Journal of Theoretical and Applied Information Technology
28th February 2021. Vol.99. No 4

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

FACTORS INFLUENCING HUMAN CENTRIC MODEL FOR BETTER PASSENGER EXPERIENCES USING SMART SECURITY SYSTEM IN DUBAI AIRPORT

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ABSTRACT

Due to the increase number of passengers, security infrastructure is crucial and caused security process and services involved in every phases of passenger's travel life cycle and leads to long waiting lines at screening point. This has led to unpleasant experience on the passenger at the airport. Thus, it is necessary to design a security infrastructure that incorporates human perspectives and needs. To do this, this study presents the analysis of factors that influence the passenger experience in using smart security system at airport through Human-Centric designed model. This paper reports a study that investigates the relationship of seven human factors to passenger experience using the smart security system at Dubai International Airport. A survey involving 400 respondents at the airport was conducted. Stratified sampling was used to determine the sample and the questionnaire was distributed via online and face-to-face. Multiple regression analysis using SPSS was adopted to test the seven hypothesis and validate the human-centric model. It was found that six human factors, namely emotional/feeling, behavior, needs and requirements, usability, trust and ergonomic were accepted, while one human factor, namely cognitive was rejected. The results serve as a validation to propose a new human-centric design model of smart security system at airport. Considering the importance of security at the airport, it is expected that this model could be used as guidance to design a smart airport security system that specifically addresses human needs and behaviors.

Keywords: *Passenger Experience, Factors, Human Centric Model, Smart Security System, Airport*

1. INTRODUCTION

Airport is known as one of the most complex systems in aviation sector. Statistics showed that there were 420, 870 planes registered in 2016 as compared to only 373,534 planes registered in 2013. The increase in the number of registered planes indicate that aviation sector has become an increasingly dominant and preferred transportation. Similarly, the increasing trend of aviation sector has also been the result of globalization that facilitate the growth of mobility across cities and states [1]. In this case, there is a need to improve the air transportation services and facilities to attract passengers and to im-prove their travel comfort and experience.

Contextualized within the borderless world, which is unprotected from various crimes and risks, security has become the main concern at every phase of the passenger's travel life-cycle from departure to arrival. To address the security issues, airports need to be equipped with relevant security infrastructure and ser-vices. It has become common in almost all airports, in which the airport authorities adopt tedious security services in every phase of passenger's travel life-cycle, resulting in long waiting lines at various screening points. These practices have led to unpleasant experience for passengers.

Realizing the importance of air transportation as one of the main income contributions for the nation, the government of UAE has made several efforts to provide sustainable transportation services [2] , such as designing a new airport or re-designing existing airports. For example, the Dubai Inter-national Airport had been built and expanded several times to fulfill the needs and increasing number of passengers. Further, considering the importance of security for the provision of safe and sustainable air transportation services, the government of UAE needs to ensure its airports are equipped with up-to-date security infrastructures and services, while at the same time providing a worry-free and convenient expe-rience at the airport. In this case, there is a need to design an airport security infrastructure that considers the needs, contexts, behaviors and emotions of the passengers.

In line with the Dubai Plan 2021 to make the city an intelligent and sustainable city by harnessing digital technology innovation for efficient, seamless, safe, and personalized experience [3], it is timely to design an airport security system that adopts smart technologies. The development of a smart airport security system is expected to utilize digital technology and consider the needs and behav-iors of passengers at the airport. As such, the needs and behaviors of passengers need to be identified pri-or to designing the smart airport security system.

The purpose of this study to identify the factors that affect passenger's experiences in using smart security system at the airport which finally leads to the design of new proposed human-centric model of smart security system at airport. Hence, the coverage of this study is within the context of passenger experience and smart security system in airport, and not the experience of passenger in the airport as a whole.

This paper is organized into seven sections. After the introduction section, the second section discuss the related works that motivate this study, followed by the conceptual framework in Section 3. Section 4 de-scribes the methodology, while Section 5 presents the results. Section 6 provides the discussion followed by conclusion in Section 7.

