

Rapid Communication

A Comparative Study of Internet Addiction between the United States and China

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Abstract

This study explored Internet addiction among university students in China and the United States to develop a better understanding of Internet addiction in a cross-national setting. Three hundred fourteen respondents were evaluated on 10 Internet addiction symptoms and five Internet addiction dimensions: negative outcomes, social escape, secretive behavior, virtual intimacy, and obsessive-compulsive behavior. The results indicate that Chinese students experience a higher rate of Internet addiction than their U.S. counterparts. Additionally, gender was found to be significantly related to Internet addiction for both the U.S. and Chinese sample, while Internet experience was found to not be significantly related to Internet addiction. We conclude that Internet addiction may result as an artifact of the stage of Internet adoption within a society.

Introduction

THIS REPORT EXAMINES results from a comparative study of Internet addiction between the United States and China. It presents data on indicators of Internet addiction in conjunction with country-of-origin and gender effects.

Internet addiction is a growing phenomenon affecting people with varying frequency around the world. Internet addiction is typically characterized by psychomotor agitation, anxiety, craving, and constant online surfing despite negative effects on social and psychological welfare.¹ A plethora of literature examines various aspects of Internet addiction, including determinants of Internet addiction,² the effects of Internet addiction on well-being,³ and Internet addiction treatment.⁴ However, the literature is void of a cross-national comparison of Internet addiction. We fill that gap by providing a cross-national comparison of Internet addiction between the U.S. and China: two countries at different stages of Internet adoption.

Because of the digital divide, the advantages and disadvantages of the Internet have primarily been experienced by people in developed societies. The digital divide refers to the disparity in Internet access between developed and developing countries.⁵ People in developed countries have a higher quality of life, which is enhanced by the Internet and information technology, while people in developing countries are often plagued by poor economic, political, and in-

formational infrastructures contributing to their lower quality of life. However, as a consequence, people in less developed countries typically have not experienced Internet-related problems. As many nations, like China, begin to experience the urbanizing/industrializing stage of the demographic-transition model (describes the effects of industrialization on a nation's population; see Kirk⁶), the advantages and disadvantages of the Internet will have an apparent influence on quality of life.

This study has three purposes. First, we compare Internet addiction among U.S. and Chinese students using the Internet addiction instrument developed by Wang.⁷ Second, we examine the relationships between gender and Internet addiction. Third, we examine the relationship between Internet experience and Internet addiction.

Methodology

Participants

The sample consisted of 314 students; 171 were U.S. students at a large public university in the southwestern United States, and 143 were Chinese students at a large public university in northern China. For the U.S. sample, 51% were female, and the mean age was 22 years ($SD = 3.43$). For the Chinese sample, 60% were female, and the mean age was 20 years ($SD = 1.34$).

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TABLE 1. MULTIVARIATE RESULTS AND UNIVARIATE MAIN EFFECTS

<i>Multivariate tests</i>						
<i>Independent variable</i>	<i>Wilks's λ</i>	<i>F</i>	<i>Hyp. df</i>	<i>Error df</i>	<i>p</i>	<i>η²</i>
Country-of-origin	0.63	32.74	5	276	0.00	0.37
Gender	0.87	8.59	5	276	0.00	0.14
Country-of-origin × Gender	0.92	4.75	5	276	0.00	0.08
<i>ANOVA: Country-of-origin</i>						
<i>Dependent variable</i>	<i>Country</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Negative outcome	U.S.	171	1.61	0.79	61.31	0.00
	China	131	2.26	0.88		
Social escape	U.S.	171	1.86	0.96	105.26	0.00
	China	131	3.08	1.02		
Secretive behavior	U.S.	171	1.64	0.89	57.51	0.00
	China	131	2.43	1.08		
Virtual intimacy	U.S.	171	1.72	0.89	141.01	0.00
	China	131	3.05	0.96		
Obsessive-compulsive behavior	U.S.	171	1.57	0.91	54.09	0.00
	China	131	2.32	1.03		
<i>ANOVA: Gender</i>						
	<i>Gender</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Negative outcome	Male	128	2.11	1.05	33.23	0.00
	Female	156	1.68	0.66		
Social escape	Male	128	2.52	1.15	8.50	0.00
	Female	156	2.27	1.16		
Secretive behavior	Male	128	2.31	1.14	31.16	0.00
	Female	156	1.73	0.88		
Virtual intimacy	Male	128	2.35	1.08	4.90	0.03
	Female	156	2.08	1.07		
Obsessive-compulsive behavior	Male	128	2.20	1.16	15.27	0.00
	Female	156	1.73	0.93		

Instrument

A questionnaire was designed for this study, which consists of demographic information, 10 Internet addiction symptoms, and a 28-item instrument measuring Internet addiction on a 5-point Likert scale (1, *Hardly ever true*, to 5, *Almost always true*). The 10 Internet addiction symptoms and 28-item instrument were borrowed from Wang's⁷ study of Internet addiction among college students. The 10 symptoms were used to classify participants as not Internet addicted, slightly Internet addicted, or severely Internet addicted. These symptoms are centered on the intense desire to continuously stay logged on to the Internet despite consequences.

