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Role of Technology Readiness in Airline Passengers' Perceptions of Self-service Technology Quality

Ekkarat Suwannakul*

Faculty of Liberal Arts, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand, Email, ekkarat.su@kmitl.ac.th

Corresponding Author

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Abstract

Self-service technology (SST) is more crucial now than before for the service delivery of airlines. Many airlines employ various types of SSTs so that passengers can perform certain services on their own. Although many passengers enjoy using the self-service option, some are not ready to adopt such a technology. This study aims to investigate how passengers possessing different characteristics perceive technology readiness (TR) and examine the influence of TR on perceived SST quality. Questionnaires were used to collect data from airports in Bangkok, Thailand. A total of 382 usable data were analysed using one-way ANOVA and multiple regression analysis. Results indicate significant differences in TR across age, education, occupation, income, types of SSTs and air travel frequency. This study also reveals that TR dimensions, namely, optimism, innovativeness, anxiety and insecurity, are important factors influencing airline passengers' perceptions of SST quality.

Keywords: Technology readiness, Self-service technology, Service quality, SSTQUAL

Introduction

Recent technological advancement has influenced the transformation of the interactions between service providers and customers in the service industry. Advanced technology allows firms to introduce various service automations to provide better services to customers, create customer experiences, improve service processes and expand service capabilities at lower operating costs (Ivanov & Webster, 2017; Lin & Hsieh, 2011; Wirtz, 2018). Self-service technology (SST) is a service automation employed by service providers to allow customers to take more control of their service consumption and produce services that meet customers' specific needs without staff involvement (Considine & Cormican, 2017; Ivanov & Webster, 2019). This self-service concept, so-called 'prosumer' (production by consumers), (Toffler & Alvin, 1980) has been commonly adopted by service firms to improve service provision and operations nowadays.

An airline firm represents an interesting case of SST application. Most leading airlines encourage passengers to use various types of SSTs through electronic devices to perform specific tasks usually performed by service staff. The most common SSTs used in airline services include mobile check-in applications, self-service kiosks at airports for checking-in, boarding pass printing, information enquiries and online websites for reservation and ticket sales. SST becomes increasingly important to airline firms because of its contributions in several aspects. Apart from cost saving, SST is necessary in delivering contactless services, especially during the spread of COVID-19 pandemic in 2020. SST also benefits passengers with time and cost savings resulting from better and faster interactions (Chen & Wang, 2016; Kokkinou & Cranage, 2013). Unsurprisingly, the global passenger

survey conducted by International Air Transport Association (IATA) illustrates that SST tends to be embraced by passengers. The result shows that 51% of passengers prefer to use a smartphone or device for check-in, a 4% increase over the percentage in 2018. In addition, mobile application and websites are the preferred booking methods for most passengers globally (IATA, 2019). SITA (2020) revealed that 93% of passengers use SST via mobile phone and website to book their flights. These figures reflect the preferences and behaviours of air passengers in interacting with airline services, including their attitudes towards using SSTs to improve their travel experiences.

In Thailand context, the percentage of Thai AirAsia's passengers who reserved flights directly on the airline's website and mobile application in 2019 was 63%, which increased from 54% in 2018 (Asia Aviation, 2020). Although some airlines experience lower rate of online channel usage (Nok Air, 2019, 2020), airlines such as Thai Vietjet, Thai Smile Airways and Thai Airways continue to adopt SSTs (i.e. websites, mobile applications, self-service kiosk and self-baggage drop) to respond to passenger behaviour and lifestyle changes (Nok Air, 2020; Thai Airways, 2019). However, not all customers are willing to fully use SSTs. Customers sometimes are frustrated when dealing with technology-based services (Parasuraman, 2000). Some of them feel that they are enforced to engage in SST usage without choices, making them anxious, especially when SST malfunctions (Lee et al., 2012; Lin & Hsieh, 2011). As a result, customers may form negative perceptions towards service provider and undertake the role of value destroying (Kelly et al., 2017), which may have affect firms' profit and brand image. Past evidence indicates the effects of technology readiness (TR) on various service outcomes (Hemdi et al., 2016; Lee et al., 2012; Liljander et al., 2006; Lin & Hsieh, 2006; Meuter et al., 2003) Moreover, the determinants of TR can vary according to individual psychographic characteristics in different cultures (Liljander et al., 2006; Lin & Hsieh, 2006; Rojas-Méndez et al., 2015, 2017). Thus, airline firms should consider passengers' TR.

