

Access to the Internet by Hispanic College Students

Some Findings from a College with a High Rate of Student Poverty

Jeffrey Huerta, Mark Winkel *and* Russell Eisenman

Abstract

As access to Internet technology is becoming more prevalent, it is important to examine why students use the Internet and whether it is disproportionately used for non-educational versus educational purposes. This study surveyed Internet access and use characteristics of 190 Hispanic college students and identified the functions underlying their Internet use. Results indicated that students with limited Internet access spent significantly fewer hours online each week and exhibited lower usage for social and informational purposes. Despite evidence of differences in use of digital devices due to limited access, the Internet was a significant educational resource for students, and having access to the Internet at the university enabled them to use the Internet frequently. A factor analysis revealed four main reasons for Internet usage: education, social, goods and information about current events, and dating/sexual. Educational usage was most prevalent in this study, and was unaffected by access. Additionally, students with lower socioeconomic and cognitive resources exhibited greater educational usage. Additional findings are presented.



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Recent data from the Pew Internet and American Life Project (Livingston, 2011) show that approximately 78 percent of all U.S. adults accessed the Internet, at least occasionally, in 2010. This figure is comparable to Internet World Stats (2011) data showing that Internet usage reached 77 percent in the U.S. in 2010. Both sources indicate that Internet penetration is increasing; however, certain demographic variables are often associated with lower levels of access. When grouped by ethnicity, for example, African Americans and Hispanics often exhibit a much lower rate of Internet penetration than Anglo Americans. In 2003 only 36 percent of Hispanics, versus 57 percent of Anglos, accessed the Internet (U.S. Census Bureau, 2005). Though this gap is closing, lower levels of education and lower income are each associated with lower levels of Internet penetration (Hoffman, Novak, & Schlosser, 2000; Livingston, 2011; NTIA, 2000; 2002; U.S. Census Bureau, 2005). This indicates that poor and undereducated households, particularly those of ethnic minorities, are less likely to access the Internet.

A geographic area of Texas characterized by these types of demographic variables is the Rio Grande Valley in South Texas. However, the Internet access and patterns of use by Hispanic college students in this area are relatively unknown. Also, while Internet use among college students has been studied extensively, only a few researchers (Matthews & Schrum, 2003; Mitra, Willyard, Platt, & Parsons, 2005; Odell, Korgen, Schumacher, & Delucchi, 2000; Weiser, 2000) have attempted to include an educationally relevant component when examining the different functions that underlie such use. Because individuals are free to engage in any number of activities while online, the Internet is capable of serving a multitude of functions for any group that uses it. Middle and high school students, for example, when given the opportunity to use the Internet while at school, often chose pleasurable websites with little educational value rather than educational or informational websites (Ebersole, 2000). This finding raises concerns, beyond those of access, regarding college students' use of the Internet and whether it is disproportionately for non-educational versus educational purposes.

The present study was carried out at the University of Texas–Pan American (now known as the University of Texas Rio Grande Valley). It is a school with many students from poverty backgrounds, who may have little access at home to computers or the Internet. Those without such access are on the losing side in a world increasingly based on access to and use of information (Britz, 2004; Mathiesen, 2013; Wresch, 1996). This study explores whether computer and Internet use at the college is available in adequate supply for these students, as well as other issues.

Internet Access and a Shifting Digital Divide

Individuals in low income, low educated, minority racial, or rurally located households are not as likely as other Americans to have access to newly emerging

technologies (Kastsinas & Moeck, 2002; NTIA, 2000; 2002; PEW, 2002; 2005; U.S. Census Bureau, 2005). This issue of access, where some individuals have it while others do not, has been commonly referred to as the digital divide (Eisenman, 2018; Wikipedia, 2017). Some researchers (Cho, De Zuniga, Rojas, & Shah, 2003; Jackson, Barbatsis, Von Eye, Biocca, Zhao, & Fitzgerald, 2003; NTIA, 2002) contend that access divides are shrinking and that attention should focus on specific usage differences, rather than access differences. According to Peter and Valkenburg (2006), two approaches to digital divide phenomena are tenable: the disappearing digital divide approach and the emerging digital differentiation approach.

The disappearing digital divide approach suggests that once gaps in access are overcome, patterns of Internet use will be homogeneous and unaffected by socio-economic, cognitive, and cultural resources (Peter and Valkenburg, 2006). Everyone will use the Internet in similar ways to acquire information, to socialize with other people, and for entertainment purposes. The emerging digital differentiation approach, however, claims that even if all members of a group have access to the Internet, differential use patterns will occur as a result of socio-economic, cognitive, and cultural resources. Those with greater resources will tend to use the Internet as more of an informational and social medium, while those with fewer resources will use the Internet more for entertainment purposes.

