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Predicting tablet use: A study of gratifications-sought, leisure boredom, and multitasking

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ABSTRACT

Using a probability sample of 348 tablet users, this study found that relaxation, information seeking, fashion/status, and work management were instrumental reasons for tablet use, while social connection anytime/anywhere, large screen, and ease-of-use were intrinsic motives. Contrary to what was hypothesized, leisure boredom was not significantly linked to tablet use. Relaxation was the strongest motivation to predict multitasking with the tablet; however, people tend not to engage in cognitively unproductive multitasking. Limitations and suggestions for future research are discussed.

1. Introduction

The introduction of tablet computers (tablets), such as Apple's iPad, has been a huge hit all over the world. With a more advanced Web browsing experience and limitless innovative applications (apps) at users' fingertips, tablets have experienced unprecedented adoption over the years. Pew Internet has been conducting tablet ownership surveys since May 2010, when U.S. ownership was recorded at 3% (Pew Research Center, 2010). By June 2013, the survey showed that over a third (34%) of American adults over age 18 owned a tablet computer, including almost half (49%) of those in their late thirties and early forties (Pew Research Center, 2013). In 2014, the rate of tablet ownership rose to 42% of American adults (Pew Research Center, 2014).

With the presence of tablets seeping into people's daily lives, the unique attributes and features of these devices have caught the attention of researchers. Tablets are regarded as a new type of mobile platform that offers all the functionality and connectivity of a laptop, and the mobility and portability of a smartphone (Melhuish and Falloon, 2010). Yet a tablet is not a mere stop along the spectrum between a smartphone and laptop. Rather, its particular combination of features—large screen, portability, instant-on capability, and long battery life—fuels the astonishing rise in adoption of tablets beyond any previous electronic product (Warschauer, 2011). Given the prevalence of tablet devices, a large body of studies has accrued regarding the practical application of tablets in the fields of education and business, such as literacy learning, academic teaching, and collaborative work (Falloon and Khoo, 2014; Hess and Jung, 2012; Melhuish and Falloon, 2010; Young, 2014). For instance, Falloon and Khoo (2014) explored the advantages of the iPad being used in public work spaces and highlighted its affordances such as orientational flexibility, wide viewing range, and multi-user accessible interface, which enabled students to interact more collaboratively when creating learning outputs. In a case study of the introduction of iPads at an applied research company, Hess and Jung (2012) found that tablets added value to business environments in that the productivity and joy of use had been increased.

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Despite the mounting evidence concerning the attributes and practical uses of tablets, few empirical studies have explored what motivates people to engage in tablet use. Employing the small-scale interview method, Müller et al. (2012) provided an in-depth analysis of frequent tablet activities, locations of use, and contextual factors. They found that people mainly used tablets to check e-mails, play games, and socialize with friends. Tablet use mostly occurred in the home while doing other activities, such as watching TV, eating, and cooking. However, due to the small sample size—only 33 participants—and nonrandom nature of the sample, the results are not generalizable.

Therefore, this study seeks to expand the scope of tablet research and contribute to the audience studies of tablets with the framework of uses and gratification approach. In particular, we explore (a) what prompts people to engage in tablet use, (b) how psychological states (e.g., leisure boredom) predict different usage patterns, and (c) under what circumstances (e.g., multitasking with media and non-media activities) people are prone to using the tablet.

2. Literature review

2.1. Uses and gratifications

As a sub-tradition of media effects research (McQuail, 1994), the uses and gratifications (U&G) approach seeks to explore the underlying motivations of individuals' use of media. Coming most prominently to the fore in the 1950s and early 1960s, the U&G approach is employed by researchers to understand audiences' active involvement in mass media, and assumes that the audience chooses mass media to fulfill their own needs and expectations; this leads to different patterns of media exposure and gratifications, which, in turn, motivate the use of a particular medium (Katz et al., 1973). The behavior of media gratification-seeking is often regarded as goal-directed and utility-driven (Palmgreen and Rayburn, 1982). The audience draws on media to satisfy their social and psychological needs, such as information seeking, entertainment, personal identity, and companionship (Dimmick et al., 1994). Over the years, a large and growing number of studies have consistently documented U&G as robust (Rubin, 1983; Wimmer and Dominick, 1994).

As new technologies arm people with an increasing number of media choices, gratifications become more crucial components of media studies. Scholars pointed out that the interactive nature of the Internet has significantly strengthened the core U&G notion of the active user (Ruggiero, 2000), and the line between sender and receiver of mediated messages has been blurred (Singer, 1998). Furthermore, the convergence of mass media and digital technology has altered the exposure patterns of many media consumers (Finn, 1997). The transformation of media exposure and media consumption contributes to newly identified gratifications, such as personal involvement, relationship building and maintenance, and status seeking (Eighmey and McCord, 1998).

Previous studies have explored gratifications sought from the Internet in general (Papacharissi and Rubin, 2000) and from specific new media, including e-mail and telephone (Dimmick et al., 2000), ICQ (Leung, 2001), social networking sites (Dunne et al., 2010), and user-generated content (Leung, 2009). Despite the mounting evidence in terms of the U&G of new media, few empirical studies have explored people's underlying motivations to engage in tablet use. Warschauer (2011) identified the lighter weight, instant-on capability, mobility, user interactivity, and long battery life as the main advantages of iPads, which have been regarded as an efficient tool for education and learning. The enhanced Web browsing experience on tablets, mainly contributed to by a large, high-definition touch screen without the burden of a keyboard and mouse, leads to more user gratifications and dependency (Bolt et al., 2010). Those unique attributes of the tablet might significantly affect individuals' motivations and usage patterns.

