MacKenzie and Podsakoff 2012), a variation that is typically concerned with the measuring method, is troublesome (Podsakoff et al. 2003). CMV is frequently a source of worry in quantitative approaches and self-report assessments (Spector 2006), owing to the consequences for the validity of results on connection outcomes across components (Reio 2010; Williams and Brown 1994). CMV has an effect on item reliability and validity and latent concept covariation (MacKenzie and Podsakoff 2012) since it has a detrimental influence on the structural connection. This study treats CMV as a projected danger and follows the recommendations of Podsakoff et al. (2003). Similar scale anchors were avoided throughout the development stage, as were frequent rate effects, acquiesce biases (yea-saying and naysaying), item characteristic effects, common scale formatting, item anchoring effects, and scale lengths. Statistical approaches such as Harman's one-factor test and partial correlation processes were used throughout the data analysis process. Therefore, the statistical outcome indicates that CMV is not a problem in this investigation.

### Non-response bias

Non-response bias is considered a major concern in survey studies specifically in electronic surveys (Menachemi 2010; Lewis et al. 2013) as this type of bias restricts the generalization of the research findings (Michie and Marteau 1999). “Response bias occurs when individuals who respond to a survey differ systematically from those who were invited to participate but did not respond” (Menachemi 2010, p. 5). If respondents who respond differ substantially from those who do not respond, the results do not directly imply that the entire sample was responsive to the distributed questionnaire. As a result, using the  $t$  test, examination of established demographic variables such as age and comparison of essential dimensions of research such as attitude, satisfaction, continuous search intention, and CPI reveals no significant differences. As a result, this study addresses non-response bias before and after data gathering, using Lynn (2008)'s techniques and processes, and after data collection, utilizing Armstrong and Overton (1977) methodology.





**Table 2** Results of CFA for the measurement model

Research constructs	Items	Loading	CR <sup>a</sup>	AVE <sup>b</sup>	CA <sup>c</sup>
Continuous banking services intention (CBSI)	CBSI1 I intend to continue using PPC for banking products/services	0.84	0.82	0.60	0.816
	CBSI2 I intend to continue using PPC for processing more banking products/services	0.80			
	CBSI3 I intend to continue using PPC for more of my banking products/services responsibilities	0.67			
Continuous search intention (CSI)	CSI1 I intend to continue using PPC rather than discontinue its use	0.79	0.82	0.62	0.802
	CSI2 My intentions are to continue using PPC than use any alternative means	0.92			
	CSI3 If I could, I would like to continue using PPC as much as possible	0.62			
PPC confirmation	CON1 My experience using PPC was better than what I expected	0.82	0.89	0.73	0.887
	CON2 The banking function using PPC was better than what I expected	0.85			
	CON3 Overall, most of my services expectations from using PPC were confirmed	0.90			
PPC usefulness	PU1 Using PPC improves my performance	0.79	0.89	0.66	0.887
	PU2 Using PPC improves my productivity	0.81			
	PU3 Using PPC enhances my effectiveness	0.84			
	PU4 I find PPC to be useful	0.82			
PPC perceived ease of use	PEOU1 My interaction with the PPC is clear and understandable	0.85	0.93	0.77	0.928
	PEOU2 Interaction with the PPC does not require a lot of mental effort	0.92			
	PEOU3 I find it easy to get the PPC to do what I want it to do	0.90			
	PEOU4 I find the PPC to be easy to use	0.83			
Satisfaction using PPC	My overall experience with PPC use in banking was:	0.69	0.84	0.58	0.836
	SAT1: very satisfied				
	SAT2 very pleased	0.88			
	SAT3 very contented	0.67			
Attitude toward PPC	SAT4 absolutely delighted	0.78	0.88	0.64	0.873
	ATT1 Using PPC to search for products/services would be a good idea	0.87			
	ATT2 Using PPC to search for products/services would be a wise idea	0.78			
	ATT3 I like the idea of using PPC to search for products/services	0.79			
	ATT4 Using PPC would be a pleasant experience	0.75			