Zeithaml et al. (2002) suggested that service firms with SST presence must understand how customers perceive and evaluate technology-based services. Only few empirical studies examine the association between passengers' readiness to use SST and their perceived SST quality in airline context. This study, therefore, aims to investigate the influence of TR on airline passengers' perceptions of SST quality in Thailand. To achieve this objective, the four dimensions of TR proposed by Parasuraman (2000) and the seven-dimension SSTQUAL scale of Lin and Hsieh (2011) are applied. This article first reviews the relevant literature on airline SSTs, TR construct and measures of SST service quality. Next, the conceptual research framework, hypotheses and methodology are presented. Finally, the analysis results, discussion, conclusion and limitation of this study are provided along with suggestions for future research.

Literature review

Airline Self-service technology

SST has become more important now than before for service delivery. Many service firms seek more self-service options to allow customers to perform self-services and adopt various methods through SSTs to facilitate customer needs (Dabholkar, 1996; Lin & Hsieh, 2011). An airline firm presents an interesting case of SST application. Most leading airlines have introduced various SSTs through electronic devices to passengers, including mobile applications, self-service kiosks and online websites. Airline SST enables passengers to accomplish specific tasks (i.e. flight booking, checking-in, boarding pass printing and information enquiries) usually performed by service staff. Strother et al. (2010) indicated that more than 50% of airline passengers worldwide perceived the benefits of using SST because

such a technology makes them feel empowered and saves their time. Passengers are likely to perceive the ability of an airline firm that offers various SST channels for convenience (Lin & Hsieh, 2011). They are also likely to enjoy the benefits of cost saving, greater control over the service delivery, flexibility and service customisation (Curran et al., 2003; Dabholkar, 1996; Meuter et al., 2000). Every airline in Thailand has already installed various types of SSTs to provide pre-departure services for passengers. Most major airlines attempt to encourage passengers to use SSTs through several online channels and devices. Airlines can gain many benefits from such service provision, including lower operating costs (i.e., labour cost, space rental cost, and service recovery cost), higher efficiency and on-time performance (Chang & Yang, 2008) and reduced personal contact, especially during the COVID-19 pandemic. Table 1 shows the types of SSTs provided by airlines in Thailand.

Table 1: SSTs provided by airlines in Thailand

	Thai Airways	Bangkok Airways	Thai AirAsia	Nok Air	Thai Smile	Thai Lion Air	Thai Vietjet
Website	✓ (1,2,3)	✓ (1,2,3)	✓ (1,2,3,5)	✓ (1,2,3)	✓ (1,2,3)	✓ (1,2,3)	✓ (1,2,3)
Mobile application	✓ (1,2,3)	✓ (1,2,3)	✓ (1,2,3,5)	✓ (1,2,3)	✓ (1,2,3)	✓ (1,2,3)	✓ (1,2,3)
Self-service Kiosk	✓ (2,3,4)	✓ (2,3)	✓ (2,3,4)	×	✓ (2,3)	×	✓ (2,3)
AI-based chatbot	in progress	×	✓ (5)	×	×	×	✓ (5)
Facial recognition system	×	×	in progress (2,6)	×	×	×	×

1 = reservation/ticketing services, 2 = self-check-in service, 3 = e-boarding pass/self-boarding pass printing service, 4 = self-bag drop/tag service, 5 = automated answering service, 6 = self-boarding service

Although SST tends to be more embraced by passengers, some of them may feel uncomfortable, frustrated and anxious when dealing with technology-based services (Curran et al., 2003; Parasuraman, 2000). Passengers can be stressed and anxious when enforced to engage in SST usage without choices (Lee et al., 2012; Lin & Hsieh, 2011). To maximise the benefits of SST application, airline firms need to understand better how ready are passengers to adopt SSTs effectively and identify what affects passengers' perceptions towards SST quality.

