

# Socio-Demographic Determinants of E-government Adoption: An Examination of Major U.S. Cities

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*Much of the e-government literature has focused on progression; that is, how rapidly governments at all levels have implemented e-government platforms, and to what extent those platforms have advanced over time (Moon 2002; Ho 2002; Carrizales et al. 2006, Holzer and Kim 2007). The literature is also rife with discussions about specific e-government applications (Holzer et al. 2004; Holzer and Kim 2005). Little, however, has been written about the socio-demographic factors that may drive citizen demand for e-government, and thus drive the level of e-government complexity. This paper examines such factors throughout the 20 largest U.S. cities. Multiple regression results indicate that population and race and ethnicity predict the level of e-government sophistication. Population is positively associated with higher levels of e-government sophistication. More compelling is that a city's African-American and Hispanic populations are inversely related to e-government sophistication; that is, cities with higher proportions of African-Americans and Hispanic residents are less likely to have comprehensive e-government websites. The implications of these results are discussed.*

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E-government emerged as an internal communications tool within government organizations. Subsequently, governments developed websites for the purpose of disseminating information. After mastering information dissemination, governments moved toward processing online transactions and delivering services. Moving even further forward, governments sought to engage citizens online, providing Internet applications that connect citizens and decision-makers (Calista and Melitski 2007; Holzer et al. 2004). A significant portion of the e-government literature has focused e-government progression; that is, how rapidly governments have implemented e-government platforms, and the extent to which

those platforms have advanced over time (Layne and Lee 2001; Moon 2002; Ho 2002; Carriales et al. 2006, Holzer and Kim 2007). The literature is also rife with discussions about specific e-government applications (Holzer et al. 2004; Holzer and Kim 2005; Jankowski and van Os 2002; Nugent 2001). Very little, however, has been written about the socio-demographic factors that may drive citizen demand for e-government, and thus drive the level of e-government complexity. This paper extends the e-government literature by examining such factors throughout the 20 most populous U.S. cities.

## **Previous Literature**

### *E-government Applications*

According to Calista and Melitski (2007), service delivery is central to e-government. Cloete (2003) maintains that accepting technological innovations is a necessary pre-requisite for effective government, and as such implementing Internet-based services applications may better enable governments to meet their service delivery goals. Early applications include policy and regulatory information posted to websites. Following this, government forms were available for download. Some of the earliest e-government applications allowed citizens to request information via e-mail or electronic request forms. More recent examples of e-government progression include the introduction of more interactive service delivery applications. That is, residents or proprietors are able to apply for permits or licenses online. Municipal taxes, utilities and fines have become more frequently available for online payment. Citizens are able to report violations or issue service complaints through their city websites. Advanced developments in e-government services have received significant attention from municipal governments given that citizens have come expect as much from government websites as they do commercial websites (Calista and Melitski 2007).

Government's use of Internet technologies has spread beyond providing information and delivering services. Imbedded in e-government is the concept of "e-governance." E-governance entails altering the way governments interact with citizens in a democratic environment (Holzer et al. 2004; Calista and Melitski 2007). Fostering governmental transparency and greater citizen participation is an emphasis of e-governance. According to Shane (2002), the current interest in e-governance can be attributed to the failure of older technologies used to promote democracy. Initial discussions of the use of technology to promote democracy have highlighted the potential of telecommunications (i.e., cable television and telephone conferencing) (Becker 1993; McLean 1989). However, there has been significant movement toward the Internet given the relative failures of these older technologies in bridging the divide between citizens and government (Browning 2002; Kamarck and Nye 2003; Loader 1997; Gattiker 2001; Witschge 2002; Westen 2000).

Korac-Kakabadse and Korac-Kakabadse (1999) argue that ICTs (information and communications technologies) offer the possibility of direct-democracy. E-governance supporters argue that a byproduct of e-governance will be greater government transparency and openness, which will foster increased accountability and reduced government corruption. Seoul, South Korea's Online Procedures Enhancement for Civil Application (OPEN) system is considered a successful practice of transparency and decreased corruption in government via e-governance applications. Furthermore, the Government Information Agency (GIA) in South Korea

