Impacts of Net-generation attributes, seductive properties of the Internet, and gratifications-obtained on Internet use

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Abstract

The Net-generation is a new generation who was born between 1977 and 1997. But unlike their parents, they are not defined by demographics alone, but rather by a combination of their demographic cohort, values, life experiences, and behavior. Based on the assumption that the Net-geners will exhibit differences from the boomers, the purpose of this study is to (1) identify attributes that can distinctly characterize the Net-generation and (2) examine how these attributes, together with perceived seductive properties of the Internet (e.g., pleasure of control and fluidity of identity) and gratifications-obtained from Internet use can predict Net-geners' popular Internet activities. Using a probability sample, a telephone survey was conducted with 976 respondents in the age of 16–24. Exploratory factor analysis found that Net-geners are (1) strongly principled and believe in fundamental rights to information, (2) emotionally open on the Net, (3) innovative and investigative, and (4) independent, confident, and preoccupied with maturity. Results of hierarchical regression analysis show that Net-geners are emotionally open individuals who use the Internet primarily as a social technology. Heavy users of the Internet were motivated by the ability through the Internet to show affections, to establish social bonds, and to escape. Most important, heavy users of the Internet often enjoyed the illusory power of being able to control the world inside the computer when playing online games and attracted by the ability of the Internet to offer companionship in the virtual world. Furthermore, Net-geners were fascinated by the capacity of the Internet to allow them to present a different persona when interacting online such as chatting on ICQ. This "fluidity of identity" gives Net-geners a feeling of status and modernity, which may bolster their self-esteem.
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1. Introduction

The new digital media, particularly the Internet, are at the heart of a new youth culture and a new generation who, in profound and fundamental ways, learn, work, play, communicate, shop, and create communities very differently than their parents (Livingstone, 2002; Tappscott, 1998). This new generation are people born between 1977 and 1997, the group following on the heels of Generation X, and is being called the Net-generation. In many ways, this generation feels more comfortable with computers than do their parents, so they are more likely to be online consumers. Bombarded with information and media savvy, the newest generation has grown up understanding the electronic economy. More than any previous generation, they are conversant with a communications revolution transforming business, education, health care, entertainment, government, and every other institution.

The N-Gen is a new generation—the children of the boomers. In the 1960s, the generation gap was over differences in lifestyles and ideology between parents and their children. Similar to their parents, N-geners are not defined by demographics alone, but rather by a combination of their demographic cohort, values, life experiences, and buying behaviors. Previous research has estimated this group represents 30% of the population in the United States (Tappscott, 1998), making it a consumer group potentially larger than the baby boomers. Net-geners are more numerous, more affluent, better educated, and more ethnically diverse than any generation (Howe and Strauss, 2000). Yet, we have very little understanding of how characteristics of the Net-geners are linked to their Internet behavior. As Internet is the medium of choice for the Net-geners, a better grasp on how the characteristics of this cohort are linked to their Internet usage would help marketers and designers to effectively use the medium. This study examines the Net-generation attributes and its relationships to Internet use in a sample of teenagers and young adults—the Net-generation.

2. The Net-generation

Tappscott (1998) describes the Net-generation as accepting of diversity, curious, assertive, and self-reliant. In addition, he identifies that the Net-geners are distinctively different from the boomers and the busters that media practitioners and educators should consider, as Net-geners are targeted as a new generation of consumers. Furthermore, Tappscott (1998) also portrays the Net-generation as having the following characteristics:

Global orientation and emotionally open: Technology, especially the Internet, facilitates the ability of the Net-generation to talk with others around the world. Net-geners find it easier to expose their inner thoughts online and the anonymity of the Internet allows them to reveal their feelings as much as they like. E-mail and chat rooms provide opportunities for this generation to exchange ideas with others without regard to ethnic or geographical boundaries. Netters have grown up un-

derstanding the need for interconnectivity to the worldwide community. And they have been connected globally via the Internet.

Strong principle and right to learn: With strong belief in equal opportunity, Netters are strong advocates of lifelong learning. They believe that access to information and the expression of opinions are fundamental rights. They understand that they need to update and maintain their training at cutting edge to ensure their employability. More than previous generations, they accept and recognize that they will go through numerous job changes and perhaps five to eight different careers in their lifetimes—aided by distance learning. Netters will use the Internet to obtain a formal degree or certification, or just take courses on topics of interest. The working Net-geners want to be able to join a class online when it suits their schedule. Online delivery of learning over an intranet is and will continue to be highly acceptable to this new generation. This generation desires a good education. The right to privacy and the right to speak out are equally important.

Technology savvy: Net-geners possess a keen sense of being innovative and investigative. They have a passionate interest in how technology works. Net-geners want options. Accustomed to years of TV channel surfing and Internet surfing, they expect a world of almost limitless choices. Brand loyalty and familiarity are still important, but Net-geners are much eager to see a greater range of ideas, opinions, and arguments. They value independence and are intellectually open to new ideas through access to the Internet. They are incredibly innovative about their use of the Net, and love its immediacy. To them, prime time is anytime. They control their ''programming'' agenda. The emphasis is no longer on the delivery of information and entertainment, but on the search—which they control.

Preoccupation of maturity: The Net-generation is a generation deeply preoccupied with maturity. This preoccupation is rooted in a desire to be treated like an adult by adults with respect and judged based on what you can contribute rather than how old you are. For example, they expect compensation to be based on contribution rather than on position in the hierarchy, or like the old approaches where income corresponds to the number of people reporting to you. This generation also resents that their ideas and activities are often suspect because they are young and inexperienced.

Netters—like their parents, the baby boomers—will redefine business as they stream into the corporate world. In selling products and to build relationships with the Net-generation and to encourage brand loyalty, marketers suggest that it is important to link brands to the value system of the cohort. This calls for an in depth understanding of the psycho-graphic profile rather than the demographic characteristics of the Net-geners (O'Leary, 1998; Omelia, 1998). Past research have used value systems and lifestyle concepts as predictors of mass media consumption (Cosmas, 1982; Kamakura and Mazzon, 1991; Leung, 1998; McCarty and Shrum, 1993; Ritchie and Clarke, 1981). Being a popular medium for the Net-generation, it is important for this exploratory study to examine the psychology of the Net-generation, particularly their attributes, their values, and media habits in predicting their current use of the Internet.

