

The effect of Internet apprehension and website satisfaction on air travellers' adoption of an airline's website

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Abstract

Airlines are attempting to shift consumers from traditional booking channels to their own more cost-effective online channels as fast as possible. Inhibitors to this migration may be travellers' apprehension towards the Internet and level of satisfaction with the airline website. The effect of these two constructs on adoption and use of the airline website are examined using two models. The findings suggest that apprehension towards the Internet and satisfaction with the airline website is significantly related to certain demographic characteristics of the population and the level of use of an airline website.

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1. Introduction

Distribution through own websites is generally regarded as the most cost effective for airlines. They are thus attempting to migrate consumers from traditional channels to their own online channels as fast as possible. For airlines to increase migration of travellers to their websites it is necessary to understand traveller attitudes towards the Internet as a distribution channel. The attitude of air travellers towards the Internet as an airline distribution channel may be reflected in two broad constructs: air traveller apprehension towards using the Internet on the one hand and the quality of the experience when interacting with an airline website on the other. The purpose here is to assess Internet apprehension and website satisfaction amongst air travellers and their impact on the adoption and use of an airline website.

2. Consumers' attitudes towards the Internet and airline website satisfaction

Studies of consumers' experiences with the Internet and websites have used "traditional" methodologies such as focus groups, personal surveys and mail surveys (Chen and Jang, 2004; Chu, 2001; Kim and Kim, 2004) as well as online data collection methodologies such as email and web-based questionnaires (Tierney, 2000). Mills and Morrison (2003) provide a comprehensive methodology for evaluating travel websites with a customer satisfaction focus. They developed the E-SAT (e-consumer satisfaction) model, an instrument for measuring customer satisfaction with travel websites. It assumes that consumer satisfaction is a direct result of the customer's experience at the travel website that, in turn, is a multi-dimensional latent construct impacted by travel website interface,

perceived quality of the services and products offered by the travel website, and the perceived value of the travel website to the customer. Susskind et al. (2003), using online and non-online populations, examined consumers' apprehension toward Internet use for general information as well as for transactions. They determined that Internet apprehension could be measured along two dimensions:

- *General apprehensiveness*: An individual's resistance to, or fear of the Internet as a form of communication for information seeking.
- *Transactional apprehensiveness*: An individual's resistance to, or fear of engaging in commerce-based transactions over the Internet.

They found that through the introduction of the General Internet Apprehension (GIA) and Transaction Internet Apprehension (TIA) dimensions, individuals view online information seeking and online transactions differently. The importance of this is the understanding of which domain consumers feel apprehensive about. "Offering information and/or services over the Internet needs to be market specific to maximise returns on the Internet marketing dollar expended." (Susskind et al., 2003). These studies suggested that some consumers may be apprehensive towards using the Internet for general use or, more specifically, for transactions and that the effectiveness of a website to satisfy the needs of consumers may affect use. Two alternative hypotheses were formulated:

H1: Apprehension towards the Internet is significantly related to the adoption and level of use of an airline website.

H2: Satisfaction with an airline website is significantly related to the adoption and level of use of the airline website.

The aims here are, first, to determine if air travellers in South Africa are apprehensive towards using the Internet in general and if so, the nature of this apprehension and its effect on the use of an airline website. Secondly, to investigate if a selected airline website meets traveller needs and its effect on adoption.

3. Methodology

3.1. Sampling

A specific airline was requested to participate in the study using their database of loyalty members. The population for the study can be defined as members registered in one of two specific levels of the airline's loyalty programme, referred to as tiers 2 and 3, with tier 2 being the lower level. "Miles" are not necessarily earned through air travel but also through the use of certain credit cards and the purchase of products and services from "partner" companies such as hotels, car rental, travel accessory companies and other non-travel organisations. The implication is that consumers who have never travelled by air could have been included in the sample of respondents on tier 2 (indeed 1.14 % of the respondents had never flown). Members attain higher levels through increasing air travel on the carrier.

