

Building Citizen Trust Through e-Government

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Abstract

The trust of citizens in their governments has gradually eroded. One response by several North American governments has been to introduce e-government, or web-mediated citizen-to-government interaction. This paper tests the extent to which online initiatives have succeeded in increasing trust and external political efficacy in voters. An internet-based survey of 182 Canadian voters shows that using the internet to transact with government has a significantly positive impact on trust and external political efficacy. Interestingly, though the quality of the interaction is important, it is secondary to internal political efficacy in determining Trust levels, and not significant in determining levels of external political efficacy (or perceived government responsiveness). For policy-makers, this suggests e-government efforts might be better-aimed at citizens with high pre-extant levels of trust, rather than in developing better web sites. For researchers, this paper introduces political efficacy as an important determinant of trust as it pertains to e-government.

Introduction

Throughout history, Lincoln's 1863 dictum, "government of the people, for the people, by the people" has been used to define a democracy. Yet, the state of affairs is far from this ideal. The trust of American citizens in their government has declined dramatically over the past thirty years (Rosenstone and Hansen 1993; Hibbing and Theiss-Morse 2001). Beliefs that the government is getting worse instead of better and that today's public officials simply do not measure up are increasingly in vogue in political dialogue (Orren 1997). Declining turnout in federal elections also suggests that the North American public have also lost confidence in the fundamental features of representative democracy. From the perspective of policy-makers, trust and political efficacy may be viewed as preconditions for electoral success.

A variety of strategies for dealing with distrust have been investigated. Among the most popular is that the deficit in trust can be made up by greater public participation in decisions (Welch and Hinnant 2003). Encouraging citizens to exercise their "voice" clearly aims to reinstate confidence in the overhead democracy, to rebuild the political efficacy of citizens. Some argue that the reciprocation of goods and services of extrinsic value has more resonance with citizens than overhead democracy (Hibbing and Theiss-Morse 1995; Blendon et al. 1997; Lawrence 1997).

Some regard eGovernment as a powerful tool for improving the internal efficiency of government and the quality of service delivery as well as enhancing public participation. However, e-government's contribution to political capital remains largely under-investigated. Could eGovernment be a panacea for citizen dissatisfaction? This question is addressed through a survey of voters.

Background and Literature Review

Three streams inform this research: trust in government, political efficacy and e-government.

Political Trust

Easton (1965) first defined and delineated the types of trust in government as being *specific* and *diffuse*. Specific support refers to satisfaction with government outputs and the overall performance of political authorities. Diffuse support refers to the public's attitude toward regime-level political objects, regardless of performance. Specific support encapsulates the economic value of the exchange between citizen and government, while diffuse support encapsulates the intrinsic.

The literature on citizen trust is not merely abstract socio-democratic theory. Rather, it evidences the role of trust in building political capital. Hetherington (1999) offered empirical evidence that political trust affects voting behaviour: distrustful voters are more likely to support non-incumbent and third party candidates. Prior research found that distrustful voters are also more likely to express support for the devolution of federal decision-making to provincial governments (Hetherington and

Nugent 1998). Belanger and Nadeau (2002) showed that trust in government also has a significant effect on Canadian voting behaviour in Canada.

Thomas (1998) outlined three means by which trust in the government is produced. The first, characteristic-based, is produced through expectations associated with the demographic characteristics of a person. Secondly, institutions may create trust either directly through adoption of professional standards or codes of ethics, or indirectly through the observance or administration of laws and regulations. Third, process-based trust results from expectations of reciprocity in which the giver obligates the receiver to return goods or services of equivalent "intrinsic or economic value." Nye (1997) classified these causal factors as social-cultural, economic or political.

Implicit in Thomas' definition of process-based trust are the evaluative actions citizens undertake; reciprocation is measured against expectations.

There is an abundance of literature establishing that levels of trust rise and fall with the public's evaluation of the economy (Citrin and Green 1986; Hibbing and Theiss-Morse 1995; Lawrence 1997). Hibbing and Patterson (1993) also established that optimistic economic perceptions are correlated with support for European parliaments. However, Mansbridge (1997) pointed out that citizens expect the government to perform the impossible feat of a continually growing economy without recessions. Secondly, almost universally, there is strain on public budgets and governments are under pressure to increase the efficiency and performance of agencies. Inglehart (1997) hypothesized that these rising expectations are a result of economic development; citizens began to expect more material comfort in their lives and greater material security from their governments. Mansbridge (1997) also calls attention to the growing "culture of rights" in North America as responsible for the rising expectations of government. Naturally, rising expectations, unmatched by improved performance, will lower the public's evaluation of the government.

