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Janice C. Sipior

Villanova University, Janice.Sipior@villanova.edu

Burke T. Ward

Villanova University, burke.ward@villanova.edu

Regina Connolly

Dublin City University, Regina.connolly@dcu.ie

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E-Government Website Awareness and Visitation Among the Techno-Disadvantaged

Janice C. Sipior
Villanova University
janice.sipior@villanova.edu

Burke T. Ward
Villanova University
burke.ward@villanova.edu

Regina Connolly
Dublin City University
regina.connolly@dcu.ie

ABSTRACT

This study explores awareness and visitation of e-government websites among techno-disadvantaged citizens in the United States. Following up on a community-based initiative, designed to stimulate computer literacy and access to information and communication technologies for residents and neighbors of an underserved public housing community, a survey of e-government website awareness and visitation was undertaken. The results indicate that although nearly half of the respondents are neither aware of nor have visited e-government websites, the majority of respondents are partaking in e-government services. The top categories of e-government website awareness and visitation are transportation, employment, recreation, and children's services. The contribution of this research is to validate that benefits of e-government services can be brought to members and neighbors of a techno-disadvantaged community. We conclude by emphasizing the importance of the community-based initiative to foster awareness and visitation of e-government websites, thereby advancing e-government inclusion.

Keywords

E-Government, Digital Divide, Awareness, Visitation.

INTRODUCTION

The E-Government Act of 2002 was enacted in the United States (U.S.) to "create a law that will make it easier to get more government information and services online" (Hasson 2002). In a study of e-government use by citizens, the digital divide was found to be more pronounced among government website visitors than among Internet users in general (Thomas and Streib, 2003). Equity in citizen access of e-government services requires that the digital divide be addressed. Citizens whose use of government services is the greatest are the least likely to be connected to the Internet (Dugdale et al., 2005). A major challenge is how to achieve more involvement and encourage greater interaction with e-government among such citizens (ICT Results, 2008).

This paper explores the digital divide and e-government inclusion in the U.S. by surveying citizens of a technologically underserved public housing community and neighboring households. Our intent is to understand e-government website awareness and visitation to gain insight into how to better serve citizens who are among the digitally disadvantaged for the purpose of fostering greater inclusiveness. This study follows up on a community organizing strategy to narrow the digital divide for a techno-underserved community (Sipior et al., 2004). A survey of e-government website visitation was undertaken in May 2008. We seek to gain insight into the types of e-government websites which techno-disadvantaged citizens are aware of and visit to foster greater e-government inclusion by validating the benefits of e-government services.

First, we address the digital divide and e-government inclusion. We then discuss previous research addressing awareness and visitation of e-government websites. Next, the research methodology utilized for this field study is presented. Finally, the results, discussion, and limitations are presented. We conclude by emphasizing the importance of the community-based initiative to foster awareness and visitation of e-government websites, thereby advancing e-government inclusion.

THE DIGITAL DIVIDE AND E-GOVERNMENT INCLUSION

E-government risks increasing the disadvantage of already disadvantaged citizens unless inclusiveness of all citizens in e-government usage is encouraged (Shelley et al., 2006; Dugdale et al., 2005). A necessary condition for equity in information access is that citizens have Internet access. The divide between those with access and skills to use the Internet and new information and communication technologies (ICT) and those without, or in other words, the gap between the ‘technology haves’ and ‘have-nots’ is referred to as the digital divide (Holmes, 2002; Novak and Hoffman, 2000; OECD, 2001; Wilhelm and Thierer, 2000).

Public Internet access in the U.S. was found to be the most important factor affecting the use of online government services in a study addressing the adoption of e-governance (Prattipati 2003). Pósfai et al. (2008) report that e-government service usage is very low because of the digital divide, which excludes a large segment of the population of Hungary from the e-world. While the Internet has the potential to create well-informed and empowered consumers, it will also help to change the passive relationship most people have with the government (Symonds 2000). Exclusion from interactive opportunities, such as online voting, will weaken the voice of those who are techno-disadvantaged (Althoff 2004). These individuals are among the citizens likely to benefit most from government services (Lamb 2004). Rodousakis and Mendes dos Santos (2008) provide examples of the benefits of e-government services to socially underprivileged groups:

- better service access via complementary channels;
- the easing of day-to-day challenges, including interactions with public authorities;
- improvement of government-citizen relations;
- better access to education, training, work and jobs; and
- improvements to personal capacity and skills, life chances, social networks and quality of life.

