強迫航空旅客使用自助報到服務之效果與行銷戰術

Cognitive Processes Evoked by Forcing Airline Passengers to Use Self Check-in Services

王榮祖[1]　Rong-Tsu Wang　　　　　呂堂榮[2]　Tim Lu
萬能科技大學航空暨運輸服務管理系　　萬能科技大學行銷與流通管理系

[1]Department of Airline and Transport Service Management, Vanung University and

[2]Department of Marketing and Logistics, Vanung University

摘要：為了降低成本與航空旅客的便利性，自助報到服務被視為一種有效的行銷戰術並且廣泛的引進航空業。許多航空公司逐漸地利用自助報到服務機器取代傳統人工的報到櫃檯，不過，這樣的做法也同時提高旅客使用自助報到服務的被強迫感。過去的相關研究大多聚焦於探討這種行銷戰術所引起的反效果，至於旅客之所以產生反效果的認知過程則甚少被提及。鑑此，本文提出一個相關性模式，期能進一步探討影響旅客認知過程的相關因素與其彼此間的關係。為了能更真實的貼近旅客行為，本文將引起旅客反效果的力量分為被迫接受與被迫拒絕兩種。研究結果顯示，兩種力量皆會讓旅客在使用自助報到服務的過程中產生被威脅感，觸動心理上的抗拒，進而不喜歡自助報到服務、降低對此服務的使用意願，甚至產生轉換航空公司的想法。最後，針對這種認知過程的現象，本文從理論上、管理上以及航空公司的觀點提出因應的行銷戰術。

關鍵詞：自助報到服務、強迫行為、認知過程、心理抗拒

Abstract: Self check-in services have been widely introduced in the airline industry for convenience

---

and reducing cost. Many airlines have gradually replaced traditional check-in counters with this automated service, thereby enhancing passengers' perception of being forced. Although previous research has explored the negative effects of this marketing tactic, passengers' cognitive processes in coping with the tactic remain unclear. To fill this gap, we proposed a causal model aimed at identifying these cognitive processes. To increase ecological validity, we distinguished two types of force: forced acceptance and forced rejection. The results show both requirements increased passengers' perception of threat, triggering psychological reactance. This leads to less favorable attitudes toward self check-in services, resulting in decreased use intention and increased switching intention. Finally, the marketing tactic is provided from the theoretical, managerial, and airline's viewpoints, respectively.

Keywords: Self Check-in Service, Forced Behavior, Cognitive Process, Psychological Reactance

1. Introduction

In recent years more and more airlines and airports have introduced self-service technology (SST) to their check-in service (Graham, 2009; Lu *et al.*, 2009). Research suggests self check-in kiosks not only allow passengers to simplify and speed up the check-in process (Chen, 2007), but they also provide them with more consistent and higher-quality service (Franke, 2007). Further, such innovative technology helps airlines and airports lower their costs (Lu *et al.*, 2009) and free up space by removing some of the traditional check-in desks (Graham, 2009). The most extreme option is the complete replacement of these traditional services with SST. For example, at Alaska Airlines' "Airport of the Future" in Seattle, self check-in kiosks have completely replaced ticket counters (Reinders *et al.*, 2008), forcing passengers to use the automated service.

However, previous research has demonstrated forced use can have numerous negative consequences, such as choice conflict, emotional discomfort (Dhar and Simonson, 2003), negative cognition and anger (Dillard and Shen, 2005), and negative attitudes and switching intentions (Reinders *et al.*, 2008). Consumers do not like to be trapped or forced to interact with a company in only one way (Bitner *et al.*, 2002). Further, forced use of self check-in kiosks makes it more difficult for passengers to exercise their freedom of choice, an inconvenience they may perceive as a threat. Hence, passengers in these situations may experience psychological reactance, which occurs when a freedom is eliminated or threatened with elimination (Brehm, 1966). Although the literature provides

several explanations for why forced compliance may result in such negative effects, little is known about the cognitive processes experienced by passengers who are forced to use self check-in kiosks.

The replacement of traditional check-in service with self check-in kiosks simultaneously confronts passengers with two related external pressures: forced rejection of traditional check-in services and forced acceptance of automated services. The main purpose of this study was to construct a causal model that can be used to identify passengers' cognitive processes when they encounter these two pressures. Specifically, we tried to clarify the relationships among forced acceptance, forced rejection, perceived threat, psychological reactance, attitudes toward kiosks, use intentions, and switching intentions. After describing this research, we conclude the paper by discussing its theoretical and managerial implications.