Grounded in U&G framework, this study seeks to discover the motives of tablet use and expand previous research by proposing the following research question and hypothesis:

RQ1. What gratifications do users seek from using the tablet?

H1. The more that users find the tablet gratifying, the more they will use it.

2.2. Leisure boredom

Boredom is defined as an "unpleasant, transient affective state" in which an individual is left with nothing in particular to do and lacks interest in their surroundings (Fisherl, 1993). This state is the result of under-stimulation, under-arousal, lack of momentum, or lack of psychological involvement (Brissett and Snow, 1993; Mikulas and Vodanovich, 1993), which may occur more frequently in an individual's leisure time. People who fail to handle the free time at their disposal appropriately are prone to experiencing leisure boredom. Iso-Ahola and Weissinger (1990) conceptualized leisure boredom as "the subjective perception that available leisure experiences are not sufficient to instrumentally satisfy needs for optimal arousal. . .leisure experiences are not sufficiently frequent, involving, exciting, varied or novel."

As noted by Iso-Ahola and Weissinger (1987), "optimal arousal" has a stake in leisure boredom. Through the lens of optimal arousal, "boredom" is defined as an information overload and underload: the latter is the situation where individuals are apt to experience boredom in the context of leisure. This claim was backed by Geiwitz (1966), who reported that feelings of boredom were associated with feelings of "unpleasantness, constraint, repetitiveness, and low 'societal' arousal." Unless

leisure is optimally arousing, it is experienced as boredom, especially when having excessive time with little to do (Iso-Ahola, 1980). In line with this argument, Iso-Ahola and Weissinger (1990) further posited that the conflict between perceptions of too much time available and too few satisfying activities were at the heart of leisure boredom. Individuals who fail to manage their leisure time are more inclined to experience leisure boredom.

As a robust concept, leisure boredom has been explored as a multi-dimensional construct (Ragheb and Merydith, 2001). In assessing free-time boredom, Ragheb and Merydith (2001) developed four subscales. The "lack of meaningful involvement" component indicates the feeling of emptiness and lack of focus resulting from meaningless pursuits, usually occurring in dull surroundings. The "lack of mental involvement" subscale is the opposite of Csikszentmihalyi's (2014) notion of "flow"—that the most exhilarating experiences are generated through mental stimulation, including exciting activities, various settings, and knowledge involvement. Individuals suffer from "slowness of time" if they report not wanting it to last longer and feeling uncomfortable with the seemingly slow rate of its passing. "Lack of physical involvement" is evident when physical abilities are not challenged, the body is not involved, and physical skills are unused.

When encountering leisure boredom, people tend to participate in various activities to overcome it (Harrison, 2005). However, individuals, especially adolescents, seem not to be experts in dealing with it properly; hence, the effects of leisure boredom are often recognized as negative, usually resulting in various forms of mental distress (Weissinger, 1995) and detrimental behaviors such as alcohol and drug abuse (Iso-Ahola and Crowley, 1991; Patterson et al., 2000). Communication scholars have also contended that high levels of leisure boredom were significant predictors of mobile phone addiction (Leung, 2008), Internet addiction (Lin et al., 2009), and social networking services (SNS) game addiction (Zhou and Leung, 2013).

Nevertheless, the consequences of leisure boredom are not always detrimental. In an attempt to link psychological attributes to user-generated content among Net-generation users, Poon and Leung (2011) found that respondents who encountered leisure boredom exhibited a higher tendency to express views in forums, update personal Web sites, and seek interactions with friends online. This finding indicated that leisure boredom was a strong predictor of intense engagement with the Internet, through which the sense of boredom could be alleviated to some extent. Following this logic, we propose that leisure boredom may serve as an antecedent of tablet use, which mainly involves Internet surfing, and is also associated with a variety of activities and gratifications. Thus, we propose:

H2. The higher the level of leisure boredom the tablet users experience, the more they will use their tablets.

2.3. Multitasking with media

Multitasking is the behavior by which people perform multiple tasks concurrently. Today, most people's multitasking behaviors are related to media use, which indicates engaging in one medium along with other media or non-media activities at the same time (e.g., filling idle time when commuting on public transit or waiting in line for service) (Zhang et al., 2010). Considerable research suggests that "media multitasking" has become a common occurrence and the dominant media behavior, especially among youths growing up in a technological environment (Brown and Cantor, 2000; Roberts et al., 2005). However, as media multitasking escalated in popularity in recent years, a growing number of scholars argued that multitasking might take a toll on learning and task performance, as well as increasing depression symptoms and social anxiety (Becker et al., 2013).