Empirical evidence suggests that simply providing access to ICT does not guarantee its use unless the users themselves are addressed (Brookes 2004). This study focuses on awareness and visitation of e-government websites by members of a techno-disadvantaged community.

AWARENESS AND VISITATION OF E-GOVERNMENT WEBSITES

Previous research underscores the importance of awareness and visitation of e-government websites to e-government inclusion. Empirical evidence from a study of e-government use among the general populace in Lebanon (Charbaji and Mikdashi, 2003) supports a positive relationship between awareness and e-government website visitation. Al-Fakhri et al. (2008) suggest that increasing the awareness of e-government among the public at-large in Saudi Arabia would improve the effectiveness of government agencies’ websites. Charbaji and Mikdashi (2003) found that awareness of e-government websites directly leads to positive feelings toward e-government, and directly and indirectly leads to participation in e-government. Based on the findings of Mellor (2006), low awareness on the part of citizens in general precludes the use of e-government websites. van Dijk et al. (2008) found knowledge of the availability of government services to be a condition of actual use.

Addressing the techno-disadvantaged in particular, Ke and Wei (2004) found that awareness of e-government is an important factor among citizens on the disadvantaged side of the digital divide, in encouraging citizen use of e-government websites. Ke and Wei (2004) reported that e-government awareness among the digitally disadvantaged in Singapore was successfully increased through a month-long awareness campaign repeated annually, along with the launch of a literacy program to enhance computer literacy. The deployment of e-government in Singapore is a success story.

Few empirical studies have been undertaken to examine e-government use among members of a digitally disadvantaged community. The focus on digital inequality naturally extends to a focus on socio-economic inequality, given that income and education are major factors in explaining use and non-use of ICT (Hsieh et al., 2008; Jung et al., 2001; Lenhart, 2002). Within various fields, including sociology, marketing, education, health psychology, and child development, socio-economic inequality has been associated with differential behavior patterns (Hsieh et al., 2008). This exploratory research focuses on citizens both digitally and socio-economically disadvantaged to understand awareness and visitation of e-government websites.

METHODOLOGY

A survey of members of a technologically underserved community was undertaken to gain insight into e-government awareness and visitation among the techno-disadvantaged. The survey methodology was employed because it increases generalisability, facilitates replicability, and provides statistical power (Dooley, 2001). This section describes the technologically underserved community, the sample, and measures.

A Technologically Underserved Community

This study focuses on the William Penn (WP) Housing Development in Chester, Pennsylvania (PA), U.S. The selection of the WP Housing Development community members is narrow in scope. However, the community members represent the technologically disadvantaged as few possess skills or training in computer technology and have limited access to computer technology (see Sipior et al., 2004).

The WP Housing Development is located in Chester, PA, USA, a formerly industrial city described as “one of the most distressed cities in the nation” (Council of the City of Chester 1994). The low-income population of 39,000, which has the highest infant mortality rate in PA, is 65% African-American (Worsham 2000).

In 1987, a class action suit was filed by all residents of 1,732 Chester Housing Authority (CHA) public housing units claiming "substandard, intolerable and uninhabitable" housing including "dark hallways strewn with garbage, human waste, and the thrown-away paraphernalia of drug and alcohol activity; inadequate plumbing and sewage; unsafe electrical systems; leaking roofs; and doors without locks" (*Clements v. City of Chester*, 1990). As a result, Chester demolished substandard housing units in the early 1990's and built new housing. The WP Housing Development, completed in March 1999, includes reasonably attractive garden apartments and a multi-room community center. However, residents of the WP Housing Development, who are 100% African-American, are surrounded by deteriorating houses, vacant lots, high crime, and the disturbing presence of social ills such as low educational performance, teenage pregnancy, graffiti, noise, trash, vandalism, drug use on the streets, violence, crime, drive-by shootings, murders, etc.

