The Use of Paralingual Web Pages to Improve Trust in E-Government Web Sites in Regions of Highly Bilingual Populations

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INTRODUCTION

The World Wide Web (Web) has become increasingly integrated into society generating a wider impact on our lives. Additionally, the Web is becoming more global in scope and application. This globalization of the Web is seen in the proliferation of languages that are now encountered in the myriad of web pages that exist, whereas initially most web pages were in English. The wide impact is seen in the many services and functions that are now available through web pages and portals that consumers and citizens now use on a daily basis.

One of the newer applications of the web is electronic government or, e-government. This is composed of a vast range of information and services that governments at all levels can provide their constituents using the Internet. The impetus to implement e-government can be attributed to government's growing awareness of the need to attain more democratic governance (Coleman and Gotze 2001; OECD 2001), coupled with a widespread public interest in the potential of ICT to empower citizens and to increase government accountability (Hart and Teeter 2003). Cost control and improved service to citizens is another driver. The United States E-Government initiative targets use of improved Internet-based technology to make it easy for citizens and businesses to interact with the government, save taxpayer dollars, and streamline citizen-to-government communications. Current E-Government Strategy identifies several high-payoff, government-wide initiatives to integrate agency operations and information technology investments. The goal of these initiatives is to eliminate redundant systems and significantly improve the government's quality of customer service for citizens and businesses (USOMB, 2005).

Trust in government has historically been problematic; constituent citizens are known to have a high level of distrust in their governing bodies. Trust in government has been declining for more than three decades now, and has been the topic of a substantial amount of research in political science (Levi and Stoker, 2000 and Hibbing and Theiss-Morse, 2002). In the state of California, a recent study exposed an unexpectedly high level of distrust in government by California citizens. During 2004, a series of dialog-oriented seminars were held by Viewpoint Learning in various locations in California. One of the seven major findings of the study was that "profound mistrust of government and elected officials emerged as a central underlying issue…" Furthermore, "this mistrust was both more intense and more persistent than expected, outstripping the levels that have been measured by polls and focus groups" (Rosell, Gantwerk, and Furth, 2005).

As with traditional trust in government, there are known issues with trust in e-government websites. This is clearly the effect of the general mistrust by citizens in their government bodies, as mentioned previously. The principal reason given for mistrust of the Web is an artifact of the internet itself. Namely, the internet is now perceived to be beyond the control of the hosts and providers in terms of security and trust. Despite the use of lock icons, digital signatures, passwords, privacy policy statements, and other security techniques, internet users feel that "hosts and providers have lost control of the digital data transport medium as well as the software infrastructure that supports it." Thus the growth of e-government has been impeded in recent years (Mercuri, 2005).

An echo of the technology-based trust issue comes from Reinhard Scholl of the International Telecommunication Union (ITU). He points to the Geneva Plan of Action, "which recognizes that confidence and security are among the main pillars of the Information Society." The ITU provides support for national e-government projects, including enhancing security and trust in the use of public networks (Khalil-babnet, 2005). Beyond the technology issue of trust, Gassert covers various aspects of building trust in e-government. He states the importance of fostering confidence and not suspicion and expresses the need for interfaces to have ease of use and usability (Gassert, 2004).

Thus improvement of trust in government is a critical issue. In the study by Viewpoint Learning, the citizens in the study voiced a strong desire to find constructive solutions to the problems facing the state (Rosell, Gantwerk, and Furth, 2005). In a geographical area with a high proportion of bilingual speakers, usage of e-government websites may be improved in the same way as has been shown effective in electronic commerce (ecommerce). That is, with regard to language issues, researchers have found that customers are far more likely to buy products and services from Web sites in their own language, even if they can read English well. Furthermore, attention to site visitors' needs should be an important consideration in Web design, because such attention can help a site build trust with customers (Schneider, 2003).

