Exploring the Effects of Social Influence and Perceived Enjoyment of Customers' Acceptance Intention of Self-Service Technology in the Restaurant Industry

The Journal of Educational Paradigms
2022, Vol. 04(01) 224-230

ISSN (Print): 2709-202X
ISSN (Online): 2709-2038
DOI:10.47609/0401032022

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Abstract

The quick placement of guest self-service kiosks in hotels has created a need to understand better how to motivate guests to use the technology. This study extends the technology acceptance model to explore the effects of social influence and perceived enjoyment of customers' acceptance intention of self-service technology in the restaurant industry. An online survey of hotel guests shows that social influence and perceived enjoyment can significantly increase guests' perceived usefulness and acceptance of self-service kiosks, while social influence increases acceptance. This paper offers theoretical and practical implementations for operators looking to increase customer acceptance of hotel self-service kiosks.

Keywords: Social Influence; self-service technology; customers' acceptance intention; perceived ease of use; perceived enjoinment; perceived usefulness; behavioral intention.

INTRODUCTION

The development of ICT has played a vital role in growing product levels by shifting the dimensions of relationships between service providers and consumers (Barrett, Davidson, Prabhu, & Vargo, 2015; Croteau & Bergeron, 2001; Iqbal, Hassan, & Habibah, 2018). The ICT extension will ultimately decide business success because it helps manage and control the organization's operations (Powell & Dent-Micallef, 1997). Also, ICT has continually improved the way customers and businesses perceive services (Scherer, Wünderlich, & Wangenheim, 2015). In the meantime, marketers encourage self-service technology (SST) to help service workers minimize costs and enhance their services (Taillon & Huhmann, 2019). SST is a digital touchscreen technology that enables consumers to access technology without service providers' interaction (Meuter, Ostrom, Roundtree, & Bitner, 2000). In other words, SST has substituted face-to-face with consumers and service providers, and the consumers can purchase food directly (Iqbal et al., 2018; Martins, Oliveira, & Popovič, 2014). The implementation of SST, which allows consumers to provide convenience, will minimize job costs and increase the operational performance of businesses' non-producing practices (Considine & Cormican, 2016). SST provides customer comfort, independence, and time-saving (Turner & Szymkowiak, 2019).

Many consumers in the service sector perceive SST to be worthwhile due to its ease (Kaushik, Agrawal, & Rahman, 2015). SST is gaining rapid attention and the possibility to innovate almost all facets of the dining experience (Beldona, Buchanan, & Miller, 2014; Hanks, Line, & Mattila, 2016). According to a recent study (Jeon, Sung, & Kim, 2020), consumers prefer Kiosks in a fast-food restaurant instead of traditional sales. El-Said and Al Tall (2020) found that buying food in a fast-food restaurant, consumers prefer to shop using a kiosk compared to purchasing through a traditional channel. This technology (SSKs) is now evolving rapidly in small restaurants. The explanations for this is purely descriptive: (1) political; (2) socio-economic (low wage spike) (3) cultural and social (contactless preferences); and (4) technology driven (easy payment and ICT evolution) (Jeon et al., 2020).

Behavioural science and psychology scholars suggest that several aspects, including enjoyment and social images, can also understand technology adoption (e.g., (Azjen, 1980; Huang, Lin, & Yang, 2015; Klonglan & Coward, 1970). In marketing research, one commonly held view is that social or other comparison categories play a deciding role in an individual decision-making process. Social influence is characterized by how well an individual's behaviour meets others' expectations (Jahoda, 1959; Venkatesh, Morris, Davis, & Davis, 2003). A non-work study of individual customers has disclosed that support from others' influence affects technology adoption (J. Lu et al., 2005). Complexity and heterogeneity in the hospitality sector illustrate this impact (Argo & Main, 2008; Keaveney, 1995; Mourali, Laroche, & Pons, 2005). Previous research also neglects the "playfulness" of a specific technology in the TAM (Padilla-MeléNdez, Del Aguila-Obra, & Garrido-Moreno, 2013). In particular, Dabholkar and Bagozzi (2002) emphasize that "fun" is a guiding factor of a confident attitude towards new technologies. The new system is more likely to be adopted when consumers enjoy it reasonably. (Huang et al., 2015). Therefore, to speed up theoretical comprehension of the indicators of SSK adoption, perceived enjoyment (PE) is considered one of the indicators of intention in this study.