Within the two levels of membership, a stratified random sampling method was used differentiating between membership level, age and gender. The sample drawn was 5000 and a useable response of 993 was achieved, with a response rate ranging from 12% to 28 % across the various strata (Fig. 1). It was necessary to do a web-based questionnaire because the airline was not willing to provide their database with addresses for a mail survey or conduct a mail survey themselves. Concerns relating to bias that could result from differences in willingness to participate were addressed by stratifying the sample according to demographic characteristics within the different levels of loyalty programme membership (the results showed a fairly even spread of responses across the strata and each tier—Fig. 1). Tierney (2000) showed that the online methodology can be efficient, relatively easy to use and can provide a low-cost means of surveying, particularly in tracking behaviour of users and assessing conversion from "enquirers to visitors" or "lookers to bookers".¹ The reasons for the relatively high response rate can be attributed to an incentive of bonus miles being provided for respondents. Individuals in the sample were contacted by the airline via e-mail with a quick link to the online survey, providing a relatively effortless process. Furthermore, a reminder to respond was sent to all members highlighting the incentive prize. The incentive prize was not aimed at respondents who use the website, but at all who were on the database, thus allowing for responses from online users and non-users.

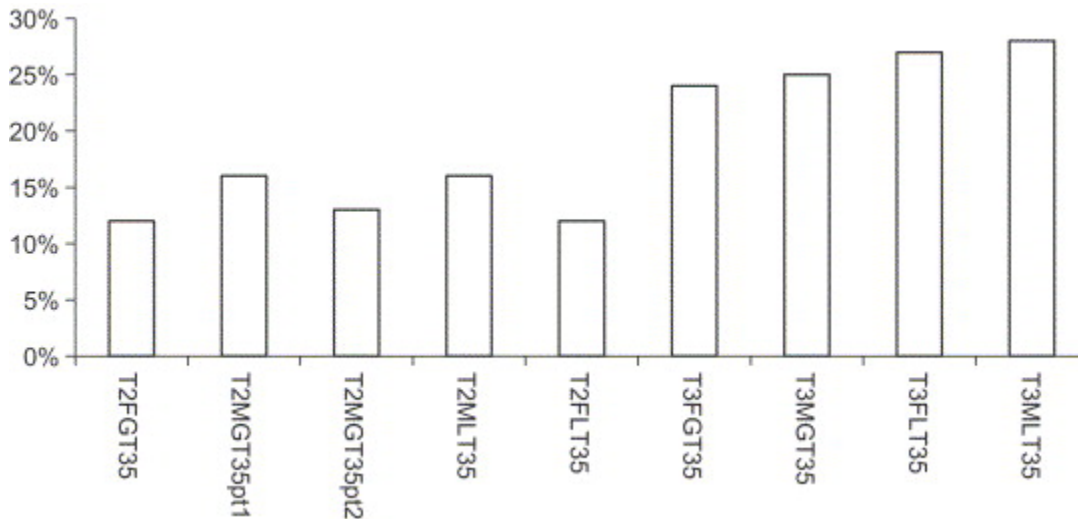


Fig. 1. Response rates across strata.

The response rates across the various strata are shown in Fig. 1: T2 denotes Tier 2 membership and T3 denotes Tier 3 membership; F denotes female; M denotes male; GT denotes greater than 35 years of age; LT denotes less than 35; pt1 and pt2 was where the database was split for a particular category into two parts.

3.2. Measurement instrument

The instruments developed from the E-SAT model and the Internet Apprehension Model were combined into one questionnaire with various sections: demographics of users; travel patterns; Internet apprehension (based on the Internet Apprehension Model); use of the airline.com website; and satisfaction with the airline.com website (based on the E-SAT model).

The questionnaire was pre-tested on a random number of airline loyalty members to ensure that the content was clear and the electronic process for responding was effective and efficient. After adjustments were made, each element in the sample was approached via their individual email address with a link provided to the web questionnaire.

3.3. Data analysis

Data analysis followed three stages: descriptive analysis; exploratory factor analysis to determine the underlying constructs, particularly with regard to Section C: use of the

Internet in general and Section E: satisfaction with airline.com; and finally analysis of variance to determine variability between groups. The results presented show a number of statistically significant differences between variables at a small p -value (smaller than 0.05). A small p -value is considered as sufficient evidence that the result is statistically significant.

4. Results

4.1. Respondent profile

The demographic and behavioural profile of the respondents can briefly be described as follows: respondents were mainly male (75%), over 34 years of age (74%), English-speaking (73%) and most respondents fell into the higher-income groups (69%). The majority still use travel agents for information and bookings. The frequency of times flown domestically and internationally for business and leisure as well as preferred airline over the last 12 months broadly indicated a fairly even spread across all categories. In general, the results showed that almost all respondents had been successful in accessing the specific airline website (to be referred to as airline.com) more than once. The most common feature used on the website was for loyalty programme information, followed by flight information. Only 37% of respondents had made an online booking.

