Internet/PC Use as a Leisure Activity for Adults in Taiwan

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Abstract

This study explores relationships among demographics, perceived leisure functions, personality traits and time spent on the Internet/PC as a leisure activity in a representative sample of Taiwanese adults. Correlation analysis showed that the demographic factors of gender, age, educational level, income and rural/urban residence, as well as the perceived leisure functions of establishing useful contacts, relaxing/recovering and learning/developing skills, and the personality traits of Extraversion and Sensation-Seeking all significantly correlated with the frequency of spending time on the Internet/PC as a leisure activity. However, the results of a hierarchical regression analysis indicated that the demographic factors of age, educational level, income and rural/urban residence were significant predictors of time spent on the Internet/PC as a leisure activity, accounting for 55.4% of the total variance, but gender was not. In addition, only the perceived leisure function of learning/developing skills and the personality trait of Sensation-Seeking added significantly to the three demographic factors in the prediction of time spent on the Internet/PC as a leisure activity. Some of our findings were consistent with the existing literature, but others raised new questions and invite further investigation.

Keywords: demographics, personality traits, Internet/PC use, leisure

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臺灣民眾上網與打電腦的休閒活動

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摘要

　　本研究意在以臺灣一般民眾之代表性樣本，探討人口學背景、休閒功能覺知、人格特質與上網、打電腦之休閒間的關係。相關分析顯示性別、年齡、教育程度、收入、居住城鄉等人口學變項，個體覺知休閒具建立有益聯繫、放鬆/恢復、學習/發展技能之功能，以及外向、刺激尋求等人格特質都與個體上網、打電腦之休閒時間有顯著的關聯。階層性回歸分析更指出年齡、教育程度、收入、居住城鄉等變項能有效預測個體用於上網、打電腦的休閒時間，可解釋變異量達 55.4%，但性別並無顯著效果。此外，知覺休閒具學習/發展技能之功能及刺激尋求人格，對預測休閒時間具有增益效果。本文的研究成果有部份洽與過去文獻相呼應，但也有部份可延伸出值得進一步探討的新議題。

關鍵字：人口學背景、人格特質、上網、打電腦、休閒

1. Introduction

Technological advances have made spending time on the Internet/PC emerge as one of the most popular leisure activities for many people in modern society. Worldwide, in the year 2000, Internet users vary between roughly 40% in the United States and Canada, 28% in Europe, 27% in Asia, 4% in Latin America, and less than 1% in Africa (Ferrigno-Stack, Robinson, Kestnbaum, Neustadtl, & Alvarez, 2003). According to a report conducted in the European Union with data collected in 2001, more than 50% of the population in some northern European countries use a PC either every day or several times a week at work or at home, and around 35% of the total population in 15 EU Member States declared Internet usage, mostly for reasons other than work (Skaliotis, 2002).

Even though the Internet/PC has created new spaces for leisure participation and is transforming the contemporary experience of leisure in terms of temporal, interactional and spatial dimensions of leisure (Bryce, 2001), Internet/PC use as a leisure activity has not been sufficiently examined in the literature. Research from various fields, nevertheless, has contributed to our understanding of Internet/PC behavior in general from different perspectives. Literature from Digital Divide informs us of differences in home Internet access and online time by gender, race, age, education, income, employment, and geographic factors (Cole, et al., 2003; Ferrigno-Stack, et al., 2003; Lenhart, et al., 2003; Looker & Thiessen, 2003; Losh, 2004; McConnaughey and colleagues, 1995; 1998; 1999; Nie & Erbring, 2000; Wilson, Wallin, & Reiser, 2003). Studies investigating Internet behavior from a social-cognitive dimension have established a relationship between motivations or reasons (e.g. social interaction, relaxation/escape, and information/learning) and Internet usage (Korgaonkar & Wolin, 1999; LaRose, Mastro, & Esatin, 2001; Parker & Plank, 2000). In addition, some of the literature with a focus on personality traits and Internet behavior indicates that Internet usage is associated with Extraversion and Sensation-Seeking (Amichai-Hamburger & Ben-Artzi, 2003; Hamburger & Ben-Artzi, 2000; Hills & Argyle, 2003; Lavin, Marvin, McLarney, Nola, & Scott, 2000; Lin & Tsai, 2002).

