

The Relationship Between Passengers' Expectations of Automatic Check-in System and Service Quality at Suvarnabhumi Airport

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Article Info
Received 29 February 2024
Revised 19 April 2024
Accepted 21 April 2024
Available online 30 April 2024

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Abstract

This research examined the relationship between passengers' expectations using an automatic check-in system and service quality at Suvarnabhumi Airport. It focused on passengers' expectations of automatic check-in systems, which included websites, mobile applications, kiosks, and service quality. Quantitative data was collected from 404 samples focusing on Thai passengers experienced with automatic check-in and traveling from Suvarnabhumi Airport. The questionnaire was divided into three parts: general information, passengers' expectations of automatic check-in, and service quality. Statistics were used to analyze data to find the frequency, percentage, mean, standard deviation, and correlation. The result of the study showed that passengers' expectations about automatic check-in systems were at a high level while the service quality of automatic check-in systems was at the intermediate level.

Keywords: Expectations of Automatic Check-In System, Service Quality

Introduction

After COVID-19, the world has changed in a good direction regarding innovation. The world started to transform digitally, and people adopted new technologies and resources to create new opportunities in our real-life situations (Techsauce Team, 2020). claimed that the tourism industry has recovered from COVID-19, and the needs of passengers are the main driver of the growth in Thailand. Since the tourism industry is growing, air travel is always the best option. Besides, the airport facilities will be the priority. The airline business has also developed platforms to simulate the needs of passengers, for example, the view of a cabin and seat map to help passengers see a clear picture before booking tickets. In addition, the airline business has started to use "Digital Twin Technology" to simulate structures from real objects. The airline also uses sensors to help detect changes in real-time in terms of aiding the design and manufacture of the aircraft, which includes detecting and fixing various engineering systems within the airport. This technology will increase safety and reduce the risk of system failures, which affects traveling time. During the pandemic, passengers were familiar with

touchless or contactless systems that helped them go through every step quickly. Bringing intelligent systems solutions is to create more efficient self-service capabilities from the check-in service to the immigration process.



Figure 1: Passenger Flow Solutions

Source: <https://www.salika.co/2023/04/24/5-hi-tech-airport-trend-for-thaland/>

To make systems and processes digitally, Airports of Thailand will use the Passenger Validation System or PVS at Suvarnabhumi Airport. They are located at the entrance of departure areas, both domestic and international, to check passengers' traveling information and increase passengers' screening efficiency to meet international safety standards. This solution enables a quick and independent experience using a boarding or e-boarding pass. It will screen and check passengers' travel information to prevent unauthorized persons from entering restricted areas (Manageronline, 2020).

The researchers conducted this research based on previous research, "The Relationship between Automatic Check-in Systems and Passenger's Expectations and Service Quality at Suvarnabhumi Airport." The research question: "Is there a relationship between passenger expectations regarding the service quality of the automatic check-in system at Suvarnabhumi Airport?"

Objective

1. To survey passengers' factors who used the automatic check-in system at Suvarnabhumi Airport.
2. To survey passengers' expectations of the automatic check-in system in terms of convenient processing, efficient processing, and customer experience.
3. To survey the automatic self-check-in services in terms of airline websites, mobile phones, and automatic self-check/kiosks.
4. To survey the service quality of the automatic self-check-in system.
5. To study the relationship between the self-check-in system, and passengers' expectations toward the service quality at Suvarnabhumi Airport.

Hypotheses

Hypotheses 1: There is a relationship between passengers' expectation and automatic check-in service quality

Hypotheses 2: There is a relationship between passengers' expectation and automatic check-in system

Scope of the study

1. Population

Thai passengers who used the automatic self-check-in systems; airline websites, mobile phones, and the airline's automatic self-check-in kiosks.

2. Area

Questionnaires were collected at Suvarnabhumi Airport.

3. Content

-Independent variables consisted of personal factors and self-check-in systems..

-Dependent variables consisted of service quality (SERQUAL) and passengers' expectations of self-check-in systems.

4. Timing

Data collection was from November 2022 – February 2023.

Expected Benefits of Research

1. The results could be used as guidelines to improve and develop the automatic check-in system's competencies at Suvarnabhumi Airport to meet passengers' satisfaction.