Using data from a sample of adolescents, Peter and Valkenburg (2006) tested the two approaches and concluded that predictions of the emerging digital differentiation approach are more convincing and descriptive of digital divide issues. Their results indicate that “once access gaps are bridged, other gaps [in usage] open [which] largely result from unequal socio-economic and from varying cognitive resources, particularly in differences in formal education” (p. 302). While most adolescents used the Internet as a social medium, those with greater socio-economic and cognitive resources used the Internet more frequently for information purposes and less frequently for entertainment purposes than did their peers with less socio-economic and cognitive resources. One question that remains is whether such resources affect the Internet use of Hispanic college students.

Functions of Internet Use

When examining Internet use, many researchers (Cho, et al., 2003; Ebersole, 2000; Matthews & Schrum, 2003; Mitra, et al., 2005; Papacharissi & Rubin, 2000; Song, Larose, Eastin, & Lin, 2004; Stafford, 2005; Stafford, Stafford, & Schkade, 2004; Weiser, 2001; and others) focus, at least partially, on tenets from the Uses and Gratifications (U&G) approach to mass media. A key assumption of U&G research is that the individual or audience using a form of mass media,

such as radio, television, and most recently the Internet, is active rather than passive; conscious and motivated choices among media channels and content are made by the users (for a review, see Ruggiero, 2000; Severin & Tankard, 1997). According to Mitra, Willyard, Platt, and Parsons (2005), when this assumption is applied to Internet media with college students as the audience, uses of the Internet are dictated mostly by functionality and interest.

In assessing Internet use, researchers (D'Esposito & Gardner, 1999; Ebersole, 2000; Matthews & Schrum, 2003; Mitra et. al, 2005; Odell et. al, 2000; Papacharissi & Rubin, 2000) often identify multiple functions or motives. Weiser (2000) derived conclusions regarding Internet use in areas of leisure/entertainment, interpersonal communication, and academic/educational assistance, but later (Weiser, 2001) narrowed it down to two broad functions: informational and social. The informational function, dubbed as goods and information acquisition (GIA), involved using the Internet to keep up with the world and with events in special places, to look around at websites, to shop, to search for hard to find items, and to stay informed with world news. These uses reflect the extent that an individual uses the Internet to gather information and to acquire goods or services. The social function, labeled as socio-affective regulation (SAR), involved using the Internet to chat online, meet with new exciting people, look for romance, look for sexual relationships, view pornography, and play interactive games. These uses reflect the extent that an individual uses the Internet to connect oneself with other individuals, either through interactive, affiliative, or affective relationships.

Weiser's (2001) functions of Internet use encompass many of the motives or functions identified by other researchers, with one significant limitation—there is no consideration for college students' educational or academically relevant uses of the Internet. Given that use of the Internet is dictated by functionality and interest, it follows that students actively engage the Internet for educational purposes due to their academic setting. Uses and gratifications theory, then, provides a conceptual basis to support the expectation that college students' Internet use, in addition to exhibiting GIA and SAR functions, will also exhibit a function dealing with educationally relevant utilization (ERU). Researchers who have included an educational or academic component (Matthews & Schrum, 2003; Mitra, et al., 2005; Odell, et al., 2000; Weiser, 2000) typically base it on only one, two, or three items and thus limit the scope of an ERU function. Though Ebersole's (2000) factor analysis of Internet uses resulted in a research/learning component comprised of 12 items, some of the uses dealt with information about news, world events, and computer skills, which does not accurately reflect a true ERU function.

Duggan, Hess, Morgan, Kim, and Wilson (2001), in their examination of undergraduate students' attitudes toward educational uses of the Internet, found that certain educational uses of the Internet correlate with positive attitudes. These educational or academically relevant uses include consult with instructor,

consult with classmates, complete homework assignments, complete term paper research, retrieve class lessons or lecture notes, keep track of valuable educational websites, and discuss class-related information found on the Internet with friends. However, these uses were never combined into a composite scale. As evident from Duggan, et al. (2001) and others, many specific academic and educationally relevant uses of the Internet exist, but a general overarching function or scale accounting for a variety of uses that are necessary in today's academic setting has yet to be derived.

Ethnicity, Culture and Hispanic Internet Access

As noted earlier, Hispanics exhibit lower levels of Internet penetration than whites (Kastsinas & Moeck, 2002; NTIA, 2002; U.S. Census Bureau, 2005). However, PEW (2007) concluded that "much of the difference in Internet usage between Hispanics and non-Hispanics is explained by socio-economic differences in the composition of the groups" (p. 3). Additionally, when educational differences are controlled for between Hispanics and Whites, the Internet usage of these two groups becomes the same. This suggests that the lower high school graduation rate among Hispanics is likely to blame for their lower levels of Internet use. Hispanics in the U.S. adult population are currently markedly poorer than Whites, and only 59 percent of Hispanic adults have graduated from high school compared to 88 percent of Whites (PEW, 2007).

