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# The gratifications of pager use: sociability, information-seeking, entertainment, utility, and fashion and status<sup>☆</sup>

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## Abstract

To examine gratifications sought from pager use, a series of confirmatory factor analysis models were fitted to 27 gratification items in a proportionate stratified random sample survey of 883 college students. The results show that sociability was the strongest intrinsic motive, especially for females, in predicting the use of pagers followed by instrumental factors such as information-seeking, entertainment, and fashion and status. However, utility was found not a significant predictor of any paging behavior. Moreover, late adopters and those who seldom received messages were found *more* likely to feel that the purpose in having a pager was to make a fashion or status statement. © 1999 Elsevier Science Ltd. All rights reserved.

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## 1. Introduction

Once a highly personalized communications technology like the telephone, the pager is evolving rapidly into a mass-media-like electronic medium, from which users can obtain informational and entertainment services in addition to sending and receiving personal messages. In some countries, pagers have become a highly popular technology as they can deliver a short voice message to users without the aid of a telephone (Kraar, 1996). Other models of pagers can show the caller's phone number or the text message on the LCD display. Newer models are hybrid systems with the pager and a cellular phone packed in one. In collaboration with CNN, PageNet, for example, allows users of pager services to read up to eight categories of

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news headlines and summaries. Domestic and world news, stock market updates, business news, weather, sports, entertainment news, and features are now available on the alphanumeric display of their pagers (Tedesco, 1996). Fueled largely by a rapid increase in competing paging service suppliers and the advent of new generations of innovative paging products, the pager has been widely adopted among executives and professionals on the go. Over 34 million Americans in 1996 used pagers, an increase of 20 million over 1993 (Kagan, 1996). In a survey of new media adoption in one of the world's densest populations, 27% of Hong Kong residents had a pager (A & M, 1997). Many of them were parents, teenagers, and college students. In another study using a convenience sample of 238 students in a Hong Kong university, the adoption rate of pagers was as high as 86% (The Chinese University of Hong Kong, 1996). Convenience and affordability are the two most often mentioned reasons why students chose to own a pager.

Although it resembles another mediated interpersonal communication technology – the telephone, studies on the pager are few. Like the research on the telephone, it is one of the least-studied instruments of communication (Williams and Rice, 1983). The goal of this study is to empirically examine the adoption and use of the pager in the context of mediated interpersonal communication. As pagers began to provide more mass media-like services, such a study would provide insights into users' motivations for pager use and paging patterns from a use and gratification perspective. Research in the uses and gratifications of pagers is important because it can help us better understand how gratifications may change with the availability of new communication technologies.

## **2. Theoretical conception and literature review**

### *2.1. Uses and gratifications*

Research on the use and gratification tradition has examined the gratifications associated with the use of television, newspapers, magazines, VCRs, electronic mail, viewing of reruns, graphics horror, and erotica, among others (Dobos, 1992; Katz et al., 1973; Levy, 1987; Lichtenstein and Rosenfeld, 1984; Lometti et al., 1977; Peled and Katz, 1974; Rubin, 1984). The use and gratification approach assumes the audiences active participation in media selection and use. The concept of an active audience implies (1) utility, the uses people have for communication, (2) intentionality, or prior motivation that directs communication behavior, and (3) selectivity, or prior interest and desires that affect communication choices and content (Blumler and Katz, 1974; Palmgreen et al., 1985). The general theoretical conclusion from numerous use and gratification studies is that the gratifications sought motivate the use of a particular medium in an audience. In doing so, the audience often attempts to fulfill certain psychological needs such as surveillance, information-seeking, entertainment, personal identity or companionship (Dimmick et al., 1994; Rubin, 1981, 1983; Lin, 1993). Maslow (1970) described these psychological needs as

cognitive and emotional in nature. As such, the behavior of media gratification-seeking is regarded as goal-directed and utility-driven (Blumler, 1979; Katz et al., 1974). This utilitarian view of media use can be conceptually applicable to people's motives and use associated with the pager. Given the fact that the functions of the pager resemble those of the telephone, past studies on the motives and uses of the telephone from the use and gratification perspective in particular can provide a theoretical framework for the present study.