2. RELATED STUDIES

This section presents related studies that motivates the researcher to design a smart airport security system. For this purpose, this section presents the existing studies that covers on smart airport system and factors related to passenger's experience at the airport.

There are several studies related to smart airport security system. For example, Baur-Ahrens and Kruger investigated a smart security for airport focusing on reducing queue time at the airport only [4]. [5] studied smart security system integrated at the airport. They focused on the role of integrating airport analytics in disintegrated systems to analyse the past performance. However, they did not develop a positive sense of security as they did not consider the impact of these aspects in improving the experience of the passengers by developing a positive sense of security. Although there are attempts to design smart airport security system, these systems did not address the aspects related to the passenger's behaviour at the airport and their satisfaction of the system adopted by the airport authorities.

[6] described passenger's experience as "activities and interactions that passengers undergo in an airport (terminal building)". [7] and [8] asserted that passenger experience is subjective and influenced which takes place, time and interaction with others. Sever-al work had been conducted to enhance the passenger experience, for example [9] have constructed a survey for airport passenger experience.

[9] identified eight categories including (i) processing, (ii) queuing, (iii) consumptive and (iv) moving, (v) passive, (vi) entertainment, (vii) social and (viii) preparatory.[9][10] stated that efficiency of these eight categories resulted customer satisfaction. Therefore, efficiency is a crucial attribute to influence passenger experience[11] [12]. Although their study was in airport domain such as passenger experience, they did not focus on smart security system.

Another study on passenger experience was conducted by [13] for China's High Speed Rail (HSR) service as well as heavily used transportation system usage of the world. They concluded that passenger experience and passenger interaction with HSR were below at par. Although they identified factor that influence passenger experience, this study was for passengers using ground transportation only, in which the passenger behaviour at the ground transportation may be different from the airport. Further, they did not concern for smart security system.

Next, [12] had studied on customer experience at Thibuvan International Airport, Nepal. The aim of their study was to investigate passenger experience on the airport facilities, such as 1) convenience and comfort, 2) cleanliness, 3)

safety and 4) security. Further, [14] and [15] had identified factors that influence passenger satisfaction, but they overlooked the factor influencing passenger experience in smart security system at the airport. Meanwhile, [16] developed a model for customer experience at the airport. The five factors are: 1) the physical environment and facilities provided by the airport, 2) the process of the airport and those delivering them, 3) the people at the airport (both staff and airport customers), 4) the sense of place created by the combination of all of the above and 5) the personal attitude of airport customer. Other study like [17] measured passenger perception of airport service quality. The fac-tors that they had constructed are: 1) check in, 2) security, 3) convenience, 4) ambience, 5) basic facilities and 6) mobility. Although they identified factor including the human context in overall airport services, human context in smart security system is neglected.

In summary, studies related to the smart security system at the airport are scarce. Although there are studies that investigate passenger's behaviors at the airport and passenger's satisfaction of the facilities at the airport, these studies did not support smart security system. This gap motivated us to propose a smart air-port security system that considers passenger's behaviors at the airport. Specifically, this study proposed a human-centric smart airport security system.

The purpose of this study is to investigate the factors that influence the passenger experience using Human Centric Model of Smart Security System at the airport. The factors that influence passenger's experience are drawn from the existing literature and researcher's perception. The study involved the collection of the empirical data guided by the conceptual framework, as shown in Figure 1. This smart airport security system considers three aspects, which are: i) the passenger, ii) the process/service of the security system, and iii) and facilities included in the system.

Based on Figure 1, the factors that influence passenger experience, identified as the independent variables, are represented by seven constructs, which are : i) Emotion/Feeling, ii) Cognitive/Thought, iii) Behavior, iv) Needs and Requirements, v) Usability, vi) Trust, and vii) Ergonomic. Meanwhile, passenger's behavior, identified as the dependent variable has four dimensions, which are: i) reliability, ii) security, iii) efficiency, iv) satisfaction. The first four factors are derived from the literature review, while the later three factors are based on the perception of the researchers.

Based on the conceptual framework presented in Figure 1, the hypotheses to be tested in this study presented in Table 1 below.