The fast-food industry is the second largest in Pakistan, and the concept of SSKs in fast-food restaurants is new but has gained much popularity in its early stage. The SSKs were launched in MacDonald's in September 2018 among the early adopters of self-service kiosks. Other significant players in the food industry are KFC, Hardee, Burgers King, Pizza Hut, and Macdonald's competitors in Pakistan's fast-food business. Therefore, this research aims to close this void by establishing a theoretical

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framework for self-service kiosks in Pakistan's fast-food restaurants.

THEORETICAL BACKGROUND

Various conceptual frameworks have been implemented to adapt and use new information technology (IT). TAM is a commonly recognized technology adoption framework that recognizes an individual's behavioural intention to incorporate information systems (F. D. Davis et al., 1989). This model is based on the Theory of reasoned action (TRA) of Azjen (1980) and is a foundation for identifying causal relationships and the flowing linkage of beliefs, attitudes, and BI in the use of IT. The original TAM describes the PEOU of individuals and PU to assess their attitudes to emerging technologies, which will, in turn, determine their intention to use the new technology and their actual use. Later, F. D. Davis et al. (1989) carried out experimental research to assess consumer behaviour after a 14-week association with a new system and concluded that after 14 weeks, the PU has an indispensable detrimental effect on the BI; However, the direct effect of PEOU on BI was not significant. Instead, PEOU had a significant indirect impact on BI through PU. On the other hand, at the beginning of using the new technology, the attitude had a lower effect on BI than PU; however, there was no substantial impact after 14 weeks. Thus, the final TAM recommended a more prudent model to determine the consumer's behaviour intention (i.e., the direct and indirect effects of PEOU and PU on BI and an indirect effect of PEOU on BI via PU). Previous research has tested the TAM model's validity in different settings, like hotels (Joe, Kim, & Zemke, 2020; Kim, 2016; Min, So, & Jeong, 2019).

In line with the information system (IS) research, PE is defined as "fun or enjoyment resulting from the use of technology" (Venkatesh, Thong, & Xu, 2012). In evaluating the adoption and usage of technology, it has been found that PE plays a critical role (e.g. & Venkatesh, 2005; Huang et al., 2015; Rosenbaum & Wong, 2015). Most recently, the extension of the UTAUT in the customer setting Venkatesh et al. (2012) introduced hedonic motivation as an influencing variable in acceptance and use of technology and noticed that the dimension of BI was essential and that it was more meaningful than performance expectancy (i.e., PU). As such, the TAM and previous research on social influence and perceived enjoyment provide a theoretical basis for the development of a research model (see figure 1) which offers SI, PE, PEOU, and PU are relevant determinants of the intention of customers to use SSKs.

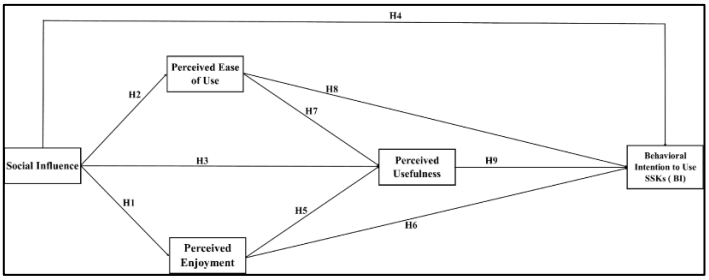

Figure 1. Self-service kiosk (SSKs) acceptance model.

HYPOTHESIS DEVELOPMENT

The effect of SI on PE

Because using SSKs in fast food, the restaurant is considered a complex hedonic system (Collier & Barnes, 2015), perceived enjoyment of ordering food through self-service kiosks can be a momentous determining factor of consumers' acceptance of SSKs. Enjoyment is "the extent to which the action of using the system is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (F. D. Davis, Bagozzi, & Warshaw, 1992). Researchers also indicated the impact of emotional/intrinsic influences on individual decision-making (Bagozzi, Gopinath, & Nyer, 1999). PE has documented extensively in the literature the critical role in understanding consumers' acceptance of emerging technology (F. D. Davis et al., 1992; Rosenbaum & Wong, 2015; Yang, Wang, & Lu, 2016). For example, in the present research, if modern SSKs usage gives fun and pleasure, the latest technology is more likely to be adopted by customers. Service providers want consumers to utilize self-service technology to advance service delivery and reduce labour costs (Kokkinou & Cranage, 2013). Nevertheless, if consumers think about making glitches when utilizing modern technology, they will not use them (Mun & Hwang, 2003).