2. The research could benefit students, teachers, and researchers to further their studies.

Conceptual Framework

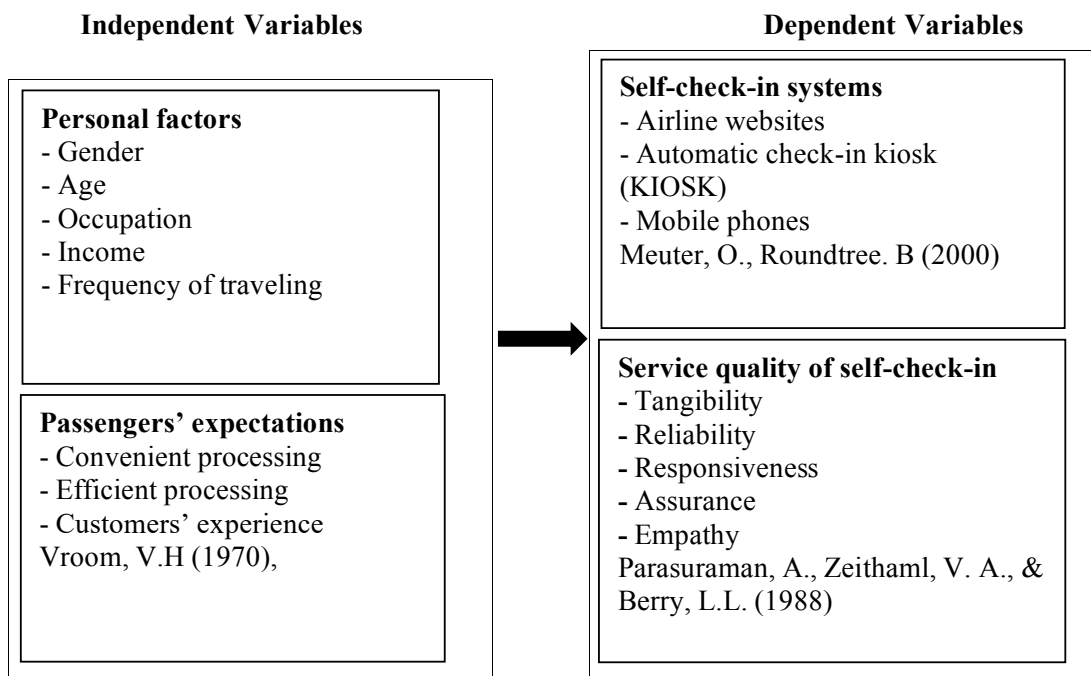


Figure 2: Conceptual Framework

Literature Review

Concepts and theories in automatic self-service systems

Self-service technology (SST) is the technology that allows customers to interact with products independent of direct service. Customers also interact with technology to create service outcomes instead of interacting with service employees (Bitner, M.J, Meuter, M.L, Ostrom, A.L, Roundtree, R.I 2000). It shows that customers will be a part of the service. Using service technology will benefit both the service recipient and the service provider. Also, the service recipients will receive the best service quality. More importantly, they will receive lower service costs. On the other hand, service providers will benefit from management efficiency, for example, lower administrative costs and labor problems.

According to self-service technology, customers primarily interact in three ways: telephone, websites, and automatic check-in systems. These are the three main technologies self-services used by airlines.

Supimaros, T. (2020) studied readiness of Thai passengers to use automatic check-in system of low cost airlines and found that the relationship between efficiency expectation factors and social influence factors was positive with the readiness of Thai passengers to use the automatic check-in system at a statistical significance level of 0.01.

Concepts, theories, and research related to expectations

Parasuraman, A., Zeithaml, V. A., & Berry, L.L. (1988) stated that expectations are the attitude of desire or consumers' needs, which reflect service quality to meet specific needs and will evaluate whether received from expectations and needs. Expectations are influenced by people's lifestyles. This will motivate them to meet their needs. Besides, Vroom, V. (1964) said that people have different goals and can be motivated if they have specific expectations. So, motivation is affected by people's expectation that a specific level of effort will lead to the performance goal. Moreover, motivation is also affected by people's chances of getting various outcomes to accomplish their goals. It means people are motivated to value the outcomes and will try hard to reach their goals.