4.2. Evaluating the factors

Factor analysis was used to determine the underlying constructs of the original variables with regard to Internet apprehension and satisfaction with airline.com. Factor analysis on Internet apprehension (which, according to the general apprehension and transactional apprehension model developed by Susskind et al. (2003), translates to how comfortable respondents felt in using the Internet for information-seeking and for transactional purposes. It generated three factors: general internet purchase (GIP); travel internet purchase (TIP); and general internet use (GIU) (Table 1).

Table 1.

Factor loadings: Internet apprehension

	Internet Apprehension	Factor 1 GIP (General Internet Purchase)	Factor 2 TIP (Travel Internet Purchase)	Factor 3 GIU (General Internet Use)
C19	I feel perfectly comfortable using the Internet to make online purchases over R1000	0.847		
CC20	I dislike using the Internet to make online purchases ^a	0.774		
C17	Ordinarily, I am very calm and relaxed when making online purchases	0.759		
C18	I feel perfectly comfortable using the Internet to make online purchases under R1000	0.711		
CC21	The security of my credit card for use with online purchases concerns me ^a	0.641		
C23	I would use the Internet to book hotel rooms		0.977	
C24	I would use the Internet to book other travel-related services		0.952	
C22	I would use the Internet to purchase airline tickets		0.713	
C14	I like to use the Internet for a variety of reasons			0.876
C15	I am usually calm and relaxed while using the Internet			0.749
C13	Generally, I am comfortable using the Internet to gather travel-related information			0.683
	Percentage of the variance explained by the factor	44	13	10
	Cronbach Alpha	0.883	0.927	0.822
	Mean	2.47	1.86	1.56
	Standard deviation	0.86	0.78	0.59

^a Items that were reverse scored.

Analysis of variance was conducted to determine if there was a significant difference between respondents' levels of apprehension towards using the Internet in general, making general purchases on the Internet and making travel purchases on the Internet. The scores of the three factors were expressed as a mean (on a scale of 1–5) of the items in each factor where 1 shows the least apprehension towards using the Internet for GIU, GIP and TIP. Table 1 shows that respondents as a group are more apprehensive towards general purchasing over the Internet than they are towards purchasing travel products. Respondents show the least apprehension towards using the Internet for information seeking and a variety of reasons other than purchasing.

Factor analysis on satisfaction with airline.com generated four factors (Table 2). From the initial 25 items, 9 were eliminated because of low factor loadings. The scores of the four factors were expressed as a mean of the items in each factor where 1 means always satisfied; 2 means mostly satisfied; 3 means sometimes satisfied; 4 means seldom satisfied; and 5 means never satisfied. The result shows little difference in respondents' satisfaction with the airline website, with no one element standing out. It would appear that overall respondents were just slightly more than “sometimes satisfied” with all elements of the website.

Table 2.

Factor loadings: satisfaction with airline.com website

	Satisfaction with Airline.com	Factor 1 Ease and Quality	Factor 2 Access	Factor 3 Perceived value	Factor 4 Appea- rance
E52	I can easily find what I need on airline.com	0.872			
E50	I find it easy to obtain information from airline.com	0.744			
E36	Provides 7 day/24 hour worldwide customer service	0.582			
E38	Provides accurate information	0.577			
E47	My airline.com experience is generally enjoyable	0.557			
E43	Is easily accessed via search engines		0.909		

	Satisfaction with Airline.com	Factor 1 Ease and Quality	Factor 2 Access	Factor 3 Perceived value	Factor 4 Appea- rance
E44	Search engine provides accurate results		0.867		
E42	Can be accessed from a variety of other related websites		0.512		
E49	I recommend airline.com to my friends			0.923	
E48	I recommend airline.com to my colleagues			0.892	
E30	Airline.com is creative in design				0.975
E31	Airline.com is colourful				0.735
E32	Pages that I visit usually upload quickly	0.459			
E29	Uploads quickly on my computer	0.447			
E41	Offers good variety prices for the specific service I am interested in	0.484			
E35	Offers cheaper deals than travel agents	0.466			
E40	Offers alternatives when flights are full	0.448			
EE51	I often feel disappointed after using airline.com ^a	0.475			
	Percentage of the variance explained by the factor	21	20	10	6
	Cronbach alpha	0.854	0.835	0.984	0.870
	Mean	2.58	2.62	2.45	2.39
	Standard deviation	0.58	0.63	0.87	0.64

^a Items that were reverse scored.