3. Seductive properties of the Internet

In addition to Net-generation attributes, another aspect receiving attention in this study in predicting Internet behavior among the Net-geners is the seductive properties of the Internet experienced by this cohort. Turkle suggested two dimensions worthy of consideration that may captivate the Net-generation: (1) the pleasure of control (i.e., the pleasure of being able to control the simulated world inside the computer such as in video games or online games) and (2) the perceived fluidity of identity in online life (i.e., the anonymous nature of chat rooms and ICQ, which allows participants to disguise their true identity in their interaction) (Turkle, 1984, 1995). Past research has demonstrated that there are indeed some very compelling psychological spaces on the Internet beyond the two most common activities people pursue—e-mail exchanges and web surfing that occupy much of the online time. These activities are not generally the ones that grab the Net-geners the way like the seductive interactive games and ICQ on the Internet.

Turkle (1984) explained why game players have a hypnotic fascination with video games. She pointed out that "television is something you watch, but video games are something you do, something you do with your head, a world that you enter, and, to a certain extent, they are something you 'become'". The object of video game designers has been to search for ways to capture the attention and the imagination of the players. On the part of the player, success at video games involves working out a game strategy, which usually entails a process of deciphering the logic of the game. This means that the game player needs to understand the intent of the game's designer and to achieve "a meeting of the minds" with the program. The major appeal of interactive games is that players are being able to extend their mind and to control the artificial world inside the computer. This pleasure of control is the holding power that draws out behavior that in extreme cases looks like an addiction. Another attraction of online game is the interactive quality of the computer, which makes it as if the computer responds to the players' every move. When one game is mastered, the fun comes when game players think about how to generalize strategies to other games. Many people think of computers as mathematical objects, but when you get closer to them you realize that they are information objects, manipulators of symbols and of language. Frequent players of games can sense a force at work, a holding power whose roots are passionate and aggressive. This holding power provokes repeat behavior that is rewarded. This fundamental psychological process may help explain why synchronous Internet environment can be so seductive. Playing computer games can affect the moods of players, which is an autonomic arousal effect (Calvert, 1999; Alloway and Gilbert, 1998). Past research found that playing a violent virtual reality game leads to stronger arousal effects than observing another person playing the game (Calvert and Tan, 1996). This finding suggests that being "inside" the character is an unprecedented and powerful experience for game players.

Multi-user domains or multi-use dimensions (MUDs), a text-based virtual reality game on the Internet, use screen graphics or icons to communicate with each other directly in real time by typing messages that other players can see. In MUDs, players immerse themselves in a world of words, without using sophisticated hardware, such

as the cave automatic virtual environment (CAVE), [1] in which each player makes scenes and drama advance and becomes the author of the story. You can be whoever you want to be. You can completely redefine yourself, can be the opposite sex and talkative. MUDs are interactive, the explicit task is to construct a viable mask or persona that can be as close to your real self as you choose (Turkle, 1998). Past research on virtual communities is filled with stories of masks for age and race, gender and class, as well as for almost every aspect of identity (e.g., McCrae, 1996; Stone, 1991). This so called freedom to recreate or to obscure some aspects of the self on-line, which allows the exploration and expression of multiple and fragmented selves of human existence (Gackenbach, 1998). There are parallel narratives in the different rooms of the MUD, one can move forward and backward in time. The MUDs are usually participated and authored by hundred of players at a time, all logged on from different locations. According to Turkle (1998), the ''self'' represented in MUD is decentralized, ongoing, anonymous, invisible, and multiplied. As a result, unparalleled opportunity to play with one's identity and to ''try-out'' new ones is possible. In fact, MUDs make possible the construction of an identity that is so ''fluid'' and ''multiple'' that we can live through the electronic self-representations with unlimited identities (Turkle, 1998). Similar to MUDs, a more novel and compelling discourse on ICQ also possesses these special properties of fluid identity, allowing anonymous persona, being invisible, multiple, and sometimes ongoing for the Net-generation. These qualities are at the root of the holding power of fluid identity and evocative potential of MUDs or ICQ. For Net-geners whose real lives are troubled by low self-esteem, boredom, lack of social support, or unsatisfactory personal relations, they may find excitement, intimacy, friendship, and respect in the synchronous communication environment such as online games, chat rooms, MUDs, or ICQ.

Wallace (1999) suggested that some psychological spaces of the Internet might be so attractive, so absorbing, that they may lead people into very heavy use, even compulsive overuse. In fact, through anecdotes and reports from surveys, we learn that there are people who spend far too much time online and cannot seem to log off. Scholars began to accept the notion that certain features of the Internet activities can cause behavioral patterns to flourish. Kimberly Young of the University of Pittsburgh found that addictive Internet use shared characteristics with pathological gambling (Young, 1996). But what is it about the Internet that draws out behavior that in extreme cases looks like an addiction? This study examines two specific seductive properties of the Internet, namely the pleasure of control and the sensation in the fluidity of identity, and their relationships to Internet behavior among the Net-geners.

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[1] The CAVE was developed at the University of Illinois at Chicago and provides the illusion of immersion by projecting stereo images on the walls and floor of a room-sized cube. Several persons wearing lightweight stereo glasses can enter and walk freely inside the CAVE. A head tracking system continuously adjusts the stereo projection to the current position of the leading viewer.

4. Media uses and gratifications motives

On top of Net-generation attributes and the seductive properties of the Internet, one important notion in the study of the media consumption is to recognize the interactive quality of the medium and the active nature of the audience. In explaining media behavior and consequences, the objectives and underlying assumptions of the uses and gratifications (U&G) perspectives seem to constitute a good approach for the study of the Internet. U&G paradigms generally place human needs as the focal point in our investigation. Wimmer and Dominick (1994) proposed that U&G began when researchers became interested in why audiences engaged in various forms of media behavior, such as reading newspaper and listening to the radio. U&G assumes that the appropriate media and their messages are sought to gratify a variety of social and psychological needs. Social psychological origins of needs, values, and beliefs give rise to motives for behavior, which may in turn be guided by beliefs, values, and social circumstances into seeking various gratifications through media consumption (Palmgreen et al., 1980, 1985). U&G theory assumes that audience members actively seek out the mass media, fulfill expectations, and actively select media and media content to satisfy individual needs. The most important assumption of this approach is that the audience is active and media use is goal-directed. Human needs, though, are not directly observable and typically are inferred from individuals' stated or observed motives for media use or communication behavior. As early as 1974, Rosengren suggested that certain basic needs interact with personal characteristics and the social environment of the individual would produce different motives and gratification behaviors that can come from using the media or other activities. Palmgreen and Rayburn (1979) argued that the primary task facing media research was to "integrate the roles played by gratifications and other factors into a general theory of media consumption".