Venkatesh, V., Morris, M.G., Davis, G.B., and Davis, F.D. (2003) stated that there are four factors directly related to Behavioral Intention or BI, and Use Behavior or UB: Performance

Expectancy or PE, Effort Expectancy or EE, Social Influence or SI, and Facilitating Conditions or FC.

Performance Expectation or PE means the degree of a person's expectation who believes the system will have high proficiency for users. They consist of six items of Performance Expectation or PE as below:

1. The automatic self-check-in system will save time.
2. The automatic self-check-in system must be accurate.
3. The automatic self-check-in system makes check-in more convenient than check-in at the airline counter.
4. The automatic self-check-in system can change or select seats.
5. The automatic self-check-in system can choose or switch to various languages.
6. The automatic self-check-in system can support group check-in.

Effort Expectancy, or EE, means the degree of individual expectation which the system should be easy and not be complicated. They consist of six items of Effort Expectancy or EE as below:

1. Making transactions through an automatic self-check-in system should be easy.
2. Making transactions through an automatic self-check-in system should not be complicated.
3. Learning to use an automatic self-check-in system should be easy and not difficult to understand.
4. The automatic self-check-in system is easy to use.

Martngern, T. (2020) studied the passengers' expectation towards service innovation of full service airlines and found that passengers' expectation of air travelling tended to adopt the touchless technology. The airlines tended to develop airlines service innovation to serve the next normal service provision to increase competitiveness for the airlines as well as ensure the travelling confidence for the passengers.

Concepts, theories, and research related to service quality

Parasuraman, A., Zeithaml, V.A., and Berry, L.L. (1988) defined service quality as the difference between customers' expectations and perception of actual service. They created an instrument called SERVQUAL for assessing customer perceptions of service quality into five categories: Tangibility, Reliability, Responsiveness, Assurance, and Empathy.

Oliver, R.L. (1993) studied A Conceptual Model of Service Quality and Service Satisfaction: Compatible Goals, Different Concepts. Advances in Services Marketing and Management found that the satisfaction of the university's students who studied at private universities was high, including the qualified and knowledgeable faculty resources.

Cronin, J.J., Jr., Taylor, S. (1992) A studied Measuring Service Quality: A Reexamination and Extension and found that service quality affected satisfaction and attitude. From those two researchers, the experiences and expectations of service receivers could be measured.

Srikhaors, U., Tong suddhi, V. (2021) studied Service Quality Expectations of the 5-Star Hotel Front Office Department, Case Study: The Intercontinental Hotel Bangkok and found that expectations of service quality of front desk at the Continental Hotel Bangkok were high in terms of concept aspect of service, the needs of service recipients, reliability of the service, and the concrete aspect of service.

Research Methodology

The research was quantitative. The questionnaires were used as the instrument with Thai passengers at Suvarnabhumi Airport who are experienced with airline website check-in, mobile application check-in, and self-check-in KIOSK. The researcher used a calculation method using the Cochran formula (Cochran, 1953) to find the sample size of 384 people with an additional 20 sets of questionnaires (total sample 404 people) using the Non-Probability Sampling method and performed specific Random sampling or Purposive Sampling. The four hundred and four questionnaires were used to collect data.

Research Instrument

There were 3 parts of the questionnaire.

Part 1 consisted of personal factors and passenger travel behavior.

Part 2 consisted of the service quality of the automatic self-check-in system.

Part 3 consisted of expectation factors towards the service quality of the automatic self-check-in system.

The questionnaire was validated based on the Index of Item Objective Congruence or IOC by 3 experts. The validity was between 0.67-1.00. The questionnaire has been revised based on their advice. The questionnaire was used to find the reliability of 30 items and the scale's reliability was 0.957.

Data Analysis

Descriptive Statistics were used to describe the personal factors, and the automatic self-check-in system using Frequency Distribution, Percentage, Mean, and Standard Deviation. However, inferential statistics hypothesis testing using t-test statistics to find differences in gender variables that affect expectations of the quality of automatic self-check-in services. F-test (One-way ANOVA) statistics were used to find the expectations of the service quality of automatic self-check-in the system, and the Correlation Coefficient was used to measure the statistical relationship among the variables (Best, J. 1977).