In some cases, goods and services of extrinsic value that are reciprocated for taxes are measured by expectations, rather than against expectations. In these cases, citizens' perceptions of government performance may stray from reality. For instance, Bok (1997) refers to the widespread impression among the American public that government inefficiency wastes tax money; public opinion polls suggest that Americans believe that forty-eight cents of every tax dollar is squandered. At the same time, a National Performance Review was conducted and its recommendations were expected to conserve no more than two extra cents for every tax dollar (Bok 1997). For the most part, the economic evaluation of citizens that has been linked to trust captures public expectations of

the future economy. It is worth noting that negative biases towards government bring Americans to a similar economic evaluation even if the actual performance of the economy and their own economic circumstances may indicate the opposite (Nye and Zelikow 1997).

However, the significance of economic factors cannot be dismissed. While it may be difficult for the average citizen to articulate the reasons underlying their distrust, it is notable that the primary reasons cited for distrusting government are government inefficiency or misallocated tax dollars (Blendon et al. 1997). When citizens cite government's "spending money on the wrong things" as a reason for distrust, they are speaking of more than inefficiency. Lawrence (1997) identified that perceptions that the government is responsive to the needs of special interests and remote from the interests of ordinary citizens have also increased (along with wastefulness) as trust has declined.

Political Self-Efficacy

These social, economic, and political dimensions of trust cannot be divorced from the concept of political efficacy, an offspring of more general research on self-efficacy. Compeau, and Higgins (1995) defined self-efficacy as "...the belief that one has the capability to perform a particular behavior," based on Bandura's (1986) earlier definition of "*People's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses*" (p. 391). Political efficacy is both endogenous and exogenous and defined as the citizen's sense that they can have an impact on political developments (internal political efficacy) and their perception of government responsiveness (external political efficacy).

A number of researchers have used Hirschman's model of exit, voice and loyalty to explain citizen reaction to deteriorating service (Belanger and Nadeau 2002; van Duivenboden and Lips 2001). Hirschman's (1970) model proposed that individuals react in two ways: they may attempt to effect change by expressing, the desire to, or switching to another organization, depending on their loyalty. Although citizens cannot switch governments on a whim, they may choose to "exit" by staying home on Election Day (Mudd 1996; Belanger and Nadeau 2002).

The sets of expectations guiding behaviour, proposed by Bandura (1986), may shed light on citizens' choice to register their dissatisfaction by abstention or by voice. Abstention might be seen as a vote of no confidence in the electoral process. But rather than a blanket exit from democratic processes, citizens may associate voice with better outcomes. Empirical evidence of a positive relationship between external political efficacy and

turnout corresponds with a citizen's consideration of expected outcomes (Abramson and Aldrich 1982; Finkel 1985). Thus, the expectation of outcomes, or government responsiveness, cannot be entirely divorced from citizens' self-efficacy.

Roese (1999) also provided evidence that the extent to which Canadians were becoming more politically active and the degree to which their sense of control over their own destinies was changing were predictors of trust in government.

e-Government

Causes of non-confidence in the democratic process and government are complex and never exhaustive but public perceptions of inefficiency (wastefulness), ineffectiveness, and policy alienation are among those that have been empirically proven (Miller and Borrelli 1991; Lawrence 1997; Orren 1997).

Although the catalysts for eGovernment initiatives may be multifaceted, some regard eGovernment as a powerful tool for improving the internal efficiency of government and the quality of service delivery as well as enhancing public participation (Fountain 2001; Brown 1999; Anderson 1999). Theoretically, distrust could be countered by increasing perceived efficiency, quality of outcomes, and opportunities for policy inputs. The latter may also renew a citizen's sense of political efficacy.

Northrup and Thorson (2003) summarize three positive claims – increased efficiency, increased transparency, and transformation – that have been used to support e-government initiatives. Welch and Hinnant (2003) related transparency and interactivity to citizen trust. However, they concluded that Internet use and familiarity with e-government is only positively related to transparency. Thus, the negative relation to interactivity is an artifact of the predominance of one-way e-government.

E-government has evolved from one-way e-government consisting of posted contact and program information. Citizen-initiated transactions, such as the Government of Canada's online income tax filing, have enjoyed unexpected success (Accenture, 2002). Moon (2003) proposed that IT and Web-based public services can help governments to restore public trust by coping with corruption, inefficiency, ineffectiveness, and policy alienation. When bearing in mind the reciprocity expected in process-based trust (Zucker 1986), two-way government bears even greater potential than one-way government.