This study follows up on a community-based initiative designed to stimulate computer literacy and access to ICT for members of this techno-disadvantaged public housing community and neighboring households (Sipior et al., 2004). This initiative was undertaken by the WP Tenants' Association of the WP Housing Development in conjunction with Unity Center, Inc., a nonprofit corporation founded in 1987 to “bring people together who would normally not come together” to work on a common concern or project. The theoretical premises of the Assets-Based Community Development Model (Kretzmann and McKnight, 1993) were applied, leading to the formation of a community development plan based on a survey of community needs, securing resources to provide ICT access, and coordinating volunteers to provide computer training. According to this model, an effective local organizing strategy is fundamental to successful community empowerment and community self-sufficiency. In applying this model, the WP Tenants Association initiated a community development plan, with assistance from volunteers including the authors; a Community Organizer, a position held by a professional community program planner; and Unity Center, Inc. The WP Tenants Association Preliminary Development Plan was formulated based on the results of a community survey. Among the priorities of the plan is access to technology and technological skills. As a result, a computer training program was launched in the fall of 2000 and continues through the present. This program provides on-site training to members of the community by university students. This community thereby increased their capacity to access the Internet and be positioned to participate in and use e-government. For a detailed discussion of narrowing the divide within this community, please see Sipior et al. (2004). External threats to the community initiative, including isolation from mainstream society not unlike that of an inner city, exploitive dependency by those ostensibly assisting the community, and a culture of failure, contribute to the lingering divide (Sipior and Ward, 2005).

Sample

The WP Housing Development and neighboring households, a community representative of the disadvantaged side of the digital divide, served as the population from which a sample of 37 community members responded to a questionnaire in May 2008. Sample size is limited by the number of members who chose to partake in training or avail themselves of the computer lab in the Community Center. The 37 respondents were active in training or using computers. Respondent characteristics are presented in Table 1.

Demographic Characteristic	Respondents (n = 37)
Age	Mean: 44.6 Range: 19-69 years of age
Gender	Male: 21.6% Female: 78.4%
Race	African American: 100%
Educational Attainment	Mode: 86.5% High school diploma

Employed	Overall: 67.6% Male: 75.0% Female: 65.5%
Household Income	Mode: 32.4% US\$15-25,000
Household Type	Single: 18.9% Single with children: 45.9% Married: 18.9% Married with children: 16.2% (Does not total to 100% due to rounding errors.)
Internet Experience	Have experience: 67.6% Have no experience: 32.4%
Hours of Internet Use per Week	0 hours: 45.9% 1-7 hours: 32.4% 10-21 hours: 21.6% (Does not total to 100% due to rounding errors.)

Table 1. Characteristics of the Respondents.

Measures

Demographic characteristics including Gender, Race, Educational Attainment, Employment, Household Income, and Household Type were measured with single item measures, based on categorical responses. Age, Internet Experience, and Hours of Internet Use per Week were measured with open-ended questions. E-government website awareness and e-government website visitation were measured with open-ended questions by providing respondents with a list of e-government website categories and asking respondents to indicate which of those website categories they are aware of, have visited, and the number of times visited. Respondents were also asked, via open-ended questions, to name specific e-government websites visited and for what purpose.

RESULTS

Nearly half of the respondents (48.6%) were neither aware of nor visited any e-government websites. For the majority of respondents, the results of frequencies of the website categories respondents are aware of, have visited, the number of times visited, and the total of the number of visits are summarized in Table 2. We present the results according to awareness and visitation in the next sections.

E-Government Website Category	Rank order. Number/Percent of respondents AWARE (n)	Rank order. Number/Percent of respondents VISITING (n)	Rank order. Range /Mean of number of VISITS	Rank order. Total number of VISITS
Transportation				
Find bus, train, routes, or airport schedules	4. 11/29.7% (37)	2. 13/35.1% (37)	9. 1-10/4.7	6. 61
Find maps	2. 15/40.5% (37)	1. 17/45.9% (37)	2. 1-25/8.4	1. 143
Find traffic information	2. 15/40.5% (37)	8. 6/16.2% (37)	11. 1-8/3.5	12. 21
Renew a driving license	3. 13/35.1% (37)	8. 6/16.2% (37)	12. 1-5/3.0	13. 18
Pay tickets online	5. 9/24.3% (37)	8. 6/16.2% (37)	14. 1-5/2.7	14. 16
Employment				
Find job training	1. 17/45.9% (37)	8. 6/16.2% (37)	6. 1-10/5.3	9. 32