2. Demographics and Internet Behavior

Many studies have examined the relationship between Internet usage and demographic factors. Among these factors, education level was consistently found to be significantly correlated with time spent on the Web (Chen & Persson, 2002; Ferrigno-Stack et al., 2003; Korgaonkar & Wolin, 1999; Nie & Erbring, 2000), as was income (Chen & Persson, 2002;

Ferrigno-Stack et al., 2003; Korgaonkar & Wolin, 1999). Older Web users are found more likely to be light users (Korgaonkar & Wolin, 1999). On the other hand, results of studies on gender difference were found to be inconclusive. Most studies reported greater Internet access or usage among men than women (Cole, et al., 2003; Joiner, et al., 2005; Lenhart, et al., 2003; Looker & Thiessen, 2003; Korgaonkar & Wolin, 1999; Nie & Erbring, 2000), while, in contrast, the "Falling Through the Net" series suggested gender web parity by 2000 (McConnaughey and colleagues, 1995; 1998; 1999).

In a study focused on the issue of the Digital Divide, Wilson, Wallin and Reiser (2003) conducted a telephone survey in North Carolina and found that when socioeconomic variables (e. g. income, education, age, employment, marital status, and children living in the household) were controlled, the effects of gender and geographic location gaps on having home computers or Internet access disappeared. In another study, Losh (2004) examined education, occupation and gender access, and use of digital technology among American adults between 1983 and 2002 with representative national survey data. She found that gender, education, and labor force gaps in home Internet access had largely disappeared by 2002, but gender gaps in online time rose from 1995 to 2002. However, many gender differences lessened when labor force participation or occupational type were controlled.

3. Motivations and Internet Behavior

Papacharissi and Rubin (2000) investigated uses of the Internet from a uses-and-gratifications perspective, and identified five motivations for using the Internet: interpersonal utility, to pass the time, information seeking, convenience, and entertainment. In terms of the relationship between Internet usage and motivations, Korgaonkar and Wolin (1999) explored Web Users' motivations with students from a comprehensive urban university in the Southeastern United States, and discrimination analysis showed that the motivational factors of social escapism, socialization and information differentiated light and heavy Web users. Parker and Plank (2000) examined the on-line habits of college students at a large Midwestern university enrolled in business classes, and with factor analysis they found that the Internet serves the same social needs, the need for learning/excitement and relaxation/escape needs reported for other media in the literature. They also found relaxation/escape to be the key predictor of on-line usage for college students.

4. Personality Traits and Internet Behavior

Personality traits as enduring characteristics of individuals have been found to be associated with a broad spectrum of leisure activities, including Internet/PC usage, along with sports, television-viewing, and listening to music. For Internet use, personality traits of extraversion and sensation-seeking have received the most attention. An extravert is a friendly person who seeks company, desires excitement, takes risks, and acts on impulse (Eysenck & Eysenck, 1975), and in a series of pioneering studies with Taiwanese undergraduate students, Lu and Hu (2002, 2005) found that extraversion correlated with almost all kinds of leisure involvement. Sensation-seeking is defined as "the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience" (Zuckerman, 1994), and the sensation-seeking personality trait is also found to be associated with various leisure pursuits across the board (Furnham, 2004).

Regarding the relationship between Internet behavior and extraversion as well as sensation-seeking, results of previous studies have been inconclusive. On the one hand, extraversion was found to be significantly correlated with leisure Internet services in two studies with data from university students in Israel (Amichai-Hamburger & Ben-Artzi, 2003; Hamburger & Ben-Artzi, 2000), and a weak positive association of extraversion with home-based Internet use was also found in a third study of British adults (Hills & Argyle, 2003). On the other hand, extraversion was found not to be significantly correlated with Internet leisure usage for American students from a large state university in Tennessee (Landers & Lounsbury, 2006). Similarly, Lavin et al. (2000) found that sensation-seeking was not significantly correlated with Internet addiction for a sample of 342 undergraduates in a small American university, but Lin and Tsai (2002) reported that Internet dependents obtained significantly higher scores of overall sensation-seeking than the Internet non-dependents with a sample of 753 Taiwanese high school students.

