

UNDERSTANDING TRAVEL INFORMATION SEARCH BEHAVIORS BY LEVELS OF INFORMATION TECHNOLOGY ADOPTION

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Abstract.—Although the significance of the Internet has been widely discussed in previous studies, the research of e-commerce has focused primarily on organizational and business perspectives (Sigala 2004). The growing number of Internet users allows a better understanding of online tourists who seek travel information and book or purchase travel products. The levels of Internet innovativeness also must be understood, since research indicated that 79 percent of Internet users have had four or more years of online experience (The Pew Internet & American Life Project 2005). In this study, 273 respondents were classified as innovators, early adopters, or late adopters by the time element of the Internet diffusion process and compared based on their travel information search behaviors, booking/purchasing of travel products, intentions of using various types of travel information sources, and perceptions and current usage of Information Technology. There were differences among the groups in terms of general information seeking and booking/purchasing, and perceptions of information technologies, whereas similarities were found in certain types of tourism products sought and booked/purchased and actual usage of information technologies.

1.0 INTRODUCTION

Most travelers try to reduce uncertainty of travel and improve the quality of trips through information search before leaving home (Fodness & Murray 1997). The Internet makes it possible for travelers to search and compare information on travel choices, as well as to purchase services or goods (Jang 2004). Since

the travel industry has been identified as an industry greatly affected by the advent of the Internet (Weber & Roehl 1999), it is important to understand the distinct features of prospective travelers who search for information online. In order to understand Internet use for travel, this study focuses on online information seeking and purchasing/booking of travel products from a quantitative perspective of the Internet experience.

The purposes of the study are to provide insights on web-based information search and reservation or purchase of travel products, intentions to use various types of travel information sources, and perceptions and current usage of Information Technology (IT) among those who were classified as innovators, early adopters, or late adopters according to how long they had used the Internet. This segmentation can aid travel marketers in providing more customizable information to travelers with different online experiences, and assist the leisure market in responding to the diffusion processes of other travel information technologies.

When a new technology emerges, there are differences between initial users and those who wait to use the technology until the technology is well established (Ono & Zavodny 2003). This finding supports the earlier work of Rogers (1962) on product and idea of diffusion. Rogers (2003) defined "innovativeness" as the speed at which individuals adopt new ideas compared to others. Based upon the relative time at which an innovation is adopted, members of a social system could be classified into different adopter categories. Individuals in the different adopter categories for products and services showed differences in several aspects, such as demographics, socio-economics, product usage, media access, and purchase involvement (Mahajan et al. 1990). For example, innovators sought new information and new ideas. They have been exposed to a great deal of mass media, and have extended communications with a wide variety of resources.

At the end of 2005, Canada had 21.9 million Internet users or 68 percent of the population; at the turn of the

21st century only 40 percent of the population reported Internet use (Internet World Stats 2006). Rai and colleagues (1998) attributed this growth to the diffusion of the Internet and an informed customer base. Dutta and Roy (2003) pointed out that while descriptive statistics of Internet use were widely available, models explaining Internet diffusion were infrequently discussed in literature.

This paper compares travelers' web-based information search behaviors and travel products reservation or/ purchase by the time element of the Internet diffusion process and considers perceptions and current usage of IT.

2.0 METHOD

Individuals for this research were recruited to participate in a panel study from lists of individuals who consented to be contacted for research purposes, which were provided by a provincial tourism marketing agency, a provincial government tourism department, and Parks Canada (N = 1,026). Participants completed a questionnaire to provide information on their vacation planning, types and sources of information, and demographic characteristics, as well as a list of upcoming trips. Three hundred thirteen (n=313) respondents completed the survey in fall of 2005. Based on a series of questions about their Internet experience, respondents (n=273) were classified into three adopter categories: innovators, who have used Internet for 11 years or more (n=38), early adopters, who have used the Internet for 6 to 10 years (n=163), and late adopters, who have used the Internet for 1 to 5 years (n=72). Users with no experience (n=12) were excluded from this group following Rogers' original adoption categories, which also eliminated nonadopters of innovation (Rogers 2003).

The questionnaire asked about web-based information search behaviors and online booking/purchasing of tourism products regarding flight/airline, other transportation, attractions, activities, equipment used for trips, accommodations, events, travel packages, and local/regional tours. A series of questions also asked current availability of information technologies such as

desktop computer, cell phone, laptop computer, Personal Digital Assistant (PDA), GPS, and other. Based on the types of technology available to respondents, perceptions of their own technology use were measured on a 7-point scale (1=low; 7=high). Finally, to obtain background information on the respondents based on Internet adoption, the three group profiles were examined based on socio-demographic characteristics of gender, education, income, marital status, and age.

A series of analyses appropriate to the level of data was used to test relationships between Internet use and demographics, web-based information search behavior, online booking/purchasing of tourism products, perceptions and current usage of IT.