<sup>a</sup>Composite reliability = (square of the summation of the factor loadings) / ((square of the summation of the factor loadings) + (summation of error variances))

<sup>b</sup>Average variance extracted = (summation of the square of the factor loadings) / (summation of the square of the factor loadings + (summation of error variances))

<sup>c</sup>CA: Cronbach's Alpha

<sup>d</sup>5-point Likert scales anchored by "strongly disagree" to "strongly agree"

### Maximum likelihood estimation (MLE) approach for path analysis

To examine the structural equation connection for exogenous or endogenous components, the maximum likelihood

estimation (MLE) approach (Fisher 1925, 1922), a covariance-based-structural equation modeling (CB-SEM) technique was used. The structural equation modeling (SEM) approach may be used to analyze parameters and test hypotheses for the hypothesized model (Fornell and Larcker



1981; Esposito Vinzi et al. 2008; Cenfetelli and Bassellier 2009; Henseler et al. 2009; Hair et al. 2011, 2012; Lee and Song 2004) over the first generation technique (Chin 1998; Hoyle 1995). SEM assimilates several research processes in a “holistic fashion” (Chin 2000) and further enables researchers to test and assess the concepts and theories that have been previously proposed (Westland 2015b). The CB-SEM (Jöreskog 1978) and partial least squares (PLS) path modeling as a variance-based structural equation modeling (VB-SEM) (Lohmöller 1989; Wold 1975) are among the two established approaches in the second generation of multivariate data analysis with different applications in research (Vinzi et al. 2010; Olsson 1979; Westland 2010). MLE is often considered superior to PLS, as MLE demonstrates useful statistical properties including sufficiency, efficiency, consistency, and parameterization invariance (Myung 2003), while PLS is considered to have limitations in terms of statistical performance including fit indices (Westland 2015a). Often, MLE is considered an appropriate approach when evaluating the fit assessment of the model (Gallant and Nychka 1987) and when a study seeks “theory testing, theory confirmation, or comparison of alternative theories” (Hair et al. 2011, p. 144). While PLS is a descriptive statistical technique, the MLE is an ideal method and a requisite method for parameter estimation (Myung 2003). Therefore, this study employed MLE approach.

In the MLE approach, “a violation of multivariate normality can seriously invalidate normal-theory test statistics” (Hu and Bentler 1998, p. 430). To test the multivariate normality, Mardia (1970) proposed the Skewness and Kurtosis test which is the most widely applied normality test (Székely and Rizzo 2005). The observations from the histogram, normal Q–Q plot, and box plots show that the items were approximately equally distributed. The skewness value within  $\pm 1.96$  shows that data are quite symmetrical and the kurtosis value, within  $\pm 1.96$ , shows that the data distribution is Meso-Kurtik (Cramer 1998). The two-stage SEM approach (Hair et al. 2006), when evaluating of measurement and structural model, was used. The measurement model is the first stage in assessing SEM, followed by the structural model, the findings of which are presented in the following section.

## Results

### Measurement model

The findings of the confirmatory factor analysis (CFA) for the measurements model are shown in Table 2 and Fig. 2. All item loadings are greater than the suggested value of 0.60, composite reliability (CR) is greater than 0.80, and AVE values are greater than 0.60, indicating convergence

across the study constructs. By computing the CR and Cronbach alpha values, the results show an efficient internal consistency for the items and conceptual frameworks. Furthermore, the goodness-of-fit index (GFI)=0.914, adjusted goodness-of-fit index (AGFI)=0.890, comparative fit index (CFI)=0.970, root-mean-squared error of approximation (RMSEA)=0.043, and Tucker–Lewis index (NNFI or TLI)=0.964 are for the observed variables. Consequently, the examination of the observed variables for CFA, comprising item loading, internal consistency, convergent validity, and fit indexes, yields a satisfactory result (See Table 2 and Fig. 2).