Technology readiness (TR)

Advances in technology have influenced the transformation of the interactions between service providers and customers (Ivanov & Webster, 2017). However, technology-based services can make customers feel uncomfortable which can form negative perceptions towards service providers (Kelly et al., 2017) and some degree of technophobia (Meuter et al., 2003). Hence, new technology provision can be challenged and detrimental if airline firms do not precisely understand the readiness and attitudes of their target passengers towards SST service options. TR is defined as 'people's propensity to embrace and use new technologies for accomplishing goals in home life and at work' (Parasuraman, 2000). It is considered a factor influencing customers' mental readiness to adopt new technologies (Liljander et al., 2006). In the context of SST usage, the factors of TR include *optimism*, *innovativeness*, *anxiety* and *insecurity* (Lee et al., 2012). Passengers' perceptions of TR can be driven by two positive factors (optimism and innovativeness) and inhibited by two negative factors (anxiety and insecurity).

Parasuraman (2000) explained that *optimism* is 'a positive view of technology and a belief that drives customers increased control, flexibility, and efficiency in their lives'. *Innovativeness* refers to 'a tendency to be a technology pioneer and tough leader'. Optimism

and innovativeness can encourage customers to adopt technology-based services and exhibit a positive attitude towards technology (Lin & Hsieh, 2006). *Anxiety* is the extent of discomfort when using SST without attendance (Lee et al., 2012). *Insecurity* is a 'distrust of technology and scepticism about its ability to work properly' (Parasuraman, 2000). These negative feelings can make customers reluctant to use the technology-based service because they are likely to perceive difficulty in navigating unfamiliar technology system (Lee et al., 2012)**.** Past studies apply TR dimensions to examine the effect of TR on several factors such as passengers' attitudes towards service provider and airline SST usage (Lee et al., 2012; Liljander et al., 2006), customer satisfaction (Hemdi et al., 2016; Liljander et al., 2006; Meuter et al., 2003), intention to use SST (Lee et al., 2012; Lin & Hsieh, 2006; Meuter et al., 2003) and perceived SST quality (Lin & Hsieh, 2006). Investigating how passengers assess SST quality cannot be neglected because passengers' readiness to use SST plays an important role in their resulting perceptions and behaviours (Lin & Hsieh, 2006; Zeithaml et al., 2002).

Perceptions of SST quality

Service quality is an antecedent of numerous service outcomes, including customer satisfaction, behavioural intention and firm performance (Cronin & Taylor, 1992; Wirtz, 2018; Zeithaml et al., 2018)**.** Many studies investigate perceptions of service quality in the context of customer–employee interaction by using SERVQUAL (Parasuraman et al. (1988). In the service automation era, empirical studies propose the scales to assess service quality in the context of customer–technology interaction. Examples are SITEQUAL scale for measuring the perceived quality of an internet shopping site and eTailQ scale for measuring the quality of online retailer. SSTQUAL, proposed by Lin and Hsieh (2011), is more appropriate to measure quality of SST context because the scale is tested in different settings and replicated using several different samples across cultures and industries, including the airline context (Iqbal et al., 2018; Orel & Kara, 2014). Although SSTQUAL scale is tested in the airline setting for the third phase of Lin and Hsieh (2011)'s study, only a few empirical research applies this scale for measuring the quality of airline SST service (Shin & Lee, 2012; Suwannakul, 2019; Yusra & Agus, 2018). SSTQUAL scale consists of seven dimensions (20 items) which are functionality, enjoyment, security and privacy, assurance, design, convenience and customisation.

Conceptual research framework and hypotheses

The previous section indicates that TR comprises four dimensions and that SST quality can be measured by seven dimensions. The association between TR and SST quality should also be examined in the airline context. The conceptual research framework and hypotheses of this study are presented in Figure 1 above.

This study puts forward the following hypotheses:

H_1**.** Passengers of different demographic characteristics perceive TR differently.

H_{2a}**.** Optimism positively influences perceived SST quality.

H_{2b}**.** Innovativeness positively influences perceived SST quality.

H_{2c}**.** Anxiety negatively influences perceived SST quality.

H_{2d}. Insecurity negatively influences perceived SST quality.