3.0 RESULTS

Chi-square analyses were used to determine whether the Internet adopter groups differed significantly in education, gender, marital status, and income (Table 1). ANOVA analysis was used to determine whether there was a significant difference in age among the three groups (Table 2). There were no significant differences in demographics and Internet adoption as shown in table 1. Innovators, and late adopters ages, on average, were both 50 years old and early adopters were 47 years old, as shown in table 2.

All three groups reported high levels of use and there was a significant difference in general vacation planning via the Internet among the Internet adopter groups ($X^2(2) = 8.3, p < .05$), as shown in Table 3. In terms of web-based information seeking for travel plans, online information about equipment used for trips showed a significant difference between the three groups ($X^2(2) = 8.9, p < .05$) as shown in Table 3. Regarding online travel booking/purchasing behaviors, 195 respondents (about 71% of the Internet adopters) reported having booked or purchased. A similar significant result with general vacation planning via the Internet was found in general online travel booking/purchasing behaviors ($X^2(2) = 13.3, p < .001$) as shown in Table 3. No differences in certain types of tourism products booked/purchased by the three groups were found.

Table 1.—Internet adoption and gender, education, income and marital status

		Internet adoption				x ²	p ^a
		Innovators	Early adopters	Late Adopters	Total		
Gender N=273	Female	55.3%	49.1%	59.7%	52.7%	2.4	.304
	Male	44.7	50.9	40.3	47.4		
	No bachelor degree	45.9	61.0	62.9	59.4	3.3	.193
	Bachelor degree	54.1	39.0	37.1	40.6		
Income N=262	Less than \$40,000	8.1	16.0	13.0	14.1	3.0	.556
	\$40,000~79,999	35.1	36.5	43.5	38.2		
	\$80,000 or more	56.8	47.4	43.5	47.7		
Marital status N=266	Single	7.9	18.2	21.7	17.7	3.3	.190
	Married/ living common law	92.1	81.8	78.3	82.3		

^a Analyses were conducted using Pearson chi-square tests at 2 degrees of freedom for gender, education, and marital status and 4 degree of freedom for income.

Table 2.—Internet adoption and age

		Internet adoption				F (2, 270)	p ^a
		Innovators	Early adopters	Late adopters	Total		
Age	Mean	49.7	46.9	50.0	48.1	1.4	.241
	N	38	163	72	273		
	SD	13.2	14.4	14.2	14.2		

^a Analyses were conducting using ANOVA.

The innovator group booked/purchased travel products an average of 3.4 times online whereas the early adopter group booked/purchased 4.5 times and the late adopter group 4.4 times in a 12-month period (see Table 4). However, statistically there was no significant difference in average number of online booking/purchasing of travel products among the three groups ($F(2,135) = 1.0$, $p = .381$).

On perceptions of technology use, Internet use, and ownership of technology compared to his/her friends, ANOVA analyses were performed to investigate whether there were significant differences between the three groups. Innovators and early adopters rated themselves significantly higher in technology usage (mean= 4.9 and mean=4.7 of 7 pt scale), Internet use (mean=5.5 both), and technology ownership (mean=4.9 and mean=4.6)

from late adopters (3.8, 4.3, and 3.5 respectively), as shown in Table 5. These differences were significant at the levels of ($F(2, 270) = 9.8$, $p < 0.001$), ($F(2, 267) = 16.5$, $p < 0.001$), and ($F(2, 267) = 17.4$, $p < 0.001$), respectively.

Table 6 shows the result of current usage of information technologies and indicates that there were no significant differences in usage of information technologies, with the exception of a PDA ($X^2(2) = 6.0$, $p = 0.049$).

4.0 CONCLUSION AND APPLICATION

The study began with an attempt to find characteristics of Internet adoption groups; however, several results were contrary to what would be expected from the theory of diffusion of innovation regarding demographics, web-based information seeking for travels, booking/

Table 3.—Internet adoption and planning/information seeking and booking/purchasing