2. Theoretical background and hypotheses

2.1 The theory of psychological reactance

Brehm (1966) posited when individuals' freedom is restricted through the elimination (or the threat of elimination) of a behavior, they will experience a state of psychological reactance. Psychological reactance is defined as a motivational state that drives individuals to restore the threatened or restricted freedom. Individuals can accomplish this restoration either directly or indirectly. The direct methods include expressing opposition to the threat and behaving in a manner related to the threat. For example, suppose passengers experience reactance after being told the traditional service is no longer available. They can directly restore the threatened or restricted freedom by continuing to use the traditional service or by switching to a company that still provides it. The indirect methods involve observing how others behave in attempting to restore their freedom (Brehm and Brehm, 1981). For example, passengers can think favorably of the traditional service or identify with other passengers who prefer the traditional service.

In recent years, psychological reactance theory has been applied extensively in consumer research. Researchers have used the theory to explain consumers' resistance to marketing tactics such as pop-up ads that force consumers to view advertisements (Edward *et al.*, 2002), unsolicited recommendations (Fitzsimons and Lehmann, 2004), effort-reward incongruity promotions (Kivetz, 2005), and limited purchase opportunities (Abendroth and Diehl, 2006).

In explicating the predictive nature of reactance, researchers have further suggested reactance be considered a two-step process (Quick and Considine, 2008; Quick and Stephenson, 2008). The first

step occurs when an individual perceives his freedom to be threatened, and the second step is the reactance aroused in response to the threat. Thus, perceived threat to freedom serves as an important antecedent of psychological reactance (Dillard and Shen, 2005). Any external influence leads individuals to recognize the threat in advance, at which time reactance is elicited. The approach is consistent with Brehm (1966), who proposes the magnitude of reactance increases as the threat to freedom increases. The two-step approach has received empirical support (Quick and Considine, 2008).

Communication researchers have identified examples of controlling, dogmatic, and forceful language that may trigger an individual's perception of threat (Dillard and Shen, 2005; Quick and Stephenson, 2007). Accordingly, we hypothesized the following:

H_1: Forced acceptance of self check-in kiosks results in a perception of threat.

H_2: Forced rejection of traditional check-in service results in a perception of threat.

According to tests of reactance theory, perceived threat mediates the relation between language characteristics and reactance (Quick and Stephenson, 2008). Specifically, perceived threat is a sufficient and necessary condition for psychological reactance.

H_3: The greater the perception of threat, the greater the psychological reactance.

2.2 The boomerang effect

According to psychological reactance theory (Brehm, 1966; Brehm and Brehm, 1981), individuals tend to restore their eliminated or threatened freedom. Brehm (1972) classified the various restoration effects into two categories: mental effects, which consist of perceptual or judgmental changes, and behavioral effects, which are observable by others. The former encompasses a strong preference towards a restricted alternative and/or disagreement with the source of the threat, whereas the latter, which is known as the "boomerang effect" (Clee and Wicklund, 1980), can include open protest or aggression.

After describing the evidence supporting the boomerang effect, Brehm and Brehm (1981) provide two possible explanations of it. First, reactance may have a direct motivational effect on resistance. People may change their attitudes simply because they are motivated to restore their freedom, and disagreeing with the source of the threat is the most direct way to do this (Silvia, 2006). Second, such disagreement may represent the end point of the mediating cognitive processes. Persuasive messages can evoke reactance and the motivation to reassert one's freedom to disagree. As a result, people react negatively to the messages through such means as counterargument, blanket rejection of the position,

or negative perceptions of the source's credibility or attractiveness (Quick and Considine, 2008; Silvia, 2006). Because of its predictions regarding attitudes and persuasion, psychological reactance theory is one of the most widely studied theories of resistance (Silvia, 2006).

To examine boomerang effects, researchers currently employ a host of conventional outcome variables, including attitudes, behavioral intentions, message persuasiveness, and source evaluation (Quick and Stephenson, 2007). Several studies have demonstrated reactance has direct negative effects on both consumers' attitudes and behavioral intentions (Dillard and Shen, 2005; Quick and Considine, 2008; Quick and Stephenson, 2007, 2008).

H_4: The greater the psychological reactance, the more negative the passenger's attitude toward self check-in kiosks.