Since most previous studies have looked at the relationships between Internet/PC behavior and its various correlates in isolation, the purpose of this study is to conduct a comprehensive examination, and investigate the relationship between the frequency of spending time on the Internet/PC as a leisure activity and demographic factors, perceived functions of leisure, as well as personality characteristics, using a representative sample of Taiwanese adults. The specific research questions are as follows:

1. Are demographic factors (gender, age, educational level, income, urbanization), perceived functions of leisure (establish useful contacts, relax and recover, and try to learn or develop skills) and personality traits (Extraversion and Sensation-Seeking) related to the frequency of spending time on the Internet/PC as a leisure activity?

2. Do the perceived functions of leisure and personality traits add incremental validity beyond the demographics in accounting for the frequency of time spent on the Internet/PC as a leisure activity?

5. Method

5.1 Data and Participants

Data for this present study were drawn from the 2007 TSCS. Launched in 1984, the TSCS has followed rigorous procedures in sampling design, survey fieldwork, data cleaning, and data archiving. This annual survey series adopts nationwide, three-stage, stratified Probability Proportional to Size (PPS) sampling with household registration data. The survey fieldwork relies on well-trained interviewers who make home visits for face-to-face interviews. With more than 85,000 successful face-to-face interviews over the past 23 years, the TSCS has become the largest survey series of all the general social surveys in the world (Smith, Kim, Koch, & Park, 2005).

As a member of the International Social Survey Programme (ISSP), the 2007 TSCS incorporated all survey items of the 2007 ISSP module on Leisure Time and Sports. This international module measures the frequencies of engaging in 13 leisure activities (including Internet/PC use), background variables, and perceived functions of leisure. In addition, the Taiwanese team added supplemental items that tapped personality traits.

The response rate for the 2007 survey was 50.7%. The sample of this present study (N=2147) consists of 50.2% males, with a mean age of 45.70 (SD=17.19, range 19-95), a mean education of 11.55 years (SD=3.96, range 1-27), and a mean income of 29.4 thousand NT dollars per month (SD=3.45). The majority of subjects (63.2%) were married, lived in urban areas (51.3%), and 57.2% had full-time jobs.

5.2 Measures

Demographic information. Subjects' demographic information was recorded, including gender, age, years of education, personal income, urban/rural residence, marital status and occupation.

Perceived functions of leisure. A battery of items started with: "People do different

things during their free time; for each of the following, please indicate how often you use your free time to a) establish useful contacts; b) relax and recover; and c) try to learn or develop skills". Respondents chose a category for each item that indicated how often they experience the function, with the recorded categories ranging from 1 (never) to 5 (always). The most straightforward way of defining leisure is as activities which people do in their free time, for non-material gain (Argyle, 1996), hence the above items tapped perceived functions of leisure.

Personality traits. The personality traits of the 2007 TSCS module measured the Ten-Item Personality Inventory (TIPI) for the Big Five used in a previous ISSP survey (Gosling, Rentfrow, & Swann, 2003). Extraversion was selected for the purpose of this present study, based on the literature review. The two items measuring extraversion were significantly correlated to each other (r=.431). Internal consistency reliability could not be expected to be high with only two items, but the Cronbach Alpha coefficient was still acceptable at .60. Sensation-seeking was measured by adopting 4 items from the Sensation-Seeking Scale (Zuckerman, 1993). They mainly tap the "experience seeking" component in the sensation-seeking Scale, such as "I get bored seeing the same old faces". The Cronbach Alpha coefficient was .734. For all the personality measures, 5-point scales were used (1=not at all like me, 5= very much like me).

Time spent on the Internet/PC as a leisure activity. The theme of the 2007 TSCS is "Leisure Time and Sports". For leisure involvement, ISSP listed 13 common leisure activities for investigation, including spending time on the Internet/PC. Subjects were required to indicate the frequency with which they took part in each particular leisure activity, ranging from 1 (never) to 5 (daily).