Given the adverse effects of multitasking, several studies have been conducted to explore the circumstances under which individuals tend to engage in multitasking. These studies indicated that people are prone to combine certain tasks more than others, instead of randomly picking two activities to carry out simultaneously (Carrier et al., 2009). Scholars drew on the concept of "cognitive load," which has to do with the cognitive demands of different tasks, to interpret people's preferences for certain task combinations (Jeong and Fishbein, 2007). Mental capacities define and limit the types of tasks that can be multitasked, as different tasks place different "loads" on the cognitive resources of users. Certain task combinations are more frequently conducted because the combined cognitive loads of these tasks are within the limitations of human performance (Carrier et al., 2009; Jeong and Fishbein, 2007). In examining at-home multitasking choices across generations, Carrier et al. (2009) found that Net-geners were consistent with their older counterparts regarding the choices of which tasks to combine for multitasking, such as listening to music while surfing the Internet, and of which task combinations are relatively harder to perform, such as playing online games while reading, even though the frequency of multitasking increased from one generation to the next. In line with this research, Jeong and Fishbein (2007) reported that audiences were more likely to multitask with media while interacting with friends than while doing their homework.

Therefore, the outcomes of multitasking seem not always to be detrimental; conversely, people are likely to gain gratifications through this behavior. In exploring the underlying motivations of media multitasking behaviors, Wang and Tchernev (2012) demonstrated that multitaskers gained emotional gratifications, such as entertainment or relaxation, which were not actively sought in the first place. Yet cognitive needs, the driving force of media multitasking, were not satisfied. This study sheds some light on the gratifications people gained through multitasking, but the extent to which different task combinations affect individuals' motivations to engage in tablet use and predict their different usage patterns is largely unknown. Thus, the current study proposes that:

H3. The more that tablet users find tablet use gratifying, the more frequently they will use the table to multitask with (a) media activities and (b) non-media activities.

H4. The higher the level of leisure boredom the tablet users experience, the more they will use the tablet to multitask with (a) media activities and (b) non-media activities.

RQ2. How can demographics, multitasking with the tablet, leisure boredom, and gratifications sought predict tablet activities?

RQ3. How can demographics, leisure boredom, and gratifications sought predict multitasking with the tablet?

3. Method

3.1. Sample and sampling procedure

Data for this study were gathered from a telephone survey with a probability sample of 948 respondents aged 18 or above, randomly chosen from the latest Hong Kong telephone directory. All calls were made from a central location during evening hours, with close supervision by trained advanced undergraduates, at the Survey Research Laboratory using its Computer-Assisted Telephone Interviewing system. Non-eligible respondents (i.e., those younger than 18), nonworking numbers, and numbers that were not answered after five attempts were excluded. The next-birthday method was used to select a respondent if more than one individual within the household qualified. In addition, the survey instrument was pilot-tested on 25 university students. Actual fieldwork was conducted in November 2012. Of the 948 completed interviews, 32.7% (n = 348) were with tablet users. Of the 348 tablet users, 47.5% were male and the median age category was between 30 and 39 years of age. Median education level was grade 10–11, and median family monthly income was in the range U.S. $5161–6452. The response rate was 38.1%.

3.2. Measures

3.2.1. Gratifications of tablet use

Initially, gratification items used in previous Internet research and mobile phone studies were included in the survey questionnaire. Additional items were gathered through a focus group to refine the unique motives associated with tablet use. A pilot study on motives for tablet use with 35 items was carried out to eliminate bad items and to solicit new ones. The final questionnaire consisted of 30 motivation statements (sample items are listed in Table 1). Respondents were asked: How much do you agree that the tablet helps you do the following things? A five-point Likert scale from "strongly disagree" (1) to "strongly agree" (5) was used.

3.2.2. Leisure boredom

To assess perceptions of boredom in leisure, the Leisure Boredom Scale (LBS) (Iso-Ahola and Weissinger, 1990), containing 16 items that ask people to indicate how they feel about their leisure time (i.e., non-work hours), was used. LBS is potentially usable in clinical and applied research involving examination of leisure dysfunctions such as lethargy, substance abuse, and vandalism. The scale items (e.g., "For me, leisure time just drags on and on; leisure time activities do not excite me") were used on a five-point scale ranging from "strongly disagree" (1) to "strongly agree" (5), with high scores indicating greater leisure boredom. The factor structure of the LBS was examined via a principal components factor analysis (with Varimax rotation) of these items, which yielded three dimensions with an eigenvalue greater than 1.0, explaining 60.44% of the variance. Six items were dropped due to low factor loadings. As shown in Table 2, the first factor was "lack of mental involvement" (eigenvalue = 3.23, explained 32.3% of the variance, alpha = .75), which consisted of four items reflecting that respondents did not get aroused and excited during leisure time. "Lack of physical involvement" was the second factor (eigenvalue = 1.81, 18.12% of variance, alpha = .68). It included three items characterizing that respondents were not active, not highly involved, and had little to do during leisure time. "Slowness of time" was the third factor (eigenvalue = 1.02, 10.22% of variance, alpha = .78). It consisted of three items illustrating how respondents felt their leisure time dragged on and on.