## *2.2. Previous research on telephone usage*

The use of new media may complement uses of existing media. Previously identified uses of existing communication technology may apply to new media. Therefore, to study the motives for using the pager, a review in the literature of studies on reasons why people used the telephone seems appropriate. Keller (1977) and Noble (1987) identified two types of telephone use: intrinsic (social-oriented) and instrumental (task-oriented). They found that domestic intrinsic calls made and received, outnumbered instrumental ones. Intrinsic use of the telephone was reported higher among women and people who were more concerned about family contact. In addition, having a telephone helped owners feel less lonely and more secure. In another study, Noble's (1989) found that convenience, time saving, ongoing contact with family and friends, gossip, overcoming loneliness and isolation, overcoming distance, saying things people would rather not say face-to-face, information access without emotional interplay, avoiding small talk (as in face-to-face), easier venting of feelings, and a sense of security were other gratifications sought by most telephone users.

Williams et al. (1985) also found support for intrinsic and instrumental functions of the telephone. Moreover, they found the entertainment function of the telephone particularly salient for adolescents. Claisse and Frantz (1987) reported similar motives and suggested three primary motives of telephone use: (1) managing (38% of calls), including making appointments and the like; (2) informing (38% of the calls), or getting or giving information; and (3) discussing (27%), or conversing to basically exchange news. Accordingly, Claisse and Rowe conceptualized two motives of telephone use: (1) the functional motive which is a goal-directed behavior such as management of activities, ordering goods, or planning schedules; and (2) relational motive which entertains affective relationships such as exchange of news and chatting. Similar to Noble's (1989) findings, their study also found that women phoned twice as often as men and more for social motives. Greater telephone enjoyment was reported among women, single people, the less educated, lower-income earners, older persons, unemployed, and blue collar workers.

Based on these conceptual dimensions of gratifications sought in the use of the telephone, this study seeks to expand previous research by addressing an important question: To what extent will the pager provide uses and gratifications dissimilar to those associated with telephone use? Specifically, three research questions are raised:

1. What kinds of gratifications are most likely to be sought through pager use?
2. How users differ in gratifications sought from the pager demographically?
3. To what extent can gratifications predict paging behaviour; and in what ways?

### **3. Methods**

#### *3.1. Pager gratification measures*

Studies done by O’Keefe and Sulanowski (1995), Dimmick et al. (1994), and LaRose and Herbert (1993) reported that sociability, instrumentality, reassurance, entertainment, acquisition, and time management were some of the common motives for the use of the telephone. This study assumes these motives can be applied for pager use. However, as a newer communication technology, the pager may involve other motives besides those previously defined gratification dimensions. Therefore, this study intends to first identify the gratifications uniquely associated with this technology. To do this, two pilot studies were conducted to refine gratifications items in pager usage. A total of 45 statements that reflected the different categories of reasons for using pagers were tested. The items included broad gratification dimensions such as sociability, social circle and tie-building, information-seeking, utility and instrumentality, entertainment, security and privacy, and fashion and status. Twenty-seven items survived pre-testing based on two convenient samples of 107 and 70 students respectively. Items that were found repetitive or ambiguous were eliminated. Respondents were asked to rate those 27 items on a 5-point Likert scale, where 1 means strongly disagree with the reasons for using pagers and 5 means strongly agree.

#### *3.2. Paging behaviour measures*

In addition to gratification items, respondents were also asked how long they owned a pager and the number of messages they *sent* and *received* in a *typical day*. Unlike the use of a telephone, pager use is different because sending a message requires the use of a regular telephone, while receiving a message does not. Thus, sending messages through pagers is much involved and initiative-taking as compared to receiving messages which is simple and passive. As such, the number of page messages *sent* and *received* may be functions of different uses and gratifications which differ from individual to individual. As this study targeted university students, it is assumed that there are differences in reasons for academic-related and non-academic-related pager uses. Accordingly, respondents were asked how many “*academic-related messages*” they *sent* and *received* in a *typical week* and how many were for “*non-academic reasons*.”