3. CONCEPTUAL FRAMEWORK

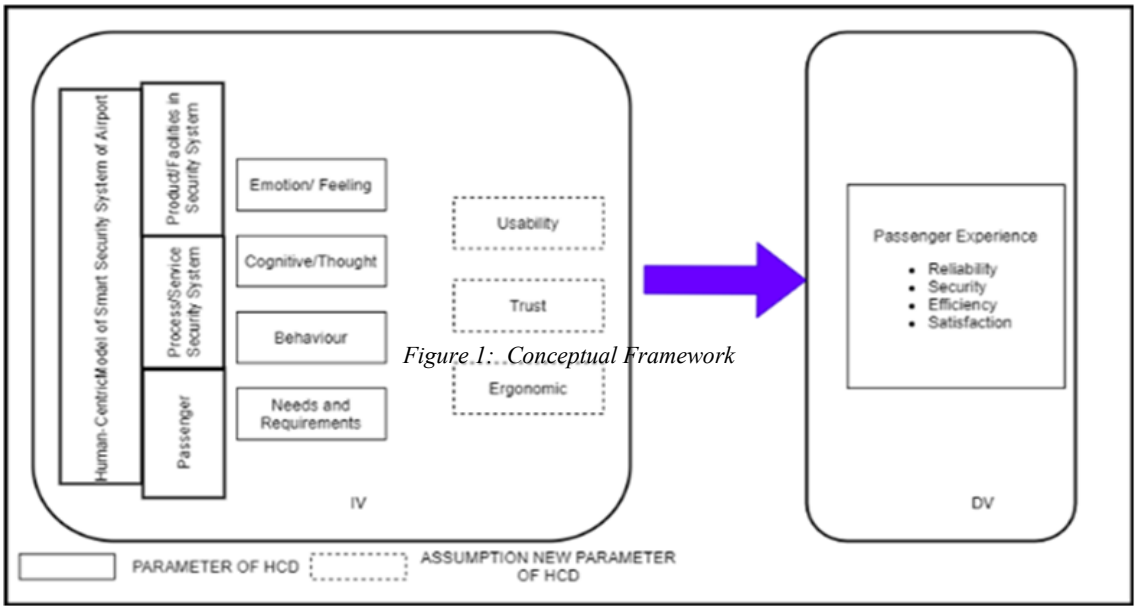

Figure 1: Conceptual Framework

Table 1: Hypothesis

No	Description
H1	The cognitive factor has significant relationship to passenger experience
H2	The behavior factor has significant relationship to passenger experience
H3	The emotional factor has significant relationship to passenger experience
H4	The ergonomic factor has significant relationship to passenger experience
H5	The usability factor has significant relationship to passenger experience
H6	The trust factor has significant relationship to passenger experience
H7	The needs and requirements factor has significant relationship to passenger experience

4. RESEARCH METHODOLOGY

The study adopted a quantitative research method, in which the empirical data are collected and analysed objectively to determine the factors that have significant relationship on the passenger's behavior at the airport. For this purpose, seven hypotheses were tested to determine the significant relationship between the factors and the passenger's experience. This research adopted a survey research that used questionnaire as the instrument for data collection. [18] expressed questionnaire can easily reach out to respondents, saves time and cost.

Following the steps of designing questionnaire [19], the questionnaire was divided into three sections, namely, Section A: the demographic profile, Section B: Independent variable that consists of seven factors, and Section C: dependent variable that focuses on the passenger experience. For section A, there are six items comprising gender, age, education level, travelling class, frequency of travelling and purpose of travelling. Section B comprises seven items, which are : 1) Emotion/Feeling, 2) Cognitive/Thought, 3) Behavior, 4) Needs and Requirements, 5) Usability, 6) Trust, 7) Ergonomic. Finally, Section C focuses on the passenger experience. The items for each of the seven constructs are presented in Appendix 1.For construct validity, the items of questionnaire are adapted from [20], The items of section B and C are measured objectively using a Likert Scale from 1 – totally disagree to 5-totally agree. A pre-test was conducted for face validity. A pilot test was also conducted to test the reliability of the questionnaire. The modified version of the questionnaire was sent to respondents of a representative group that is similar to the target population for the purpose of testing the reliability of the questionnaire.