For countries where there are multilingual populations it is expected that trust in government will be less than single language countries. This makes the challenge for government bodies in these countries seeking to provide e-government resources as twofold. First, how to provide website resources that adequately address the language issues of the multilingual citizens; second, how to improve trust in the governing body from those citizens. We propose that a method for improving trust in multilingual nations is to use a format of web page design involving paralingual content. Paralingual web design involves placing content in both languages but instead of having separate pages for each language, the multilingual content is placed side by side. This allows readers who are bilingual to easily see both versions and readily determine if the same information is being said in each version. It is expected that trust will be increased through this citizen validation process.

One of the primary reasons for the undertaking of this research is the assertion that trust in e-government is improved among bilingual populations by seeing the website content in both languages side by side on the same page. This format allows the bilingual (or multilingual) site visitor to see at one time that the information is the same in both languages. This is in comparison with web pages where the information is separated into different pages and the site visitor is unable to directly compare the information. As Gassert stated, the improved usability of this web design will improve trust in the web site. Likewise, for bilingual citizens who may have better communication skills in the alternate language, the improvement of trust may result from the increased knowledge transfer from the paralingual web page.

This research in progress paper reports on our efforts to validate that paralingual websites will increase citizen trust.

RESEARCH QUESTION
This research seeks to determine if the use of paralingual website design will improve constituents trust in their E-government websites. Two hypotheses were tested:

H1:   Use of paralingual web pages will not decrease usablity.
H2:   Use of paralingual web pages will increase trust in the page content and government sponsor.

RESEARCH METHODOLOGY
This research utilizes an experiment to test the hypothesis that paralingual website design for E-government will increase trust in the users. To conduct this experiment several pages on the website of a voluntary municipality were converted to the paralingual format. The voluntary municipality was located approximately 10 miles from the United States border next to Mexico. This municipality was known to have a high proportion of English-Spanish bilingual residents and a population that is 60% Hispanic.

The original English content on three pages of the municipality website was supplemented with the equivalent translation in Spanish placed horizontally adjacent to each other. Municipality officials encouraged constituents and residents in the vicinity through a series of public announcements to visit the modified web pages and to complete a brief survey documenting their opinions on the website. The respondents to the survey had the choice of filling out the survey in English or Spanish, presumably their primary language of communication. The survey consists of eight questions. Four questions deal with demographics of the respondents. Two questions dealt specifically with trust. The first asked: "Please respond to this statement: I have a greater trust now than before in my understanding of the National City website." The second asked: "Please respond to this statement: I have a greater trust now than before in the information on the National City website because it is in English and Spanish side by side." The last two questions asked if the respondent was aware there were multiple languages spoken in the community and how usable the web site was with respect to reading and comprehending the web page material. Responses to the trust and usability questions were based on a Likert scale and were analyzed statistically for significance of differences between groups. Two major groups were compared, the respondents to the English survey and the respondents to the Spanish survey. Currently survey responses are being collected and will be statistically analyzed when a sufficient number of responses have been collected to make the analysis statistically valid.

PRELIMINARY RESULTS
So far 92 responses have been analyzed 17 in Spanish and 75 in English. Analysis of these responses with respect to trust and usability was conducted using the Mann Whitney U test and Spearman's rho. There was no significant difference between English and Spanish responses with respect to improving trust in the National City web site. There was a significant difference between English and Spanish responses with respect to increasing trust based on seeing English and Spanish side by side; with the Spanish responses showing increased trust. Finally, English and Spanish responses both found the web site usable with respect to reading and comprehending the paralingual material with no significant differences found between the two groups.

Interpretation of these results supports the conclusion that with the web site being usable, both English and Spanish speakers increased their trust in the web site. However, it also shows that Spanish speakers increased their trust in the web site when the material was presented in a paralingual format while English speakers did not. This was an expected finding and it leads to the conclusion that using a paralingual format for e-government increases trust among minority language speakers. This is useful as it supports governments in using a paralingual format for web page design for the purpose of increasing minority trust. For democratic societies this is a significant finding.

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