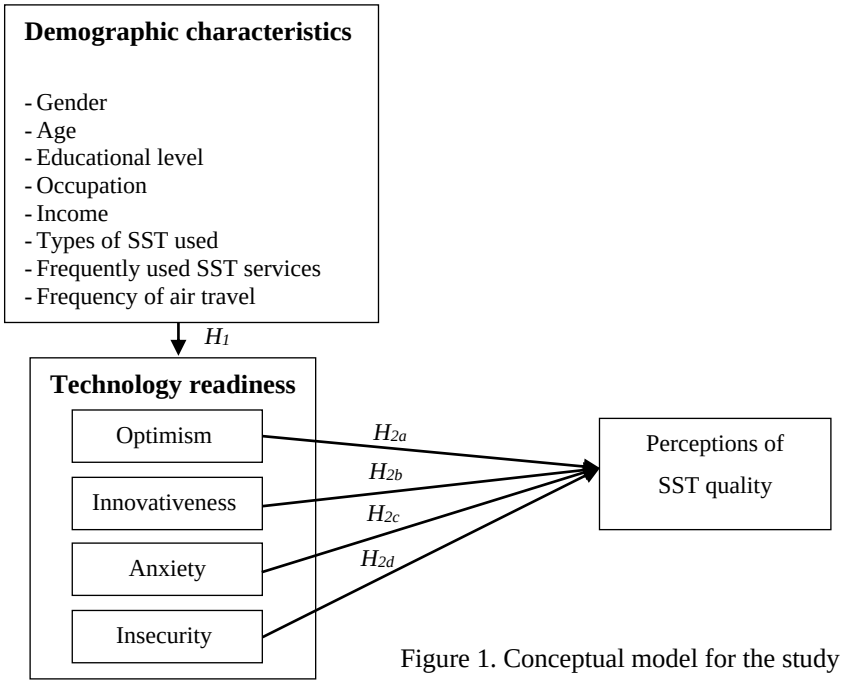

Figure 1. Conceptual model for the study

Methodology

Survey instrument and measurement

This study used self-administered questionnaire for data collection. The first part of the questionnaire included a screening question (whether the respondent has experienced using airline SST or not) and nine questions concerning respondents' demographic characteristics (gender, age, educational level, occupation, income, types of SST, frequently used SST service, frequency of air travel and main purpose of airline SST usage). The second part was designed to evaluate respondents' perceptions of TR. It comprised 18 items covering the four dimensions of TR proposed by Lee et al. (2012). In the third part, 24 items were used to evaluate respondents' perceptions of SST quality. These items were adapted from SSTQUAL (Lin & Hsieh, 2011). A six-point semantic differential scale was used as the rating scaling to evaluate items in the second and third parts of the questionnaire.Validity and reliability tests were performed to ensure the quality of the questionnaire before collecting data. Five experts were invited to evaluate the content validity of questions. The item–objective congruence indexes of each item were greater than the minimum score of 0.750 (Turner & Carlson, 2003). According to experts' comments, some wordings were slightly modified. Two items in the second part were merged owing to their similarities. Four items in the third part were added to make the questions more suitable for the context of this study. Thirty pilot questionnaires were then distributed to respondents for tryout sample. The Cronbach's alpha coefficient value (α) of all scales were higher than 0.600, as suggested by Hair et al. (2010). Hence, the survey instrument was valid and reliable for data collection.

For this study, the sample size was calculated using G*Power statistical software version 3.1 (Faul et al., 2009). The F-test was selected as a test family, and linear multiple regression was selected as the statistical test, based on an effect size of .05, an error probability of α = .05, a power level of .80 (Hair et al., 2010) and four predictors (independent variables). The calculation suggested that the minimum sample size was 244.

Sample and data collection

Data collection was conducted using accidental sampling technique at the Don Muang International Airport and the Suvarnabhumi Airport in Thailand. To ensure appropriate sample, questionnaires were distributed to respondents who had experiences using SST of a Thai airline and were willing to participate in the study. They were informed that their data provided for this study were protected with anonymity and confidentiality. A total of 382 completed questionnaires were obtained for data analysis using statistical data analysis software.

Results

Sample profile

Descriptive statistics was used to provide basic information about sample characteristics. Table 2 presents the descriptive statistics. The total number of respondents was 382. Majority of respondents were female (58.1%), and 35.6% of respondents were aged between 31 and 40 years. More than half of respondents had a bachelor's degree (61.0%), and 41.9% of respondents were private business employees. Almost half of respondents earned 10,001–30,000 THB (48.4%) per month, and 51.6% of respondents reported that website was their most frequently used SST. Of the respondents, 66.0% used airline SST for flight booking. Approximately 47.1% of the respondents indicated that, in the past one year, they travelled two to four times, and the majority of respondents travelled for leisure and travel (54.4%).