Finally, attitudinal research stresses the link between individuals' attitudes and behavioral intentions (e.g., Fishbein and Ajzen, 1975). Specifically, SST research suggests attitudes have a strong positive effect on behavioral intentions (Dabholkar and Bagozzi, 2002; Reinders *et al.*, 2008). According to a meta-analysis of technology acceptance research by Yousafzai *et al.* (2007), there is a significant relationship between attitudes and behavioral intentions in this domain. Therefore, we hypothesize attitude mediates the relationship between psychological reactance and passengers' behavioral intentions.

H_5: The more positive passengers' attitudes toward using self check-in kiosks, the more likely they are to use them.

H_6: The more positive passengers' attitudes toward using self check-in kiosks, the less likely they are to switch to another airline.

3. Material and Methods

3.1 Design

To test our hypotheses about forced acceptance and forced rejection, we conducted a controlled field study using a 2 (forced acceptance: high vs. low) $\times$ 2 (forced rejection: high vs. low) between-subjects factorial design.

High forced acceptance means passengers must begin using self check-in kiosks "right now," whereas low forced acceptance means they must use them "sooner or later". Likewise, high forced rejection means airlines will not provide traditional check-in services "from now on", whereas low forced rejection means airlines will not provide traditional check-in services "sooner or later." High

forced acceptance was manipulated by having an "employee" tell the participants they must use self check-in kiosks this time. Low forced acceptance was manipulated by the employee telling the participants they need not use the kiosks this time, but that they will have to use them when they are fully implemented sometime within the next six months. High forced rejection was manipulated by an employee telling the participants the airline is no longer providing traditional check-in service. Low forced rejection was manipulated by the employee telling the participants not to use the kiosks this time, but noting the airline will be replacing the traditional check-in service within the next six months. Participants were asked to fill out a questionnaire after they were randomly assigned to one of the four conditions.

3.2 Manipulation check

This study conducted an experiment design to test our hypotheses. A manipulation check is needed to help researchers know whether the experimental manipulation produced the desired psychological effect. Specifically, a manipulation check should be built before the formal survey to tell researchers how well they did in the experimental design. In this study, to test the effectiveness of the two treatments, a manipulation check was conducted using two items. The first item measured the intensity of the attitude toward forced adoption: "The airline made me feel I must use the self check-in kiosks." The second item measured the intensity of the attitude toward forced rejection: "The airline made me feel I can't use the traditional check-in counters."

The questionnaire was distributed randomly to 166 passengers at Taoyuan International Airport in Taiwan, the major airport in Taiwan. At the time of the survey, self check-in kiosks had not been fully implemented. Valid responses were received from 148 passengers (89%). A slight majority of these respondents were males (52%) and 68.9% were 20 to 29 years of age. Only 12 passengers (8.1%) had previous experience with self check-in kiosks. All items were answered on seven-point Likert-type scales, with the alternatives ranging from "strongly agree" to "strongly disagree".

The results showed the main effects for forced acceptance and forced rejection were both significant. Participants in the high forced-acceptance condition rated the forced use of self check-in kiosks higher than participants in the low forced-acceptance condition ($M_{high} = 5.20$; $M_{low} = 3.71$; $F = 32.10$, $p < 0.01$). Likewise, participants in the high forced-rejection condition answered they were less able to use traditional check-in counters than participants in the low forced-rejection condition ($M_{high} = 5.62$; $M_{low} = 4.26$; $F = 27.43$, $p < 0.01$). The correlation between forced-acceptance and forced-rejection was 0.55. The means both variables were on the right side of the midpoint of the scale

for the ability-to-use question.

3.3 Participants

The total number of respondents at the airport was around 253, and valid questionnaires were received from 235. The respondents were recruited from the check-in lobby, where passengers wait for the check-in service, and given a gift valued at $0.5 USD as a reward for participating in the survey. There were 126 males (53.6%), and 192 of the participants (82.1%) were between the ages of 20 and 29 years. Only 16 (6.8%) had previous experience with self check-in kiosks.