4.3. Relationship between Internet apprehension and respondents' demographic and behavioural characteristics

Analysis of variance was done on Internet apprehension and respondents' demographic as well as behavioural characteristics—in terms of use of a specific distribution channel (Table 3).

Table 3.

Internet apprehension and respondents' demographic and behavioural characteristics

Independent variable	<i>GIU</i>		<i>TIP</i>		<i>GIP</i>	
	Mean	<i>p</i> -value	Mean	<i>p</i> -value	Mean	<i>p</i> -value
Gender		0.04		0.050		0.005
Female	1.60		1.91		2.59	
Male	1.55		1.85		2.43	
Age		0.000		0.027		0.000
Under 34	1.40 ^a		1.78 ^a		2.27 ^a	
34–49	1.59 ^b		1.88 ^b		2.55 ^b	
Over 50	1.72 ^b		1.95 ^b		2.60 ^b	
Language		0.630		0.769		0.032
groups					2.44 ^a	
Afrikaans					2.46 ^a	
English					2.75 ^b	
Other						
Airline.com		0.001		0.002		0.004
Never	1.72 ^a		2.10 ^a		2.69 ^a	
Sometimes	1.54 ^b		1.81 ^b		2.46 ^b	
Mostly	1.36 ^b		1.62 ^b		2.15 ^c	
Travel agents		0.219		0.011		0.037
Never			1.77 ^a		2.21 ^a	

Independent variable	<i>GIU</i>		<i>TIP</i>		<i>GIP</i>	
	Mean	<i>p</i> -value	Mean	<i>p</i> -value	Mean	<i>p</i> -value
Sometimes			1.70 ^a		2.30 ^a	
Mostly			1.96 ^b		2.59 ^b	
Other airline websites		0.008		0.000		0.001
Never	1.64 ^a		2.03 ^a		2.64 ^a	
Sometimes	1.54 ^a		1.79 ^b		2.39 ^b	
Mostly	1.29 ^b		1.46 ^c		2.19 ^b	
Tier		0.699		0.056		0.059
Tier 2						
Tier 3						

Means with different postscripts (a, b, c) also differ significantly on the 5% level. For example a significant relationship was found between General Internet Use and Age and also amongst the various age groups. The results show that there is a significant difference between the “Under 34” age group and the “34–49” age group (denoted as a,b) in relation to their General Internet Use, but that there is no significant difference between the “34–49” age group and the “Over 50” age group (denoted as b,b) in their relation to General Internet Use.

Differences emerge between females and males with males less apprehensive towards using the Internet for information, for general purchases and for travel purchases. Respondents are less apprehensive when using the Internet for travel purchases than for general purchases. As might be expected the younger age group shows significantly less apprehension towards the Internet on all three factors than does both older age groups. Significant differences exist between respondents falling within the “other” South African language groups such as Zulu and Xhosa, and those within the English and Afrikaans language groups in terms of apprehension towards general Internet purchases, with “other” being significantly more apprehensive. Respondents’ use of a distribution channel is also significantly related to Internet apprehension with those using the selected

airline website as a distribution channel being least apprehensive towards the Internet on the three factors.

Respondents mostly using travel agents' as a distribution channel are more apprehensive towards the Internet for travel purchases and for general purchases. Respondents who mostly use other airline websites as a distribution channel are significantly less apprehensive towards the Internet on all three factors. On the factor TIP all three groups differed significantly. No significant differences exist between respondents in the various tiers at the 5% level. Thus we can say that apprehension towards the Internet is significantly related to certain demographic characteristics of the population and the level of use of an airline website.

4.4. Relationship between perceived satisfaction with airline.com and respondents' use of a distribution channel

Analysis of variance was performed on satisfaction with the selected airline.com website and respondents' demographic as well as behavioural characteristics (in terms of use of a specific distribution channel). The significant results in terms of the *p*-value and the variance in the means related to respondents' characteristics and use of a distribution channel and their level of satisfaction with airline.com are discussed (Table 4).

Table 4.