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Travel report – First Half of 2019

Last Data Refresh Time Jul 1, 2019 12:00:00 AM

Port	Entry	Exit	Total
Dubai Airport	13,578,935	13,685,547	27,264,482

Figure 2: Number of Passenger Dubai International Airport in First Half of 2019[20]

The context of the study was at Dubai International Airport. The sample size was determined using [21] table for determining sampling size. Considering the population of the passengers, as of the First half of 2019 (as shown in Figure. 2.) is 27,264,482, the sampling size according to [21] table is 400. In this case, survey questionnaire was distributed to 400 inbound and outbound passengers at the Dubai International Airport.

Stratified random sampling method has been used to distribute the questionnaire. Two method distribution conducted, online and hard copy. The online questionnaire as shown in the link http://bit.ly/passengerexperience2019 were distributed to the respondents via social media such as Messenger, WhatsApp and Personal Message to respondent in Dubai International Airport. Respondents who attempted the hardcopy version were provided a copy of questionnaire and pen. The researcher took three months to collect the data. The data were analyzed for descriptive and inferential statistical analysis using SPSS version 22.

5. RESULTS

5.1 Demographic Profile of Respondents

The data of this study were collected from 400 respondents and the profile of the sample is as

follows. Table 5 shows the demographic profile of the respondents based on gender, age, education, travelling class, frequency and purpose of traveling. With respect to gender, the sample has somewhat equal distribution of male and female, in which there were 59.5% male in comparison to 40.5% female. The highest age group is between 21-40 years old (58.4%), followed by age group 41-60 years old (23.5%) and below 20 years (11%). The lowest is those who are above 60 years, represented by 7.3%. The sample is represented by educated group of people, comprising 45.8% with bachelor, 35.5% with diploma and only 2.5% master's degree. Only 16.3% claimed themselves with other academic qualification.

Further, 49.5% of respondents travel economy class, 29.3% travel first class, and 21.3% travel business class. This statistic is consistent with the number of seating of the travelling class with the largest is economy, followed by business and first class respectively. With respect to frequency of travelling, the highest group (49.5%) is those who travel less than 5 times per year, the second highest group (29.3%) is those who travel 5-10 times per year, while the lowest group (21.3%) is the group that travels more than 10 times per year.

This shows that they frequently use the facilities at the airport. Finally, majority of the respondents travel for business purposes, specifically, 45.8 % travel for government related business, while 35.5% travel for commercial business. Only 16.5% claimed they travel for study and 2.5% travel for the purpose of visiting friends and relatives.

Table 5: Demographic Profile of the Respondents

Demographic	Classification	Frequency	(%)
Gender	Male	238	59.5
	Female	162	40.5
Age	below 20 years	44	11
	21-40 years	233	58.4
	41-60 years	94	23.5
	above 60 years	29	7.3
Education	Diploma	142	35.5
	Bachelor	183	45.8
	Master	10	2.5
	Other	65	16.3
Traveling Class	First class	117	29.3
	Economic Class	198	49.5
	Business	85	21.3
Frequency of Traveling	Less than 5 times in one year	198	49.5
	5-10 times in one year	117	29.3
	More than 10 times in one year	85	21.3
Purpose of Traveling	Company business or professional practices	142	35.5
	Government related business	183	45.8
	Visit family and friends	10	2.5
	Studying	65	16.3

5.2 Reliability Analysis

Table 6 shows the reliability statistics based on the 30 questions that have been asked in the researcher's questionnaire. The Cronbach's Alpha coefficient shown in the Table 6 is 0.922, indicating that all the items in the questionnaire are reliable.

Table 6: Reliability Test of the Questionnaire

Reliability Statistics	
Cronbach's Alpha	N of Items
0.922	30

5.3 Correlation Analysis

To test the hypothesis, Pearson's Correlation was used to measure the strength of the relationship between the independent variables and the dependent variables. For the purpose of this study, we use the correlation coefficient by [22] as shown in Table 7.