Table 2: Sample characteristics

Characteristics	Frequency	Percentage	Characteristics	Frequency	Percentage
Gender			*Types of SST frequently used*		
Male	160	41.9	Website	197	51.6
Female	222	58.1	Mobile application	166	43.4
Age			Self-service kiosk	19	5.0
Less than 20	35	9.2	*Frequently used SST services*		
20 - 30	128	33.5	Flight booking	252	66.0
31 - 40	136	35.6	Check-in	104	27.2
41 - 50	58	15.2	Other	26	6.8
Over 50 years old	25	6.5	*Frequency of air travel (in the past one year)*		
Educational level			1 time	59	15.5
Below bachelor's degree	62	16.2	2 - 4 times	180	47.1
Bachelor's degree	233	61.0	5 - 7 times	72	18.9
Higher than bachelor's degree	87	22.8	8 - 10 times	33	8.6
Occupation			More than 10 times	38	9.9
Merchant/business owner	88	23.0	*Main travel purpose*		
Private business employees	160	41.9	Work/business	69	18.1
Public servant	37	9.7	Leisure/travel	208	54.4
Student	69	18.1	Visit relatives	54	14.1
Other	28	7.3	Other	51	13.4
Income (per month)					
Less than 10,000 THB	41	10.7			
10,001 - 30,000 THB	185	48.4			
30,001 - 50,000 THB	76	19.9			
More than 50,000 THB	80	21.0			

Hypothesis testing

One-way ANOVA was used to assess the effect of demographic characteristics (gender, age, educational level, occupation, income, types of SST used, frequently used SST service, frequency of air travel and main purpose of SST usage) on perceived TR (H_1).

Table 3: One-way ANOVA results of demographic characteristics on TR

Variables	Source of variance	Sum of squares	df	Mean square	F	Sig. value	Comparison (Turkey HSD)
Gender	Between Groups	.368	1	.368	1.773	.184	-
	Within Groups	78.935	380	.208			
	Total	79.304	381				
Age	Between Groups	4.368	4	1.092	5.493*	.000	less than 20 > 20-30, less than 20 > 31-40, less than 20 > 41-50, less than 20 > over 50
	Within Groups	74.936	377	.199			
	Total	79.304	381				
Educational Level	Between Groups	3.961	2	1.980	9.962*	.000	below bachelor's degree > bachelor's degree, above bachelor's degree > bachelor's degree
	Within Groups	75.343	379	.199			
	Total	79.304	381				
Occupation	Between Groups	6.108	4	1.527	7.865*	.000	student > merchant/business owner, student > private business employee, student > public servant
	Within Groups	73.196	377	.194			
	Total	79.304	381				
Monthly income (THB)	Between Groups	6.668	3	2.223	11.567*	.000	less than 10,000 > 10,001-30,000, less than 10,000 > 30,001-50,000, more than 50,000 > 10,001-30,000
	Within Groups	72.636	378	.192			
	Total	79.304	381				
Types of SST	Between Groups	2.321	2	1.160	5.712*	.004	mobile application > website
	Within Groups	76.983	379	.203			
	Total	79.304	381				
Frequently used SST service	Between Groups	.911	2	.456	2.203	.112	-
	Within Groups	78.392	379	.207			
	Total	79.304	381				
Frequency of air travel	Between Groups	6.238	4	1.559	8.046*	.000	5-7 times > 1 time, 8-10 times > 1 time, over 10 times > 1 time, over 10 times > 2 - 4 times, over 10 times > 5 - 7 times
	Within Groups	73.066	377	.194			
	Total	79.304	381				
Main purpose of usage	Between Groups	.215	3	.072	.342	.795	-
	Within Groups	79.089	378	.209			
	Total	79.304	381				

One-way ANOVA results (Table 3) indicated that statistically significant differences among groups of respondents of different genders (F = 1.773, Sig. value = .184), frequently used SST services (F = 2.203, Sig. value = .112) and main purpose of usage (F = .342, Sig. value = .795) were not found on perceived TR. Statistically significant differences were observed in the perceived TR between groups of respondents, including (1) age groups (F = 5.493, Sig. value = .000), (2) educational levels (F = 9.962, Sig. value = .000), (3) occupations (F = 7.865, Sig. value = .000), (4) income ranges (F = 11.567, Sig. value = .000), (5) types of SST (F = 5.712, Sig. value = .004) and (6) frequency of air travel (F = 8.046, Sig. value = .000). Thus, H_1 was partially supported. The post hoc comparisons (Turkey test) of each variable were displayed in Table 3.