**Table 1. E-government and E-governance: Examples of Service and Transparency Applications**

<b>Service Applications:</b> Pay utilities, taxes, fines. Apply for permits. Online tracking system. Apply for licenses. E-procurement. Property assessments. Searchable databases. Bulletin board about civil applications.	Frequently Asked Questions (FAQs). Request information. Customize the main city homepage. Access private information online. Report violations of administrative laws and regulations. File or Post Service Complaints.
<b>Transparency Applications:</b> Comments or feedback. Newsletter. Online bulletin board or chat capabilities. Online discussion forum on policy issues. Scheduled e-meetings for discussion.	Online surveys / polls. Synchronous video. Citizen satisfaction survey. Online decision-making. Performance measures, standards, or benchmarks.

maintains portal sites for discussing major policy issues among citizens. The GIA collects information on government policies from all departments within the central government and updates the site several times a day, thus citizens can remain informed of day-to-day developments. Via the GIA's websites, citizens can ask public officials questions. When citizens request information on specific government policies, public officials collect the information and post the results in a timely manner – typically within a week (Holzer et al. 2004).

Online discussion boards provide for political discussions without requiring participants to share space and time. The result is increased access to the political debate (Malina 1999). Hooegeven Digital City, for example, is considered one of the more advanced community networks in terms of engaging citizens in Internet-based politically oriented discussions. Hooegeven experimented with three specific Internet-based discussions: the digital consultation hour, digital debate, and digital discussion platform. The digital consultation hour is a bimonthly discussion of community issues. It is a real-time dialogue between Hooegeven elected officials and citizens using a question and answer format. The digital debate was a real-time event used during the 2002 municipal elections wherein citizens were able to deliberate policy issues and pose questions to candidates and party representatives. Finally, the digital discussion platform is an online public space that allows citizens registered within the network to discuss predetermined community issues (Jankowski and van

Os 2002). More recently, the potential for online participation by citizens in decisions and policy-making is increasing through applications like “Regulations.gov” (Holzer et al. 2004). Regulations.gov is a federal clearinghouse that enables citizens to post electronic comments regarding proposed regulatory changes.

Early e-government researchers like Layne and Lee 2001 and Moon 2002 chronicled government website development in stages. This process began when governments created websites for the purpose of posting information. Subsequent to this, governments began processing online transactions – emulating the private sector’s focus on e-commerce. Some government organizations advanced further by engaged citizens online in a participatory framework. Little, however, has been written about the socio-demographic factors that drive citizen demand for e-government, and therefore drive the level of e-government complexity.

### *Demand for E-government*

The theory of technological determinism holds that the implementation of technology by itself – independent of social factors – will foster organizational, governmental, or even broader societal changes (Heeks and Bailur 2007). In the context of e-government, technological determinism is analogous to the cliché “if you build they will come.” That is, if governments provide information dissemination, service delivery, and communications applications via the Internet, then citizens will simply use these applications, thereby transforming the way citizens and governments interact. However, according to Heeks and Bailur (2007), most e-government researchers reject this notion of technological determinism given its failure to consider the many social factors that influence citizen demand for e-government.

The literature dealing with citizen demand for e-government is somewhat sparse. Thomas and Streib (2003) conducted a random telephone survey of Georgia residents to determine how often they accessed government websites. The authors found socio-demographic cleavages between residents that accessed government websites and residents that did not. Specifically, white, upper income, highly educated, and younger residents were more likely to access government websites. Gareis (2004) examined citizen demand for e-government in the context of Internet competency (i.e., demonstrable skills such as using search engines and email, navigating chat rooms, and uploading and installing software). According to Gareis (2004), greater Internet competency translates into greater demand for e-government. The author found a positive relationship between Internet competency and both education and income. That is, more highly educated and upper income residents demonstrated greater Internet competency. The data further suggest an inverse relationship between age and Internet competence as well, whereby younger individuals showed greater Internet-related skills than older individuals.

### **Method**

This paper examines the determinants of e-government adoption throughout the 20 most populated U.S. cities. E-government adoption is defined as the relative comprehensiveness of a city website in terms of providing information, services, and opportunities for residents to connect with elected officials or decision-makers. Website scores that relate to the comprehensiveness of a city’s website are derived from D’Agostino et al. (forthcoming). In

scoring each city website, D'Agostino et al. (forthcoming) used 40 additive measures from the service and citizen participation components of Holzer and Kim's (2005) E-Governance Performance Index. The dependent variable website score is regressed on the following independent variables: city population, education, population over 60, black population, Hispanic population, and poverty. A correlations matrix indicates that absence of strong relationships among the independent variables ( $p$ -values  $< .68$ ). Thus, one can be reasonably confident that multicollinearity will not bias the regression coefficients.