Table 7: Summary of Measurement of Strength based on the Correlation Coefficient.
Source: [22]

Table 8 shows the Pearson's Correlation analysis of the strength of the relationship between independent variable (emotional, cognitive, behavior, need and requirements, trust, ergonomic and usability) and dependent variable (passenger experience).

Correlation Coefficient	Strength of Association between Variables
±0 to ±0.2	Very Week
±0.2 to ±0.4	Week
±0.4 to ±0.6	Moderate
±0.6 to ±0.8	Strong
±0.8 to ±1.0	Very Strong

As show in Table 8, the correlation between emotional/feeling with passenger experience has 1% significant level, which indicates that there is a link between passenger experience and emotional/feeling. Apart from that, the value 0.485 indicates a moderate positive relationship between passenger and emotional/feeling.

As presented in Table 8, the correlation result indicates that there is a link between Ergonomic with Passenger Experience has 1% significant level. Meanwhile, the value 0.466 shows a moderate positive relationship. In other words, this indicates moderate positive relationship between passenger experience and Ergonomic. This indicates that the medium ergonomic by respondents with passenger experience.

As presented in Table 8, the correlation result between Behavior and Passenger Experience has shown 1% significant level. Hence, the value 0.656 shows a positive relationship. In other words, this value indicates strong positive relationship between passenger experience and behavior. This indicates that the high behavior of respondents, the high experience to passenger experience.

As presented in Table 8, the correlation result between Need and Requirements and Passenger Experience has correlation is at 1% significant level. Apart from that, the value 0.495 shows moderate positive relationship. In other words, this value indicates moderate positive relationship between passenger experience and Need and Requirements.

As presented in Table 8, the correlation result between trust and Passenger Experience has shown 1% significant level. Hence, the value 0.678 shows a positive relationship. In other words, this value indicates strong relationship between passenger experience and trust. This indicates that the high trust of respondents, the high experience to passenger experience.

As presented in Table 8, the correlation result between cognitive and Passenger Experience has shown 1% significant level. Hence, the value 0.535 shows a moderate relationship that indicates moderate relationship between passenger experience and Cognitive/Thought.

As presented in Table 8, the correlation result indicates that there is a link between Usability with Passenger Experience has 1% significant level. Meanwhile, the value 0.493 shows a moderate positive relationship. In other words, this indicates moderate positive relationship between passenger experience and Usability. This indicates that the medium usability by respondents with passenger experience.

2.1 Regression analysis

Regression Analysis has also been

Table 8: Pearson's Correlation Analysis

	P	E1	E2	B	N	T	C	U
P	1							
E1	.485**	1						
E2	.466**	.169**	1					
B	.656**	.320**	.462**	1				
N	.495**	.763**	.335**	.480**	1			
T	.678**	.396**	.366**	.604**	.551**	1		
C	.535**	.899**	.268**	.342**	.855**	.438**	1	
U	.493**	.371**	.424**	.308**	.356**	.327**	.402**	1

**. Correlation is significant at the 0.01 level (2-tailed).

P: Passenger Experience; E1: Emotional/Feeling; C: Cognitive/Thought; B: Behavior; N: Need and Requirements; T: Trust; E2: Ergonomic; U: Usability

conducted to identify the overall relationship of factors of human centric model and passenger experience. Table 9 shows the seven independent variables that the researcher used to determine the factor of human centric model that may influence on the passenger experience. The seven independent variables which are emotional, cognitive, behavior, need and requirements, trust, ergonomic and usability and the dependent variable is passenger experience. All the variables were entered, hence none of them were removed.

Table 9: Factor of Human Centric Model influences on Passenger Experience

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	E1, E2, B, N, T, C, U[b]	.	Enter

a. Dependent Variable: P

b. All requested variables entered.

P: Passenger Experience; E1: Emotional/Feeling; C: Cognitive/Thought; B: Behavior; N: Need and Requirements; T: Trust; E2: Ergonomic; U: Usability

The purpose of the regression analysis is to find how regression model fits the data in this study. Three ways to analyze the predicted value of variables was conducted which are: 1) Model Summary (R value), 2) ANOVA variable (p value), and 3) Regression Coefficient Analysis (result of hypothesis).