Based on these conceptual dimensions and grounded in U&G framework, this study seeks to expand previous research by addressing an important question: To what extent can Net-generation attributes, the perceived seductive properties of the Internet, and gratifications-obtained from Internet use predict Net-geners' popular Internet use. In sum, this exploratory study poses the following research questions:

RQ_1: What attributes in culture and values of the Net-generation can be identified?
RQ_2: How can gratifications-obtained from Internet use be predicted by Net-generation attributes, Internet's seductive properties, and demographics?
RQ_3: What are the relative influences of Net-generation attributes, Internet's seductive properties, gratifications-obtained from Internet use, online experience, media use, and demographics on popular Internet use?

5. Method

5.1. Sampling

Data for this study were collected from a telephone survey with a probability sample of 976 Net-geners in Hong Kong. Telephone numbers were drawn from the

most recent edition of the territory telephone directory by first selecting randomly a page, then selecting randomly a column within the page, and finally selecting randomly a name with a phone number in the column. All of the calls were made from a central location during the 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., younger than 16 and older than 24), nonworking numbers, and numbers that were not answered after five attempts were excluded. In addition, eligible respondents were all PC users and have access to the Internet at home. The survey instrument was pilot tested before actual fieldwork, which ran between June 11 and 22, 2001. The response rate was 71.6% with a total of 699 complete interviews. The sample consisted of 50.5% male, averaged 19.8 years in age (SD = 2.75). Over half of all respondents (51.2%) had median annual household income of less than US$46,154. About 6% did not complete high school, 41.5% were high school graduates, 30.4% were university graduates, and less than 1% with a postgraduate degree.

5.2. Questionnaires and measures

The questionnaire comprised questions concerning six aspects of the Net-generation and Internet use. They were: (1) Net-generation attributes; (2) gratifications-obtained from Internet use; (3) perceived seductive properties of the Internet; (4) online experience; (5) mass media use; (6) demographics of respondents; and (7) level of Internet use.

Net-generation attributes: To assess Net-generation attributes, respondents were asked to rank their agreement with a series of 26 statements reflecting the characteristics of the Net-generation adopted from the literature (Garrison, 2000; Solomon, 2000; Tappscott, 1998). At the start, 43 statements were gathered reflecting Net-generation as being fierce independent, self-reliant and assertive, emotional and intellectually open, inclusive, having belief in free expression and strong views, innovative, preoccupied with maturity, investigative, immediate, and globally oriented. The pretest eliminated 17 items. A 5-point Likert scale was used in rating 26 attribute items, namely "1" means "strongly disagree" and "5" "strongly agree" with statements, which characterizing the traits of the Net-generation.

Gratifications-obtained from Internet use: Initially, gratification items used in previous research in traditional and new media such as in television (Rubin, 1979, 1983), personal computers (Lin, 1998), telephones (Dimmick et al., 1994), mobile phones (Leung and Wei, 2000), Internet (Papacharissi and Rubin, 2000), and ICQ (Leung, 2001a,b) were included in the survey questionnaire. Additional items were gathered through a focus group of 23 students to refine the unique motives associated with Internet use for the Net-generation. A pilot study on gratifications-obtained of Internet use with 34 items on 51 respondents was conducted to eliminate bad items and to solicit new ones. The final questionnaire consisted of 32 gratification statements. Items that were found ambiguous and repetitive were eliminated. A 5-point

Likert scale with "1" meaning "not at all satisfied" and "5" meaning "very satisfied" with their use of the Internet was used. A principal components factor analysis (with varimax rotation) grouped these items into 6 gratifications dimensions with eigenvalue greater than 1.0, explaining 51% of the variance (see Table 1). The six-factor solution was labeled "surveillance", "escape", "affection", "entertainment", "social bonding", and "social identity". Cronbach's alpha values were 0.81 for surveillance (seven items); 0.78 for escape (five items); 0.70 for affection (seven items); 0.75 for entertainment (six items); 0.73 for social bonding (four items); and 0.64 for social identity (three items).

Perceived seductive properties of the Internet: Respondents were further asked to rank their agreement with a series of eight perceived characteristics describing the seductive properties of the Internet. Exploratory factor analysis yielded the following two factors, 'pleasure of control' and 'fluidity of identity in online life.' These two factors were conceptually consistent with the theoretical expectations discussed in the literature review. The Cronbach's alpha was 0.71 and 0.67 respectively (see Table 2).

Online experience: Online experience was measured by asking respondents (1) whether they currently subscribe to broadband service (yes = 1); (2) the amount they spend each month using online services; and (3) the level of PC use with "1" = "no/never", "2" = "once every few weeks", "3" = "1–2 days per week", "4" = "3–5 days per week", and "5" = "everyday".

Mass media use: Four mass media variables were included in the analyses: use of newspaper, magazine, TV viewing, and radio listening. Newspaper and magazine reading were measured in days per week while TV and radio exposure were measured in minutes per day.

Demographics: Social demographic variables were included in the present study as control variables: gender (male = 1), age, education (highest level of formal schooling), and household income.

Internet use: Level of Internet use was measured by asking respondents how often they use four most popular Internet activities, namely e-mailing, surfing the world-wide-web, chatting online, and playing online games. Specifically, they were asked how much time on a typical day they spend online doing the four Internet activities above using a 7-point scale where "1" = "never", "2" = "less than an hour", "3" = "about an hour", "4" = "more than one but less than two hours", "5" = "two to less than three hours", "6" = "three to less than four hours", and "7" = "four or more hours". A composite measure of the overall Internet use was also created by combining the use of four Internet services ranging from 4 to 28.