While these findings help highlight the significance of socio-economic resources such as income and cognitive resources such as education, it should be noted that PEW's (2007) definition of "Internet use" was established by an answer of "yes" to a question of "occasional Internet use" or to "occasionally sending or receiving e-mails" (p. 3). Therefore, the phrase "lower levels of use" is actually a description of the level of Internet penetration; actual usage differences, such as the average number of hours per week someone has been using the Internet, were not explored.

PEW (2007) also examined Internet penetration differences solely within a sample of Hispanics. Both income and education differences among Hispanics were found to be directly related to Internet penetration. Higher levels of income and education among Hispanics were each associated with higher levels of Internet penetration. Additional cultural variables, such as language dominance, were also examined. PEW (2007) found that a higher percent of English-dominant (78 percent) and bilingual Hispanics (76 percent) used the Internet than Spanish-dominant Hispanics (32 percent). Also, Hispanics whose primary language was English were more likely to own a computer at home and have Internet access (Slate, Manuel, & Brinson, 2002).

One of the limitations of PEW (2007) is its lack of data pertaining to His-

panic college students and whether socio-economic, cognitive, and cultural resources impact their access to and use of the Internet. Students historically underrepresented at the postsecondary level, especially Hispanics of low socio-economic status, are less likely to be prepared for and graduate from postsecondary institutions (Cabrera & La Nasa, 2000). With proportionately lower Hispanic high school graduation and college enrollment and completion rates than Whites, it is imperative that Hispanic students take advantage of potentially beneficial resources available to them. The Internet, which is ideally available throughout secondary and postsecondary education, is one such resource that has the potential to aid minority students with their education and allow them “to develop a repertoire of technological competencies” necessary for success in future society (Rojas, Straubhaar, Roychowdhury, & Okur, 2004, 121).

The purpose of this study was three-fold. First, the investigators sought to assess general Internet access and use within a sample of Hispanic college students. Second, we wanted to identify the functions of Internet use within the sample and assess students’ width of Internet adoption (Dholakia, Dholakia, & Kshetri, 2003)—a measure of the extent in which students utilize the Internet for a variety of functions. Third, we wanted to determine whether socio-economic, cognitive, and cultural resources were associated with students’ Internet access, depth of Internet use, and width of Internet adoption.

Method

A sample of 190 undergraduate college students self-identified as Hispanic-American, 66 males and 124 females, were recruited from General Education Requirement (GER) courses at a university in south Texas. All students were unpaid volunteers, at least 18 years of age, and provided with an informed consent form. *The Questionnaire of Internet Use* and a blank envelope were distributed to each student with instructions to complete the questionnaire and seal it in the envelope. Students turned in the informed consent forms and the sealed envelope when finished.

Testing Materials

Data for this study were gathered using *The Questionnaire of Internet Use*. The first part of the questionnaire consists of 9 items measuring Internet access, and the frequency and amount of Internet use. The second part of the questionnaire consists of a list of 20 statements, or reasons why someone would use the Internet. The final part of the questionnaire consists of 12 items that gather pertinent demographic and background information about the participant.

Internet access. Students were categorized into one of two groups: limited access or unlimited access. The limited access group was comprised of students who do not live on campus and who do not have adequate Internet access within their home; their access to the Internet is limited to when they are on campus. Students in the unlimited access group are those who live in one of the University's on-campus housing facilities or those who do not live on campus but have adequate Internet access within their home.

Functions of Internet use. Participants were instructed to indicate the extent to which each of 20 statements, or reasons, for using the Internet applied to them with regard to their own reasons for using the Internet. Responses were in the form of a 6-point Likert type scale (1 = never, 2 = almost never, 3 = sometimes, 4 = often, 5 = almost always, 6 = always). These items represent three functions of Internet use: goods and information acquisition (GIA), socio-affective regulation (SAR), and educationally relevant utilization (ERU).

Goods and information acquisition. The GIA function was measured using 6 items relating to how an individual uses the Internet to gather knowledge and information and to acquire goods or services (Weiser, 2001). Sample items include "Because it helps me keep up with what's going on in the world" and "To shop for things." The internal consistency of the original 6-item scale was examined using Chronbach's (1951) technique and demonstrated an alpha value of 0.72 (Weiser, 2001).

Socio-affective regulation. The SAR function was measured using 7 items relating to how an individual uses the Internet to connect with other individuals, either through interacting, affiliating, or affective relationships (Weiser, 2001). Sample items include "To meet and interact with new, exciting people" and "To play interactive, online games with other users." The internal consistency of the original 7-item scale yielded an alpha value of 0.78 (Weiser, 2001).

Educationally relevant utilization. The ERU function was developed specifically for this research by combining 7 items relating to how an individual uses the Internet to facilitate various aspects of their college education. Sample items include "Because it helps me with my education" and "To contact or communicate with classmates about assignments or other educational material." Though a majority of the items were derived from research by Ebersole (2000) and Duggan, et al. (2001), the internal consistency of this 7-item scale has not been examined in previous research.