Research Finding

Table 1: personal factors

Variables	Personal factors	Respondents	Percentage
1. Gender	Male	187	46.3
	Female	217	53.7
	Total	404	100
2. Age	Under 21 years old	35	8.7
	21-30 years old	213	52.7
	31-40 years old	106	26.2
	Older than 41 years old	50	12.4
	Total	404	100
3. Occupation	Students / College students	123	30.4
	Private company employees	108	26.7
	Business owners	117	29.0
	Other	56	13.9
	Total	404	100
4. Income	Below or 10,000 Baht	67	16.6
	10,000-15,000 Baht	139	34.4
	15,001-20,000 Baht	102	25.2
	More than 20,001 Baht	96	23.8
	Total	404	100
5. Frequency of traveling	Less than 1 time / 3 months	231	57.2
	1 time / 3 months	95	23.5
	More than 3 times / 3 months	78	19.3
	Total	404	100

The result found that mostly the respondents were females (mean =53.17%) and then males (mean =46.3%). The highest ages are between 21-30 years old and then 31-40 years old. The highest occupations were students, then the personal business, the income per month was 10,000-15,000 Baht. The highest travelling frequency was less than 1 time per 3 months.

Table 2: data analysis of passengers' expectations with service quality of the automatic self-check-in

Passengers' expectations	n	(\bar{x})	S.D.	Level
Convenient processing	404	4.05	0.74	High
Efficient processing	404	4.10	0.72	High
Customer experience	404	3.97	0.82	High
Total	404	4.04	0.67	High

The result found that overall service expectation towards automatic check-in system was at a high level (mean =4.044). When considering each factor, the efficiency in service provision is the highest, and then the convenience in use was at high level (mean = 4.050) and experience in use was at high level (mean =3.977).

Table 3: data analysis on the use of the automatic self-check-in system

The automatic self-check-in	n	(\bar{x})	S.D.	Level
1. Airline's websites	404	2.09	0.76	Moderate
2. Mobile Application	404	2.22	0.68	Moderate
3. Automatic self-check-in KIOSK	404	2.04	0.81	Moderate
Total	404	2.11	0.50	Low

The result found that overall using the automatic check-in system was at low level (mean =2.119). When considering each factor, the self-service automatic check-in box was at a low level (mean = 2.045).

Table 4: data analysis of service quality of the automatic self-check-in system

Service quality of automatic self-check-in system	n	MEAN (\bar{x})	S.D.	Level
Tangibility	404	4.04	0.74	High
Reliability	404	3.94	0.76	High
Responsiveness	404	3.97	0.82	High
Assurance	404	4.03	0.75	High
Empathy	404	3.97	0.75	High
Total	404	3.99	0.69	High

The result found that overall service quality of the automatic check-in system was at a high level at 3.99. Considering each aspects, it found that Tangibility was high at 4.04 and the lowest was Reliability at 3.94

Table 5: The relationship between the self-check-in system, and passengers' expectations toward the service quality at Suvarnabhumi Airport.

The results of hypotheses of expectations on the service quality of the automatic self-check-in at Suvarnabhumi Airport were:

Hypothesis 1 Passengers' expectations related to the service quality of the automatic self-check-in system

Correlation		Service quality of the automatic self-check-in	Passengers' expectations
Passengers' expectations	Pearson Correlation	1	.840**
	Sig (2-tailed)		.000
	N	404	404
Service quality of the automatic self-check-in	Pearson Correlation	.840	1
	Sig (2-tailed)	.000	
	N	404	404

The result found that the relationship between service expectation towards automatic check-in system was less than a statistical significance level of 0.05 (Sig.=0.00). This means the acceptance of the proposed hypothesis. The correlation coefficient was at a high level at a statistical significance level of 0.05 ($r=0.840$).

Hypothesis 2 Passengers' expectations related to automatic self-check-in system

Correlation		The automatic self-check-in system	Passengers' expectations
Passengers' expectations	Pearson Correlation	1	0.377
	Sig (2-tailed)		.000
	N	404	404
The automatic self-check-in system	Pearson Correlation	0.377	1
	Sig (2-tailed)	.000	
	N	404	404

The result found that the hypothesis statement of relationship between passengers' expectation towards check-in system was accepted at a statistical significance level of 0.05 (Sig.=0.00). The Coefficient Correlation at statistical significance level of 0.05 was at a medium level ($r=0.377$).