5.3. Analytical procedures

A principal components factor analysis was conducted to determine what characteristics of the Net-generation could be identified. Simple regression analyses were used to determine predictors of gratifications-obtained in the use of the Internet. Furthermore, hierarchical regression analyses were employed to assess the influence of various independent variables on the use of four Internet services and

Table 1
Factor analysis for gratifications-obtained from Internet use among the net-generation ($N = 699$)

The Internet helps me …	Mean	SD	Factors					
			1	2	3	4	5	6
Surveillance								
1. Learn what is going on in the world	3.89	0.93	0.70	−0.10	0.13	0.13	0.06	0.00
2. Contribute to a pool of information	3.96	0.93	0.70	−0.02	0.19	0.16	−0.11	−0.10
3. Read about local and international news	3.80	1.01	0.70	−0.04	0.00	−0.01	0.04	0.10
4. Do research on a subject	4.11	0.94	0.68	−0.06	0.11	0.11	−0.01	−0.21
5. Keep abreast of events	3.93	0.92	0.67	−0.00	0.11	0.16	0.09	−0.01
6. Find out things I need to know about daily life	3.85	0.92	0.64	0.05	0.09	0.29	−0.14	−0.04
7. Generate ideas	3.78	0.91	0.57	0.04	0.03	0.07	0.25	0.14
Escape								
8. Put off something I should be doing	2.45	1.13	−0.05	0.77	0.09	−0.10	0.09	0.08
9. Forget about my problems	2.61	1.13	0.04	0.72	0.04	0.06	0.14	0.14
10. Get away from pressures and responsibilities	2.58	1.11	−0.13	0.68	0.04	0.06	0.12	0.13
11. Forget work	2.76	1.13	−0.06	0.67	0.05	0.21	0.17	0.16
12. Get away from what I am doing	2.83	1.06	0.03	0.61	0.20	0.30	−0.05	0.11
Affection								
13. Feel involved with what is going on with other people	3.58	0.97	0.16	0.08	0.70	0.09	0.14	−0.17
14. Show others encouragement	3.22	1.02	0.18	0.08	0.66	0.19	−0.03	0.19
15. Let others know I care about their feelings	3.22	1.04	0.13	0.20	0.59	0.02	0.19	0.17
16. Learn about myself and others	3.24	1.04	0.15	−0.01	0.50	0.22	0.08	0.36
17. Feel close with family and friends on-line	2.83	1.15	−0.01	0.17	0.49	−0.02	0.05	0.17
18. Stay in touch	3.81	0.94	0.43	−0.03	0.48	0.13	0.20	−0.20

Table 1 (*continued*)

The Internet helps me ...	Mean	SD	Factors					
			1	2	3	4	5	6
19. Talk about my problems some-times	3.33	1.02	0.10	0.06	0.46	0.16	0.44	0.03
Entertainment								
20. To have fun or a good time	3.46	1.01	0.14	0.12	0.12	0.69	0.08	0.23
21. Pass the time away when bored	3.68	1.01	0.17	0.08	0.09	0.66	0.17	−0.11
22. Get enter-tained	3.72	0.94	0.32	−0.01	0.03	0.66	0.07	0.04
23. Relax	3.61	0.97	0.23	0.12	0.18	0.64	0.10	−0.09
24. Feel less tense	3.10	1.05	0.03	0.34	0.07	0.42	0.28	0.16
25. Keep me com-pany when my family and friends are not available	3.37	1.14	0.04	0.32	0.19	0.39	0.38	0.00
Social bonding								
26. Make friends of opposite sex on-line	2.76	1.16	−0.05	0.27	0.05	0.03	0.70	0.21
27. Meet people on-line (new ac-quaintances)	3.28	1.05	0.11	0.09	0.27	0.20	0.63	0.01
28. Have some-thing to do with others	3.37	1.05	0.07	0.02	0.45	0.24	0.49	0.19
29. Feel less lonely	3.08	1.09	0.09	0.35	0.07	0.32	0.44	0.13
Social identity								
30. Feel important	2.71	1.04	−0.06	0.23	0.26	0.10	0.03	0.67
31. Impress people	2.42	1.07	−0.09	0.33	0.11	0.02	0.09	0.63
32. Look fashion-able	2.68	1.05	−0.05	0.21	0.05	0.05	0.35	0.59
Eigenvalue			7.10	4.10	1.73	1.38	1.08	1.06
Variance ex-plained (%)			22.17	12.80	5.41	4.32	3.37	3.30
Cronbach's alpha			0.81	0.78	0.70	0.75	0.73	0.64

Scale used: 1 = very unsatisfied; 2 = somewhat not satisfied; 3 = neutral; 4 = somewhat satisfied; 5 = very satisfied.

the overall Internet use. Only the variables that are significantly correlated with the criterion variables were entered in the regression equations. This hierarchical regression allows us the close examination on the impact of each block, especially the Net-generation attributes, gratifications-obtained, and perceived seductive properties of the Internet, on overall Internet use and specific type of Internet activity.

Table 2
Factor analysis for seductive properties of the Internet ($N = 699$)

	Mean	SD	Factors	
			1	2
Pleasure of control				
1. Playing interactive games is stimulating	2.94	1.22	0.738	0.162
2. The computer provokes self-reflection, extends my mind into the artificial world	3.18	1.12	0.716	0.205
3. I am drawn by the appeal of being able to control the world inside the computer	2.96	1.19	0.692	0.301
4. The interactive quality of the computer makes it seem as if the computer responds to my every move	3.12	1.01	0.660	0.125
Perceived fluidity of identity				
5. The computer offers an illusion of companionship without the demand of friendship	2.58	1.12	0.09	0.723
6. The ability to allow me to present a different persona when chatting on ICQ fascinates me	2.47	1.18	0.206	0.719
7. The use of the Internet allows me to be taken seriously and listened to	2.44	1.02	0.197	0.683
8. Use of the Internet gives people feelings of status and modernity, which may bolster self-esteem	2.56	1.10	0.279	0.610
Eigenvalue			3.17	1.02
Variance explained (%)			39.65	12.73
Cronbach's alpha			0.71	0.67

Scale used: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

6. Results

6.1. Net-generation attributes

To assess attributes associated with the Net-generation, a principal components factor analysis with varimax rotation was run to determine the potential groupings of 26-attribute items on the Net-generation. Items with extremely low communalities and items failed to load on any factors were removed. The analysis yielded four factors with eigenvalue greater than 1.0, explaining 42% of the variance (see Table 3).

The first factor was ''strong principle and right to learn'', which consisted of six items reflecting how Net-geners believe in equal opportunities, responsibility to educate themselves, fundamental rights to information access, expression of

Table 3
Factor analysis for net-generation attribute items ($N = 699$)