3.2.3. Tablet activities

Initially, a total of 15 activities that researchers often used in previous research, such as use of mobile phones (Leung and Wei, 2000) and of the Internet (Papacharissi and Rubin, 2000), were included in the survey questionnaire. Additional items were gathered through a focus group of 12 tablet users to refine the unique activities associated with tablet use. A five-point Likert scale was used, from "never" (1) to "very often" (5). A principal components factor analysis (with Varimax rotation) of these 15 activities yielded four dimensions with eigenvalues mostly greater than 1.0, explaining 56.42% of the variance (see Table 3 for items). The four-factor solution was labeled "utility-oriented activities," "information-oriented activities," "social-oriented activities," and "fun-seeking-oriented activities." Cronbach's alpha values ranged from .61 to .77.

Table 1
Factor analysis of gratifications of tablet use.

I use my tablet:	Factors							Mean	s.d.
	1	2	3	4	5	6	7		
Social connection anytime/anywhere (Factor mean = 2.74)									
1. To make myself available to friends anytime/anywhere	.82							2.47	1.29
2. To let my family and friends know my recent situation	.80							2.60	1.35
3. To keep in touch with others	.75							2.96	1.31
4. To respond to others' messages anytime and anywhere	.70							3.15	1.36
5. To share my interests, views, thoughts, and experiences	.67							2.67	1.26
6. To feel involved with what's going on with other people	.61							2.57	1.23
Ease-of-use (Factor mean = 3.98)									
7. Because the tablet is easy to use		.82						4.07	1.06
8. Because the process of using the tablet is simple and straight forward		.82						4.08	.98
9. Because it has easy-to-use apps		.77						3.80	1.14
Relaxation (Factor mean = 2.95)									
10. To escape from pressure			.76					2.12	1.19
11. To relax			.75					2.63	1.35
12. To pass time			.72					3.48	1.26
13. To have fun			.60					3.55	1.11
Fashion/Status (Factor mean = 1.95)									
14. To look cool				.81				1.76	.99
15. To look stylish				.80				1.93	1.07
16. To look fashionable				.77				2.16	1.19
Information seeking (Factor mean = 3.47)									
17. To understand events that are happening					.74			3.45	1.16
18. To find out what is going on in society					.69			3.51	1.19
19. To broaden my knowledge base					.64			3.46	1.20
Large screen (Factor mean = 3.43)									
20. To enjoy e-books on a larger screen						.81		3.29	1.38
21. To enjoy photos and videos on a larger screen						.71		3.57	1.35
Work management (Factor mean = 2.89)									
22. To facilitate my multiple tasks concurrently							.76	3.11	1.33
23. To organize my work at fragmented time periods							.72	2.90	1.27
24. To synchronize my information (by using iCloud or Dropbox)							.57	2.67	1.32
Eigenvalues	8.64	2.10	1.95	1.28	1.09	1.00	.87		
Variance explained	35.99	8.76	8.13	5.32	4.56	4.18	3.64		
Cronbach's alpha	.88	.82	.80	.87	.79	.71	.68		

Scale: 1 = strongly disagree and 5 = strongly agree. $N = 348$.

Table 2
Factor analysis of leisure boredom.

How much do you agree with the statements below?	Factors			Mean	s.d.
	1	2	3		
Lack of mental involvement					
1. Leisure time gets me aroused and going [R]	.79			2.90	1.17
2. I am excited about leisure time [R]	.73			2.86	1.22
3. I like to try new leisure activities that I have never tried before [R]	.71			2.90	1.22
4. Leisure experiences are an important part of my quality of life [R]	.66	.41		2.50	1.09
Lack of physical involvement					
5. During my leisure time, I become highly involved in what I do [R]		.83		2.27	1.06
6. During my leisure time, I almost always have something to do [R]		.76		2.31	1.12
7. I am very active during my leisure time [R]		.63		3.07	1.03
Slowness of time					
8. During my leisure time, I feel like I am just "spinning my wheels"			.78	2.32	1.13
9. Leisure time is boring			.76	2.13	1.08
10. For me, leisure time just drags on and on			.74	1.90	1.06
Eigenvalue	3.23	1.81	1.02		
Variance explained	32.30	18.12	10.22		
Cronbach's alpha	.75	.68	.78		

Scale used: 1 = strongly disagree and 5 = strongly agree; $N = 348$.

Table 3
Factor analysis of tablet activities.

How often do you use the tablet to:		Factors				Mean	s.d.
		1	2	3	4		
Utility-oriented activities (Factor mean = 2.47)							
1.	Check calendar/appointment	.68				2.21	1.25
2.	Do e-mail	.64				2.88	1.33
3.	Use the dictionary	.60				2.62	1.28
4.	Read/edit documents	.56				2.35	1.23
5.	Take photos and videos	.54				2.08	1.17
6.	Check weather	.51				2.65	1.31
Information-oriented activities (Factor mean = 3.53)							
7.	Surf the Web		.82			3.78	1.19
8.	Look up information		.75			3.57	1.25
9.	Read books or news		.70			3.25	1.31
Social-oriented activities (Factor mean = 2.41)							
10.	Read or comment a blog			.73		2.17	1.26
11.	Use instant messenger, e.g., MSN			.61		2.19	1.27
12.	Use social networking services (Facebook, Twitter, etc.)			.58		2.87	1.41
Fun-seeking-oriented activities (Factor mean = 2.75)							
13.	Play online games				.83	2.66	1.40
14.	Watch TV/videos				.66	2.83	1.32
Eigenvalues		4.74	1.33	1.29	.96		
Variance explained		33.88	9.48	9.18	6.88		
Cronbach's alpha		.75	.77	.61	.61		

Scale: 1 = rarely and 5 = very often. $N = 348$.