3.4 Measures

The questionnaire included items measuring forced acceptance, forced rejection, perceived threat, reactance, attitudes, use intention, and switching intention. Passengers' perceptions of forced acceptance (V_1) and forced rejection (V_2) were measured by single items constructed by the authors. The measures of perceived threat, psychological reactance, and attitudes were multi-item scales adapted from validated scales used in previous studies. The four items measuring perceived threat (V_3-V_6) were adapted from Dillard and Shen (2005). Although Brehm (1966) claimed psychological reactance is immeasurable, researchers have recently advocated treating it as a latent variable consisting of emotional and cognitive dimensions (Dillard and Shen, 2005), specifically, anger and negative cognition (Quick and Stephenson, 2007, 2008; Quick and Considine, 2008). We followed this suggestion, including three items to measure anger (V_7-V_9) and three to measure negative cognition (V_{10}-V_{12}). Passengers' attitudes toward self check-in kiosks were measured by four items (V_{13}-V_{16}). Finally, there were single-items for use intention (V_{17}) and switching intention (V_{18}). Items V_{13} to V_{17}, which measure adaptation to a new product, were adapted from Reinders *et al*. (2008). All items were answered on seven-point Likert-type scales, with the alternatives ranging from "strongly agree" to "strongly disagree." The items are listed in the Appendix A. The links between the research variables, the questionnaire items, and the research hypotheses are shown in Figure 1.

3.5 Methods of analysis

The research model consisted of two components: a measurement model and a causal structural model. The former specifies links between the latent constructs and their corresponding indicator variables, whereas the latter specifies the causal relationships among the latent constructs themselves. We used structural equation modeling (SEM) to test our theoretical model, using the specific method suggested by Anderson and Gerbing (1988). We began with a confirmatory factor analysis (CFA) to
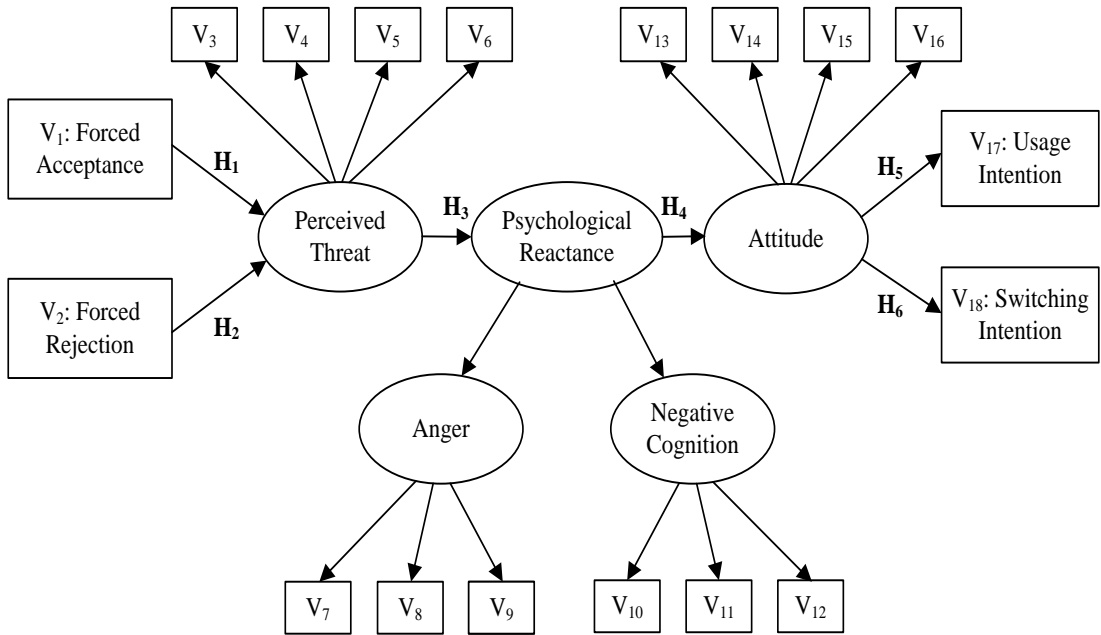
Figure 1   The Structural Model

develop an acceptable measurement model. The purpose of the analysis was to determine whether all the indicator variables were measuring their underlying constructs and whether our measurement model fit the data acceptably. Second, we used path analysis to test the predicted causal relationships among the latent constructs (structural model). This analysis also identified the indices that could be used to determine whether the model provides an acceptable fit to the data. AMOS software was used for the model.

4. Results

Table 1 provides descriptive statistics for the questionnaire items. All items were found to meet the distributional requirements for SEM with respect to normality, skewness, and kurtosis.