	Mean	SD	Factors			
			1	2	3	4
Strong principle and right to learn						
1. I believe in equal opportunity for everyone, no matter what race or gender they are	4.13	0.99	0.74	0.03	0.06	−0.04
2. I have the freedom and responsibility to educate myself	3.91	0.92	0.71	0.02	0.06	0.14
3. Access to information and the expression of opinion are fundamental rights	3.94	0.94	0.71	−0.00	0.12	0.10
4. I am willing to learn new ideas	3.78	0.93	0.64	0.12	0.10	−0.03
5. No one has the right to hide information from me or invade my privacy	3.91	1.03	0.64	0.05	0.03	0.15
6. I believe that I am open to other culture	3.74	0.93	0.62	−0.04	0.19	0.12
Emotionally open on the Net						
7. I find it easier to expose my inner thoughts online	3.12	1.11	0.02	0.66	0.21	0.10
8. The anonymity of the Internet allows me to reveal my feelings as much as I like	3.34	1.16	0.22	0.58	−0.03	0.06
9. I like chat rooms because comments can be immediately posted for everyone to see	3.02	1.07	−0.07	0.57	0.17	0.07
10. I find the Internet a more comfortable place for me to freely express my view	3.45	1.01	0.28	0.55	0.25	0.02
11. The Internet will be a boring place if no one revealed any of their personality, or their life	3.15	1.16	0.08	0.52	−0.05	0.22
12. I often talk about myself on the Internet	2.75	1.08	−0.13	0.47	0.16	0.25
13. Internet provides a wonderful opportunity to meet new people and sample different culture	3.76	1.02	0.41	0.46	0.27	0.01
Innovative and investigative						
14. I am interested in how mechanical things, such as engines, work	3.06	1.14	−0.04	0.08	0.68	0.23
15. I am willing to explore new technologies	3.58	0.97	0.39	0.06	0.63	−0.02
16. I like to create my own web-age	3.18	1.21	−0.02	0.32	0.56	0.04
17. I consider myself a modern person who is usually up-to-date on new technologies	3.47	0.94	0.33	0.05	0.54	0.22
18. I like to keep up with new technologies	3.70	0.97	0.46	0.19	0.52	0.09
19. The Internet allows me to see a much greater range of ideas, opinions, and arguments	3.35	0.96	0.36	0.21	0.37	0.14
Preoccupation of maturity and confident						
20. I like to be treated as adults by adults	3.19	1.00	0.12	0.19	0.07	0.54
21. I have more ability than most people	3.09	0.88	0.13	−0.19	0.25	0.52
22. I started using the Net and learning about computers, and everyone thinks I'm smart now	2.92	0.99	−0.15	0.18	0.19	0.51
23. My generation can change the world and make a big impact	3.38	1.01	0.20	0.07	0.113	0.47

Table 3 (*continued*)

	Mean	SD	Factors			
			1	2	3	4
24. Immediate gratification is what my generation expects	3.39	0.95	0.31	0.255	0.07	0.45
25. Whenever I call adults, they do not take me seriously	2.67	1.05	−0.14	0.347	−0.08	0.42
26. I resent that my ideas and activities are often suspect because I am young and inexperienced	3.45	1.11	0.33	0.199	−0.10	0.38
Eigenvalue			5.74	2.49	1.35	1.23
Variance explained (%)			22.06	9.56	5.19	4.74
Cronbach's alpha			0.80	0.70	0.71	0.55

Note: Response categories were 1 = strongly disagree, 2 = disagree, 3 = neutral or undecided, 4 = agree, and 5 = strongly agree.

opinions, and in privacy. This factor had an eigenvalue of 5.74 and explained 22.06% of the total variance. The reliability of these six items as indicated by Cronbach's alpha was high at 0.80 and the item mean scores were relatively high. "Emotionally open on the Net" was the second factor (eigenvalue = 2.49, 9.56% of variance). It included seven items characterizing that Net-geners find the Internet a comfortable place to reveal their feelings, to meet new people, and to sample different cultures (Cronbach's alpha was 0.70). The mean scores for these items were the third highest suggesting the emotionally open Net-geners find it safe and easy to expose their inner thoughts and express their views freely on the Net. "Innovative and investigative" was the third factor (eigenvalue = 1.35, 5.19% of variance). It consisted of six items illustrating how Net-geners consider themselves modern, up-to-date, and are interested in new technologies. Cronbach's alpha was moderately high at 0.71 and item mean scores were the second highest indicating that most Net-geners like to keep up with new ideas and opinions. The fourth factor, "preoccupation of maturity and confident" (eigenvalue = 1.23, 4.74% variance), contained seven items indicating that Net-geners are confident in their ability, want to be treated as adults by adults, and resent their ideas and activities being questioned because of their age and inexperience. However, the item mean scores among the seven items underlying this factor were the lowest and the Cronbach's alpha was also low at 0.55.

As a whole, these four factors were conceptually consistent with the theoretical expectations described by Tappscott (1998). In sum, this study found that there is a deeply held value in the Net-generation culture. They believe that through the availability of choice, they have the opportunity and fundamental rights to information access. Net-geners thrive on their immediate access to the world, and it is indicative of their culture's tolerance and reluctance to reject anything outright. They are also an emotionally open and innovative generation, with much confidence, and preoccupied with maturity.

6.2. Predicting gratifications-obtained from the Internet

As results of regression analyses using gratifications-obtained as dependent variables in Table 4 show, Net-generation attributes were significant predictors of all gratifications-obtained in the use of the Internet. Specifically, "strong principle and right to learn" ($\beta = 0.28$, $p < 0.001$) and "preoccupation with maturity and independent" ($\beta = 0.11$, $p < 0.01$) were significant predictors for "surveillance". This means that Net-geners, who seek information as the primary motive in the use of the Internet, are people with strong principles that they value equal opportunities for everyone and believe that freedom to information access is their fundamental right. Net-geners are also confident and independent and like to be treated as adults by adults. "Escape" was significantly predicted by "preoccupation with maturity and independent" ($\beta = 0.20$, $p < 0.001$) and by "strong principle and right to learn" ($\beta = -0.19$, $p < 0.001$) attributes. This finding illustrates that using the Internet as an escape valve are those Net-geners who are young and resent being treated as inexperienced and do not have a strong belief in equal rights to information access and expression of opinions. "Emotionally open" ($\beta = 0.25$, $p < 0.001$) and "innovative and investigative" ($\beta = 0.16$, $p < 0.001$) were significant predictors of "affection" as the main motivation for Internet use. This simply shows that Net-geners are up-to-date with new technology and enjoy using the Internet to freely express

Table 4
Regressing gratifications-obtained on net-generation attributes, seductive properties of the Internet, and demographics