3.2.4. Multitasking with the tablet

Because of its compact and ubiquitous nature, a tablet can be used in many locations while doing other media and non-media activities. Respondents were asked how often they used their tablets while using other media, such as (a) watching TV and (b) listening to music, and while filling idle time (a) using the toilet, (b) waiting in line for services, and (c) commuting alone using public transit. They replied using a five-point Likert scale from "rarely" (1) to "very often" (5).

3.2.5. Demographics

Gender, age, education, and household income were assessed as control variables for the analyses.

4. Results

4.1. Gratifications for tablet use

A principal components factor analysis (with Varimax rotation) grouped 30 motivation items into seven gratifications dimensions with an eigenvalue greater than 1.0, explaining 67.88% of the variance. Six items were deleted due to low factor loadings. As shown in Table 1, the first factor was "social connection anytime/anywhere" (eigenvalue = 8.64, 35.99% of variance, alpha = .88), which consisted of six items reflecting how respondents used the tablet to keep in touch, share interests, and respond to friends' messages anytime and anywhere. "Ease-of-use" was the second factor (eigenvalue = 2.10, 8.76% of variance, alpha = .82). It included three items showing that the tablet has simple and easy-to-use apps. "Relaxation" was the third factor (eigenvalue = 1.95, 8.13% of variance, alpha = .80). It consisted of four items illustrating how respondents use the tablet to relax and pass time. The fourth factor was "fashion/status," consisting of three items (eigenvalue = 1.28, 5.32% of variance, alpha = .87). This reflects that, for some users, having a tablet is cool and stylish, especially when it is used in public. As expected, "information seeking" was the fifth factor (eigenvalue = 1.09, 4.56% of variance, alpha = .79), which consisted of three items confirming tablets are used for information gathering. "Large screen" was the sixth factor (eigenvalue = 1.0, 4.18% of variance, alpha = .71), illustrated by two items as a unique attribute afforded by the tablet for photo and video viewing. The last factor is "work arrangement" (eigenvalue = .87, 3.64% of variance, alpha = .68), which consisted of three items indicating that tablets can help organize tasks during idle time. As a whole, these seven factors were conceptually consistent with the theoretical expectations described in previous literature.

4.2. Hypotheses testing

H1 proposed that the more tablet users find tablet use gratifying, the more they will use it. Regression analyses in Table 4 shows that utility-, information-, social-, and fun-seeking-oriented tablet activities were, in various degrees, significantly linked to all seven dimensions of gratifications sought from tablet use. Specifically, utility-oriented activities were positively

Table 4
Regression of activities on tablet.

Predictors	Activities on tablet			
	Utility-oriented	Information-oriented	Social-oriented	Fun-seeking-oriented
Demographics				
Gender (male = 1)	.07	.04	−.00	.03
Age	−.08	−.16***	−.28***	−.19***
Education	−.02	.06	.09	−.07
Household income	−.00	−.05	−.03	−.01
Multitasking with tablet				
Media activities:				
Watching TV	.12*	.14**	.16***	.14**
Listening to music	.09*	.02	.10*	.06
Non-media activities:				
Using the toilet	.02	.08	−.01	.04
Waiting for service	.27***	.05	.04	.08
Commuting	−.08	.07	.06	−.03
Leisure boredom				
Lack of mental involvement	.07	.06	.06	.06
Lack of physical involvement	−.07	−.10*	−.11*	−.06
Slowness of time	−.05	.04	−.03	−.07
Gratifications from tablet use				
Social connection anytime/anywhere	.28***	−.06	.53***	.01
Ease-of-use	.07	.13*	.02	.11*
Relaxation	−.12*	−.04	−.05	.33***
Fashion/status	.03	−.16**	−.08	.10
Information seeking	.15**	.47***	.08	−.15*
Large screen	.01	.18***	−.04	.22***
Work management	.19***	.02	.02	.00
R^2	.47	.47	.54	.48
Adjusted R^2	.44	.44	.51	.44
F	14.81***	14.47***	18.29***	13.63***

* $p \leqslant .05$.
** $p \leqslant .01$.
*** $p \leqslant .001$; Total $N = 348$.

and significantly linked to social connection anytime/anywhere ($\beta = .28$, $p < .001$), work-management ($\beta = .19$, $p < .01$), and information-seeking ($\beta = .15$, $p < .05$) gratifications. Similarly, information-oriented activities were significantly linked to information-seeking ($\beta = .47$, $p < .001$), large screen ($\beta = .18$, $p < .001$), and ease-of-use ($\beta = .13$, $p < .05$) motivations; social-oriented activities were significantly related to social connection needs ($\beta = .53$, $p < .001$); and fun-seeking-oriented activities were significantly predicted by relaxation ($\beta = .33$, $p < .001$), large screen ($\beta = .22$, $p < .05$), and ease-of-use ($\beta = .11$, $p < .05$) gratifications. Contrary to what was hypothesized, it is interesting to note that the relationships between utility-oriented and relaxation, information-oriented, and fashion/status, as well as fun-seeking-oriented tablet activities and information-seeking gratification, were significant but negative. Thus, these results largely supported H1.