6. Results

Among the 13 common leisure activities investigated by the ISSP survey, spending time on the Internet/PC ranked fourth, after watching TV/DVDs/Videos, listening to music, and taking part in physical activities such as sports, going to the gym, or going for a walk. For the frequency of spending time on the Internet/PC as a leisure activity, a twin-peak distribution was observed with 34.6% reporting that they did it daily, 11.2% reporting several times a week, 6% reporting several times a month, 4.2% reporting several times a year or less often, and 44% reporting never.

Pearson correlation analysis was conducted, and the inter-correlations of study variables are presented in Table 1. All demographic factors, including gender, age, education, personal

income, and rural/urban residence were significantly related to the frequency of spending time on the Internet/PC as a leisure activity. Specifically, those who were male, younger, had completed more years of formal education, had higher annual incomes, and lived in urban areas reported spending more time on the Internet/PC. In addition, all three factors of perceived functions of leisure, i.e. to establish useful contacts, to relax and recover, and to learn or develop skills, were significantly and positively related with time spent on the Internet/PC. Finally, the personality traits of Extraversion and Sensation-Seeking were also both significantly and positively associated with frequency of spending time on the Internet/PC as a leisure activity. It is important to note that many demographic factors, perceived functions of leisure, and personality traits were also significantly correlated with each other.

Table 1: Correlation among research variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Gender	1										
2. Age	.02	1									
3. Years of education	-.05*	-.56***	1								
4. Personal income	-.21***	-.12***	.36**	1							
5. Rural/urban residence	.00	-.18***	.27***	.17***	1						
6. Establish useful contacts	-.07**	-.30***	.23***	.15***	.10***	1					
7. Relax and recover	-.04	-.10***	.13***	.11***	.06**	.32***	1				
8. Try to learn or develop skills	-.07**	-.39***	.39***	.24***	.17***	.52***	.31***	1			
9. Extraversion	.04	-.15***	.12***	.09***	.06**	.34***	.17***	.23***	1		
10. Sensation-Seeking	-.11***	-.58***	.50***	.22***	.23***	.31***	.12***	.40***	.17***	1	
11. Frequency of Internet/PC use	-.07**	-.67***	.68***	.27***	.27***	.29***	.15***	.43***	.15***	.54***	1

*p<.05, **p<.01, ***p<.001

To examine the question of the incremental validity of perceived functions of leisure and personality traits in relation to the demographic factors in predicting the frequency of time spent on the Internet/PC as a leisure activity, we performed a hierarchical regression analysis in which the demographics were entered in a set, followed by perceived functions of leisure as the second set, and the personality traits as the third set. As can be seen in Table 2, the results of this analysis revealed that, in the first step, age, education, income, and rural/urban residence significantly entered the equation to predict the frequency of time spent on the Internet/PC as a leisure activity, accounting for 55.4% of the total variance. In the second and the third step, only trying to learn or develop skills and Sensation-seeking significantly

entered the equation.

Table 2: Hierarchical regression analysis predicting time spent on the Internet/PC
as a leisure activity

Variables		Frequency of Internet/PC use
Step1	Gender	-.006
	Age	-.039***
	Years of education	.177***
	Personal income	.022*
	Rural/urban residence	.098***
R Square		.562
Step2	Establish useful contacts	.008
	Relax and recover	.052
	Try to learn or develop skills	.120***
R Square Change		.009***
R Square		.571
Step3	Extraversion	.002
	Sensation-Seeking	.035***
R Square Change		.003**
R Square		.574
F(df)		225.896*** (10,1901)

*p<.05, **p<.01, ***p<.001

7. Discussion

For demographic factors, Table 1 shows that gender, age, education, income and rural/urban residence were significantly related to the frequency of time spent on the Internet/PC as a leisure activity. In other words, generally consistent with the results of previous studies in the West, Taiwanese adults who are male, younger, have completed more years of formal education, have higher incomes, and live in urban areas engage more frequently in the Internet/PC as a leisure activity. However, when these demographic factors were taken into consideration altogether, as shown in Table 2, age, education, income and urbanization were found to be significant predictors of the frequency of time spent on the Internet/PC as a leisure activity, but gender was not. That is, when the other four

demographics were held equivalent, gender was found not to be a significant predictor of the frequency of time spent on the Internet/PC as a leisure activity. The findings of this present study corroborate results from recent Digital Divide studies that the effect of Internet gender gaps disappear when other demographic factors are controlled, as Losh (2004) and Wilson, Wallin and Reiser (2003) have suggested.   However, the results do not support geographic location gaps disappearing in the same situation as Wilson, Wallin and Reiser (2003) have reported.