Width of Internet adoption. Gatignon and Robertson (1991) define the phrase width of adoption as "the number of different uses of the product" being examined (p. 468). When the product being examined is the Internet, however, it is Dholakia, Dholakia, and Kshetri (2003) who postulate that "a possible measure of the width of Internet adoption may be the number of different activities or applications (e.g., education, communication, information search, entertainment, etc.) for which Internet is used" (Width and Depth of Internet Adoption section, para. 1). Since the Internet has many functions underlying

its use, the width of Internet adoption in the present study was measured with a score of 0, 1, 2, or 3, depending on the number of functions represented in a student's repertoire of Internet uses.

Given the assumption that the scale mean for each function is a generalized average assessment of the extent that a student utilizes the Internet for certain activities within that given function, the width of Internet adoption was based on the scale means for each function. A function's scale mean greater than 2.0, for example, implies that at least one item received a Likert rating of at least "sometimes," indicating no less than intermittent usage. Therefore, if a function's scale mean was greater than 2.0 then that function was included in a student's width of Internet adoption.

Demographic Measures

Other variables included in this study were household income, parents' educational attainment, and language dominance. Parents' educational attainment consisted of two items: mother's highest level of education and father's highest level of education. Language dominance also consisted of two items: one asked which language a student is most comfortable reading and the other asked which language a student is most comfortable speaking.

Results

Descriptive statistics revealed that the sample of Hispanic college students exhibited a range of demographic and background characteristics. Most of the students (87.4 percent) were between 18 and 21 years of age, with a mean age of 19.7 (SD = 2.8). Most (92.7 percent) were full-time students enrolled in 12 or more credit hours per semester. The sample was composed largely of freshmen (41.6 percent) and sophomores (42.1 percent); 11.6 percent were classified as juniors and 4.2 percent as seniors. A majority of the students (73.7 percent) lived off campus with their parents, while only 10 students (5.3 percent) lived in on-campus housing. The remaining 21.1 percent lived off campus, either alone or with a roommate.

Students' reported household income varied, with 25.8 percent reporting less than \$20,000 and 20.6 percent reporting an income of \$60,000 or higher. The remaining 35.8 percent reported an income between \$20,000 and \$59,999; 17.9 percent did not respond. The educational attainment that students reported for their parents also varied. Just over half of students' mothers and fathers (54.2 percent and 53.1 percent respectively) had a high school education or less. Almost one-fourth of students' mothers and fathers, at 22.6 percent and 24.2 percent respectively, completed some college while 22.1 percent and 17.3 percent, respectively, completed a bachelor's degree or higher.

Internet Access

Based on a student's living arrangement, home computer ownership, and whether that computer had a dial-up or broadband Internet connection, it was determined that 30.5 percent of the sample had limited access to the Internet while 67.9 percent had unlimited access. Three students (1.6 percent) were unable to be categorized due to missing survey responses. A two-tailed independent samples t-test showed that students with limited access to the Internet spent significantly fewer hours online each week ($M = 7.21$, $SD = 7.21$) than did students with unlimited access ($M = 11.45$, $SD = 9.79$), $t(183) = -2.94$, $p = .004$.

With regard to students' frequency of accessing the Internet, a majority of the sample (62.6 percent) reported getting online at least once a day. About one-third of the sample (34.2 percent) reported that they accessed the Internet several times a week but not every day, and the remaining 3.1 percent of the sample only went online about once a week or less. Almost all of the Hispanic college students in this sample were familiar and comfortable enough with Internet technology to go online at least several times a week, if not every day. However, when these data were disaggregated by level of Internet access, it became apparent that a greater proportion of the students with unlimited access (76.0 percent) went online at least once per day compared to students with limited Internet access (31.0 percent).

The Functions of Internet Use

Responses to all 20 items, or reasons for using the Internet, were subjected to a factor analysis, viz., a principal components analysis where a Varimax rotation method was used to extract the components.

Only the first four factors were retained for consideration because, once rotated, the first three factors accounted for at least 10 percent of the variance and the fourth factor accounted for 9.4 percent of the variance. Combined, these four factors accounted for 51.3 percent of the total variance. To interpret the rotated factor pattern, several criteria were established. First, an item was considered to load significantly on a given factor if the loading value was equal to 3.0 or higher. A complex item, one that loaded significantly on more than one factor, was retained as long as one of the loadings was appreciably higher than the other. Lastly, an item was removed if it did not load significantly on any of the factors. Two of the items (to shop for things; to search for items and products that are ordinarily difficult to find) failed to significantly load on any of the four factors and were thus excluded from further consideration. Also, two of the items (to do research such as class projects or research papers related to school; to look for others with whom I can develop a romantic relationship) were complex, but they were both retained due to the nature of their factor loadings.