The 28-item instrument provides different dimensions of the Internet addiction phenomenon. Students in the United States and China responded to surveys written in English and Chinese respectively. The questionnaire was initially constructed in English and then was translated into Chinese by a Chinese individual who speaks fluent English. Translation of the instrument was verified by an additional bilingual Chinese resident.

Data analysis

For the 28-item instrument measuring dimensions of Internet addiction, the factor analysis yielded a clean set of five

TABLE 2. REGRESSION RESULTS

<i>Independent variables</i>	<i>Chinese</i>	<i>t(119)</i>	<i>American</i>	<i>t(131)</i>
Internet experience	0.10	1.07	0.03	0.38
Number of hours spent on the Internet	0.35**	3.24	0.30***	3.70
Frequency of Internet use	-0.22*	-2.10	0.01	0.13

Dependent variable: Internet addiction composite.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

factors, which differs from the six factors yielded in Wang's study.⁷ The items that loaded together were examined by three experts to determine whether they were theoretically and logically related to each factor. Based on the content of the items, the five constructs were labeled as *negative outcomes* (item loadings ranged from 0.55 to 0.73; $\alpha = 0.81$), *social escape* (item loadings ranged from 0.60 to 0.87; $\alpha = 0.78$), *secretive behavior* (item loadings ranged from 0.57 to 0.69; $\alpha = 0.68$), *virtual intimacy* (item loadings ranged from 0.60 to 0.75; $\alpha = 0.60$), and *obsessive-compulsive behavior* (item loadings ranged from 0.60 to 0.74; $\alpha = 0.66$). Negative outcomes are defined as experiencing negative events due to overuse of the Internet. Social escape is the use of the Internet to escape pressure or to alleviate feelings of sadness or depression. Secretive behavior is clandestine Internet behavior and the sharing of secret information online. Virtual intimacy is the affinity an individual has for interacting with others on the Internet in comparison to real-world interaction. Finally, obsessive-compulsive behavior is characterized by an individual's inability to control thoughts and behavior concerning Internet use.

Results

First, respondents were examined across the five dimensions of Internet addiction. Using MANOVA, respondents' country-of-origin and gender effects were examined on the five dimensions of Internet addiction. Multivariate results show significant differences for the main effects and interaction effect of country-of-origin and gender. Univariate results show that the Chinese students rated significantly higher on all five dimensions of Internet addiction (all p values < 0.000). Furthermore, male respondents rated significantly higher across the five dimensions of Internet addiction (all p values < 0.03). However, when examining the interaction between country-of-origin and gender, there was a significant effect only for negative outcomes ($F(1, 280) = 10.43; p < 0.00$). Male Chinese respondents reported the most severe outcomes (see Table 1).

Chinese and U.S. respondents were next examined across the 10 Internet addiction symptoms. Among the Chinese respondents, 20 students (14%) were heavily addicted to the Internet, 92 students (64%) were slightly addicted to the Internet, and 31 students (22%) were not addicted to the Internet. Among the U.S. respondents, 7 students (4%) were heavily addicted to the Internet, 40 students (23%) were slightly addicted to the Internet, and 125 students (73%) were not addicted to the Internet.

Finally, regression was used to test the relationship between Internet addiction and Internet experience. The summated score of all five Internet addiction dimensions was used as the dependent variable; Internet experience (number of years using the Internet), number of hours spent on the Internet (daily basis), and frequency of Internet use (daily basis) were used as the independent variables. Table 2 shows that for the U.S. respondents, there was a significant rela-

tionship only between number of hours spent online and Internet addiction ($p \leq 0.000$). For Chinese respondents, both hours spent online and frequency of Internet use were positively and significantly related to Internet addiction (p values < 0.05).

Discussion

Internet addiction is a prevalent problem affecting individuals in nations around the world. The purpose of this research was to show that Internet addiction does exist and is currently more common among students in China, a rapidly industrializing country, than among students in the United States who have been exposed to and have used the Internet longer than have their China counterparts. In addition, this study indicated that Internet addiction rates are higher in males than in females, regardless of country-of-origin, and that those individuals who spend more continuous hours per day on the Internet are more likely to be Internet addicts. Given these findings, researchers should continue to examine Internet usage behaviors of individuals in industrializing nations in order to better understand how to diminish the negative effects that Internet addiction can have on an industrializing nation's population.

Disclosure Statement

The authors have no conflict of interest.

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