For perceived functions of leisure, Table 1 shows that to establish useful contacts, to relax and recover, and to learn or develop skills, were all significantly and positively related to the frequency of time spent on the Internet/PC as a leisure activity. In other words, consistent with the results of Korgaonkar and Wolin's (1999) study of American university students, Taiwanese adults with high leisure socialization, relaxation, and information/learning motivations engaged more frequently in the Internet/PC as a leisure activity. However, as shown in Table 2, after demographics were entered at the first stage, the regression procedure added only the factor of learning or developing skills as a significant predictor of time spent on the Internet/PC. The result is not surprising since all three factors of perceived leisure functions were found to be highly correlated with the demographic factors and with each other. While Parker and Plank (2000) found the factor of relaxation/escape motivation, rather than social motivation and learning/excitement motivation, to be the key predictor of on-line usage for American students in a large Midwestern university, the results of this present study indicate the leisure function of learning /developing skills, rather than the leisure functions of socializing and relaxation, to be a significant predictor of time spent on the Internet/PC as a leisure activity for a national sample of Taiwanese adults. We speculate that the reason for the disparate results lies in the sample differences: community adults v.s. students. Adults use computers and the Internet mainly for instrumental purposes while many students use them for relaxation and escape. The relationship between perceived functions of leisure and Internet/PC usage requires further investigation.

Finally, for personality traits, Table 1 shows that both Extraversion and Sensation-Seeking were significantly and positively related to the frequency of time spent on the Internet/PC as a leisure activity. In other words, the results of this study support the findings of studies of Israeli university students: more extravert Taiwanese adults engage more frequently in the Internet/PC as a leisure activity. At the same time, consistent with the results of previous research by Lin and Tsai (2002) on Taiwanese high school students, high

sensation-seeking Taiwanese adults also engage more frequently in the Internet/PC as a leisure activity. However, as shown in Table 2, after demographics and perceived functions of leisure were entered at the first and second stage, the regression procedure added only Sensation-Seeking as a significant predictor. Again, the result is not surprising, since both personality traits were found to be highly correlated with the demographic and leisure function factors, and also with each other. The results of this present study showed that when all demographic and perceived leisure function factors were held equivalent, Taiwanese adults who are varied, novel and complex experience seekers are more likely to be attracted to the new technology and leisure involvement, such as spending time on the Internet/PC.

8. Conclusion

For the first time in the literature, demographics, perceived leisure functions, and personality traits were examined together for a comprehensive understanding of Internet/PC use as a leisure activity. With a nationally representative adult sample in Taiwan, this study found that 35% of Taiwanese adults aged 20 and over reported spending time on the Internet/PC as a leisure activity on a daily basis, a result similar to Skaliotis' (2002) report on Internet usage for the EU Member States. The findings of this study also corroborate results from studies in the West: the effect of Internet/PC gender gaps disappear when other demographic factors (e. g. age, education, personal income, and rural/urban residence) are controlled. Li, Kirkup and Hodgson (2001) have suggested the existence of cultural differences between women Chinese students and women British students in terms of Internet usage, but this study showed more cultural similarity than differences between Taiwanese and American adults in terms of the Digital Divide.

In addition to age, education, income and rural/urban residence, the perceived leisure function of learning/developing skills and the personality trait of Sensation-Seeking were another two significant predictors of time spent on the Internet/PC as a leisure activity for Taiwanese adults. While most studies conducted to identify the relationship between Internet usage for leisure and motivations as well as personality traits center upon a specific group of subjects, students for example, this study provides a general picture of adults. Some of our findings were consonant with the existing literature, but others raise new questions and invite further research.

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