SI was defined as "the extent to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology" (Peng, Yang, Cao, Yu, & Xie, 2017). It has been suggested that people determine whether to adopt or refuse new technology; they also weigh the impact of that choice on their relationship with others. As a result, people conform to the majority opinion (Jahoda, 1959; Qin, Kim, Hsu, & Tan, 2011). An empirical explanation for the substantial impact of social influence on consumer's intention to adopt various technologies in the literature has been discovered. For example, The social influence of purchasing online tickets for low-cost airlines was one of the powerful predictors of consumer acceptance (Escobar-Rodríguez & Carvajal-Trujillo, 2014). In another study, Ali, Nair, and Hussain (2016) found a significant association between social influence and students' intention to use computers in cooperative classrooms. Therefore, if the participants of a consumer's social network agree that using an SSK is an intelligent idea and encourage the customer to use it, the customer would generally find that using an SSK is fun and enjoyable. Accordingly, this study postulates that social influence would favorably affect the perceived enjoyment of the consumer. Positive expectations and intentions of social group participants will strengthen the person's perception that modern technologies (i.e., SSKs) will optimize his /her enjoyment of utilizing the technology. Thus, the following hypothesis is examined in this study.

H1: Social influence positively affects the customer's perceived enjoyment of SSKs.

The effects of SI on PEOU, PU, and BI

Social influence can also be the antecedent of PEOU, PU, and BI. PEOU is defined as "the degree to which a person believes that using a particular system will be free of effort," and perceived Usefulness is defined as "the extent to which an individual is persuaded that using a specific technology improves his/her performance (F. D. Davis, 1989). Though many researchers have claimed that PEOU and PU are the main drivers of behaviour for acceptance of technology (Cheng, 2014; F. D. Davis, 1989; Ozturk, Bilgihan, Nusair, & Okumus, 2016), research on the background of fast-food restaurants SSKs in these determinants (i.e., PEOU,

PU) are scarce. Previous findings indicate that people are likely to depend on societal norms for applying emerging technology (Dickinger, Arami, & Meyer, 2008; J. Lu et al., 2005; Venkatesh & Morris, 2000). In particular, to measure an individual's adoption of a new system through the influence of social factors, Venkatesh and Morris (2000) modified the TAM, adding the subjective norm and proposing that subjective norms can influence PU. In UTAUT, Social influence was also identified as one of the four essential antecedents of BI, alongside performance expectancy (i.e., PU) and effort expectancy (i.e., PEOU) (Venkatesh et al., 2003).

Consumers are still deeply dependent on others' views as new technology includes connectivity, among others (Dickinger et al., 2008). Some previously published research has identified the influential role of social influence (UTAUT) in accepting kiosks. For example, J.-L. Lu, Chou, and Ling (2009) advocate that reference groups' views using self-service check-in kiosks by airlines have had a positive effect. In general, close to airline kiosks, there are hotel check-in /out kiosks in the public area, where customers social others (e.g., parents, acquaintances, and friends) will conveniently share with the consumer their optimistic views regarding kiosks and suggest that the customer use the kiosks (J.-L. Lu et al., 2009; Nysveen, Pedersen, Thorbjørnsen, & Berthon, 2005).

Moreover, social customers may always affect their perceptions and behavioural intentions to use a particular technology, i.e., before travelling (Venkatesh et al., 2012). The social others' views on SSKs would likely affect the customer's decision to adopt this technology. These comparison groups' viewpoints are anticipated regarding their effectiveness, ease of use, and plan to implement the latest technologies to influence fast-food restaurants' consumer expectations favourably. Therefore, this study expects SI to positively impact customers' PEOU, PU, and BI within SSKs adoption in fast-food restaurants. Thus, this study hypothesizes:

H2: Social influence positively impacts the customer's ease of use of SSKs.

H3: Social influence positively impacts the customer's perceived Usefulness of SSKs.

H4: Social influence positively impacts a customer's behavioural intention of SSKs.