### *Hypotheses and Model Specification*

Model specification is based on the premise that socio-demographic factors reflect citizen demand for e-government. The population variable should be positively related to a city's e-government score. This hypothesis is consistent with previous research. According to Holden, Norris, and Fletcher (2003, 341), "population drives a good share of the adoption of e-government." Norris and Demeter (1999), Moon (2002) and Schwester (2009) found that municipalities with greater populations were more likely to have comprehensive e-government platforms. The range in population among the 20 largest U.S. cities (Boston = 589,141 and New York = 8,008,278) necessitates including this variable in the model.

Cities with higher education levels are expected to have more comprehensive e-government platforms. The Internet as an information dissemination, service delivery, and participatory medium presents specific challenges – that is, there is potentially a divide between individuals with web-related skills and those without such skills (Holzer et al. 2004). This is consistent with Gareis (2004), who reported that well educated professionals had significantly higher *digital literacy* skills compared to less educated manual workers. Digital literacy was a composite measure that gauged an individual's ability to navigate Internet search engines and find specific information, use email, navigate chat rooms, download and install computer software, and create a web page. Populations with less developed web skills may exhibit less demand for e-government, and the variable education level serves as a proxy for web-based skills and knowledge.

The population over 60 variable is expected to be negatively related to a city's website score (Thomas and Streib 2003). Reflected in this assumption may be "generational" differences as to the appropriate relationship between citizens and government. In other words, younger individuals are better conditioned to accept contact via the Internet as a replacement for face-to-face contact, while older individuals may accept such forms of contact as supplementary at best. This notion is supported by Gareis (2004), who found an inverse relationship between age and Internet use; that is, nearly 80 percent of individuals 24 and younger and nearly 60 percent of individuals 25 to 49 reported using the Internet on a "regular" basis. This compares to approximately 10 percent of individuals 65 and older. Thus, it is expected that the demand for e-government applications falls as the proportion of the population over 60 grows.

Further, cities with higher black and Hispanic populations are expected to have less developed e-government platforms. This expectation is based on Ho's (2002) examination of cities websites, whereby a bivariate analysis indicated that a city's racial and ethnic makeup may impact the "progressiveness" of a city's website – which is to say its level of

**Table 2. Variable Definitions, Sources, and Summary Statistics**

<i>Variable</i>	<i>Definition (Source)</i>	<i>Mean (St. Dev.)</i>
Website score	Forty weighted additive measures from the service and citizen participation components of Holzer and Kim's (2005) E-Governance Performance Index (D'Agostino et al. forthcoming)	36.99 (6.81)
Population	Number of city residents (Quick Facts 2006, U.S. Census Bureau)	1,547,190 (1,721,819)
Education	Percentage of city residents with a bachelor's degree or better (Quick Facts 2006, U.S. Census Bureau)	26.40 (8.15)
Population over 60	Percentage of city residents age 60 and over (Quick Facts 2006, U.S. Census Bureau)	13.25 (3.04)
Black population	Percentage of city residents that are black (Quick Facts 2006, U.S. Census Bureau)	27.86 (21.38)
Hispanic population	Percentage of city residents that are Hispanic (Quick Facts 2006, U.S. Census Bureau)	21.18 (16.41)
Poverty	Percentage of city residents below the federal poverty line (Quick Facts 2006, U.S. Census Bureau)	17.64 (4.53)

e-government sophistication. Finally, an inverse relationship between a city's poverty level and its e-government platform is expected, as higher concentrations of poverty are likely to suppress demand for e-government.