Exploratory factor analysis

Prior to conducting a multiple regression analysis (MRA), exploratory factor analysis (EFA) was first used to identify the underlying factor structure. The KMO value was .840, and the Bartlett's test of sphericity indicated a value of .000, suggesting the data in this study were suitable for further analysis. Moreover, the standardised factor loadings were all above .500 (Hair et al., 2010). Eigenvalues greater than 1.000 were specified in the EFA, and the results indicated that 17 items produced four factors of TR as proposed. The total variance explained by these factors was 61.581% which was higher than the minimum threshold of 60% variance explained (Hair et al., 2010).

Multiple regression analysis

MRA was conducted to test H_{2a}, H_{2b}, H_{2c} and H_{2d}. To ensure that the results obtained were representative of the sample, assumption test was performed (Hair et al., 2010). The four assumptions, including multicollinearity, linearity, normality and homoscedasticity, were addressed for the individual variables. The results showed that all assumptions were met. Hence, the research hypotheses could be further tested by MRA. Table 4 displays the model evaluation and MRA results to predict the influences of the four dimensions of TR (optimism, innovativeness, anxiety and insecurity) on the perceived SST quality. The results showed a statistically significance (R^2 = .216, Adjusted R^2 = .208, Sig value < .01), indicating that the variance of the perceived SST quality was explained 21.6% by a combination of various independent variables, including optimism, innovativeness, anxiety and insecurity. In order of importance, optimism of technology (β = .259, Sig. value < .01) positively influenced the perceived SST quality, followed by innovativeness (β = .188, Sig. value < .01). Anxiety (β = -.163, *Sig. value* < .01) and insecurity (β = -.141, Sig. value < .01) of using SST services negatively influenced the perceived SST quality. Thus, H_{2a}, H_{2b}, H_{2c} and H_{2d} were supported.

Table 4: Results of MRA for the effect of TR on perceived SST quality

Independent variable	b	Std. Error	β	t-test	Sig. value
Constant	3.760	.240		15.658**	.000
Optimism	.202	.040	.259	5.006**	.000
Innovativeness	.084	.024	.188	3.500**	.001
Anxiety	-.076	.024	-.163	-3.205**	.001
Insecurity	-.097	.033	-.141	-2.955**	.003
R = .465, R^2 = .216, Adj R^2 = .208, SE_{est} = .50670, F = 26.011**					

**Sig. value* < .01

Discussions and conclusion

SST becomes crucial for airline firms as it benefits both the firms and passengers in many aspects. However, passengers sometimes feel frustrated and anxious when dealing with airline SST, especially when it is malfunctioning. Airline firms, therefore, need to understand factors that drive passengers' perceptions and behaviours to adopt and use such a technology. The results of this study conform the role of TR that influences passengers' perceptions of SST quality (Zeithaml et al., 2002). This study demonstrates that the perceived SST quality varies across several passengers' demographic characteristics, including age, educational level, occupation, income, types of SST used and air travel frequency. The results tend to support previous studies that reveal the effects of demographic variables on attitudes towards adopting technology-based services (Rojas-Méndez et al., 2015, 2017). According to the results, younger passengers, who are students ($\bar{x}$ = 3.679), aged less than 20 years old ($\bar{x}$ = 3.746) and hold high school certificate (or equivalent), tend to have higher readiness to adopt airline SSTs, which is consistent with the study of Rojas-Méndez et al. (2017). In terms of educational levels, passengers with bachelor's degree ($\bar{x}$ = 3.350) tend to adopt SST less compared with those who have yet obtained a bachelor's degree ($\bar{x}$ = 3.600) and those with higher bachelor's degree ($\bar{x}$ = 3.519). However, the significant differences between younger passengers with high school certificate (or equivalent) and those with degree higher than bachelor's level are not found. This result indicates that younger passengers and passengers with higher degree tend to have more awareness of technologies and are likely to be a technology pioneer as soon as their incomes allow them to do so (Rojas-Méndez et al., 2017). Those with higher degree also tend to have less negative attitudes towards SSTs such as insecurity (Jaafar et al., 2007). According to the results from crosstabs analysis, majority of

passengers with lower incomes aged less than 20 years old, that is, passengers with lower income considered as young, tend to have higher perceptions of readiness to adopt SSTs as discussed.