The effects of PE on PU and BI

While cognitive processes govern the original TAM model, F. D. Davis (1989) assumes that consumers also rely on other aspects, e.g. whether it is enjoyable to use new technology or not. Reflecting the increasing importance of perceived enjoyment in technology adoption, more current research on the acceptance of technologies insists that individuals adopt emerging technology for their success and enjoyment (Venkatesh et al., 2012). Also, Koenig-Lewis, Marquet, Palmer, and Zhao (2015) argued that the enjoyment of using new technology could reduce anxiety and, in turn, lower perceived risk. In the case of SSKs, the PE will serve as a predecessor for PU, where the enjoyment of modern technologies can be an intrinsic motivator, thereby increasing the conviction of individuals that utilize the technologies can boost their efficiency (Agarwal & Karahanna, 2000; F. D. Davis et al., 1992). Focused on the previous findings, this research indicates a positive impact of SSKs' perceived enjoyment on their perceived Usefulness of the SSKs and their BI to use them. Thus, we propose the following hypotheses:

H5: Perceived enjoyment of SSKs positively and significantly impacts the Customers' perceived Usefulness to use SSKs.

H6: Perceived enjoyment of SSKs has a positive and significant impact on the Customers' behavioural intentions to use SSKs.

The effects of PEOU and PU on BI

The theoretical presumption in the TAM is that the behavioural intention for implementing new information technology is defined by two different significant factors: PU and PEOU. Prior studies have identified PU and PEOU as critical influences in the behaviour of technological adoption (Agrebi & Jallais, 2015; F. D. Davis, 1989; Ozturk et al., 2016). Besides, a previous study reveals that PU directly impacts intention to use (i.e., BI), and PEOU affects BI through two paths: a direct effect and an indirect effect by PU (F. D. Davis, 1989; Ko, 2017). Ozturk et al. (2016) show that PU impacts consumer satisfaction positively towards appointments for mobile hotels, and Ozturk et al. (2016) demonstrate that PU has a positive effect on behavioural intention to implement a modern e-learning system (Tarhini, Hone, & Liu, 2014).

Regarding PEOU, consumers seem to be optimistic towards self-service information technology, whether it is simple to use (Kallweit, Spreer, & Toporowski, 2014). Some studies, however, have confirmed that PEOU is not an essential or less critical BI determinant in contrast with perceived Usefulness (Lucas Jr & Spitler, 1999; Subramanian, 1994). To be in line with the above-listed literature, this research assumes that the PEOU of a fast-food kiosk of a consumer would significantly influence the PU of an individual, which has a significant influence on consumers behaviour Intention to use the Kiosk at a fast-food restaurant; therefore, the following hypotheses are proposed:

H7: Perceived ease of use of SSKs positively impact their perceived Usefulness to use SSKs.

H8: Perceived ease of use of SSKs positively impact their perceived Usefulness to use SSKs via perceived Usefulness.

H9: Perceived Usefulness of SSKs positively impacts their behavioural intention to use SSKs.

METHODOLOGY

Figure 2 shows the current study's research flow and process, including data collection, measurement of construct development, and data analysis. The survey instrument consisted of five elements from previous studies to meet the research aim and objectives. The social influence was evaluated by three items borrowed from (López-Nicolás, Molina-Castillo, & Bouwman, 2008). The PE was measured by three separate items borrowed from the work of (Nysveen, Pedersen, & Thorbjørnsen, 2005; Venkatesh et al., 2012). Eight items for each of the two primary TAM constructs (i.e., PEOU, PU) from the work of (Venkatesh et al., 2003) and three items to measure BI adopted from the studies of (Suh & Han, 2003) and (M. Kim & Qu, 2014). All scale items for the five variables were calculated with seven-point Likert-type scales ranging from "strongly disagree" to "strongly agree."

Sampling technique

The present research addressed the understanding and intention of customers in the fast-food restaurant Kiosks, which were among

the early adopters of kiosks. Initially, the participants were asked whether they were users of kiosks or who had used self-serve kiosks in fast-food restaurants in the last six months. Those who answered yes were invited to participate in the survey. Participants were informed of complete anonymity in the study and that the results will be used for research purposes.