### 3.3. *Sample and sampling procedures*

Questionnaires were completed by 883 university students in a large Hong Kong university in Fall 1996. Respondents were selected from a proportionate stratified sample drawn with a multi-stage stratified sampling scheme. The university has seven colleges which consist of 49 departments and programs. Academic departments or programs were randomly selected from a stratified list of large, medium, and small ones in the first stage. A department was considered large if it has more than 300 students, medium if it has 300 to 100, and small if it has fewer than 100. The largest department was professional accountancy with 566 students and the smallest was medical science research program of nine. After stratification, there were eight large, 27-medium, and 14 small departments or programs. To draw a proportionate stratified sample from these 49 departments with a desirable  $N$ , two large, five-medium and two small departments were randomly selected. The next stage was to select classes from a stratified list of large, medium, and small classes offered at each of the selected departments. Large classes were that enrolled 80 or more students, medium with 21–79, and small with 20 or fewer. Using this multi-stage sampling technique, a total of three large, 22 medium, and four small-sized classes were randomly selected. As the size of departments and the number of students in class were mostly of medium size, medium-sized departments and classes were proportionately over-drawn to ensure the proper representation of the stratification variable and to enhance the overall representativeness of the sample.

Survey questionnaires were administered in class with prior permission of the instructor. An alternate class of similar size was used when the instructor refused to participate. A total of 1,122 students in the sample completed the survey with a completion rate of 67.6%.<sup>1</sup> To further enhance randomness of the sample and to reduce sampling error to a minimum, one more systematic random sampling procedure was performed before the sample was finalized. That is, every fifth of 1,122 completed questionnaire was discarded. The final sample size was thus 883 with 622 pager owners (69.4%) and 261 non-owners (30.6%).

The sample was 47.5% male and 52.5% female, ranging in age from 18 to 33 ( $M=19.89$ ,  $SD=1.34$ ). Most students were freshmen (52.7%) followed by sophomores (34.2%), juniors (9.6%), and seniors (3.4%). The mean family monthly income was US\$2,338 with 41.2% living in the dorm and 58.8% off campus. Only the pager owners were included for subsequent analysis ( $N=622$ ).

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<sup>1</sup> Response rate may seem low; however, there are limitations in obtaining a study sample such as this. First, there were no follow-ups when a questionnaire was not returned. Second, the participation was strictly voluntary. Third, many students were in a hurry to reach their next classes; as a result, they might not have understood clearly the questions. In addition, some students decided to leave or failed to return the questionnaire the next day when they were supposed to. Therefore, the actual attendance on the day of this particular survey may not be the same as the official enrollment. However, the response rate was calculated by dividing the number of questionnaires completed by the official enrollment of all participating classes, not by the actual attendance when the survey was conducted. Despite the difficulties, the 67.6% response rate was adequately high.

With respect to ownership of pager types, an overwhelming 97.6% reported that they used the bilingual model that displays messages in both Chinese and English. Only about 2.1% used numeric models, and less than 1% owned hybrid systems with pager and mobile phone built in one. No students reported owning an English-only model.

## 4. Results

### 4.1. *Gratifications sought through pager use*

To answer the first research question that concerns what gratifications are most likely to be sought through pager use, a series of confirmatory factor analysis models were fitted to the data with 27 gratifications items. The results of the final model which shows the basic structure of the gratification configurations can be found in Table 1. In fitting the model, a five-factor model without cross-loadings and correlated residuals was tested. The initial model yields a  $X^2$  value of 770.19, with 314 degrees of freedom. After analyzing the model and the wordings of the items, it appears that some cross-loadings can be justified so that some items sharing more or less similar wordings within a factor were specified as correlated residuals. The result of this modification yields reasonably good fit with the ratio of  $X^2$  value to its degree of freedom at 2.11. The final model helped to reduce the  $X^2$  value significantly ( $p < 0.001$ ) by 139.09 points. This improvement suggests the presence of the stable pager gratification patterns in the data. The additional fitness statistics also indicate that the final model has exhausted all significant systematic variance. The cross-loadings of four items on the corresponding factors are justifiable because the semantics of each item allow them to be cross-loaded. As a result, we conclude with confidence that the 27 items successfully produced a stable five-factor final model of pager gratifications structure.