Table 10 a) presents the result for the Model Summary. As seen on Table 10 (a), it can be seen that R value is 0.815, which indicates strong relationship between the factors of human centric model and passenger experience at the smart security of Dubai Airports. As such, based on the R value there is a strong relationship between the factors and passenger experience. With regard to ANOVA variable, Table 10 b) shows the significant result of p-value is 0.000, which is lower than the significant level of 0.05. Therefore, the factors have significant relationship with passenger experience. Finally,

Table 10 (c) shows the result of multiple regression for the seven proposed hypotheses. As seen in Table 10 (c), the p-value for six out of the seven independent variables has lower than 0.05, indicating that these six variables is significant, except the value for cognitive variable factor

Table 10 (a): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.815[a]	0.664	0.636	0.21941	1.784

Table 10 (b): ANOVA Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.941	6	1.157	24.029	0.000[b]
Residual	3.514	73	.048		
Total	10.455	79			

Table 10 (c): Regression Coefficient Analysis

		Unstandardized Coefficients		Standardized Coefficie	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.929	0.268		3.465	0.001
	Ergonomic	0.123	0.065	0.150	1.891	0.050
	Behavior	0.228	0.058	0.362	3.902	0.000
	Emotional	0.408	0.152	0.532	2.688	0.009
	Cognitive	0.020	0.088	0.036	0.230	0.819
	Trust	0.292	0.068	0.393	4.269	0.000
	Needs and requirements	0.287	0.097	0.428	2.941	0.004
	Usability	0.187	0.039	0.161	4.764	0.000

Predictors: (Constant), E1, E2, B, N, T, C, U
Dependent Variable: P

(0.819), which is more than 0.05. This implies that the hypothesis that Ergonomic, Behavior, Emotional, Trust, Need and requirements and usability have significant relationship with passenger experience are accepted.

Table 11 shows the summary of hypothesis testing of this study. As shown in Table 11, six hypothesis were accepted, while one hypothesis was rejected. For the accepted hypothesis, Behaviour factor (0.000, p>0.05) and Trust factor (0.000,p>0.05) are found to have the most significant relationship with the passenger experience, which is followed by Need and requirements factor (0.004, p>0.05), Emotional factor (0.009, p>0.05), Ergonomic factor (0.050, p>0.05), Usability (0.00, p>0.05). On the other hand, Cognitive factor (0.819, p>0.05) is rejected, indicating that it does not have significant relationship with passenger experience.

6. DISCUSSION

As presented in Table 11, the result of Hypothesis, H1 at 0.819 is rejected which is p-value greater than 0.05. Therefore, H0 the cognitive factor has no significant relationship with passenger. Hence, it can be implied that from the essential study, cognitive factor has negative relationship which does not affect to the passenger experience using smart security in Dubai International Airport. As illustrated in Table 11, the statistics result of Hypothesis, H2 is accepted because the p-value for this hypothesis is less than (p-value=0.000). There is a positive relationship between behavior to passenger. This is because behavior is affected to passengers purchasing [14]. As presented in Table 11, there is a positive significant emotional factor relationship to the effect of human centric model of

Table 11: Summary of Hypothesis Testing of Analysis

Hypothesis	Description (H_0, H_1)	p-Value, sig.	Decision
H1	The cognitive factor has significant relationship to the effect of human centric model of smart security airports towards passenger experience	p >0.05,0.819	H_0 Rejected
H2	The behavior factor has significant relationship to the effect of human centric model of smart security airports towards passenger experience	p <0.05, 0.000	H_1 Accepted
H3	The emotional factor has significant relationship to the effect of human centric model of smart security airports towards passenger experience	p <0.05, 0.009	H_1 Accepted
H4	The ergonomic factor has significant relationship to the effect of human centric model of smart security airports towards passenger experience	p< 0.05, 0.050	H_1 Accepted
H5	The trust factor has significant relationship to the effect of human centric model of smart security airports towards passenger experience	p <0.05, 0.000	H_1 Accepted
H6	The need and requirements has significant relationship to the effect of human centric model of smart security airports towards passenger experience	p <0.05, 0.004	H_1Accepted
H7	The usability has significant relationship to the effect of human centric model of smart security airports towards passenger experience	p <0.05, 0.000	H_1 Accepted