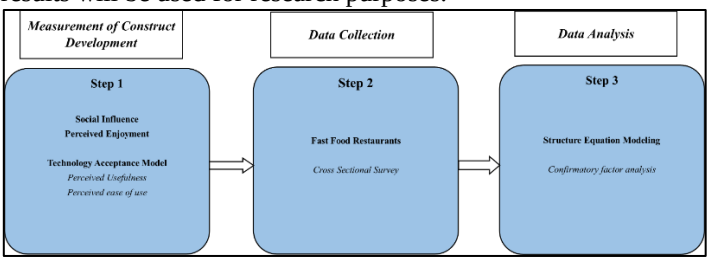

Figure 2. Research flow and progress

No users of kiosks during the initial screening process were excluded from the survey. The questionnaire was designed with a discussion with an industry expert. The research intended to use the most widely utilized items for each factor. The questionnaire consisted of eighteen closed questions. The opening questions have been asked to determine the consumer's demographic behaviour in ordering through kiosks and the primary reason for ordering using kiosks.

RESULTS

Table 1 presents the results of the measurement model. The CFA (i.e., measurement model) findings show a good fit of the model: S-Bχ^2 (126) = 291.58, $p < .05$, χ^2/d.f. = 2.41, CFI = .964, IFI = .961, TLI = .953, RMSEA = .047. Values of loading, as shown in Table 1, are significant and greater than 0.5 (Hair et al., 2006). The average variance extracted (AVE) is estimated within the limits of the threshold value of 0.5, and the composite reliability of all variables indicates acceptable scale reliability (Hair et al., 2006).

Table 1. Results of CFA, convergent validity, and composite reliability

	SI	PEOU	PE	PU	BI	Loadings
Social Influence (SI)			(AVE = 0.76)			
SI1						0.905
SI2	**0.872**	0.293	0.279	0.331	0.372	0.912
SI3						0.765
Perceived Ease of Use (PEOU)			(AVE = 0.74)			
PEOU1						0.841
PEOU2	0.529	**0.860**	0.510	0.572	0.541	0.762
PEOU3						0.905
PEOU4						0.911
Perceived Enjoinment (PE)			(AVE = 0.75)			
PE1						0.852
PE2	0.551	0.725	**0.866**	0.859	0.701	0.883
PE3						0.842
PE4						0.872
Perceived Usefulness (PU)			(AVE = 0.71)			
PU1						0.835
PU2	0.563	0.762	0.929	**0.843**	0.756	0.795
PU3						0.810
PU4						0.895
Behavioral Intention (BI)			(AVE = 0.84)			
BI1						0.910
BI2	0.993	0.794	0.841	0.883	**0.917**	0.932
BI3						0.940

Table 2 shows the structural model results indicating a good model fit: S-Bχ^2 (127) = 389.04, $p < .05$, χ^2/d.f. = 3.83, CFI = .941, IFI = .937, TLI = .935, RMSEA = .057. Social Influence had a significant positive direct effect on the Perceived Ease of Use of SSKs (β = .57; p < .05; hypothesis supported). Social Influence had a significant positive direct effect on the Perceived Enjoinment of SSKs (β = .55; p < .05; hypothesis supported). Social Influence had a significant positive direct effect on the Behavioral Intention of SSKs (β = .18; p < .05; hypothesis supported). Social Influence had not a significant positive direct effect on the Perceived Usefulness of SSKs (β = .05; p > .05; hypothesis not supported), and it had a significant positive indirect effect on Perceived Usefulness via Perceived Ease of Use and Perceived Enjoinment of SSKs (β = .60; p < .05; hypothesis supported). Perceived Ease of Use had a significant positive direct effect on the Perceived Usefulness of SSKs (β = .23; p < .05; hypothesis supported).

Table 2. Results of path analysis

Paths	Direct effect (*β*)	Indirect effect (*β*)	Remarks
Social Influence ➔ Perceived Ease of Use	0.57***		Supported
Social Influence ➔ Perceived Enjoinment	0.55***		Supported
Social Influence ➔ Behavioral Intention	0.18***		Supported
Social Influence ➔ Perceived Usefulness via Perceived Ease of Use and Perceived Enjoinment	0.05	0.60***	Partially Supported
Perceived Ease of Use ➔ Perceived Usefulness	0.23***		Supported
Perceived Ease of Use ➔ Behavioral Intention via Perceived Usefulness	0.11	0.47***	Supported
Perceived Enjoinment ➔ Perceived Usefulness	0.15***		Supported
Perceived Enjoinment ➔ Behavioral Intention	0.79***		Supported
Perceived Usefulness ➔ Behavioral Intention	0.59***		Supported

Perceived Ease of Use had not a significant positive direct effect on Behavioral Intention via Perceived Usefulness of SSKs (β = .11; p > .05; hypothesis not supported), and it had a significant positive indirect effect on Behavioral Intention via Perceived Usefulness of SSKs (β = .47; p < .05; hypothesis supported). Perceived Enjoinment had a significant positive direct effect on the Perceived Usefulness of SSKs (β = .15; p < .05; hypothesis supported). Perceived Enjoinment had a significant positive direct effect on the Behavioral Intention of SSKs (β = .79; p < .05; hypothesis supported). Perceived Usefulness had a significant positive direct effect on the Behavioral Intention of SSKs (β = .59; p < .05; hypothesis supported).