## Results and Discussion

### *Summary Statistics*

Summary statistics indicate that the mean website score is 37 (st. dev. = 7). New York outperformed the other cities, having received a website score of 54 (out of 100). Philadelphia and Los Angeles scored well comparatively, having received scores of 44 and 43, respec-

tively. Rounding out the top five, Dallas and San Francisco both received scores of 42. Detroit and Baltimore were rated least favorably, having received website scores of 26 and 25, respectively (see Table 3). A comparison of high adopters (score  $\geq 40$ ,  $n = 9$ ) and low adopter (score  $< 40$ ,  $n = 11$ ) indicates the following. On average, high adopters have larger populations than low adopters (2,122,380 compared to 1,076,580). High adopters have more educated populations, as 29 percent of their populations have at least a bachelor's degree or better. This compares to 24 percent of low adopting cities. High and low adopting cities differ in terms of racial and ethnic diversity. Specifically, high adopters have significantly lower proportions of African-Americans (20 percent compared to 35), yet slightly higher proportions of Hispanic residents on average (23 percent compared to 19). Both high and low adopters have similar poverty rates and nearly identical proportions of their populations are age 60 and over (see Table 4).

### *Inferential Statistics*

Multiple regression analysis was used to determine which socio-demographic factors predict a city's website score. Regression results indicate that population and race and ethnicity are statistically significant at the .05 level. The black population variable coefficient of -.32 implies that a 10 percent change in a city's black population would decrease its website score by 3.2. The results suggest that cities with larger black populations will have less comprehensive e-government platforms via their websites. Similarly, the Hispanic variable coefficient of -.23 implies that a 10 percent change in a city's Hispanic population would decrease its website score by 2.3. The results suggest an inverse relationship between a city's e-government platform and the proportion of Hispanic residents.

Consistent with previous work (Schwester 2009; Holzer and Melitski 2003; Holden, Norris, and Fletcher 2003; Moon 2002), the population variable is positively associated with a city's website score. Even among large cities, greater population predicts a more comprehensive e-government platform.

The education, population over 60, and poverty rate variables were not statistically significant. The fact that the education variable is not statistically significant is compelling. Cities with less educated populations were expected to have less comprehensive websites, reflecting a sagging demand for sophisticated Internet applications. One possible explanation may be that the "digital divide" in the context of web-related computing skills has diminished over time given the mainstream integration of the Internet as a personal communications and commerce tool.

An inverse relationship between the population over 60 variable and a city's website score was expected. The over 60 variable was not significant, and it should be noted that the sign of the coefficient was, in fact, positive. This result may reflect a growing acceptance of online contact as a viable and satisfactory supplement to face-to-face contact. A generational gap was thought to be possible, whereby older residents would demand Internet-based applications less than younger generations. One might argue that younger generations are more technology savvy and more accepting of alternative citizen-government paradigms, one where the relationship between citizens and governments is more "virtual." The results here suggest that this is not the case.

**Table 3. Website Scores: 20 Most Populous U.S. Cities**

(Out of a possible 100)

New York (NY)	54	San Jose (CA)	37
Philadelphia (PA)	44	Columbus (OH)	36
Los Angeles (CA)	43	Chicago (IL)	34
Dallas (TX)	42	Austin (TX)	33
San Francisco (CA)	42	Jacksonville (FL)	33
Indianapolis (IN)	41	Memphis (TN)	32
San Diego (CA)	40	Milwaukee (WI)	31
Boston (MA)	40	San Antonio (TX)	30
Phoenix (AZ)	40	Detroit (MI)	26
Houston (TX)	38	Baltimore (MD)	25

Source: D'Agostino et al. (forthcoming).

Finally, the poverty variable was not significant and the coefficient was positive. A negative relationship was expected given that poverty served as a proxy for social and fiscal stress. That is, cities with higher than average poverty rates tend to have higher violent crime rates, greater demand for social services, and less robust tax bases. Thus, citizens might not demand e-government at the same level they would more “essential services,” such as greater neighborhood police presence, health and social welfare services, etc.

The most compelling results presented here deal with race and ethnicity. The regression model suggests that cities with larger minority populations have lower website scores. More to the point, these cities have less comprehensive e-government platforms. These results may reflect differences in e-government demand between minorities and whites. The implications of these results are potentially profound. Previous empirical work suggests that exposure to e-government can positively alter how citizens view their governments (Welch, Hinnant, and Moon 2005). Specifically, research conducted by Tolbert and Mossberger (2006) indicates that citizen exposure to e-government improved perceptions as to the responsiveness of government, and that increased citizen-government interactions electronically can result in greater trust in government. Based on this and given the results presented here, as traditionally underrepresented and disenfranchised groups, one might be reasonably pessimistic about e-government positively altering African-American and Latino perceptions about government.