smart security airports towards passenger experience. This is because H3 had a positive relationship for this hypothesis is lower than 0.005 which is at p-value 0.009. The emotional factor affected the passenger experience using smart security in Dubai International Airport. The utility of emotional needs and feelings have brought great impact on service design and development [23]. This means the passengers were happy, friendly, satisfied, clean, trusted, delighted, nice, and modern using the smart security system.

As shown in Table 11, Hypothesis H4, Ergonomic factor is accepted for this study that had positive relationship to the passenger. The p-value 0.050 which is not more than (p-value 0.050) level. According to [24], Ergonomics must address global quality of life, and conserve the local content. Hence, the result ergonomics factor can give impact to the passenger experience using smart security system in Dubai International Airports.

Moreover, Hypothesis H5 is accepted which Trust factor had significant relationship to the effect of human centric model of smart security airports towards passenger experience. [25] implies that the passenger experience using smart security system can be increased with the trust. The passenger trust that smart security system is secured and safe to protect their privacy information.

As illustrated in Table 11, Hypothesis H6 and H7 are accepted. The p-value of H6 and H7 lower than 0.050. This indicates that need and requirements factor, and passenger experience have strong relationship.

Based on all the results, the final model of human centric design for smart security system of airport is presented in Figure 3.

7. CONCLUSION

The purpose of this study is to design a human centric smart airport security system. For this purpose, this study investigated the relationship of seven human factors to the passenger experience using the system. A survey involving 400 respondents who experienced using the system at the Dubai International Airport. To develop the human centric model, data were analyzed based on regression model to test the seven hypotheses.

Based on the findings, there are six factors of human centric model, which have significant relationship with passenger experience: 1) emotional/feeling, 2) behavior, 3) needs and requirements, 4) usability, 5) trust and 6) ergonomic. However, only one factor, namely cognitive did not have significant relationship with passenger experience. Therefore, we rejected the insignificant factor of human centric design with passenger experience from the conceptual framework.

The limitation of this study is the investigation is focusing to only international passengers experience. Although the respondents are appropriated for this type of study, this study does not categorized respondents to a number of groups, such as business travelers or vacationer.