H2 hypothesized that the higher the level of leisure boredom the tablet users experience, the more they will use their tablets. Regression results in Table 4 shows that lack of physical involvement was significantly and negatively linked to only information-oriented ($\beta = -.10$, $p < .05$) and social-oriented ($\beta = -.11$, $p < .05$) tablet activities. No significant relationship was found between other dimensions of leisure boredom and activities on the tablet. Therefore, H2 was rejected.

H3 proposed that the more tablet users find tablet use gratifying, the more frequently they will use the tablet to multitask with (a) media activities and (b) non-media activities. The regression results in Table 5 shows that multitasking with the tablet was, in various degrees, significantly linked to all seven dimensions of gratifications sought from tablet use. In particular, relaxation ($\beta = .23$, $p < .001$) and ease-of-use ($\beta = .19$, $p < .01$) were significantly and positively linked to multitasking with the tablet while watching TV. Similarly, ease-of-use ($\beta = .18$, $p < .01$) and fashion/status ($\beta = .15$, $p < .05$) were positively and significantly related to multitasking with the tablet while listening to music. As for relationships between gratifications sought and multitasking with non-media activities, results indicate that relaxation was significantly linked to filling idle time with the tablet while using the toilet ($\beta = .29$, $p < .001$), waiting for service ($\beta = .20$, $p < .001$), and commuting ($\beta = .22$, $p < .001$). Work-management gratification was also significantly linked to non-media activities filling idle time with the tablet while waiting for service ($\beta = .21$, $p < .001$) and commuting ($\beta = .21$, $p < .01$). Results also show that relationships between gratifications and multitasking tablet activities (such as: information seeking and filling idle time with the tablet while using the toilet; and fashion/status and filling idle time with the tablet while waiting for service and commuting) were significant but negative. Therefore, H3a and H3b were only partially supported.

H4 hypothesized that the higher the level of leisure boredom the tablet users experience, the more they will use the tablet to multitask with (a) media activities and (b) non-media activities. The regression results in Table 5 shows that lack of

Table 5
Regression of multitasking with tablet.

Predictors	Multitasking with tablet				
	Media activities		Non-media activities (filling idle time)		
	Watching TV	Listening to music	Using the toilet	Waiting for service	Commuting
Demographics					
Gender (male = 1)	−.13*	−.04	.13*	.08	.12*
Age	−.15**	.04	−.10	−.23***	−.23***
Education	−.10	−.09	.05	−.02	−.06
Household income	.11	−.02	.03	.09	.03
Leisure boredom					
Lack of mental involvement	−.14**	−.10	.00	−.08	.01
Lack of physical involvement	.12	.07	.01	.04	.05
Slowness of time	−.04	.00	.04	.05	.10
Gratifications from tablet use					
Social connection anytime/anywhere	−.02	−.00	.11	.23***	.13
Ease-of-use	.19**	.18**	.13	−.07	.00
Relaxation	.23***	.02	.29***	.20***	.22***
Fashion/status	−.12	.15*	−.09	−.15*	−.16*
Information seeking	−.12	−.11	−.15*	−.05	−.08
Large screen	.03	−.01	−.04	.01	.04
Work management	.05	.06	.10	.21***	.21**
R^2	.19	.07	.14	.25	.20
Adjusted R^2	.16	.03	.10	.22	.17
F	5.29***	1.82*	3.51***	7.49***	5.62***

* $p \leqslant .05$.
** $p \leqslant .01$.
*** $p \leqslant .001$; Total $N = 348$.

mental involvement in leisure boredom was significantly and negatively linked to multitasking with the tablet while watching TV ($\beta = -.14$, $p < .01$). No other significant relationship between other multitasking activities with the tablet and any dimensions of leisure boredom was found. Thus, H4a and H4b were rejected.

4.3. Predicting tablet activities

As shown in Table 4, utility-oriented tablet activities were significantly predicted by social connection anytime/anywhere ($\beta = .28$, $p < .001$), work arrangement ($\beta = .19$, $p < .001$), and information-seeking ($\beta = .15$, $p < .01$) gratifications, multitasking with the tablet while waiting for service ($\beta = .27$, $p < .001$), and multitasking with the tablet while watching TV ($\beta = .12$, $p < .05$) and listening to music ($\beta = .09$, $p < .05$). However, it was negatively related to relaxation ($\beta = -.12$, $p < .05$). As expected, information-oriented tablet activities were significantly linked to information seeking ($\beta = .47$, $p < .001$), large screen ($\beta = .18$, $p < .001$), and ease-of-use ($\beta = .13$, $p < .01$) gratifications, being young ($\beta = -.16$, $p < .001$), multitasking with the tablet while watching TV ($\beta = .14$, $p < .01$), and negatively related to lack of physical involvement ($\beta = -.10$, $p < .05$). As for social-oriented tablet activities, they were significantly predicted by social connection anytime/anywhere gratification ($\beta = .53$, $p < .01$), being young ($\beta = -.28$, $p < .001$), multitasking with the tablet while watching TV ($\beta = .16$, $p < .001$) and listening to music ($\beta = .10$, $p < .05$), but negatively related to lack of physical involvement ($\beta = -.11$, $p < .05$). Finally, fun-seeking-oriented tablet activities were significantly and positively related to relaxation ($\beta = .33$, $p < .001$), large screen ($\beta = .22$, $p < .001$), and ease-of-use ($\beta = .11$, $p < .05$), but negatively related to information-seeking ($\beta = -.15$, $p < .05$) gratification, being young ($\beta = -.19$, $p < .001$), and multitasking with the tablet while watching TV ($\beta = .14$, $p < .01$).