Educationally relevant utilization (ERU). The 7 items that loaded on the

first factor were the complete set of items relating to how an individual uses the Internet to facilitate various aspects of their college education. A Chronbach's alpha of 0.81 indicated that this 7-item factor exhibits adequate internal consistency. Keeping in mind the Likert scaling used, where 1 = Never, 2 = Almost Never, 3 = Sometimes, 4 = Often, 5 = Almost Always, and 6 = Always, the scale mean indicated that most students "often" used the Internet for educationally relevant purposes. To review the means and response distributions for all 7 of the ERU items, refer to Table 1.

Socio-affective regulation (SAR). The 4 items that loaded on the second factor were a part of Weiser's (2001) SAR function of Internet use, so his SAR title was retained. However, the original definition offered earlier, how an individual uses the Internet to connect with other individuals through interactive, affiliative, or affective relationships, was adjusted to emphasize a more social, interactive or affiliative connection with other individuals, with less emphasis placed on affective relationship formation. A reliability analysis on the 4-item scale revealed an alpha of 0.76, indicating adequate internal consistency. Item means were averaged to form an overall scale mean of 2.87 (SD = 1.17) out of a possible 6.0 score. The scale mean indicates that students, on average, only sometimes use the Internet for social, interactive, or affiliative reasons. Specific means and response distributions for the SAR items can be found in Table 2.

Table 1. Means, standard deviations, and response distributions for items comprising the ERU function of Internet use

ERU Items	M (SD)	Likert Response Distribution (%)					
		Almost Never		Sometimes		Almost Always	
To obtain information about the courses I am taking	4.41 (1.27)	0.0	6.8	20.5	24.7	20.5	27.4
Because it helps me with my education	4.83 (1.13)	0.5	3.2	10.0	18.9	34.2	33.2
To contact or communicate with professors	3.45 (1.30)	3.7	20.5	34.7	18.4	13.7	8.9
To contact or communicate with classmates about assignments or other educational material	3.43 (1.37)	6.3	18.4	34.2	19.5	10.5	11.1
To do research (e.g., class projects or research papers related to school)	5.08 (1.06)	0.5	0.0	10.5	15.3	27.4	46.3

Table 1 (continued)

<i>ERU Items</i>	<i>M (SD)</i>	<i>Likert Response Distribution (%)</i>					
		<i>Almost</i>			<i>Almost</i>		
		<i>Never</i>	<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>	<i>Always</i>
To work on and get help with homework assignments	4.05 (1.47)	3.7	12.1	23.7	18.9	18.9	22.6
To keep track of and/or bookmark educational websites	3.07 (1.43)	15.3	19.5	33.2	15.3	8.9	7.9
Total Scale	4.04 (0.89)						

Table 2. Means, standard deviations, and response distributions for items comprising the SAR function of Internet use

<i>SAR Items</i>	<i>M (SD)</i>	<i>Likert Response Distribution (%)</i>					
		<i>Almost</i>			<i>Almost</i>		
		<i>Never</i>	<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>	<i>Always</i>
To chat with other Individuals online	3.68 (1.63)	9.5	18.4	22.1	13.2	17.9	18.9
To meet and interact with new, exciting people	2.73 (1.58)	26.8	26.3	20.0	9.5	8.9	8.4
To meet and interact with others who share interests that are similar to mine	2.83 (1.47)	18.4	31.1	23.2	12.1	7.4	7.9
To play interactive, online games with other users	2.23 (1.42)	41.6	24.2	19.5	4.7	4.7	5.3
Total Scale	2.87 (1.17)						

Goods and information acquisition (GIA). The 4 items that loaded on the third factor were from Weiser's (2001) GIA function of Internet use, so his GIA title was retained. However, the definition of a GIA function for the current study was adjusted by removing the "goods and services" connotation since the two "shopping" items failed to load on this factor. For this function, emphasis was placed on information acquisition in terms of specifically acquiring information that pertains to current events. This 4-item scale yielded an alpha of 0.77, indicating adequate internal consistency among the items. The overall scale mean was 3.77 (SD = 1.05). Item means and response distributions for the GIA items can be found in Table 3.

Table 3. Means, standard deviations, and response distributions for items comprising the GIA function of Internet use

<i>GIA Items</i>	<i>M (SD)</i>	<i>Likert Response Distribution (%)</i>					
		<i>Almost Never</i>		<i>Almost Always</i>			
		<i>Never</i>	<i>Never</i>	<i>Sometimes</i>	<i>Often</i>	<i>Always</i>	<i>Always</i>
Because it helps me keep up with what's going on in the world	4.02 (1.32)	2.1	10.0	26.8	22.6	22.1	16.3
To look around at the many different and interesting websites	4.07 (1.26)	1.1	7.4	28.9	27.9	15.8	18.9
To keep up with what's going on in specific places (e.g., back in my hometown, my favorite cities, or vacation spots)	3.14 (1.48)	12.6	25.3	27.9	13.7	11.1	9.5
To stay informed regarding local, national, or international news and events	3.85 (1.40)	3.2	14.2	27.9	21.6	15.8	17.4
Total Scale	3.77 (1.05)						