Discussion

Objective 1 found that passengers who used the automatic check-in system at Suvarnabhumi Airport were female aged between 21-30 years old and were students. Talking about income, the average income was between 10,000-15,000 Baht and the frequency of traveling was 1 time / 3 months. According to the concept of Solomon (2007) stated that customers and desire needs would represent marketing strategies and would influence each market segments.

Objective 2 found that passengers' expectations of service quality in automatic check-in system was a high level at 4.044. Considering each aspect, it found that the efficiency in service quality was the highest. It was different and found that passengers' expectations in efficiency in service quality of automatic check-in and technology were in moderate.

Objective 3 found that the overall use of automatic check-in was low at 2.119. Regarding aspect, it showed that the least was check check-in through self service check-in kiosks at 2.045. Khammarapat, N. (2018) found that the behavior of using the automatic check-in system in Effort Expectancy was high and the different ethnicities and ages affected the acceptance of factors which also affected the behavior in using the automatic check-in system differently.

Objective 4 showed that overall quality of service in the automatic check-in system was high ($\bar{x} = 3.99$). Regarding each aspect found that Tangibility was high ($\bar{x} = 4.04$). Similarly with Sriksaors, U., & Tongsuddhi, V. (2020), it found expectations of service quality of front desk service at the Intercontinental Hotel, Bangkok was high. According the service quality from the highest and lowest would be the confidence aspect of service, the aspect of meeting the needs of the service recipient, the reliability of service and the concrete aspect of service.

Objective 5 found that the result of hypothesis statement 1: There is a relationship between passengers' expectations and check-in system service quality found that the hypothesis was accepted (Sig.0.05) at a statistical significance level of 0.05. The Correlation Coefficient was at a high level ($r = 0.84$). The previous study explained that service quality is the difference between perceived service and expected service which was measured by SERVQUAL. The results of this study can be similar to the study of Sriksaors, U., & Tongsuddhi, V. (2020), who conducted related research regarding the service quality of the hotel, which result was at a high level. The result of hypothesis statement 2: There is a relationship between passengers' expectations and the automatic check-in system found that the hypothesis was accepted (Sig. =0.05) at a statistical significance level of 0.05. The Correlation Coefficient was at a moderate level ($r = 0.37$). The result of the study was similar to the related study, in that learning how to use an automatic check-in system was simple, and could be done by oneself.

Conclusion

Regarding the personal details of the 404 passengers at Suvarnabhumi Airport, most of the respondents were female (217). The primary age of the respondents was between 21 and 30 years old (213). Also, 123 people were students or college students. A total of 139 people earned 10,000-15,000 Baht a month, and 231 people traveled less than 1 time / 3 months. Besides, passengers' expectations of the automatic self-check-in system at Suvarnabhumi Airport were high ($\bar{x} = 4.04$), with the highest in service efficiency ($\bar{x} = 4.10$). Using the service of three automatic check-in systems at Suvarnabhumi Airport was at a moderate level. Overall, the automatic self-check-in systems were low ($\bar{x} = 2.19$).

Regarding the service quality, it was found that the service quality was high ($\bar{x}= 3.99$) and tangibility was the highest ($\bar{x} =4.04$). The hypothesis statement proposed that the expectation towards service quality of the automatic check-in system was accepted (Sig. = 0.00) at a statistical significance level of 0.05. The Pearson's Correlation value was at a high level ($r = 0.84$). The hypothesis statement proposed that expectation towards the check-in system was accepted (Sig.=0.00) at a statistical level of 0.05. Pearson's Correlation value was at a moderate level ($r = 0.37$).

Suggestion

1. The efficiency of processing in the automatic self-check-in system was very low. There should be a system in which passengers would be able to change or select seats.
2. The reliability was low. The automatic self-check-in system should be developed to provide good service to passengers.
3. Several airlines should provide more automatic self-check in KIOSK and also inform passengers regarding the automatic self-check in KIOSK. This way, passengers would be aware of the system.

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