4.4. Predicting multitasking with media and non-media activities

As shown in Table 5, tablet users who often multitask with the tablet while watching TV tended to be those who sought relaxation ($\beta = .23$, $p < .001$) and ease-of-use ($\beta = .19$, $p < .01$) gratifications in the use of the tablet. Similarly, those who multitasked with the tablet while listening to music tended to be those who found the tablet easy to use ($\beta = .18$, $p < .01$) and used it as a fashion statement ($\beta = .15$, $p < .05$). Results also showed that those who enjoyed multitasking with the tablet while using the toilet, waiting for service, and commuting were motivated by relaxation and work-management gratifications. In particular, filling idle time with the tablet while waiting for service and commuting were not driven by fashion or status seeking. Contrary to what we expected, experiencing leisure boredom, especially when there is a lack of mental involvement in leisure time, had a negative effect on multitasking with the tablet while watching TV. However, no other dimension of leisure boredom was positively linked to multitasking with the tablet.

5. Conclusions and discussion

5.1. Gratifications and tablet activities

The aims of this study were to identify unique gratifications sought in the use of tablets and explore the relationships between specific tablet activities and gratifications, leisure boredom and tablet use, and leisure boredom and multitasking with the tablet. Results show that relaxation, information seeking, fashion/status, and work management were instrumental reasons for tablet use while social connection anytime/anywhere, large screen, and ease-of-use were intrinsic motives. Heavy users of tablets for utility-oriented activities appeared to most value the motives of social connection anytime/anywhere, work management, and information seeking, while light users were motivated by relaxation. This is logical as utility-oriented activities included doing e-mail for social connection, checking and managing an appointment schedule, checking the weather, and taking photos/videos anytime and anywhere as needed.

Consistent with expectations, heavy users of tablet for information-oriented activities appeared to most value information-seeking, large screen, and ease-of-use gratifications, while light users valued fashion/status. This is natural as heavy information seekers using the tablet value the combination of a big screen, instant-on capability, and easy-to-use touch-screen interface rather than the small screen of a mobile phone. As for the negative relationship between information-oriented activities (such as surfing the Web and reading e-books and online news) and fashion/status, this probably suggests that light users of the tablet are the late adopters who want to be seen as trendy and fashionable. Heavy adopters may have already passed the stage of wanting to make a fashion statement.

Social connection anytime/anywhere was the single and strongest gratification for social-oriented activities in tablet use. This is understandable, as social-oriented activities (e.g., reading and commenting on blogs, texting, using SNS such as Facebook and Twitter) exactly fulfill their needs in connecting with friends and family anytime/anywhere. Heavy users of tablets who were fun-seekers were, as anticipated, motivated by relaxation, the large screen, and the easy-to-use interface. This finding is reasonable as most people would prefer to play online games, read e-books, or view photos or videos on a high-resolution and lightweight tablet with a comfortably sized touch screen without the burden of a keyboard and mouse.

Consistent with earlier findings in the U&G of the household telephone (Dimmick et al., 1994) and the cellular phone (Leung and Wei, 2000), this study also found that interpersonal, information, and entertainment gratifications appeared to dominate use. Although gratification predictors such as social connection and information seeking are still theoretically and empirically important, as more and more entertainment, utility, and application functions are developed for mobile devices, future research should continue to explore the hybrid of utilitarian and mass media gratifications with newly developed mobile apps such as location-based services and mobile commerce for the tablets and smartphones.

5.2. Leisure boredom and tablet activities

This study hypothesized that the more leisure boredom tablet users experience, the more they will fill time with the tablet. Surprisingly, this theoretical argument was not supported by empirical evidence. On the contrary, the results showed that tablet users who encountered boredom in their leisure time—feeling slowness of time and a lack of mental/physical involvement—tended not to be interested in information- or social-oriented activities on the tablet. Conversely, those who were active, highly involved, and always had something to do during their leisure time were those who were active users of seeking information and engaging in social-oriented activities using the tablet. This can be explained, as both information- and social-oriented activities included tasks requiring high cognitive load (e.g., looking up information on the Web, reading e-books and news, texting, reading or commenting on a blog, and using SNS via Facebook and Twitter). It is reasonable to believe that heavy users of information- and social-oriented activities on the tablet are generally purposive, goal-directed, and highly involved in what they do during their leisure time, especially with a task in mind that they wanted to complete.