4.1 Measurement model

The CFA assessment of the quality of the measurement model yielded a fit index and measures of reliability (internal consistency), convergent validity, and discriminant validity. The internal consistency of each construct was acceptable, with Cronbach's alpha ranging from 0.909 (attitude) to

Table 1 Descriptive Statistics for the Questionnaire Items.

Construct	Item	Mean	Standard deviation	Skewness	Kurtosis
Forced Acceptance	V_1	4.902	1.394	-.702	-.064
Forced Rejection	V_2	4.881	1.433	-.615	-.292
Perceived Threat	V_3	5.064	1.420	-.781	-.046
	V_4	4.630	1.545	-.274	-.717
	V_5	4.868	1.460	-.591	-.217
	V_6	4.800	1.524	-.491	-.520
Psychological Reactance Anger	V_7	4.192	1.459	.046	-.569
	V_8	4.238	1.469	-.035	-.597
	V_9	4.102	1.476	.032	-.451
Negative Cognition	V_{10}	4.375	1.431	-.248	-.494
	V_{11}	4.170	1.484	.076	-.545
	V_{12}	4.523	1.506	-.303	-.427
Attitude	V_{13}	4.889	1.123	-.492	.072
	V_{14}	5.043	1.112	-.535	.477
	V_{15}	5.030	1.185	-.539	.435
	V_{16}	4.715	1.212	-.424	.066
Use Intention	V_{17}	4.762	1.221	-.459	-.152
Switching Intention	V_{18}	3.026	1.267	.511	.207

0.945 (anger). Hatcher (1998) suggests the minimally acceptable value for composite reliability is 0.6. All the estimates for our constructs exceeded this value, ranging from 0.858 (psychological reactance) to 0.945 (anger).

Convergent validity for the measurement model was supported by evidence of a good overall fit: χ^2/df = 1.250 (144.975/116), GFI = 0.936, NFI = 0.959, CFI = 0.991, and RMSEA = 0.033. The t values were significant for all the factor loadings, supporting their convergent validity. The average variance extracted (AVE), which assesses the amount of variance captured by an underlying construct in relation to the amount of variance due to measurement error, always exceeded the threshold of 0.5 suggested by Fornell and Lacker (1981). The complete results of the CFA for internal consistency and convergent validity are presented in Table 2.

To assess discriminant validity, we compared the AVE for each scale with the variance shared between all the other scales (Fornell and Lacker, 1981), after incorporating these AVE in a correlation matrix (Table 3). The results suggest our measurement model has adequate discriminant validity. The AVE by each of the scales was greater than the share variance between the construct and all other

Table 2   Results of the confirmatory factor analysis.

Construct	Item	Standardized factor loading	Cronbach's α	Composite reliability	Average variance extracted
Perceived Threat	V_3	.836***	.930	.931	.792
	V_4	.854***			
	V_5	.925***			
	V_6	.893***			
Psychological Reactance					
Anger		.932***	.832	.858	.778
Negative cognition		.798***			
Anger	V_7	.919***	.945	.945	.862
	V_8	.949***			
	V_9	.901***			
Negative cognition	V_{10}	.891***	.915	.916	.804
	V_{11}	.895***			
	V_{12}	.871***			
Attitude	V_{13}	.810***	.909	.911	.751
	V_{14}	.895***			
	V_{15}	.884***			
	V_{16}	.800***			

$\chi^2/df = 1.250$ (144.975/116), GFI = .936, NFI = .959, CFI = .991, RMSEA = .033.

*** $p < 0.01$ level

Table 3   Discriminant Validity of the Constructs

	Perceived Threat	Psychological Reactance	Attitude
Perceived Threat	**.890**		
Psychological Reactance	.713	**.882**	
Attitude	-.235	-.367	**.867**

The bold numbers on the diagonal are the square root of the AVE.

Off-diagonal elements are correlations

constructs, therefore, considering all these constructs, we can infer our measurement model performs fairly well.
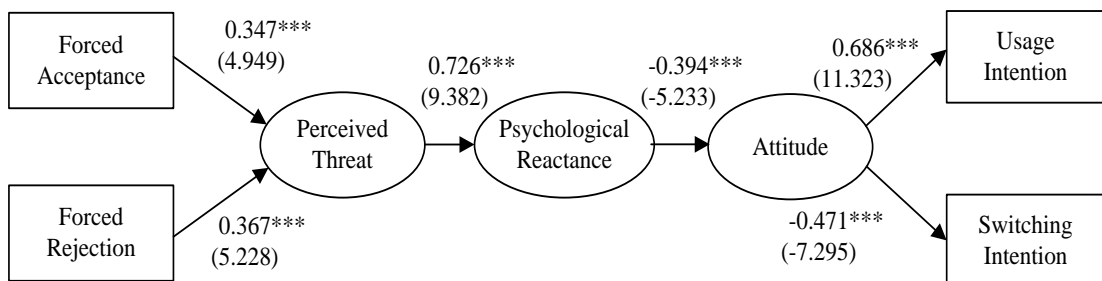
4.2 Structural model