Furthermore, the discriminant validity of the exogenous and endogenous variables was evaluated using the Fornell and Larcker (1981) criterion. As a result, the AVE's square root is relatively greater than its correlations with any other study variables (see Table 3). The diagonals indicate the square root of AVE, whereas the remaining elements represent the squared correlations. As a result, discriminant validity among study constructs is demonstrated.

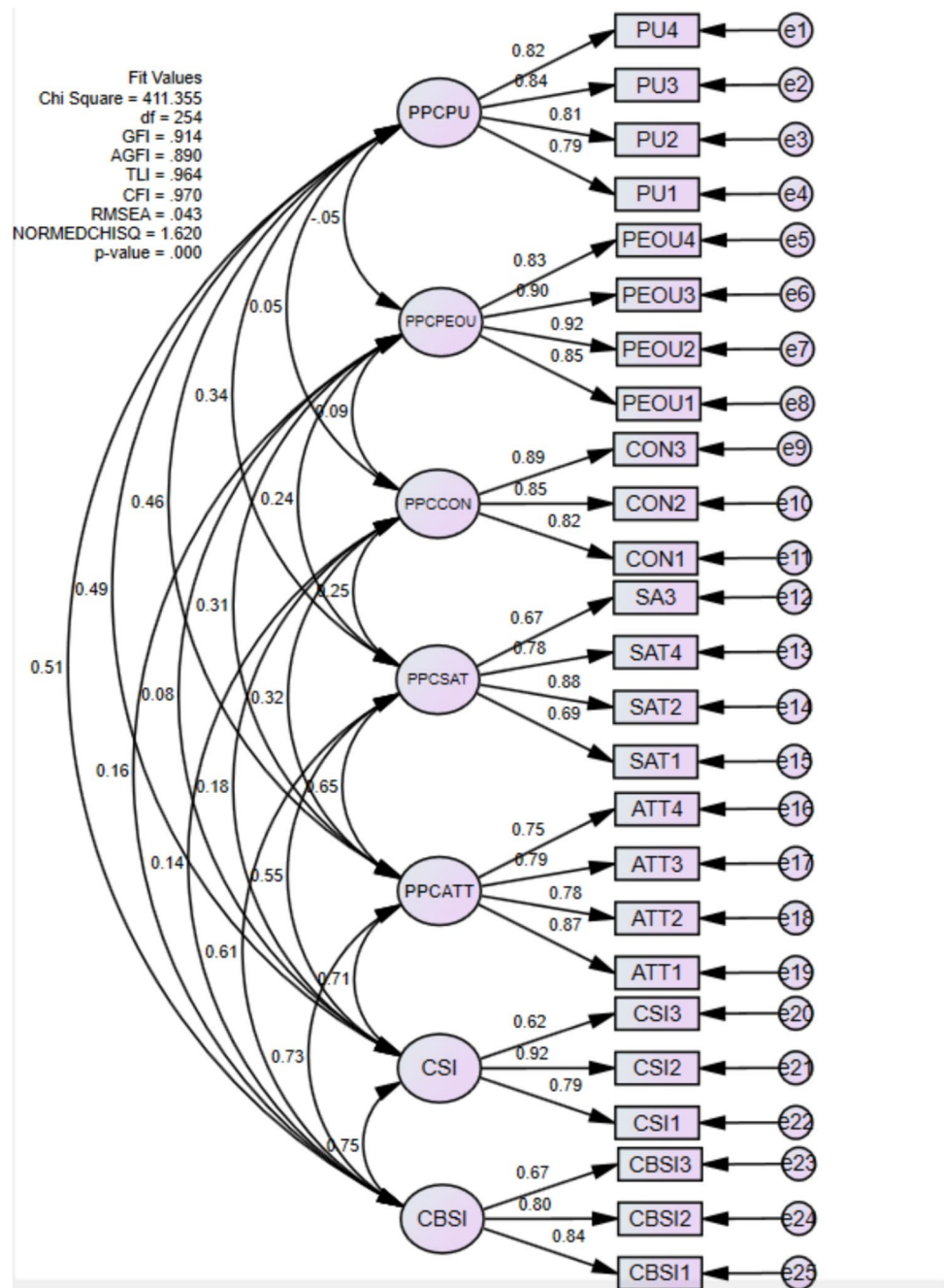
### Structural model

After assessing and establishing the CFA, the structural connection was evaluated using the CB-SEM. Table 4 depicts the structural relationships and hypotheses testing. GFI=0.905, AGFI=0.881, CFI=0.962, RMSEA=0.047, and NNFI (TLI)=0.957 are all above the acceptable levels, indicating a strong model fit. The proposed theoretical model (Fig. 1) explains 55% of the variance in customer continuous search intention and 66% of the variance in continuous banking services intention. As a result, the study moves on to evaluate the structural link between study constructs.

As shown in Table 5, the statistical results imply that there is a strong positive relationship between continuous search intention and continuous banking services intention (path coefficient=0.43, Standard error=0.08,  $T$ -value=5.46 and  $P$  value=0.00) and attitude toward PPC positively influences continuous search intention (path coefficient=0.44, standard error=0.07,  $T$ -value=6.22 and  $P$  value=0.00) and continuous banking services intention (path coefficient=0.25, standard error=0.07,  $T$ -value=3.69 and  $P$  value=0.00). Satisfaction positively and strongly influences attitude toward PPC (path coefficient=0.60, standard error=0.08,  $T$ -value=7.83 and  $P$  value=0.00), continuous search intention (path coefficient=0.14, standard error=0.07,  $T$ -value=2.12 and  $P$  value=0.03) and continuous