Dating and sexual gratification (DSG). The 3 items that loaded on the fourth factor were originally part of Weiser's (2001) SAR function of Internet use. However, given that the items entail using the Internet to look for romantic relationships, sexual relationships, and pornographic content, this new factor of once-SAR items implies a function of Internet use that focuses on using the Internet for dating and/or sexual gratification purposes. Using Chronbach's technique, an alpha of 0.73 was found, indicating that this 3-item scale exhibits adequate internal consistency. A scale mean of 1.41 (SD = 0.73), however, indicates that this function of Internet use is either under-utilized or, given the sensitive nature of the items, under reported within a sample of Hispanic college students. Table 4 shows that all three of the DSG items had a response distribution where more than 85 percent of the students indicated that they never or almost never used the Internet to look for romantic relationships, sexual relationships, or pornographic content.

Table 4. Means, standard deviations, and response distributions for items comprising the DSG function of Internet use

DSG Items	M (SD)	Likert Response Distribution (%)					
		Never	Almost Never	Sometimes	Often	Almost Always	Always
To look for others with whom I can develop a romantic relationship	1.53 (0.94)	67.4	21.1	5.3	4.7	1.1	0.5
To look for others with whom I can have a sexual relationship	1.28 (0.83)	85.3	6.8	5.3	1.1	0.0	1.6
To view things that some might consider pornographic	1.42 (0.97)	78.9	9.5	6.3	3.2	0.5	1.6
Total Scale	1.41 (0.73)						

Width of Internet adoption. Assessing a student's width of Internet adoption involved an examination of the scale mean for each function. The number of scale means greater than 2.0 represented a student's width of Internet adoption—the number of functions for which that student sometimes used the Internet. Only 4.7 percent of the students had a width of Internet adoption that consisted of only one of the functions. Just over 28 percent of the students exhibited two functions, 54.2 percent exhibited three functions, and 12.6 percent exhibited all four functions of Internet use. The average width of Internet adoption for the entire sample ($M = 2.75$; $SD = 0.73$) indicates that students' Internet use generally serves either two or three functions. Given the scale means presented earlier, it is apparent that most students' Internet use is for ERU, GIA, and/or SAR purposes, but not for DSG purposes.

Examining Relationships Between the Depth of Internet Use and Functions of Internet Use

To determine whether there is a relationship between the depth of Internet use and each of the functions of Internet use, separately, and between the depth of Internet use and the width of Internet adoption, correlation analyses were run. Significant positive relationships were found between the amount of time spent online and the SAR function ($r = .257$, $p < .001$) and the GIA function ($r = .211$, $p = .004$). These findings imply that the more time a student spends online each week, the more likely he or she is to utilize the Internet for socio-interactive reasons and for acquiring information pertaining to current events. However, only about 4 percent to 6 percent of the variability in these two functions of Internet use can be explained by variations in the depth of Internet

use. A significant positive relationship ($r = .250, p = .001$) was also found between the amount of time spent online each week and the width of Internet adoption. Again, however, this relationship accounted for only about 6 percent of the variability in the width of Internet adoption.

Examining Whether Household Income, Parents' Educational Attainment, and Language Dominance Are Associated with Students' Internet Access, Depth of Internet Use, and Width of Internet Adoption

Parametric and non-parametric statistics were used to determine whether differences in Internet access and use characteristics existed among groups of students with different levels of household income, parents' educational attainment, and language dominance. Analyses and results for this section have been organized into three subsections: those dealing with Internet access, depth of Internet use, and width of Internet adoption.

Internet access. To determine whether differences in Internet access exist among groups of students with varying socioeconomic, cognitive, and cultural resources, a series of Kruskal-Wallis tests were conducted. For each test, students were placed into groups depending on their responses on categorical items assessing their household income, parents' level of education, and language dominance. With regard to Internet access, no significant differences were found when grouping was based on household income, mother's level of education, or father's level of education. With regard to Internet access and language dominance, however, when grouping was based on the language students were most comfortable speaking, a significant rank difference was found: $H(2) = 14.09, p = .001$ (cf. Table 5). The post hoc Mann-Whitney test revealed that students who were most comfortable speaking English or both languages were significantly more likely to have unlimited Internet access than those who only spoke Spanish. No significant differences in Internet access were found when grouping was based on the language students were most comfortable reading.