The overall fit of the structural model was found to be satisfactory: $\chi^2/df = 1.638$ (212.932/130), GFI = 0.907, NFI = 0.939, CFI = 0.975, and RMSEA = 0.052. The path analysis revealed passengers' perceptions of forced acceptance of self check-in kiosks ($\gamma = 0.347$, $t = 4.949$, $p < 0.001$) and forced

rejection of traditional check-in service ($\gamma = 0.367$, $t = 5.228$, $p < 0.001$) both increased their perceived threat, which, in turn, increased psychological reactance ($\gamma = 0.726$, $t = 9.382$, $p < 0.001$). Thus, H1, H2, and H3 were supported. In other words, psychological reactance was confirmed to be a two-step process beginning with individuals perceiving a threat to their freedom and ending with reactance aroused in response to the threat.

The path estimates also indicate passengers' attitudes toward self check-in kiosks were negatively affected by reactance ($\gamma = -0.394$, $t = -5.233$, $p < 0.001$), supporting H$_4$. Further, a positive attitude toward self check-in kiosks increased passengers' use intentions ($\gamma = 0.686$, $t = 11.323$, $p < 0.001$) and decreased their switching intentions ($\gamma = -0.471$, $t = -7.295$, $p < 0.001$), supporting H$_5$ and H$_6$ respectively. The results of the path analysis are illustrated in Figure 2.

5. Discussion

Because of the economic benefits of self check-in kiosks for the airline industry, passengers are usually forced to use this automated service. As documented in the Introduction, numerous studies have explored the negative consequences of forced use, but these studies have provided little insight into the cognitive processes of passengers confronted with the kiosks. To shed additional light on this matter, we constructed a causal model including perceived threat, psychological reactance, attitude, use intention, and switching intention as cognitive processes passengers might manifest in response to airlines replacing a traditional check-in service with self check-in kiosks. We not only examined the widely discussed effect of forced acceptance, but we also explored the less widely discussed influence of forced rejection. We found both aroused passengers' perception of threat. We conclude passengers

***$p < 0.01$

Figure 2　Results from the structural model.

feel their freedom of choice is threatened when airlines try to compel them to use kiosks, either by offering only automated service or by removing traditional service.

Our results also show perceived threat triggered passengers' psychological reactance, leading to anger and negative cognition. These findings are consistent with Brehm's (1996) assertion that a perceived threat or the elimination of an existing freedom triggers reactance. Our findings also bolster the representation of reactance as a two-step process (Quick and Considine, 2008).

Our results further show passengers' psychological reactance negatively affected their attitudes toward kiosks. The less likely passengers said they were to use kiosks, the more likely they said they would be to switch to another airline. This finding is consistent with Brehm's (1966) thesis that the undesirable consequence of reactance arousal is an example of the boomerang effect (Clee and Wicklund, 1980). Thus, we can infer passengers restore their lost freedom through behavioral protest pursuant to changes in perceptions and judgments. In short, the forced use of kiosks appears to be ineffective in triggering favorable evaluations and creating use intention.

6. Conclusions

From the theoretical or research standpoint, our results help advance our understanding of how passengers process the two forced types that elicited a perceived threat. Previous research showed the consequences of forcing consumers to use SSTs (e.g., Reinders *et al.*, 2008), but little information on consumers' underlying behaviors exists. This study fills the gap by exploring consumers' cognitive processes induced by forcing airline passengers to use SSTs. We apply psychological reactance theory to construct our research model. In the field of marketing, research have applied the theory to justify consumers' reactions of being forced (e.g., unsolicited recommendation and limited purchase opportunity). However, few studies actually explore the relationship between perceived threat and psychological reactance. According to our framework, psychological reactance is triggered only when an individual's particular behavior is threatened with elimination. Consumers' unfavorable behavior to a forced use is because their freedom of choice is restricted through the elimination. Thus, the research applying psychological reactance should ensure consumers receive the perception of being threaten. This, in turn, would cause psychological reactance. In the end, this process would increase the aversive behavioral intentions.