Find a job	2. 15/40.5% (37)	3. 12/32.4% (37)	3. 1-35/7.8	3. 94
File a worker compensation claim	3. 13/35.1% (37)	10. 4/10.8% (37)	12. 1-5/3.0	16. 12
Public Assistance benefits				
Find food, medical, social security, or welfare	4. 1/29.7% (37)	6. 9/25.0% (36)	7. 1-10/5.1	7. 46
Tax Information				
Get tax forms	2. 15/40.5% (37)	6. 9/24.3% (37)	15. 1-5/2.4	11. 22
Submit taxes	3. 13/35.1% (37)	10. 4/10.8% (37)	16. 1-2/1.5	18. 6
Voting/Legal assistance				
Register to vote	5. 9/24.3% (37)	8. 6/16.2% (37)	14. 1-5/2.7	14. 16
Find legal assistance	4. 11/29.7% (37)	8. 6/16.2% (37)	17. 1-2/1.3	17. 8
Recreation/Free time/Other information				
Find recreation activities	2. 15/40.5% (37)	5. 10/27.0% (37)	4. 1-20/6.4	5. 64
Find lottery results	3. 13/35.1% (37)	9. 5/13.5% (37)	13. 1-4/2.8	15. 14
Children				
Find web pages for children	3. 13/35.1% (37)	6. 9/24.3% (37)	3. 1-20/7.8	4. 70
Find social services for children	2. 15/40.5% (37)	7. 7/18.9% (37)	10. 1-6/3.6	10. 25
Government auctions				
Find cars or real estate for sale	3. 13/35.1% (37)	4. 11/30.6% (36)	8. 1-15/4.9	7. 54
Forms/Certificates				
Find application for a marriage license	4. 11/29.7% (37)	10. 4/10.8% (37)	18. 1/1.0	19. 4
Other Government websites	3. 13/35.1% (37)	6. 9/24.3% (37)	1. 1-40/13.6	2. 122
Other General Non-Government websites	4. 11/29.7% (37)	7. 7/18.9% (37)	5. 1-10/6.0	8. 42

Table 2. Frequencies of E-Government websites visited

Awareness of E-Government Websites

Interestingly, employment related e-government websites are among the top three of which respondents are aware. These three include Find job training, Find a job, and File a worker compensation claim, with 45.9%, 40.5%, and 35.1% reporting awareness, respectively. However, six websites tie for second and seven tie for third among the ranking of websites of which respondents are aware, cutting across various categories.

Visitation of E-Government Websites Compared with Other General Non-Government websites

Regarding general websurfing, government websites are the predominate destination among the respondents. Less than one-fifth (18.9%) of respondents reported visiting Other General Non-Government websites, which ranks seventh among the categories of websites visited. On average, respondents reported visiting Other General Non-Government websites six times, ranking fifth among mean number of visits. Among total number of visits, the Other General Non-Government website category ranks eighth.

Visitation of E-Government Websites

Among websites visited, transportation websites are among the top two visited by respondents. Find maps and Find bus, train, routes, or airport schedules were reported to be visited by 45.9% and 35.1% of respondents, respectively. Ranking third among websites visited is Find a job (32.4%), followed by Find cars or real estate for sale (30.6%), and Find recreational activities (27.0%).

In terms of number of visits, Other Government websites ranked first, with the number of visits ranging from 1-40 and averaging 13.6 visits. To capture what other government websites respondents visit, an open-ended question was included. Among respondents naming specific e-government websites visited and for what purpose, five respondents (13.51%) each

named one e-government website. Four of the open-ended responses relate to employment. Responses are provided in Table 3.

E-Government Website Visited	Stated Purpose of Visit
“most”	“job related”
“National Archives”	“get records”
“National Security Council”	“safety issues to use at work and home”
“State of Pennsylvania”	“work related”
“U.S. Department of Labor”	“work related”

Table 3. Open-ended responses for specific e-government websites visited and for what purpose

Ranking second in terms of number of visits is Find maps, with the number of visits ranging from 1-25 and averaging 8.4 visits. Third is Find a job, with the number of visits ranging from 1-35 and averaging 7.8 visits; fourth is Find recreation activities, with the number of visits ranging from 1-20 and averaging 6.4 visits; and fifth is Other Government websites, with the number of visits ranging from 1-10 and averaging 6.0 visits.

Websurfing activity was captured by totaling the number of visits of all respondents. Ranking first among total number of visits is Find maps, with 143 visits, followed by Other Government websites with 122 visits ranking second, Find a job with 94 visits ranking third, Find webpages for children with 25 visits ranking fourth, and Find recreation activities with 64 visits ranking fifth.

Table 4 summarizes the top categories of e-government website awareness and visitation.