The first factor, fashion and status, consisted of six items that marked the use of pagers for feeling of being a grown-up and looking stylish and fashionable among their peers. The second factor, sociability, was composed of seven items that reflect using pagers for instrumental as well as affection reasons. The item for scheduling appointments loaded highest on this factor, followed by endearment, surveillance, and inclusion. Entertainment was the third factor. It included five items reflecting the joy and pleasure derived from the use of pagers for having fun, playing tricks, and helping to relieve boredom by contacting people. The fourth factor, information-seeking, demonstrated the pager as a mass medium which provides such consumer information as horse race, lottery results, stocks reports, cinema schedules, news headlines, weather and traffic conditions, and announcements of up-to-date social events. The last factor was the utility factor, which showed a diversity of utilitarian functions of the pager ranging from handling brief messages, serving as an alarm clock, to storing old messages.

The sociability, entertainment, and utility factors were comparable to those reported by O'Keefe and Sulanowski (1995) and Dimmick et al. (1994) concerning

Table 1  
Confirmatory factor analysis of pager gratifications

The pager is very helpful for me ...	Factor							
	Mean	SD	1	2	3	4	5	R <sup>2</sup>
<i>Fashion/status</i>								
1. To feel that I am a grown-up	2.5	0.86	0.80					21.13
2. To look stylish	2.5	0.85	0.61					14.52
3. To show that I am already a university student	2.5	0.92	0.73					18.40
4. To not look old-fashioned without a pager (R)	2.4	0.87	0.72					18.33
5. To show that I am not a secondary school student	2.5	0.97	0.75					19.29
6. To look fashionable	2.4	0.89	0.79					21.06
<i>Sociability</i>								
7. To schedule appointments	4.2	0.76		0.57				11.93
8. To tell friends and family I am all right	4.0	0.84		0.56				12.10
9. To get together with friends more to eat out	4.3	0.69		0.65				14.37
10. To organize social events	4.1	0.78		0.53				11.32
11. To feel safe and secure in case of emergence	4.2	0.87		0.45				9.49
12. To keep in contact with people I have no time to meet	3.8	0.97		0.42				8.72
13. To feel involved with what's going on with other people	3.5	0.84		0.28	0.25			4.36
<i>Entertainment</i>								
14. To have fun	3.2	0.95		−0.15	0.76			13.43
15. To get companionship with people I know	3.3	0.89			0.67			15.92
16. To enjoy the pleasure of contacting people	3.4	0.89			0.77			18.75
17. To play tricks and to joke with friends	3.0	1.16			0.49			10.96
18. To relieve boredom by contacting people	3.0	0.98		0.11	0.51			9.42
<i>Information-seeking</i>								
19. To find out consumer information such as horse race, lottery results, stock, and films in cinema	3.1	1.02		−0.31		0.88		14.87
20. To seek information such as news headlines	3.5	0.93				0.68		16.02
21. To keep up-to-date with social events	3.1	0.93				0.68		16.11
22. To seek information such as weather/traffic condition	3.8	0.84				0.57		12.84
23. To tell time	3.2	1.03				0.43		9.24
<i>Utility</i>								
24. To call people less because many brief messages can be handled by pagers	3.8	0.92					0.45	8.38
25. To use it as an alarm clock	3.4	1.08					0.40	7.33
26. To allow people to find me easily when they need to	4.6	0.63					0.36	6.65
27. To store old messages	3.5	0.91					0.49	9.00

Fitness statistics:  $\chi^2 = 631.107$ ,  $df = 299$ ,  $\chi^2/df = 2.11$ , GFI = 0.92, RMR = 0.04

Notes: 1. All factor loadings and correlation coefficients are at least twice as large as the corresponding standard error. The correlated residuals are not shown for simplicity.  $N = 522$ . 2. The scale used: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

the uses and gratifications sought from the telephone. The instrumental use of pagers as a means of entertainment, information-seeking, and a utilitarian device shows the value of pagers as an expanded and mediated mass communication technology. Although the average mean to recognize fashion and status as a new and unique gratification for pager use among college students was small ( $M=2.5$ ;  $SD=.85$ ), the importance of this intrinsic function of the pager to satisfy late adopters' need to look fashionable and to feel being a grown-up should not be overlooked. As further analysis indicates, fashion and status is also an important gratification for low-income respondents.