**Table 4. Summary Statistics: High and Low Adopters**

Variable	High (n = 9)	Low (n = 11)
Mean (Std. Dev.)		
Website score	42.8 (4.4)	32.2 (4.2)
Population	2,122,380 (2,391,731)	1,076,580 (717,758)
Education	29.1 (8.1)	24.1 (7.8)
Black population	19.7 (12.5)	34.5 (25.2)
Hispanic population	23.3 (14.1)	19.5 (18.6)
Population over 60	13.7 (2.1)	12.9 (3.7)
Poverty	17.4 (4.3)	17.8 (4.9)

### Conclusion

The theory of technological determinism suggests that the introduction of technology will, independent of social factors, prove transformative over time. In the context of e-government, simply providing Internet applications that allow residents to access information, request services, transact business, and perhaps even communicate with public officials will alter the dynamic between citizens and their governments – or so champions of technological determinism might argue. However, there are a myriad of social factors that ultimately drive the demand for e-government (Heeks and Bailur 2007), thus driving its level of complexity and transformative power. In this paper, evidence is presented that cities with more advanced e-government platforms tend to be larger in population and less racially and ethnically diverse. Possible explanations for these findings are twofold. First, residents of the largest cities may demand more e-government applications in the interest of greater efficiency when conducting “business” with the city – whether it is filing a building permit, paying a parking violation, or locating the telephone number of a public official. E-government applications that are largely “self-service” in nature may help to alleviate many administrative and service bottlenecks inherent to the largest U.S. cities.

Second, the racial and ethnic divide may reflect historical experiences and perceptions as to the responsiveness of government in general. In other words, the African-American and Latino populations have – by virtue of their minority status – been marginalized by traditional institutions of government. For African-Americans and Latinos, e-government may be viewed as an extension of those traditional institutions. Thus, e-government may not be thought of a transformational in terms of positively altering the citizen-government dynamic. Rather, these applications may simply reinforce the status quo, which will

**Table 5. Determinants of City's Website Score**

Variable	Coefficient (t-value)
Population	2.53e-06 (4.00) **
Education	.05 (0.32)
Black population	-.32 (-2.69) **
Hispanic population	-.23 (-2.28) *
Population over 60	.42 (1.15)
Poverty	.43 (1.02)
Constant	32.5 (3.80)
Adjusted R <sup>2</sup>	.64
Observations	20

\* Significant at .05 level; \*\* Significant at .01 level

lessen the demand for e-government. More research is ultimately needed that examines differences in demand, as well as the reasons underlying those differences in demand.

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## References

- Becker, T. 1993. Teledemocracy: Gathering Momentum in State and Local Governance. *Spectrum: The Journal of State and Government* 66(2): 14-19.
- Browning, G. 2002. *Electronic Democracy: Using the Internet to Transform American Politics*. Medford: CyberAge Books.
- Calista, D. and Melitski, J. 2007. E-government and E-governance: Converging Constructs of Public Sector Information and Communications Technologies. *Public Administration Quarterly*, 32(1): 87-120.
- Carrizales, T., Holzer M., Kim, S.-T., and Kim, C.-G. 2006 Digital Governance Worldwide: A Longitudinal Assessment of Municipal Websites. *International Journal of Electronic Government Research*, 2(4): 1-23.
- Cloete, F. 2003. Assessing Governance with Electronic Policy Management Tools. *Public Performance and Management Review* 26(3): 276-290.