Predictor variables	Surveil-lance β	Escape β	Affection β	Enter-tainment β	Social bonding β	Social identity β
Net-generation attributes						
Strong principle and right to learn	0.28***	−0.19***	0.05	0.08*	0.05	−0.10**
Emotionally open on the Net	0.04	0.05	0.25***	0.10**	0.21***	0.06
Innovative and investigative	0.07#	−0.01	0.16***	0.00	0.07#	0.17***
Preoccupation with maturity and independent	0.11**	0.20***	0.04	−0.02	−0.06	0.14***
Seductive properties of the Internet						
Pleasure of control	0.19***	0.16***	−0.02	0.21***	0.12**	0.03
Perceived fluidity of identity	−0.14**	0.16***	0.08	0.03	0.20***	0.23***
Demographics						
Gender (male)	0.03	−0.07#	−0.07#	0.07#	0.01	−0.03
Age	0.01	−0.01	0.02	−0.13**	−0.01	0.05
Education	0.10*	0.02	0.08#	−0.03	−0.05	0.00
Household income	−0.02	−0.01	0.01	0.01	0.01	0.02
R^2	0.21	0.17	0.12	0.12	0.16	0.15
Adjusted R^2	0.19	0.15	0.10	0.11	0.15	0.14

Notes: Figures are standardized beta coefficients from final regression equation with all blocks of variables included for the entire sample.
#$p \leqslant 0.1$; *$p \leqslant 0.05$; **$p \leqslant 0.01$; ***$p \leqslant 0.001$; $N = 699$.

their feelings on ICQ, chat rooms, and discussion forums. They find it easier to reveal their inner thoughts because of the anonymity potential of the Internet. Similar to "affection", "emotionally open on the Net" ($\beta = 0.21$, $p < 0.001$) was also found significant predictor for Net-geners to establish "social bonds" on the Internet. Simply put that emotionally open Net-geners find the Internet an ideal place to make new friends, to meet people, and to feel less lonely.

Finally, going online to get entertained were those Net-geners who are emotionally open ($\beta = 0.10$, $p < 0.01$) and have a strong belief in fundamental right for information ($\beta = 0.08$, $p < 0.05$); while going online for "social identity" reasons were associated with Net-geners who are "innovative and investigative" ($\beta = 0.17$, $p < 0.001$), inexperienced but independent ($\beta = 0.14$, $p < 0.001$), and did not have a strong belief in equal right and opportunities in information access ($\beta = -0.10$, $p < 0.01$).

In addition to Net-generation attributes being significant predictors, perceived seductive properties of the Internet also predicted gratifications-obtained in Internet use. "Pleasure of control" ($\beta = 0.19$, $p < 0.001$) and "fluidity of identity" in online life ($\beta = -0.14$, $p < 0.01$) were significant predictors of "surveillance". This indicates that the stimulating appeal of the Internet and the illusory power to control the world inside the computer are the main motives why Net-geners depend on the Internet to seek information. However, Net-geners, who use the Internet for surveillance reason, are not those who value the ability of the Internet to allow new identity on the Net. In addition, "pleasure of control" ($\beta = 0.16$, $p < 0.001$) and "fluidity of identity" ($\beta = 0.16$, $p < 0.001$) were significant predictors of "escape" gratification-obtained. This demonstrates that Net-geners, using the Internet for escapism, are because of the joy to control and of the ability to present themselves in a different persona in the virtual world. As expected, "entertainment" was predicted by "pleasure of control" ($\beta = 0.21$, $p < 0.001$). This shows that the perceived power to control the artificial world through interactive online games and interactions exchanges in the computer are the key rationales to regard entertainment as the motivation to use the Internet. Finally, "social bonding" was significantly predicted by "fluidity of identity" ($\beta = 0.20$, $p < 0.001$) and "pleasure of control" ($\beta = 0.12$, $p < 0.01$), while "social identity" was predicted by "fluidity of identity" in online life ($\beta = 0.23$, $p < 0.001$). These findings show that the ability of the Internet to create an illusionary relationship, to present a different persona, to make the computer to respond to every command, and the stimulating appeal of control over the world in the Internet are important factors in explaining why Net-geners use the Internet to make new friends online, to have something to do with others, to impress people, or to feel important and fashionable.

Demographically, only education and age are significant predictors of gratifications-obtained in Internet use. Highly educated Net-geners ($\beta = 0.10$. $p < 0.05$) logically explain why information seeking was the motive in Internet use; and being young ($\beta = -0.13$, $p < 0.01$) was the main reason Net-geners use the Internet for entertainment.

Collectively, Net-generation attributes, perceived seductive properties of the Internet and demographics explained 19% of the variance for surveillance, 15% for

escape, 10% for affection, 11% for entertainment, 15% for social bonding, and 14% for social identity gratifications-obtained in the use of the Internet. In sum, Net-generation attributes and perceived seductive properties of the Internet were two important concepts contributed significantly in explaining why Net-geners were motivated by the gratifications-obtained in using the Internet.

6.3. Predicting Internet use

To answer the third research question on the relative influences of Net-generation attributes, gratifications-obtained from Internet use, perceived seductive properties of the Internet, online experience, media use, and demographics on the overall use of the Internet and the adoption of different Internet services, hierarchical regressions were run. Results in Table 5 show that "emotionally open on the Net" ($\beta = 0.10$, $p < 0.05$) was the only significant predictor from the Net-generation attributes block for overall Internet use, explaining most variance of the equation at 11%. This finding suggests that Net-geners are emotionally open individuals who use the Internet primarily as a social technology to reveal their feelings, to express their views freely, to meet new people, and to sample different cultures. The next most powerful block, explaining 5% of the total variance, is demographics. As expected, "age" ($\beta = -0.23$, $p < 0.001$) is a significant predictor, meaning that the Internet is a technology of choice for the Net-generation. The younger the Net-gener, the more time they would spend on the Internet. Accounted for 4% of the variance, gratifications-obtained is the next most influential block. Among the variables tested, overall Internet use was significantly predicted by "affection" ($\beta = 0.12$, $p < 0.01$), "social bonding" ($\beta = 0.11$, $p < 0.01$), and "escape" ($\beta = 0.08$, $p < 0.05$). This indicates that Net-geners' heavy usage of the Internet were motivated by the ability through the Internet to show others encouragement, to stay in touch, to care for others, to establish social bonds, to make friends of opposite sex, to meet people online, to feel less lonely, and to escape.