E-Government Website Category
Transportation
Find bus, train, routes, or airport schedules
Find maps
Employment
Find job training
Find a job
File a worker compensation claim
Recreation/Free time/Other information
Find recreation activities
Children
Find web pages for children
Government auctions
Find cars or real estate for sale

Table 4. Summary of Top Categories of E-Government Website Awareness and Visitation

DISCUSSION

Nearly half of the respondents (48.6%) were neither aware of nor visited any e-government websites, while among the remaining majority government websites are the primary destination. The respondents are therefore among the population who looks to government services, but nearly half of them do not participate in e-government. The results are consistent with Shelley et al. (2006) and Dugdale et al. (2005) who found that e-government risks increasing the disadvantage of already disadvantaged citizens unless inclusiveness of all citizens in e-government usage is encouraged. Although public Internet access in the U.S. was found to be the most important factor affecting the use of online government services (Prattipati 2003), our results confirm those of Brookes (2004) which suggest that simply providing access to ICT does not guarantee its use

unless the users themselves are addressed. Necessary conditions for equity in information access are that citizens not only have Internet access, but also the skills to use the Internet and awareness of e-government services on the Internet.

Our results confirm Lamb's (2004) finding that the techno-disadvantaged are among the citizens likely to benefit most from government services. Rodousakis and Mendes dos Santos (2008) identified specific benefits of e-government services to socially underprivileged groups, as previously mentioned.

The top categories of e-government websites among respondents were found to be transportation, employment, recreation, and children's services. Our results provide support for benefits of e-government to an underprivileged group through their awareness and visitation of these websites. The e-government benefit of providing better access to education, training, work and jobs is supported. Awareness of employment related e-government websites were reported among the top three of which respondents are aware. Respondents have awareness that e-government websites address job training, jobs, and worker compensation claims.

Should the need to utilize these services arise, the respondents may find better service access via complementary channels. Four of the open-ended responses identifying Other Government websites visited relate to employment. Ranked third among e-government websites visited, third among number of visits, and third among total number of visits among all respondents is Find a job.

Our results also demonstrate the e-government benefit of easing of day-to-day challenges. For example, the challenge of finding locations on maps and finding transportation for respondents is addressed by e-government. Transportation websites, specifically Find maps and Find bus, train, routes, or airport schedules, are among the top two e-government websites visited. Find maps also ranks second among number of visits and first among total number of visits among all respondents.

Supporting improvements to quality of life is the visitation of websites to Find cars or real estate, ranking fourth, and to Find recreational activities, ranking fifth and also fourth on the basis of number of visits and fifth among total visits among all respondents. Further, supporting improvements to quality of life is Find webpages for children, ranked fifth among total visits among all respondents.

Our findings validate that benefits of e-government services can be brought to members and neighbors of a techno-disadvantaged public housing community undertaking a community-based initiative to stimulate computer literacy and access to ICT.

LIMITATIONS

As with any empirical field research, this study has limitations. The sample size is small because it includes those members, within the natural setting of a public housing community, who chose to participate in training or use the computer lab during spring 2008. Further, by focusing on one techno-disadvantaged community in the U.S., the generalizability of the findings is limited. This study was based on a cross-sectional design. Hence the measures were obtained at only one point in time. Future research could employ a longitudinal design to capture awareness and visitation over an extended time frame to measure changes in e-government website visitation over time.

Additionally, responses are based on self-reporting. The accuracy of such responses are questionable because respondents may report what they believe the researcher expects to see, or report what reflects positively on their own abilities, knowledge, beliefs, or opinions (Cook and Campbell, 1979). The reliability of self-reported data is also questionable because, according to cognitive psychologists, human memory is fallible (Schacter, 1999). The accuracy and reliability of the data could be improved, and greater depth of insight could be obtained, by using both qualitative and quantitative measures involving in-depth interviews, actual usage, and observations.

CONCLUSION

This research is intended to provide insight into e-government inclusion among those on the disadvantaged side of the digital divide. The specific thrust was to develop a better understanding of the e-government services of which the techno-disadvantaged are aware and visit. Our findings identified the top categories of e-government websites among respondents as transportation, employment, recreation, and children's services. This finding may assist governments in planning and implementing ICT policies to improve access to e-government services in digitally disadvantaged communities. In Australia, for example, citizens were not aware of e-government services and there was a perceived lack of promotional efforts to create awareness (Australian Government, No Date). The Australian government acknowledged the need to promote e-government websites to interested citizens.

The community organizing strategy, designed to stimulate computer literacy and access to ICT for residents and neighbors of an underserved public housing community, is effective in advancing e-government inclusion among residents who partook in training or availed themselves of the computer lab. Although nearly half of the respondents (48.6%) are neither aware of nor have visited e-government websites, the majority of respondents are partaking in e-government services. The inclusion of the majority underscores the importance of such community-based initiatives that foster awareness and visitation of e-government websites, thereby advancing e-government inclusion.

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