banking services intention (path coefficient=0.15, standard error=0.06,  $T$ -value=2.39 and  $P$  value=0.02). Furthermore, PU positively influences attitude toward PPC (path coefficient=0.27, standard error=0.05,  $T$ -value=5.48 and  $P$  value=0.00), satisfaction (path coefficient=0.26, standard



**Fig. 2** Confirmatory factor analysis (CFA)



error = 0.05,  $T$ -value = 5.30 and  $P$  value = 0.00), and continuous search intention (path coefficient = 0.17, standard error = 0.04,  $T$ -value = 3.85 and  $P$  value = 0.00). While the positive relationship between PEOU and attitude (path coefficient = 0.19, standard error = 0.04,  $T$ -value = 4.45 and  $P$  value = 0.00) and conformation and satisfaction (path coefficient = 0.19, standard error = 0.05,  $T$ -value = 4.10 and  $P$  value = 0.00) were supported, the positive relationship between PEOU and PU (path coefficient = -0.05, standard error = 0.06,  $T$ -value = -0.87 and  $P$  value = 0.38) and confirmation and PU (path coefficient = 0.07, standard

error = 0.06,  $T$ -value = 1.06 and  $P$  value = 0.29) was not supported.

## Discussion

Effective Internet advertising such as PPC should furnish sufficient information regarding bank advertising propositions to attract and keep consumers searching for their preferred channel. There are consistencies and some inconsistencies in the research findings in the current literature. The



**Table 3** Discriminant validity of constructs

Research constructs	CR	AVE	MSV	ASV	CSI	PU	PEOU	CON	SAT	ATT	CBSI
CSI	0.82	0.62	0.57	0.28	<b>0.78</b>						
PU	0.89	0.66	0.26	0.14	0.49	<b>0.81</b>					
PEOU	0.93	0.77	0.09	0.03	0.08	0.05	<b>0.88</b>				
CON	0.89	0.73	0.10	0.04	0.18	0.05	0.09	<b>0.85</b>			
SAT	0.84	0.58	0.43	0.22	0.55	0.35	0.24	0.25	<b>0.76</b>		
ATT	0.88	0.64	0.53	0.31	0.41	0.46	0.31	0.32	0.55	<b>0.80</b>	
CBSI	0.82	0.60	0.57	0.29	0.55	0.51	0.16	0.14	0.41	0.53	<b>0.77</b>