Furthermore, "pleasure of control" ($\beta = 0.17$, $p < 0.001$) and the perceived "fluidity of identity" in online life ($\beta = 0.10$, $p < 0.05$) were also significant in predicting overall Internet use with three additional percent of the variance spoken for. This indicates that heavy users of the Internet often enjoyed the illusory power of being able to control the simulated world inside the computer and attracted by the perceived ability of the Internet to offer virtual companionship. Net-geners were fascinated by the ability of the Internet to allow users to present a different persona when interacting online. This "fluidity of identity" also gives Net-geners a feeling of status and modernity, which may elevate their self-esteem. Online experience such as whether respondents have broadband access, the amount spend online monthly, and level of PC use were analyzed next. Results indicate that monthly Internet access fee ($\beta = 0.16$, $p < 0.001$) was significant predictor of overall Internet use. As expected, the more the Net-geners spend a month on the Internet, the more they would use the Internet. Online experience block yielded an R^2 of 0.02. Finally, media use variables, accounted for 1% of the variance, were entered next in the regression equation. Overall Internet use was found significantly and negatively predicted by "radio

Table 5
Stepwise regression of net-generation attributes, gratifications-obtained, seductive properties of the Internet, usage pattern, media use, and demographics on Internet use

Predictor variables	Internet use									
	Overall Internet use		E-mails		Surfing the WWW		Online forum, chat room, ICQ		Online games	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Block 1: Net-generation attributes										
Strong principle and right to learn			−0.08#							
Emotionally open on the Net	0.10*				0.12**		0.11**		0.05	
Innovative and investigative										
Preoccupation with maturity and independent										
		0.11		0.01		0.02		0.08		0.05
Block 2: Gratifications-obtained										
Surveillance					0.10*					
Escape	0.08*						0.09*		0.05	
Affection	0.12**						0.12**			
Entertainment									0.03	
Social bonding	0.11**				0.08#		0.20***		0.02	
Social identity					−0.12**					
		0.04		0.00		0.04		0.04		0.02
Block 3: Internet's seductive Properties										
Pleasure of control	0.17***		−0.11**						0.20***	
Perceived fluidity of identity	0.10*								0.16***	
		0.03		0.01		0.00		0.00		0.05
Block 4: Online experience										
Broadband connection (yes = 1)									0.12**	
Money spend online	0.16***									
Level of PC use			0.07#		*0.09*		0.11**			
		0.02		0.00		0.01		0.01		0.01
Block 5: Media use										
Newspaper reading										
Magazine reading										
TV viewing					0.12*		0.08*			
Radio listening	−0.08*									
		0.01		0.00		0.00		0.01		0.00
Block 6: Demographics										
Gender (male)					0.09*					
Age	−0.23***		0.23***				−0.25***		−1.4***	

Table 5 (continued)

Predictor variables	Internet use									
	Overall Internet use		E-mails		Surfing the WWW		Online forum, chat room, ICQ		Online games	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Education					0.09*		0.09*			
Household income										
		0.05		0.05		0.02		0.04		0.02
R^2	0.28		0.08		0.08		0.18		0.16	
Final adjusted R^2	0.26		0.07		0.07		0.17		0.15	

Notes: Figures are standardized beta coefficients from final regression equation with all blocks of variables included for the entire sample.
$^{\#}p \leqslant 0.1$; $^{*}p \leqslant 0.05$; $^{**}p \leqslant 0.01$; $^{***}p \leqslant 0.001$; $N = 699$.

listening" ($\beta = -0.08$, $p < 0.05$). This implies that Net-geners who rarely listen to radio were those who are heavy users of the Internet. This finding seems to hint a slight displacement effect of the Internet on traditional media. More important, as radio listening is necessarily passive in receiving news, music, or sports, but Internet use is rather active and engaging, it is no surprise that heavy Internet use is significantly associated with users who enjoy the seductive power of the Internet and shy away from a passive medium such as the radio. Conversely, light Internet users might just enjoy the peacefulness of the radio. This social and psychological disparity between the two may simply reflect the generational differences between the Net-generation and the older generation such as the boomers. Total amount of variance explained was 26% (see Table 5).

Individual Internet activities by the Net-generation—e-mails, surfing the WWW, online forum/chat room/ICQ, and online games—are analyzed next. Results in Table 5 show that "age" ($\beta = 0.23$, $p < 0.001$) and "pleasure of control" ($\beta = -0.11$, $p < 0.01$) were two significant predictors of e-mail use for the Net-generation. This indicates that frequent users of e-mail among the Net-geners are generally older and do not appreciate or pay much attention to the pleasure of being able to control the world inside the computer in interactive games. "Emotionally open on the Net" ($\beta = 0.12$, $p < 0.01$), "social identity" ($\beta = -0.12$, $p < 0.01$), "TV viewing" ($\beta = 0.12$, $p < 0.05$), "surveillance" ($\beta = 0.10$, $p < 0.05$), and "level of PC use", "gender", and "education" (each with $\beta = 0.09$, $p < 0.05$) were significant predictors for surfing the WWW. This suggests that Net-geners who surf the Net heavily are those who find the Internet a comfortable place to reveal their feelings, express their views, and value the surveillance function of the Internet, but do not believe that the Internet is the place to make new friends or friends of opposite sex. Heavy WWW surfers are usually educated male, watch a lot of television, and use their PC regularly at home. The regression equations for e-mails and surfing the WWW explained 7% of the variance each.

Net-geners who actively participate in online forums, chat rooms, and ICQ are young ($\beta = -0.25$, $p < 0.001$), primarily motivated by social bonding ($\beta = 0.20$,

$p < 0.001$), seek affection ($\beta = 0.12$, $p < 0.01$), and are emotionally open ($\beta = 0.11$, $p < 0.01$) individuals. Heavy online Net-geners use their PC frequently ($\beta = 0.11$, $p < 0.01$), are highly educated and looking for escapism on the Net (with both $\beta = 0.09$, $p < 0.05$), and also are heavy TV viewers ($\beta = 0.08$, $p < 0.05$). The online forum, chat room and ICQ equation has 17% of its variance accounted for. The Net-generation attributes block explained most of the variance for this equation at 8%. Finally, the online games equation yielded an R^2 value of 0.15, with, unsurprisingly, most of the variance explained by the Internet seductive properties block at 5%. As expected, heavy online game players were motivated by "pleasure of control" ($\beta = 0.20$, $p < 0.001$) and "fluidity of identity" ($\beta = 0.16$, $p < 0.001$) in online life. Heavy game players are generally younger ($\beta = -0.14$, $p < 0.001$) and are subscribing to broadband service ($\beta = 0.12$, $p < 0.01$).

7. Conclusions and discussion

Based on differences in lifestyle, values, and life experiences, this study introduced a reliable measure of Net-generation attributes. Exploratory factor analysis successfully identified four attribute clusters within this cohort, which by large confirm Tappscott's (1998) characterization of the Net-generation in the United States. Findings suggest that Net-geners are generally (1) strong principled and believing in fundamental rights to information, (2) emotionally open or uninhibited on the Net, (3) technology savvy, and (4) independent, confident, and preoccupied with maturity. There was strong support for our expectation that these attributes would be associated with Net-geners' Internet use. In particular, emotionally open on the Net had the biggest positive impact on overall Internet use, especially on surfing the WWW and chatting in forums and ICQ. Net-generation attributes, as a block, added significantly to three out of five Internet use regression equations, and explained considerable amount of the variance.