Moreover, in the field of communication research, researchers also began employing psychological reactance theory as a framework for understanding message effects (i.e., why certain messages succeed and other fail). However, the theory remains underdeveloped gap in our

understanding of how and which message features elicit state reactance (Quick and Stephenson, 2008). Consistent with Quick and Considine's (2008) research, our research not only suggest forceful language can lead to an individual's perception of threat, but further classify forced use into forced rejection of old service and forced acceptance of new service. This implies an individual is confronted with a dual pressure when the company directly replaces the old product or service with the new one. This research provides a new perspective on the issue of new product launches, especially when the old product is withdrawn from the market at the same time.

From the managerial standpoint, our results may be useful to airlines practitioners who want to introduce kiosks to check-in services. Airlines should pay attention to the aversive effects of forcing kiosk use before completely replacing traditional check-in services. Because perceived threat is a trigger for reactance and the consequent negative attitudes, airlines may want to avoid using language that is controlling, dogmatic, or intimidating when introducing self check-in kiosks. They should cast their announcements in an informational rather than a persuasive light. Further, to reduce passengers' threat perception, airlines can try to decrease the attractiveness of traditional service delivery modes, or increase the incentive to use SSTs by offering more benefits to use the self check-in service. Both ways could make passengers feel using self check-in service is based on their free will, not just being forced by the airline.

From the airlines' standpoint, it would be desirable to reduce passengers' perceptions of threat, even though the airlines' primary goal is to persuade passengers to use the kiosks. One approach would be to compensate passengers for the loss of freedom by providing them with new freedoms in other aspects of air travel. Another possibility is to offer passengers a deferred choice regarding the kiosks – that is, they could be allowed to accept or reject the use of kiosks the first time, even though they must learn to use them eventually. Finally, airlines could provide an opportunity for passengers to interact with airline employees when they have a problem with the kiosks, as many airlines already do. In short, we recommend airlines provide passengers with other services, or options in the use of the otherwise freedom-depleting service. Such an approach would help diminish passengers' perception of being threatened and restore at least some of their lost freedom, thereby facilitating the success of replacing traditional check-in services with self check-in kiosks.

Appendix A: Questionnaire items

Construct	Item code	Item content
Forced Acceptance	V_1	The airline forced me to use self check-in kiosks.
Forced Rejection	V_2	The airline compelled me not to use traditional check-in services.
Perceived Threat	V_3	The airline threatened my freedom to choose the way check-in service is delivered.
	V_4	The airline tried to make a decision for me.
	V_5	The airline tried to manipulate me.
	V_6	I can't freely choose the way the check-in service is delivered.
Psychological Reactance	V_7	This situation annoyed me.
Anger	V_8	This situation made me unhappy.
	V_9	This situation made me angry.
Negative Cognition	V_{10}	The airline ignored passengers' rights.
	V_{11}	The airline didn't provide enough alternatives for passengers.
	V_{12}	The airline didn't provide good service to passengers.
Attitude	V_{13}	Using self check-in kiosks is helpful.
	V_{14}	Using kiosks is a more convenient way to check in.
	V_{15}	Using self check-in kiosks saves time.
	V_{16}	Self check-in is a good way to check in.
Use Intention	V_{17}	I intend to use self check-in kiosks.
Switching Intention	V_{18}	I intend to switch to another airline.

References

Abendroth, L. J. and Diehl, K., "Now or Never: Effects of Limited Purchase Opportunities on Patterns of Regret over Time," *Journal of Consumer Research*, Vol. 33, No. 3, 2006, pp. 342-351.

Anderson, J. C. and Gerbing, D. W., "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach," *Psychological Bulletin*, Vol. 103, No. 3, 1988, pp. 411-423.

Bitner, M. J., Ostrom, A. L., and Meuter, M. L., "Implementing Successful Self-Service Technologies," *Academy of Management Executive*, Vol. 16, No. 4, 2002, pp. 96-108.

Brehm, J. W., *A Theory of Psychological Reactance*, New York: Academic, 1966.

Brehm, J. W., *Responses to Loss of Freedom: A Theory of Psychological Reactance. Morristown*, NJ: General Learning Press, 1972.