Moreover, passengers who frequently use mobile applications tend to have TR higher than those who frequently use website to perform airline self-services. This result is in line with Almarashdeh et al. (2019) who indicated that customers feel more comfortable using mobile applications for online services than websites as the former is more convenient, accessible, and portable. Obviously, frequent travellers tend to have more positive attitude towards adopting airline SSTs as they are experienced users and familiar with such technologies. The one-way ANOVA results can be useful for airline firms in developing marketing strategies for responding to target customers with different psychological characteristics.

The results of MRA reveal that optimism, innovativeness, anxiety and insecurity (dimensions of TR) are related to the airline passengers' perceived SST quality which supports the study of Lin and Hsieh (2006), who examined the associations between TR and perceived SST quality. This study finds that optimism of technology has the strongest positive effect (β = .259) on the perceived SST quality, which in line with several studies conducted in the airline context (Hemdi et al., 2016; Liljander et al., 2006). Passengers' TR lead to higher perceptions of SST quality which tends to entail passenger satisfaction, behavioural intention and firm performance. Innovativeness also positively influences (β = .188) the perceived SST quality as found in the study of Hemdi et al. (2016) that is conducted in the Malaysian airline context. However, innovativeness has no effect on SST adoption in the study of Liljander et al. (2006).

In terms of negative effect, perceived anxiety towards technology (β = -.163) negatively influences the perceived SST quality. Hemdi et al. (2016) and Lee et al. (2012) reported that an airline passenger with more anxiety tends to have negative attitude and behavioural intentions towards SSTs and the service provider. Insecurity (β = -.141) has the least negative effect on the perceived SST quality for this study, implying that an airline passenger who feel distrusted and sceptical towards using SST (i.e., providing passport or credit card information through SSTs) tends to be reluctant to use the SST. However, influence of insecurity is not found on passenger satisfaction in the study of Hemdi et al. (2016).

Accordingly, airline firms need to strengthen TR's positive dimensions by redesigning the SST system to provide an interface that is easy to use, fun and friendly. The SST system can then be more attractive and encourage airline passengers to use this self-service option with positive attitudes. Safe and secured systems should also be pragmatically underlined. Airline firms are suggested to execute marketing and communication activities to enhance the image and create trust between the firm and passengers. By doing so, passengers' negative attitudes towards the airline SSTs can be diminished. However, firms should be careful about forcing the use of SST because it can raise negative attitude towards the airline service and make customers reluctant to use the SSTs anytime. Nonetheless, some passengers will not be fully ready to use SSTs at once. Providing supporting staff services should be considered as an alternative option for these passengers and allow them to learn how to use SST effectively and gradually absorbing the benefits of SSTs. As a result, favourable SST can truly take an important role in enhancing passengers' perceptions of SST quality and ensuring the sustainable profitability and competitive advantage of the airline firms.

This study provides several theoretical contributions related to empirical research on TR and SST quality in the airline context. This study extends the previous research, which examined the effect of a few demographic variables, namely, age, education, and gender, on

TR (Halim, 2012; Rojas-Méndez et al., 2017). Significant demographic variables, including occupation, income, types of SST used, frequently used SST services, air travel frequency, and main purpose of SST usage, were added in this research to provide a further understanding of passenger insights. As mentioned that empirical research on TR and SST quality in airline context is lacking. This study is among the first to investigate the influences of passengers' perceived TR on their perceived SST quality in airline context.

Limitation and future research

This study contains several limitations as with any research. According to the analysis results, passengers' perceived readiness to use technology vary depending on several characteristics of passengers. Age, for instance, has an effect on perceived TR significantly in this study. Generations of airline passengers should therefore be further explored to understand the differences among them profoundly. Although this study contributes to the knowledge regarding airline SSTs as a whole, comparisons among types of airline SSTs should be examined in further studies. Future research should also be conducted in other countries as different cultures tend to influence passengers' readiness of such technology.

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