	Internet adoption				X ²	p ^c
	Innovators	Early adopters	Late adopters	Total		
Planning and Information seeking ^a	n=37 97.4%	n=160 98.2%	n=65 90.3%	96.0%	8.3	.016
Accommodation	83.8%	90.6%	87.7%	88.9%	1.6	.458
Attractions/sightseeing	83.8	78.1	69.2	76.7	3.3	.197
Flight/ airline	78.4	76.9	64.6	74.0	4.0	.133
Events	64.9	65.6	56.9	63.4	1.6	.461
Other transportation	59.5	48.1	44.6	48.9	2.2	.338
Activities	48.6	63.1	58.5	59.9	2.7	.259
Local/ regional tours	45.9	41.9	35.4	40.8	1.3	.530
Travel packages	32.4	45.0	47.7	43.9	2.4	.296
Equipment used for trips	13.5	33.1	18.5	26.7	8.9	.012
	Internet adoption				X ²	p ^c
	Innovators	Early adopters	Late adopters	Total		
Booking/purchasing ^b	n=32 84.2%	n=123 75.5%	n=40 55.6%	71.4%	13.3	.001
Accommodation	71.9%	78.9%	75.0%	76.9%	0.8	.669
Flight/ airline	68.8	67.5	62.5	66.7	0.4	.814
Other transportation	31.3	28.5	17.5	26.7	2.3	.322
Events	21.9	22.0	25.0	22.6	0.2	.918
Activities	12.5	13.8	17.5	14.4	0.4	.803
Equipment used for trips	12.5	13.0	2.5	10.8	3.6	.166
Attractions/sightseeing	9.4	16.3	12.5	14.4	1.1	.571
Local/regional tours	9.4	8.9	5.0	8.2	0.7	.707
Travel packages	3.1	16.3	10.0	12.8	4.3	.118

^a Percentage of respondents using the Internet for planning in past 12 months.

^b Percentage of respondents using the Internet for booking.

^c Analyses were conducted using Pearson chi-square tests at 2 degrees of freedom.

Table 4.—Internet adoption and the number of online booking/purchasing

		Internet adoption				F (2,135)	p ^a
		Innovators	Early adopters	Late adopters	Total		
Number of online booking/purchasing of travel products over 12 months	Mean	3.4	4.5	4.4	4.1	1.0	.381
	N	20	88	30			
	SD	4.3	5.2	2.7	4.7		

^a Analyses were conducting using ANOVA.

purchasing of travel products, and usage of information technologies. Furthermore, Internet was used more for information search than for purchasing, regardless of Internet use grouping. This result suggested a pervasive

integration of technology into the lives of travelers, particularly in at-home contexts. It is therefore critical for travel and tourism marketers to address the issues of online purchasing of tourism products through future

Table 5.—Perceptions of information technologies

		Internet adoption				F	p ^b
		Innovators	Early adopters	Late adopters	Total		
Technology use	Mean ^a	4.9	4.7	3.8	4.5	F(2,270)= 9.8	.000
	N	38	163	72	273		
	SD	1.4	1.7	1.5	1.7		
Internet use	Mean ^a	5.5	5.5	4.3	5.2	F(2,267)=16.5	.000
	N	38	161	71	270		
	SD	1.3	1.5	1.7	1.6		
Ownership of technology compared to friends	Mean ^a	4.9	4.6	3.5	4.4	F(2,267)=17.4	.000
	N	38	162	70	270		
	SD	1.4	1.5	1.5	1.6		

^a 7-point agreement scale (1=strongly disagree, 7=strongly agree)

^b Analyses were conducting using ANOVA.

Table 6.—Internet adoption and usage on information technologies

		Internet adoption				X ²	p ^b
		Innovators	Early adopters	Late adopters	Total		
Types of Information Technology ^a		n=38	n=163	n=72	N=273		
Desktop computer		92.1	87.1	80.6	86.1	3.1	.209
Digital camera		73.7	76.1	61.1	71.8	5.6	.061
Cell phone		71.1	71.8	62.5	69.2	2.1	.352
Laptop computer		39.5	27.0	18.1	26.4	6.0	.051
Laptop with wireless access		28.9	24.5	12.5	22.0	5.5	.065
PDA		23.7	14.7	6.9	13.9	6.0	.049
Cell phone with Internet access		18.4	22.7	15.3	20.1	1.8	.408
Cell phone with camera		18.4	7.4	6.9	8.8	5.2	.077
GPS/ GPS in vehicle		13.2	7.4	12.5	9.5	2.2	.332
OnStar service in vehicle		10.5	2.5	4.2	4.0	5.2	.074
Pager		5.3	4.3	5.6	4.8	0.2	.905
PDA with Internet access		0.0	3.1	0.0	1.8	3.4	.179

^a Percentage of respondent using the IT.

^b Analyses were conducted using Pearson chi-square tests at 2 degrees of freedom.

studies that examine barriers to online purchasing for different levels of Internet users. Their customized products and services can be provided for different market segments.

Regarding the adoption of other portable information technologies, it is noteworthy that Mahajan et al. (1990), who examined innovativeness across several product categories, found that innovators of one new product were not necessarily the innovators of the next product introduced into the category, and indeed, those who

adopted the Internet may not even have been adopters of other information technologies. Therefore, the development of meaningful market segments with regard to behaviors such as the amount of time or money spent online could be of better assistance to travel companies that use online advertising and website booking systems. In addition, Internet adoption should be re-examined with a different categorical approach both to understand of consumer behavior and to develop marketing strategies in the tourism information system.

5.0 CITATIONS

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