- D'Agostino, M., Schwester, R., Carrizales, T., & Melitski, J. forthcoming. A Study of E-government and E-governance: An Empirical Examination of Municipal Websites. *Public Administration Quarterly*.
- Gareis, K. 2004. Toward use centered e-government: Understanding potential demand for online public services. Paper presented at the Telecities and MUTEIS Conference, March 17-19, The Hague. Retrieved from [http://www.empirica.com/themen/info\\_ges/documents/Paper\\_Gareis\\_Muteis\\_final.pdf](http://www.empirica.com/themen/info_ges/documents/Paper_Gareis_Muteis_final.pdf); accessed June 11, 2009.
- Gattiker, U.E. 2001. *The Internet as a Diverse Community: Cultural, Organizational, and Political Issues*. Mahwah, NJ: Lawrence Erlbaum.
- Heeks, R. & Bailur, S. 2007. Analyzing e-government research: Perspectives, philosophies, theories, methods, and practice. *Government Information Quarterly* 24(2): 243-265.
- Holzer, M., Melitski, J., Rho, S.-Y., and Schwester, R. 2004. *Restoring Trust in Government: The Potential of Digital Citizen Participation*. Washington, DC: IBM Endowment for the Business of Government.
- Holzer, M. and Kim, S.-T. 2005. *Digital Governance in Municipalities Worldwide (2005): A Longitudinal Assessment of Municipal Websites Throughout the World*. Newark, NJ: National Center for Public Productivity.
- Holzer, M. and Kim, S.-T. 2007. *Digital Governance in Municipalities Worldwide (2007): A Longitudinal Assessment of Municipal Websites Throughout the World*. Newark, NJ: National Center for Public Productivity.
- Ho, A.T.-K. 2002. Reinventing Local Governments and the E-government Initiative. *Public Administration Review* 62(4): 434-444.
- Holden, S.H., Norris, D.F., & Fletcher, P.D. 2003. Electronic Government at the Local Level. *Public Performance and Management Review* 26(4): 325-344.
- Jankowski, N.W. & van Os, R. 2002. *Internet-based political discourse: A case study of electronic democracy in the city of Hoogeveen*. Paper Presented at the Prospects for Electronic Democracy Conference, Carnegie Mellon University, Pittsburgh, Pennsylvania.
- Kamarck, E. C. and Nye, J.S. (eds.) 1999. *Democracy.com? Governance in a Networked World*. Hollis: Hollis Publishing.
- Korac-Kakabadse, A. and Kakabadse, N.K. 1999. Information Technology's Impact on the Quality of Democracy: Reinventing the 'Democratic Vessel.' In *Reinventing Government in the Information Age: International Practice in IT-Enabled Public Sector Reform*, edited by Richard Heeks. London: Routledge.
- Layne, K., & Lee, J. 2001. Developing fully functional E-government: A four stage model. *Government Information Quarterly*, 18(2), 122.
- Loader, B.D., (ed.) 1997. *The Governance of Cyberspace: Politics, Technology and Global Restructuring*. London: Routledge.
- Malina, A. 1999. Perspectives on Citizen Democratisation and Alienation in the Virtual Public Sphere. In *Digital democracy: Discourse and Decision Making in the Information Age*, edited by Barry N. Hague, and Brian D. Loader, 23-38. London: Routledge.
- McLean, I. 1989. *Democracy and the New Technology*. Cambridge: Polity Press.

- Moon, M. J. 2002. The evolution of E-government among municipalities: Rhetoric or reality? *Public Administration Review*, 62(4), 424-433.
- Norris, D., & Demeter, L.A. (1999). Computing in American City Governments. In *The 1999 Municipal Yearbook*, 10-19. Washington, DC: ICMA.
- Nugent, J.D. 2001. If e-democracy is the answer, what's the question? *National Civic Review*. 9 (3), 221-223.
- Schwester, R. 2009. Examining the Barriers to e-Government Adoption." *Electronic Journal of e-Government*. 7(1), 113-122.
- Shane, P.M. 2002. The Electronic Federalist: The Internet and the Eclectic Institutionalization of Democratic Legitimacy. Paper Presented at the Prospects for Electronic Democracy Conference, Carnegie Mellon University, September 20-22, Pittsburgh, PA.
- Thomas, J.C. & Streib, G. 2003. The new face of government: Citizen initiated contacts in the era of E-government. *Journal of Public Administration Research and Theory*. 13(1): 83-102.
- Tolbert, C.J., & Mossberger, K. (2006). The Effects of E-government on Trust and Confidence on Government. *Public Administration Review*. 66(3): 354-369.
- Westen, T. 2000. E-democracy: Ready or Not, Here It Comes. *National Civic Review* 89(3): 217-227.
- Welch, E.W., Hinnant, C., & Moon, J.-M. (2005). Linking Citizen Satisfaction with E-Government with Trust in Government. *Journal of Public Administration Research and Theory*. 15 (1): 37-58.
- Witschge, T. 2002. *Online Deliberation: Possibilities of the Internet for Deliberation*. Paper Presented at the Prospects for Electronic Democracy Conference, Carnegie Mellon University, September 22-22, Pittsburgh, PA.