Brehm, J. W. and Brehm, S. S., *Psychological Reactance: A Theory of Freedom and Control*, San Diego, CA: Academic Press, 1981.

Chen, F. C., "Passenger Use Intentions for Electronic Tickets on International Flights," *Journal of Air Transport Management*, Vol. 13, No. 2, 2007, pp. 110-115.

Clee, M. A. and Wicklund, R. A., "Consumer Behavior and Psychological Reactance," *Journal of Consumer Research*, Vol. 6, No. 4, 1980, pp. 389-405.

Dabholkar, P. A. and Bagozzi, R. P., "An Attitudinal Model of Technology-Based Self-Service: Moderating Effects of Consumer Traits and Situational Factors," *Journal of the Academy of Marketing Science*, Vol. 30, No. 3, 2002, pp. 184-201.

Dhar, R. and Simonson, I., "The Effect of Forced Choice on Choice," *Journal of Marketing Research*, Vol. 40, No. 2, 2003, pp. 146-160.

Dillard, J. P. and Shen, L., "On the Nature of Reactance and Its Role in Persuasive Health Communication," *Communication Monographs*, Vol. 72, No. 2, 2005, pp. 144-168.

Edwards, S. M., Li, H., and Lee, J. H., "Forced Exposure and Psychological Reactance: Antecedents and Consequences of the Perceived Intrusiveness of Pop-Up Ads," *Journal of Advertising*, Vol. 31, No. 3, 2002, pp. 83-95.

Fishbein, M. and Ajzen, I., *Belief, Attitude, Intention, and Behavior: An Introduction of Theory and Research*, Reading, MA: Addison-Wesley, 1975.

Fitzsimons, G. J. and Lehmann, D. R., "Reactance to Recommendations: When Unsolicited Advice Yields Contrary Responses," *Marketing Science*, Vol. 23, No. 3, 2004, pp. 82-94.

Fornell, C. and Lacker, D. F., "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, Vol. 18, No. 1, 1981, pp. 39-50.

Franke, M., "Innovations: the Winning Formula to Regain Profitability in Aviation?" *Journal of Air Transport Management*, Vol. 13, No. 1, 2007, pp. 23-30.

Graham, A., "How Important are Commercial Revenues to Today's Airports?" *Journal of Air Transport Management*, Vol. 15, No. 3, 2009, pp. 106-111.

Hatcher, L., *A Step-by-step Approach to Using the SAS System for Factor Analysis and Structural Equation Modeling*, 3rd ed., SAS Institute Inc., 1998.

Kivetz, R., "Promotion Reactance: The Role of Effort-Reward Congruity," *Journal of Consumer Research*, Vol. 31, No. 4, 2005, pp. 725-735.

Lu, J. L., Chou, H. Y., and Ling, P. C., "Investigating Passengers' Intentions to Use Technology-Based Self-Check-In Services," *Transportation Research Part E*, Vol. 45, No. 2, 2009, pp. 345-356.

Quick, B. L. and Considine, J. R., "Examining The Use of Forceful Language When Designing Exercise Persuasive Messages for Adults: A Test of Conceptualizing Reactance Arousal as A

Two-Step Process," *Health Communication*, Vol. 23, No. 5, 2008, pp. 483-491.

Quick, B. L. and Stephenson, M. T., "Further Evidence that Psychological Reactance Can be Modeled as A Combination of Anger and Negative Cognitions," *Communication Research*, Vol. 34, No. 3, 2007, pp. 255-276.

Quick, B. L. and Stephenson, M. T., "Examining The Role of Trait Reactance and Sensation Seeking on Perceived Threat, State Reactance, and Reactance Restoration," *Human Communication Research*, Vol. 34, No. 3, 2008, pp. 448-476.

Reinders, M. J., Dabholkar, P. A., and Frambach, R. T., "Consequences of Forcing Consumers to Use Technology-Based Self-Service," *Journal of Service Research*, Vol. 11, No. 2, 2008, pp. 107-123.

Silvia, P. J., "Reactance and the Dynamics of Disagreement: Multiple Paths from Threatened Freedom to Resistance to Persuasion," *European Journal of Social Psychology*, Vol. 36, No. 5, 2006, pp. 673-685.

Yousafzai, S. Y., Foxall, G. R., and Pallister, J. G., "Technology Acceptance: A Meta-Analysis of the TAM: Part 2," *Journal of Modelling in Management*, Vol.2, No. 3, 2007, pp. 281-304.