Therefore, this study will gather more information

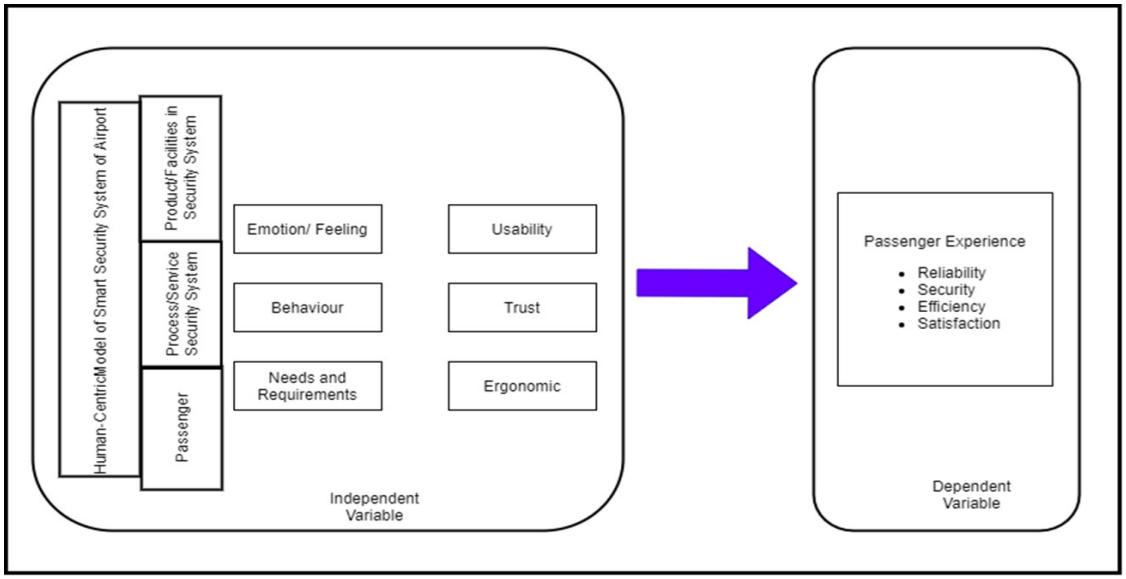

Figure 3: final model of human centric design for smart security system of airport

such as the factor that most affects the passenger experience of different passengers at Dubai International Airport.

As conclusion, the results serve as a validation for the proposed model of human-centric smart security system of airport. The study contributes to the impact of passengers' experience, in which airport smart gate provides an effortless journey for all passengers. Statistical analysis shows that the human centric is positively related to the passengers' experience. The airport provides a good experience to passenger through human-centered smart gate. Considering the importance of security at the airport, it is expected that this model could be used as guidance to design a smart airport security system that specifically addresses human needs and behaviors.

8. ACKNOWLEDGEMENT

We would like to thank Universiti Teknikal Malaysia Melaka for support.

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ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

APPENDIX 1

Emotion/Feeling						
1	I feel happy when using the system security in the airport as the instruction is readable.	1	2	3	4	5
2	I enjoy using the automatic validation smart security system during security check.	1	2	3	4	5
3	I feel safe when using the smart security system for security check.	1	2	3	4	5
4	I'm confident with the automated services provided by smart security system.	1	2	3	4	5
Cognitive/Thought						
1	I think it is easy to ask for help/assistance from smart security team.	1	2	3	4	5
2	I think it is simple to validate my security information through smart security system rather than queuing at the security counter	1	2	3	4	5
3	I think the instruction provided is readable and easily understood for further action.	1	2	3	4	5
Behaviour						
1	I can ask for help from the security team if I face problem at the smart gate and the officer can remotely manage them.	1	2	3	4	5
2	I can validate my personal information through scanning my biometrics rather thumbprint as we have multi biometrics reader in the smart gate.	1	2	3	4	5
3	I can easily read the instruction provided by the smart security system	1	2	3	4	5
Needs and requirements						
1	I prefer a security system that able to provide accurate information and instruction.	1	2	3	4	5
2	I prefer a system that able to verify automatically my personal travel information.	1	2	3	4	5
3	I prefer a smart security system that able to provide a user friendly interface in providing information.	1	2	3	4	5
4	I need the reliable of smart security system at airport	1	2	3	4	5
Usability						
1	I like to use the smart security system as it is easy to use.	1	2	3	4	5
2	I like to use the smart security system as it provides accurate and fast results.	1	2	3	4	5
3	I like to use the smart security system as it is easy to learn.	1	2	3	4	5
4	I like to use the smart security system as it is user friendly.	1	2	3	4	5
Trust						
1	I trust the smart security system is secured and safe.	1	2	3	4	5
2	I trust the smart security system is usable for security checking process	1	2	3	4	5
3	I trust the smart security provides fast and accurate results on the security screening.	1	2	3	4	5
Ergonomic						
1	I did not feel stress when I use the system	1	2	3	4	5
2	I feel comfort when I use the system	1	2	3	4	5
3	The placement of the system is appropriate for all passengers	1	2	3	4	5
4	The lighting from the screen does not disturb my action in completing the task.	1	2	3	4	5
5	The environment where the system is placed does not disturb my action in completing travel process	1	2	3	4	5
Passenger Experience						
1	I have a wonderful experience using Smart Security System in airport.	1	2	3	4	5
2	I feel secured using Smart Security System in airport.	1	2	3	4	5
3	I trust the security screening process of the airport.	1	2	3	4	5
4	I feel satisfied with the fast process of security control in airport.	1	2	3	4	5