Satisfaction with the selected airline.com website and respondents' demographic as well as behavioural characteristics

	Appearance		Perceived value		Quality of information	
	Mean	<i>p</i> -value	Mean	<i>p</i> -value	Mean	<i>p</i> -value
Gender		0.062		0.674		0.769
Female						
Male						
Age		0.775		0.153		0.718
Under 34						
34–49						

	Appearance		Perceived value		Quality of information	
	Mean	<i>p</i> -value	Mean	<i>p</i> -value	Mean	<i>p</i> -value
Over 50						
Language groups		0.731		0.933		0.842
Afrikaans						
English						
Other						
Airline.com		0.000		0.000		0.000
Never	2.52 ^a		2.71 ^a		2.740 ^a	
Sometimes	2.42 ^b		2.52 ^b		2.623 ^b	
Mostly	2.17 ^c		1.95 ^c		2.622 ^c	
Travel agents		0.044		0.731		0.897
Never	2.52 ^a					
Sometimes	2.38 ^b					
Mostly	2.39 ^c					
Other airline		0.138		0.004		0.004
websites			2.37 ^a		2.51 ^a	
Never			2.55 ^b		2.63 ^b	
Sometimes			2.35 ^b		2.62 ^b	
Mostly						
Tier		0.153		0.370		0.214
Tier 2						
Tier 3						

Means with different postscripts (a, b, c) also differ significantly on the 5% level.

The table show differences exist between respondents' satisfaction with the website and use of a distribution channel. Significant differences occur on the basis of demographic characteristics, but were evident in terms of distribution channels used. Those

respondents that mostly use airline.com as a distribution channel are more satisfied with the appearance, perceived value and quality of information than those respondents who sometimes and never use the website. There is a significant difference between respondents that never use other airline websites and those that mostly use other airline websites in terms of perceived value and quality of information. Those that mostly use other airline websites appear to be slightly more satisfied with the value that they receive from airline.com and the quality of information than those that never use other airline websites. Those that sometimes use other airline websites as a distribution channel appear less satisfied with airline.com in terms of perceived value and quality of information than those that never use other airline websites as a distribution channel.

Respondents who mostly use travel agents as a distribution channel appear to be more satisfied with the appearance of the airline.com website than those respondents who never use travel agents. The factor "Access" did not show any significant differences between the groups at the 5% level and these results are not included in the table. From the results obtained the alternative hypothesis can be accepted implying that satisfaction towards the Internet is significantly related to certain demographic characteristics of the population and the level of use of an airline website.

5. Discussion

Apprehension of website use has been measured against the population's demographics and use of various distribution channels, namely the selected airline website, travel agents and other airline or travel websites, to determine if there was a significant relationship between these variables. Similarly satisfaction with the selected airline's website was measured against the population's demographics and use of the various distribution channels. With the results a number of relationships proved to be statistically significant and the following alternative hypotheses could be accepted: First, apprehension towards the Internet is significantly related to certain demographic characteristics of the population and the level of use of an airline website. Secondly, that satisfaction with the airline website is significantly related to certain demographic characteristics of the population and the level of use of the airline website.

For airline management to increase the use of their website, management needs to address the issue of Internet apprehension and website satisfaction. The sample was drawn from the airline database meaning that the airline has access to travellers who have never used the selected airline website, or other airline websites. Management should formulate communication strategies targeting the concerns of these travellers using appropriate communication channels. Those air travellers who sometimes use travel agents may be in the process of moving towards using the Internet and provide an ideal opportunity for airline management to use well formulated communication messages to quicken the process of adoption of the airline website. The result pertaining to air travellers who have never used the airline website but indicated a lack of satisfaction with the website suggests one of two things: that these travellers have the perception of a less than satisfactory website in terms of its appearance and perceived value and that this may be the reason for its non-use; or that these travellers simply do not know if the website will be satisfactory or not and are unwilling to try it. In both these cases airline management should formulate strategies for adoption based on creating awareness of the ease and utility of the website. A group of travellers that require special attention are those that appear to have used the website sometimes and found it less than satisfactory in terms of its perceived value. This group may require assurances on website improvements or they may need to be motivated in some way to fully adopt the website for all related airline information and bookings.

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¹ Low response in Tierney's study was a problem, questioning the validity of the sample and how well it actually represented the population. In reviewing the limitation of the low response rate experienced in their online survey where only a 2% response rate was achieved, it is evident that in this study, where a much higher response rate (20%) was achieved, bias was offset.