5.3. Multitasking and filling idle time with the tablet

With respect to multitasking, it is interesting to note that relaxation was the strongest motivation (as indicated by the size of the beta coefficients) to predict multitasking with the tablet. However, information seeking was insignificant or significant but negatively related to filling idle time with the tablet while using the toilet. When people have idle time with nothing in particular to do and lack interest in their surroundings (e.g., lining up for service or commuting on public transit), this study supports the notion that they often use the tablet to pass time and to relax in these solitary moments. This is understandable as, with the tablet's portability, large screen, and WiFi access, people can play videos and online games on their tablets to get entertained. Such a finding supports previous research showing that people tended to multitask while watching TV for relaxation because while cognitive needs are usually not gratified by media multitasking, emotional needs are (such as feeling entertained and relaxed) (Wang and Tchernev, 2012). The insignificant and negative finding between the information-seeking motive and the five secondary tasks while multitasking or filling idle time with the tablet indicate that people tend not to engage in cognitively unproductive multitasking if their primary tasks on the tablet have a high cognitive demand. In fact, as found in previous research, multitasking impairs cognitive task performance—for example, watching

television while doing homework would harm performance on both comprehension and memory tasks. Additionally, multitasking may inhibit attention and information processing (Jeong and Fishbein, 2007).

Ease-of-use is also an important motive predicting multitasking with the tablet while watching TV and listening to music. This is certainly due to the easy-to-use touch screen interface, its small size, and light weight. It is also interesting to note that heavy multitaskers with the tablet connect listening to music with the trendy and fashionable motivation. This finding is consistent with past research showing that novel technology gratified status identity needs—for example, when the cellular phone was introduced, the same finding was made in the early stage of the diffusion curve for early adopters (Leung and Wei, 2000).

Heavy tablet users performing utility-oriented activities were also found to be positively linked to filling idle time with their tablets while waiting in line for service and multitasking with the tablet while watching TV and listening to music. This makes sense, as utility-oriented activities included writing e-mails for social connection, checking weather, reading/editing documents, and managing appointment schedules. With the tablet, people can multitask and spend their idle time to get a number of tasks accomplished while on the go and/or at home.

In line with the popular notion, results show that heavy tablet users of information-, social-, and fun-oriented activities are also heavy multitaskers of TV watching and music listening. This seems to suggest that people tend to seek cognitive as well as entertainment gratifications when they multitask. However, this appears to contradict the earlier finding that people tended to multitask with the tablet while watching TV for relaxation and not for cognitive needs. This can be explained: respondents in this study were asked how often they watched TV or listened to music (a secondary medium) while they used the tablet (the primary medium). Consistent with previous research, this indicates that whether the use of a medium is primary or secondary could influence the effects multitasking has on information processing (Voorveld and van der Goot, 2013). In this research, utility-, information-, social-, and fun-seeking-oriented activities with the tablet were the primary tasks and TV watching and music listening were secondary. Thus, it is very likely that young tablet users who multitask with their tablets for a variety of activities often had the TV and music on in the background to create a relaxed environment while engaging with the tablet in the foreground.

The finding that work-management gratification is a significant predictor for both filling idle time while waiting for service and while commuting provides support for our assumption in this research that, with the tablet, people can efficiently spend their fragmented idle time periods to organize their work schedule and to reflect and better manage the multiple tasks they have to do. This suggests that the tablet, as a work-related information and communication technology, can help facilitate spillover-work into private time. Future research should investigate the extent to which such spillover occurs and if it affects job burnout and distress, and its overall effect on job satisfaction.

It is also interesting to note that fashion/status is a significant predictor in multitasking behavior. This is especially true for heavy multitaskers with the tablet while listening to music; they want to be seen as trendy and fashionable, especially when they multitask with the tablet while listening to music in public (e.g., library, restaurant, coffee shop, or in a park). In contrast, light multitaskers filling idle time with the tablet while waiting for service or commuting were motivated by fashion/status. This may be explained that as light multitaskers are waiting for service or commuting, fashion/status is not their goal to multitask with the tablet. They may be preoccupied with a task while waiting in line. They would rather use the idle time to manage their personal affairs, such as organizing their work schedule, than think about using the tablet to make a fashion statement. Furthermore, as this study does not focus on all mobile media devices, people may be multitasking with their smartphone instead of the tablet while commuting or waiting in line for service, as there are notable differences between the two. To fill idle times, the smartphone may be a better device for a phone chat or texting via WhatsApp or WeChat.

The growth of computer-mediated communication technologies poses new challenges for our understanding of social relationships, easing boredom in our leisure time with media, and the impact of multitasking with mobile devices. The goal of this study has been to provide an empirical reference point by examining motives for tablet use. Findings review the potential impact of tablet use on fostering interpersonal relationships and entertainment and information for the mobile- or M-generation.

6. Limitations and suggestions for future research

One potential limitation of this study is that the measures of multitasking could be biased as the items used were indirect measures. It is possible that the responses reflect the respondents' perceptions of their own multitasking experiences, rather than their real multitasking behavior. Future research should couple self-report measures with behavioral measures such as cognitive task performance. Another limitation is that some differences may exist between using tablets and smartphones in terms of the wide array of functions and tasks they could perform and subsequently may affect media multitasking preferences. Future studies should compare the differences between the two in multitasking research.

Furthermore, cognitive psychologists make a distinction between task switching (i.e., rapid alternation between two or more tasks) and parallel processing (i.e., involving simultaneous engagement in two or more tasks). The present study focused on parallel processing in the multitasking behavior rather than investigating the alternation between TV watching or music listening and tablet using. Future research should consider such a distinction as a possible difference in outcome from predictors.

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