This study also supported that Net-generation attributes would significantly link to gratifications Net-geners obtained from Internet use. Specifically, Net-geners reported more surveillance and entertainment but less escape and social identity benefits when they are strong principled individuals and believing in the right to information access. This reinforces Net-geners' profound belief in fundamental right to free flow of information and expression of opinions regardless of race, gender, and culture. As expected, Net-geners, who obtained more affection, social bonding, and entertainment benefits from Internet use, are outgoing individuals. They find it easier, comfortable, and even entertaining to reveal their feelings, freely express their views, and care for others online. Similarly, innovative and investigative Net-geners are those reported more likely to use the Internet to show affection, to feel important, or to look fashionable. As such, this revealing finding supports that Net-geners are up-to-date with technologies and fashion, in using the Internet to care for others and to stay trendy. More important, using the Internet to escape, to be fashionable, and to seek information are Net-geners who are independent and want to be treated as adults by adults. These results seem to highlight that the Internet medium is seen by

the Net-geners as a social technology, a diversion tool, a status symbol, and also regarded as a key source for information.

In addition to the impact of Net-generation attributes on Internet use and its relationship to gratifications-obtained, this study also supported the notion that the seductive properties of the Internet is predictive of overall Internet use, especially for playing games online. Results specifically showed that Net-geners who used the Net heavily are those who are seduced by the pleasure of being able to control the simulated environment and the ability to make endless changes to their persona in the Internet. This finding reinforces previous research that "dependents" of the Internet spend most of their time in the synchronous communication environments engaging in interactive online games, chat rooms, the MUDs, and ICQ (Young, 1998). Rewards received, resulting from the recognition and attention from the unknown and potentially idealized others, may make the interactive gaming even more compelling (Poole, 2000, p. 175; Wallace, 1999). For Net-geners whose lives are troubled by low self-esteem and lack of social support, once they developed the winning strategies and getting stronger at the games, the ultimate holding power of the Internet will be when they are praised by other chatters and gamers with admiration and respect. Furthermore, while in the synchronous Internet environment, Net-geners may contribute a line of text; and in return, they may receive a reply shortly after. When they do, this anonymous response may bring unthinkable surprise. For example, a friendless, shy, and insecure Net-gener may suddenly become a highly respected and charming individual on the Internet.

Not surprisingly, seductive properties of the Internet were also predictive of gratifications-obtained in Internet use. With the exception of affection, all gratifications-obtained from the Internet were linked to "pleasure of control" and the "fluidity of identity". This indicates that regardless of what gratifications Net-geners obtained from Internet use, the pleasure of being able to control either in games or in information access and the enjoyment in the exploration and the expression of multiple and fragmented selves in the process of recreating and obscuring some aspects of their true identities on the Net are the primary driving forces in seducing this generation.

As expected, U&G perspective is still a well-established set of media use predictors. In particular, cognitive and affective gratifications-obtained such as affection, social bonding, and escape are more potent factors in predicting Internet use for the Net-generation than others like surveillance, entertainment, and social identity. These findings are thus consistent with past work. For example, it was reported that the Internet was used as a functional alternative to face-to-face interaction (Papacharissi and Rubin, 2000). This noteworthy finding, indicating that the Internet is a social technology for the Net-generation, seems support the notion that computer-mediated communication, such as the Internet, facilitates or motivates interpersonal relations disregard physical boundaries and thus creates opportunities for new, genuine, personal relationships and communities.

Similar to past research, this study also found that socioeconomic status such as formal education, household income, and gender are predictive of Internet use (Dutton et al., 1987; Leung and Wei, 2000). However, with the exception of age, demographics factors are becoming less and less important in predicting Internet use

for the Net-generation. As the price of personal computers has been on the decline over the past decade and the Internet is no longer for males alone, socioeconomic variables are becoming less effective in predicting Internet behavior. So, one of the key findings of the current study is that psychographic variables, such as the ones developed here in this study on Net-generation attributes, are powerful predictors of Internet activities. Further, in selling products and to build relationships with the Net-generation and to encourage brand loyalty, marketers suggest that it is important to link brands to the value system of the cohort. This calls for an in depth understanding of the psycho-graphic profile rather than the demographic characteristics of the Net-geners (O'Leary, 1998; Omelia, 1998).

Furthermore, our findings suggest that the Internet is not yet displacing the use of traditional media for the Net-generation, but is used more as a complementary source of entertainment and/or information. These findings are consistent with those of Coffey and Stipp (1997), Kassaye (1997), and Papacharissi and Rubin (2000). This means that marketers should put emphasis on developing an integrated communication strategy that combine the use of traditional media and interactive technologies in reaching the Net-generation.

On the whole, each of the three theoretical constructs—Net-generation attributes, perceived seductive properties of the Internet, and gratifications-obtained—performed reasonably well in helping to explain Internet use among this cohort. However, there are limitations in this study:

First, the data were gathered from a random sample of youngsters in Hong Kong. Applications or generalization of the results from this study to other population may not be justified. Second, despite 26 Net-generation attributes items seem applicable in this study, the failure to include 17 other items from a list of 43 gathered in the literature (Garrison, 2000; Solomon, 2000; Tappscott, 1998) may be explained by social and cultural differences between Hong Kong and the West. Future research should consider attribute items developed locally to reflect the characteristics of the Net-generation for the native culture or a focused cross-cultural study on comparing differences in the distinct characteristics of the Net-generation between cultures. Third, the emerged attributes may not be unique for the Net-generation and non-Net-generation could also possess these attributes. Future studies should explore the similarities and differences in the applications of these attributes between the Net-generation and other generations such as Generation-X, baby busters, and baby boomers. Fourth, identifying Net-generation attribute clusters using exploratory factor analysis is admittedly a weakness. Future research should undergo more rigorous testing, such as using confirmatory factor analysis, with alternative solutions and interpretations to make predictions or to test the presence of a hypothesized structure in a different population.

Finally, this study concludes that the Net-generation is not a large homogeneous group of consumers who have similar interests and attitudes. Every subgroup, as suggested from the attribute clusters identified in this study, consumes different products and services with different lifestyles, interests, values, and life experiences. Marketers, media planners, and web-designers should take note of their differences and develop effective strategies in reaching this cohort.

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