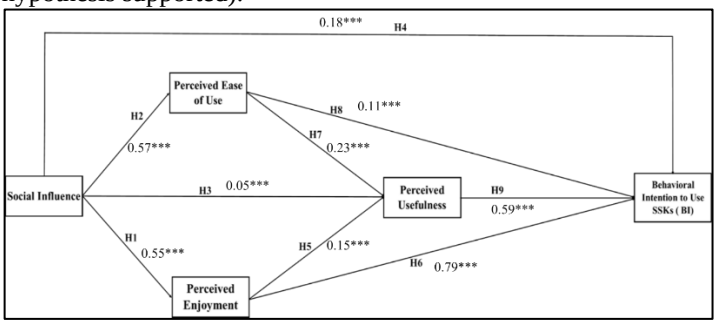

Figure 3. Research model with results

DISCUSSION, IMPLICATIONS, AND CONCLUSION

Marketers are projected to invest SST $31.75 b by 2020, with an annual growth of about 14 per cent. SST encompasses many other services, including hospitality, finance, storage and transportation. Meuter et al. (2000) classified SST types in compliance with their function and user interface. The SST is classified according to consumer assistance, direct sales, and self-assistance, whereas it is split into mobile/digital voice query, web/net, interactive kiosks, and video / CD based on the system. The cases have been summarized in each scenario. The most used offline hosting SST interfaces are self-service Kiosks (SSKs) in the offline hospitality industry. SSKs are primarily used for hotel verification and confirmation, airport checks, junk food orders, and massive food stalls (Kincaid & Baloglu, 2006; Riebeck, Stark, Modsching, & Kawalek, 2008). Most research concentrated on consumers' acceptance of emerging technology (Kaushik et al., 2015). Liu (2012) analyzed the impact of consumer usage on attitudes concerning SSTs in different areas. He suggested that businesses continually draw customers' focus to the attractiveness of utilizing SST. Kaushik et al. (2015) extended the TAM to explore tourists' trust, attitude, and acceptance of hotel self-service (SSHT) technology. Fernandes and Pedroso (2017) acknowledged the weaknesses of SST acceptance research and revealed the impact of self-check attributes in retail stores with expected quality, overall satisfaction, and intention to revisit. In numerous studies, Consumer behaviour has been analyzed by relying on the efficiency of the Kiosk. Gelderman, Paul, and Van Diemen (2011) addressed that many air travellers wanted to use the Kiosks during the steep wait times, and the environment's outcomes greatly influenced the kiosks. Yi and Kim (2017) also explained how contact with other customers is widening, whereas face-to-face engagement with workers diminishes, rendering other consumers' roles more critical.

Few studies have examined market expectations and adoption of this new technology or other people's impact on customers' intention to adopt this technology (El-Said & Al Tall, 2020). The reason why users use the technology was predominantly based on PU and PEOU as critical indicators of behavioural intention (BI) and focused on the TAM by Davis (F. Davis; F. D. Davis, Bagozzi, & Warshaw, 1989) and (J. Lu, Yao, & Yu, 2005). Also, the effect of the COVID-19 epidemic encourages the usage of alternate payment mechanisms to prevent physical interaction with currency. The latest research has indicated changes in global consumer preferences from Africa and the Middle East to the United States and Latin America (Flavian, Guinaliu, & Lu, 2020). This melodramatic and fast development undoubtedly encourages researchers to concentrate heavily on contactless payment technology.

This research makes a significant contribution to the literature on hospitality technology by extending TAM with two constructs, i.e., social influence and perceived enjoyment in the view of the under-developed country, Pakistan. There is still a lack of understanding of consumer adoption of SSKs in the growing Pakistani market. This research will expand the limited literature by investigating the social and hedonic factors for consumers' adoption of Kiosk and makes recommendations for using SSK's in a fast-food restaurant.

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