#### 4.2. Demographic differences in gratifications sought from pagers

How respondents differ in gratifications sought from the pager in demographic terms? Results of regression analysis in Table 2 treating the gratification factors as dependent variables show that income is the only predictor of using pagers as a statement of fashion and status. As discussed earlier, respondents with less family income tended to take this gratification into consideration. It seems that affordability of the pager made it possible for students to own a pager even if it is for fashion or status purpose. Results further show that female students used pagers more for the sociability function; and younger students were more likely to use a pager for entertaining and boredom relieving. Such a result is consistent with findings in gratifications sought by adolescents in the use of the telephone (Williams et al., 1985). Finally, students in junior standing and from a low-income family tended to consider the pager as an information provider. The information they could seek included the horse race, lottery results, stocks, film schedules, and up-to-date news headlines. No significant demographic predictor, however, was found to be associated with the utility gratification. The  $R^2$  for the five gratification factors ranges from 1% to 3%.

Table 2  
Regression analysis of gratifications of pager use using demographic variables as predictors

Predictors	Fashion and status	Sociability	Entertainment	Information seeking	Utility
<i>Demographics</i>					
Gender (Male)	-0.07	-0.13 **	0.01	0.05	-0.05
Age	0.07	0.02	-0.15 *	0.01	-0.03
Income	-0.09 *	-0.02	-0.04	-0.09 *	-0.01
Classification	-0.05	0.07	-0.03	-0.11 #	-0.02
Residence (Dorm)	-0.04	0.06	0.05	-0.05	0.06
$R^2$	0.02	0.03	0.03	0.03	0.01

Notes: Figures are standardized regression coefficients for variables entered hierarchically.  $R^2$  is expressed in percent of variance accounted for.

# $p \leq 0.1$ ; \* $p \leq 0.05$ ; \*\* $p \leq 0.01$ ;  $N = 522$ .

#### 4.3. Gratification motives as predictors of paging behaviour

In terms of paging behaviour, respondents reported that they have been using the pager from 15 days to nearly seven years ( $M = 10.33$  months,  $SD = 10.19$ ). When asked how many messages they sent and received in a typical *week*, they reported a mean of 35 messages with 16 sent and 19 received. For *non-academic reasons* alone, they seemed to page more, with a mean of 26 in a typical *week*, than for *academic reasons* with a mean of 10.

To test the predictive power of the five gratification factors on paging behaviour, hierarchical regression was run. The independent effect of each demographic predictor on length of ownership, paging messages sent and received for all purposes, and for non-academic reasons was tested first. The testing of the effect of each gratification factor on paging behaviour followed while controlling for demographics (paging for academic purpose was excluded from further analysis because almost no variability was found). As shown in Table 3, age and the fashion and status factor were two significant predictors for length of pager ownership. The older the student, the longer they used the pager. And interestingly, the longer they used the pager, the less they indicated that the use of the pager is for the fashion and status motive. Again, this finding suggests that fashion and status is a particularly important motive for late adopters of pagers. Results further indicate that *female* students sent and received more paging messages for all purposes as well as for non-academic reasons alone. This finding confirms previous telephone enjoyment studies among women (Claisse and Frantz, 1987; Noble, 1987). Younger students appeared

Table 3  
Hierarchical regression analysis of pager use using demographic and gratification variable as predictors

Predictors	Length of ownership	All purposes		Non-academic purpose	
		Send	Receive	Send	Receive
<i>Block 1: Demographics</i>					
Gender (male)	−0.01	−0.27 ***	−0.25 ***	−0.22 ***	−0.18 **
Age	0.40 ***	−0.08	0.05	−0.11 *	−0.11 *
Income	0.03	0.19 ***	0.14 **	0.24 ***	0.20 ***
Residence (in dorm)	0.06	0.18 ***	0.19 ***	0.18 ***	0.19 ***
<i>R</i> <sup>2</sup>	0.16	0.12	0.11	0.13	0.11
<i>Block 2: Gratifications</i>					
Fashion and status	−0.10 *	−0.07	−0.08	−0.05	−0.15 *
Sociability	0.03	0.17 **	0.16 **	0.20 ***	0.06
Entertainment	0.03	0.04	0.06	0.11	0.24 **
Info-Seeking	0.03	−0.09	−0.10 #	−0.05	−0.05
Utility	0.07	0.01	−0.02	0.07	0.01
<i>R</i> <sup>2</sup>	0.17	0.15	0.14	0.17	0.15
Change in <i>R</i> <sup>2</sup>	0.01	0.03	0.03	0.04	0.04

Notes: Figures are standardized regression coefficients for variables entered hierarchially is expressed in percent of variance accounted for by the corresponding block.