Bold values are diagonals represent the square root of the average variance extracted, while the other matrix entries represent the square correlations

**Table 4** Fit indices and recommended values (CFA, measurement and structural model)

Fit measures	Measurement model	Structural model	Recommended values <sup>a</sup>	Decision
df	254	261	NA	NA
X <sup>2</sup> /df	1.620	1.751	≤ 3.00	Valid
GFI	0.914	0.905	≥ 0.90	Valid
AGFI	0.890	0.881	≥ 0.80	Valid
CFI	0.970	0.962	≥ 0.90	Valid
RMSEA	0.043	0.047	≤ 0.08	Valid
NNFI (TLI)	0.964	0.957	≥ 0.90	Valid

<sup>a</sup>According to Hair et al. (2006)

statistical results imply that there is a strong positive relationship between continuous search intention and continuous banking services intention and that attitude toward PPC positively influences continuous search intention and continuous banking services intention, which is consistent with

previous research findings. Satisfaction with PPC positively and strongly influences attitude, continuous search intention, and continuous banking services intention. Furthermore, PU positively influences attitude, satisfaction, and continuous search intention. While the positive relationship between PEOU and attitude and confirmation and satisfaction was supported, the positive relationship between PEOU and PU and confirmation and PU was not supported. The results are similar to previous studies on e-learning continuance intention (Roca et al. 2006) and online shopping context (Rezaei and Amin 2013; Audrain-Pontevia et al. 2013; Amin et al. 2014; Rezaei et al. 2014; Rezaei and Ismail 2014). Users will use technology in order to enhance their productivity, efficiency, and other advantages from technology without gaining pain, agony, stress, and anxiety (Sharafi et al. 2006). The literature on continuance acceptance of computer-based assessment (Terzis et al. 2013), online retail environment (Szymanski and Hise 2000), and mobile loyalty (Cyr et al. 2006) also showed a similar conclusion. Anderson and Srini-vasan (2003) also found that the main effect of convenience

**Table 5** Hypotheses testing and structural relationship

Hypothesis	Path	Path coefficient	Standard error	T-value	P value	Decision
H1	CSI → CBSI	0.43	0.08	5.46*	0.00	Supported
H2	ATT → CSI	0.44	0.07	6.22*	0.00	Supported
H3	ATT → CBSI	0.25	0.07	3.69*	0.00	Supported
H4	SAT → ATT	0.60	0.08	7.83*	0.00	Supported
H5	SAT → CSI	0.14	0.07	2.12*	0.03	Supported
H6	SAT → CBSI	0.15	0.06	2.39*	0.02	Supported
H7	PU → ATT	0.27	0.05	5.48*	0.00	Supported
H8	PU → SAT	0.26	0.05	5.30*	0.00	Supported
H9	PU → CSI	0.17	0.04	3.85*	0.00	Supported
H10	PEOU → PU	0.05	0.06	0.87	0.38	Not Supported
H11	PEOU → ATT	0.19	0.04	4.45*	0.00	Supported
H12	CON → PU	0.07	0.06	1.06	0.29	Not Supported
H13	CON → SAT	0.19	0.05	4.10*	0.00	Supported

R<sup>2</sup> = continuous search intention = 55%; continuous banking services intention = 66%

\*P < 0.01



on online loyalty is insignificant, while the estimate for the interaction term (e-satisfaction with convenience motivation) is significant. Researchers, in explaining perceived extended IS use (Yeh and Teng 2011), complaint intentions in online shopping (Wu 2013; Lee 2010), web-based services (Lee and Kwon 2011), data mining tool (Huang et al. 2013), e-learning continuance intention (Roca et al. 2006), online shopping (Rezaei and Amin 2013), and e-learning continuous intention (Lee 2010) found that PUU is positively associated to satisfaction which is inconsistent with the findings of this study.