Table 5. Summary of Kruskal-Wallis results for Internet access by language most comfortable speaking

<i>Number of Hours of Internet Use</i>	<i>Internet Access (0=Limited, 1=Unlimited)</i>		
	<i>N</i>	<i>M (SD)</i>	<i>Mean Rank</i>
English only	71	0.79 (0.41)	102.35
Spanish only	31	0.42 (0.50)	68.00
Both languages	84	0.71 (0.46)	95.43

Table 5 (continued)

<i>Number of Hours of Internet Use</i>	<i>Internet Access (0=Limited, 1=Unlimited)</i>		
	<i>N</i>	<i>M (SD)</i>	<i>Mean Rank</i>
	<i>Chi-Square</i>	<i>Df</i>	<i>Asymp. Sig.</i>
Test Statistic	9.63	2	.001

Depth of Internet use. To examine whether differences in students' depth of Internet use exist among groups of students with varying socioeconomic, cognitive, and cultural resources, a series of ANOVAs were conducted. As with the Kruskal-Wallis tests, students were placed into groups depending on responses to items assessing their household income, parents' level of education, and language dominance. No significant differences in students' weekly hours of Internet use were found when grouping was based on each of these variables.

Width of Internet adoption. To examine whether differences in students' width of Internet adoption exist when students are grouped based on their socioeconomic, cognitive, or cultural resources, a series of ANOVAs were conducted. As with the previous ANOVAs, students were placed into groups depending on their responses to items assessing their household income, parents' level of education, and language dominance. No significant differences in students' width of Internet adoption were found.

Other Findings and Considerations

Given that students with unlimited access to the Internet spent significantly more hours online each week than students with limited access, a series of t-tests were conducted to determine whether a difference in scale means for each of the functions of Internet use exists between students with limited and unlimited Internet access. Students with limited access to the Internet exhibited lower GIA scale means ($M = 3.38, SD = 1.09$) than did students with unlimited access ($M = 3.92, SD = 0.99$), $t(185) = -3.34, p = .001$. Bonferroni adjustments raised the alpha to .017 resulting in scale means for the GIA function to be significantly different between students with limited Internet access and those with unlimited access. The ERU and DSG functions of Internet use, as well as the width of Internet adoption, exhibited no significant differences in scale means among students in the limited and unlimited access groups.

Contrary to Peter and Valkenburg (2006), no significant correlations were observed between GIA scale means and household income or between GIA scale means and parents' level of education. Peter & Valkenburg (2006) also reported that those with less socioeconomic and cognitive resources tend to use the Internet for entertainment purposes at a greater rate than those with

more socioeconomic and cognitive resources. Data from the current research, however, showed no significant correlations between SAR/DSG scale means (use of the Internet for entertainment purposes) and household income (socioeconomic resources) or between SAR/DSG scale means and parents' level of education (cognitive resources).

Given the existence of a solely educational function of Internet use and its limited examination in previous research, similar correlations were conducted to determine if utilization of the Internet for ERU purposes is associated with students' socioeconomic and cognitive resources. Results indicated a significant negative correlation ($r = -.183, p = .022$) between ERU scale means and household income. A significant negative correlation ($r = -.174, p = .017$) was also found between ERU scale means and the level of education of students' mothers, and between ERU scale means and the level of education of students' fathers ($r = -.182, p = .015$). These findings suggest that students with lower amounts of socioeconomic and cognitive resources tend to use the Internet for educationally relevant purposes more than students with greater amounts of socioeconomic and cognitive resources.

Discussion

Previous authors contend that digital differences as they relate to Internet access are shrinking, and that attention should begin focusing on specific usage differences, rather than access differences (Cho, et al., 2003; Jackson, et al.; NTIA, 2002; 2003) While a shrinking access divide may be true for an aggregated, general population over time, results from the current study suggest that Hispanic college students are still susceptible to Digital Divide phenomena. Though the University provides all students with the necessary technology for Internet access while on campus, almost one-third of the sample still lacked reliable access in their homes and thus reported lower levels of weekly Internet use. This finding supports previous research indicating that home computer ownership, or lack thereof, affects the Internet use of college students (Korgen, Odell, & Schumacher, 2001; Odell, et al., 2000). It also attests to Van Dijk's (2006) indication that differences occur as a result of individuals lacking the opportunities to access or use the Internet.

When Uses and Gratifications (U&G) theories and assumptions are applied to the Internet, users take on the role of the active audience wherein their Internet use is dictated by both functionality and interest (Mitra, et al., 2005). Even though educational and academic uses have been investigated in previous research (Duggan, et al., 2001; Ebersole, 2000; Matthews & Schrum, 2003; Mitra, et al., 2005; Odell, et al., 2000; Weiser, 2000), the construction of such functions has been limited, either by having too few items or by having a convoluted composition. The present study addressed such limitations by

establishing that, in addition to Weiser's (2001) SAR and GIA functions of Internet use, an educationally relevant (ERU) function also exists. However, Weiser's (2001) original SAR and GIA functions may be unstable or too broad in scope. Some of the items from the original SAR and GIA scales either failed to load on any of the proposed scales in this study or, in the case of 3 items from the original SAR scale, loaded onto a new function dealing with dating and sexual gratification (DSG).