#  $p \leq 0.1$ ; \*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$ ;  $N = 522$ .

to send and receive more paging messages for non-academic reasons. Family income was a significant predictor for pager use. Students with higher family income sent and received more messages. Not surprisingly, students living on campus used the pager more frequently than those living at home. The amount of variance explained by demographic characteristics alone ranged from 11% to 16% (see Table 3).

When gratification variables were entered into the equations, sociability is consistently a significant predictor for almost all pager uses: sending and receiving for all purpose and sending for non-academic reasons. It seems that the more respondents sent and received, the more it was motivated by social reasons. Fashion and status, the unique gratification factor associated with pager use, was found negatively associated with messages received for non-academic purpose alone. Such a finding suggests that the *fewer* messages respondents received, the *more* likely they felt that the purpose in having a pager was to make a fashion or status statement. But when respondents paged more, they sought other gratifications such as sociability beyond the consideration of fashion and status. Entertainment was found a significant predictor for pager use particularly for non-academic reasons. Thus receiving a message unrelated to school work indicates that respondents were motivated by the joy and pleasure of playing tricks on people, having fun, using pagers to pass the time, or to relieve boredom. A negative relationship was also found between information-seeking gratification and pager use ( $p < 0.1$ ) This particular finding shows that the more respondents used the pager for other purposes, the less likely they would use the pager for information-seeking. Finally, utility was not found a significant predictor of any paging behavior.

In sum, sociability appeared to be the strongest predictor of pager use. The regression equation were able to explain 14–17% of the total variance and the change in *R* square ranged from 1% to 4% when gratification factors entered the equations.

## 5. Conclusions and discussion

Through a series of confirmatory factor analysis, this study succeeded in establishing a stable five-factor gratification structure for the use of pagers among college students. To a large extent, the model successfully verified previously tested theoretical structure in the gratifications of the telephone use based on exploratory factor analysis. With the exception of fashion and status, the intrinsic (social-oriented) and instrumental (task-oriented) motives are consistent with previous studies (Dimmick et al., 1994; O'Keefe and Sulanowski, 1995; Williams et al., 1985).

Similar to telephone use, sociability was most powerful in predicting paging behavior. Although the multiple regression models confirm that demographics are still useful predictors in explaining pager use among students, sociability explains much of the gratifications sought for sending and receiving messages for all purposes as well as for non-academic reasons. As new media technologies become more widely adopted, users of new media technologies, such as pagers, seek a mix of interpersonal and mass media gratifications. In the case of the pager, interpersonal

motives appear to dominate as sociability motive was found to be the strongest predictor. But, mass media gratifications such as entertainment and information-seeking will become increasingly important both theoretically and empirically when more infotainment services are available from competing paging service suppliers.

Furthermore, the relationship between the fashion and status gratification and the late adopters seems unique in its own right. Though it is a concept that has been theoretically explicated, it has rarely been empirically tested in the adoption of new media. As pointed out by Rogers (1995) in describing the characteristics of the adopters of new media, “higher-status individuals may be especially likely to adopt the new media because they are seen as status symbols.” Similar to having an advanced pocket calculator among university engineering students in the 1970s, this study found that having a pager among college students, especially late adopters, is widely perceived as a mark of social distinction among their peers. Pager uses among late adopters are particularly for making a statement of being stylish and fashionable, and for making a status statement of feeling that they are as grown-up as a college student. This unique motivation seems to be an integrating force by allowing late adopters to feel that they are connected in their peer networks.

Unlike the telephone, which is not a content-oriented medium, the pager now functions as a quasi-mass medium which provides content for the audience like other traditional mass media such as radio. The implications from the increasing capability of disseminating information via the pager are far-reaching because the gatekeeping function of this new medium has never been addressed. Future research should focus on the impact of this least-regulated mass medium. As this study targeted university students, whether findings can be generalized to the general population remained to be tested. More studies can further test the findings of this study using a cross-section sample.

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