Understanding consumers' attitudes and behavior toward a bank's advertising effort is essentially important as it influences the way consumers might respond to marketing communications and tactics (Hübner et al. 2023; Lom et al. 2023). As one of the roles of advertising is to build a brand or pursue consumers to engage with the brand (Hanafizadeh et al. 2012), customers usually benefit from searching advertising sources that enable them to improve their decision process (Yuan et al. 1998). This study contributes to current literature in understanding attitude and in modeling PPC and bank consumer behavioral intention. In line with the study focus and findings of this study, Badrinarayanan et al. (2014), Grewal and Levy (2007), Frías et al. (2008), and Laroche (2010) proposed that online consumers' attitudes and behavior are essential in developing theoretical insights. According to Rose et al. (2012), there is little empirical evidence to suggest the formation of customer experience associated to consumer interactions with online vendors to theoretically understand consumer online behavior. The empirical assessment shows that consumers' evaluation of a marketing channel, particularly by Internet vendors, is affected by consumers' experience with that channel (Frambach et al. 2007).

## Implications

Theoretically, the findings of this study extend the contemporary technology adoption model by holistically investigating the PPC-enabled paid search marketing on the structural relationship between attitude toward PPC, PPC usefulness, PPC ease of use, confirmation, satisfaction, continuous search intention, and continuous banking services intention in a retail banking context. The findings show that PPC usefulness, PPC ease of use and confirmation directly responsible for satisfaction with PPC, attitude toward PPC, and continuous search intention. In addition, both satisfaction with PPC and attitude directly affect continuous search intention, and interestingly, only attitude toward PPC influences continuous banking services intention. This new holistic model offers new knowledge into the concept of technology adoption in commercial banks by highlighting how attitude toward PPC play an important effect on different intentions

(continuous search intention vs continuous banking services intention) for financial products designed specifically for individual consumers.

The results of this study offer important knowledges to bankers. First, the results suggest bankers should diligently and always prioritize their efforts in building their customer attitude toward PPC. To do that, bankers are recommended to improve trustworthiness toward PPC by convincing their customers that bank online communication (advertising) is safe (by displaying safety certifications) and it enhances their banking literacy as well as improves their convenience. Secondly, bankers also should be aware that customers have different intentions, and these intentions may not have similar effect on technology adoption. Thus, banks are recommended to prepare and share two different types of online information. The first information should encourage customers to continue their intention to search more information about banks' products or services. Thus, this information should strictly about their promotion or new products or services. In contrast, the second information should emphasize and remind their customers that it is comfortable and safe to utilize their online information. Lastly, bankers are also suggested to maintain and fulfil customers' perceptions. To accomplish this, banks are advised to continuously maintain and improve the features of their PPC by consistently updating their PPC technology. Additionally, banks also should notify their customers about these updates (including timing, duration, and nature of the updates). It is imperative for banks to be transparent about potential technologies glitches and their plans to resolve such issues.

## Limitations and future research directions

The results of this study are limited, and future research should be undertaken to extend the proposed research model and to generalize the findings of the study outside the banking context. Firstly, the finding of this study is limited to the scope of PPC. Future studies should aim to extend the theoretical research model into other relevant fields such as search engine advertising, content marketing, rich television advertisements, social network advertising, online classified advertising, advertising networks, and e-mail advertising. Secondly, this study was designed to effectively capture information regarding PPC. For this reason, the data were collected among respondents who are most familiar with banking services and different types of online advertising in Malaysia. Thus, future researchers should extend the findings of this study by targeting several other market segments and professions beyond emerging country such as Malaysia. Finally, to empirically assess the model, this study used a cross-sectional data collection technique; thus, future studies should collect data and use a longitudinal method.



## Declarations

**Conflict of interest** On behalf of all authors, the corresponding author states that there is no conflict of interest.

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**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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