While the DSG function of Internet use was not expected to be a stand-alone function in the current investigation, adult-oriented Internet use is often included in Internet research (Ebersole, 2000; Mitra, et al., 2005; Odell, et al., 2000; and many others). Among all four functions it was the DSG function that exhibited the lowest scale mean, which indicates either low utilization among students or that the sensitive nature of the items caused students to under-report their use. Because the questionnaire was distributed in a classroom setting in which students sat next to one another, it is possible that students may have been uncomfortable responding to questions that dealt with potentially taboo topics such as pornography or online dating. Another cautionary note is that students with limited access used computers for ERU functions more because they had to use campus computers, where there may be reduced privacy, militating against DSG functions. This should be taken into consideration in future studies.

Some functions of Internet use were associated with differences in Internet access. Utilization for SAR and GIA purposes, for example, was lower among students with limited Internet access. Both access groups, however, exhibited a high level of utilization for ERU purposes. This suggests that students might be placing more significance and importance on using the Internet for educationally relevant purposes. It can be inferred that if access or availability of the Internet is limited, students would rather forgo or lower their non-educational use of the Internet to maintain utilization for educationally relevant purposes.

In addition to being associated with access differences, students' functional utilization of the Internet was also associated with the amount of time they spent online. The more time students spend online, the more likely they are to use the Internet for a variety of purposes. Additionally, it is interesting to note that while both the SAR and GIA functions of Internet use were each associated with students' level of Internet access and the amount of time spent online, the ERU function was not associated with access or online time. These findings indicate how consistent and important this function of Internet use is for college students. The significance of the ERU function is further evident in its associations with students' socioeconomic and cognitive resources. Students with lower levels of such resources actually exhibited greater utilization of the Internet for educational purposes than did students with greater resources. It can be postulated that this occurs because students with greater resources at their disposal, such as better educated parents and larger household incomes, are

less likely to need or use the Internet as a tool to facilitate aspects of their education. For example, students with low socioeconomic resources may not have the means to travel to a library to do research, or to call or visit their professors, so they use the Internet as an alternative. This is of particular importance because the Hispanic college students in this study are from geographic areas that are predominately comprised of low-income, low-educated households.

Another finding that is particularly relevant for Hispanic students is the association between language dominance and Internet access. English dominant students were more likely to have unlimited access to the Internet than Spanish dominant students, which is comparable to PEW's (2007) findings involving a general sample of Hispanics that included both students and non-students. This association may be linked to or explained by PEW's (2004) assertion of the connection between Hispanics' language dominance and level of assimilation. Spanish dominant college students may be from households that have not yet adopted, or have the resources to adopt, the necessary technology for Internet access. Also, Spanish dominant individuals tend to have less favorable attitudes toward the Internet (Slate, Manuel, & Brinson, 2002). While such attitudes were not examined in this research, it could be students' negative attitudes, or those of their parents, that contributed to them having limited Internet access.

A limitation of the present study was its failure to support previous findings showing that higher levels of income and education are each associated with Internet access (Cultural Access Group, 2001; Jackson, et al., 2003; PEW, 2007) and increased Internet usage (Hoffman, Novak, & Schlosser, 2000). However, unlike previous research, the current study focused on Hispanic college students. Since the University provides students with at least partial access to the Internet, relationships between access and students' household income or parents' level of education may be moot with this sample. Another limitation relates to the two items that did not load in the factor analysis; both were related to online shopping. This suggests that another function of Internet use might exist and should be explored in future research.

One may conclude that Hispanic college students' Internet use is dominated by educationally relevant utilization. The resiliency of this educational function is evident from its lack of association with Digital Divide phenomena. The fact that Hispanic college students from diverse socioeconomic, cognitive, and cultural backgrounds are using the Internet in similar ways to facilitate their college education is a testament to the potential of this technology and to those who wield it.

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Jeffery Huerta is a statistical analyst for AVID Center and is responsible for ensuring that the organization's data and research are handled with integrity and accuracy. Jeffery has co-authored numerous articles in areas of teacher leadership and students' college preparation and readiness. He earned a bachelor's and master's degree in Psychology and is currently completing a doctorate in Educational Leadership. AVID Center, San Diego, CA. <jhuerta@avid.org>.

Mark Winkel, Ph.D., who died after this article was completed, was an associate professor and Graduate Psychology Program Coordinator in the Department of Psychological Science at the University of Texas Rio Grande Valley, Edinburg, Texas. He taught there for 35 years and was active in the area of social cognition and social psychophysiology. His most recent published work includes an article on prejudice in a minority population in south Texas. University of Texas Rio Grande Valley, Department of Psychological Science, Edinburg, TX 78539–2999. <mark.winkel@utrgv.edu>.

Russell Eisenman, Ph.D., is an associate professor of psychology at the University of Rio Grande Valley, Department of Psychological Science, Edinburg, TX 78539. He obtained his Ph.D. in clinical psychology at the University of Georgia. He has written many journal articles and books in such areas as creativity, crime, human sexuality, evolutionary psychology, etc. <russell.eisenman@utrgv.edu>.

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