It may be obvious that e-government has no positive effect when the citizen's experience of these electronic transactions is negative. Yet, research on measuring satisfaction with e-government services has been sparse and inconclusive with regards to overall trust. If political capital is broadly defined as something employed to

serve a political purpose (Brewer 1898), eGovernment presents itself as a tool deserving further investigation.

Research Model

The foregoing discussion of the political consequences of declining trust and political efficacy leads to the research model and hypotheses in Figure 1.

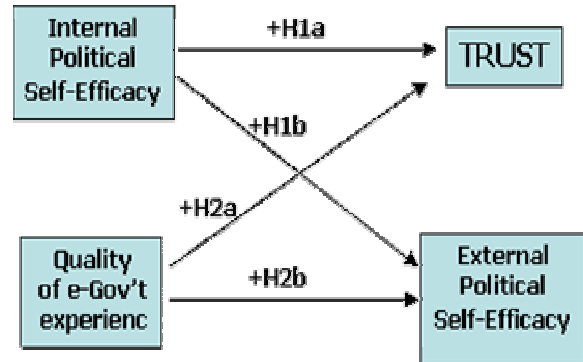


Figure 1: Research Model & Hypotheses

The research model posits citizen trust and external political efficacy as effect variables that are important to the policymakers in the federal government in the following hypotheses. Empirical evidence has established that a citizens' self-efficacy and political involvement predict trust in government. Thus, a citizens' sense of political efficacy should do the same.

H1a: The greater the individual's internal political efficacy, the greater will be the trust in government

Following Bandura's theory, the very choice of exiting from the electoral process or exercising voice is predicated on a citizen's belief in their ability to register dissatisfaction and have an impact on political developments. The two may work in tandem.

H1b: The greater the individual's internal political self-efficacy, the greater will be external political self-efficacy

Following the suggestion that eGovernment can counter perceptions of inefficiency and ineffectiveness, levels of trust were expected to be significantly higher among those who had a positive transaction experience.

H2a: The greater the quality of the electronic transaction, the greater will be the individual's trust in government.

Finally, the quality of the transaction should also contribute to increased perception of government responsiveness.

H2b: The greater the quality of the electronic transaction, the greater will be the individual's external political self-efficacy.

Research Method

In order to test this model, an internet-based survey of Canadian voters was conducted. To ensure representation from all Canadians, the survey was also translated and offered in French. Permission to post an invitation was requested from moderators of 44 Canadian public listservs and express agreement was obtained from six. Interested listserv subscribers were directed to the online survey by way of a link. Informed consent was obtained and surveys were received from 185 respondents were received between May 4th and June 5th, 2003. Two surveys were removed because respondents were younger than 19 years old (the minimum voting age). One survey was rejected as incomplete.

A total of 164 surveys were completed in English, 18 in French. 41% of respondents were men, 59% women. Their demographic characteristics are shown below in Table 1.

Trait		%	Census ¹
Age (n=181)	19 – 24	28.0%	13.3%
	25 – 29	27.5%	
	30 – 34	14.8%	17.0%
	35 – 39	9.9%	
	40 – 44	4.9%	
	45 – 54	7.7%	
	55 or older	6.8%	
Province (n=177)	Alberta	14.1%	10%
	British Columbia	22.6%	13%
	Manitoba	5.6%	4%
	New Brunswick	2.8%	2%
	NWT / Nunavut	0.6%	0.3%
	Nova Scotia	5.6%	3%
	Ontario	33.9%	38%
	PEI	0.6%	0.5%
	Quebec	11.9%	24%
	Saskatchewan	2.3%	3%

Education (n=181)	High school or less	1.1%	51.7%
	Some post-secondary	18.7%	35.6%
	College	7.1%	16.0%
	Bachelor	20.9%	20.2%
	Degree		

	Some graduate studies	12.1%	
	Masters degree	22.0%	3%
	Some doctoral	11.5%	
	Doctorate	6.0%	1%
Trait			%
Income (n=158)	Less than \$20,000		13.9%
	\$20,000 - \$39,999		16.5%
	\$40,000 - \$59,999		18.4%
	\$60,000 - \$79,999		19.0%
	\$80,000 - \$99,999		14.6%
	\$100,000 or more		17.7%
Party Affiliation (n=171)	Liberal		42.7%
	Conservative		6.1%
	NDP		25.0%
	Alliance		6.1%
	Other		1.2%
	None		18.9%

Measures

Pre-existing, validated and reliable measures were used in this model. Internal and External Political Self-Efficacy were measured using scales developed by Craig et al. (1987) for the National Election Studies.

A summated index measuring trust in government was introduced to the American National Election Studies, conducted by Campbell et al. in 1958. Respondents were asked how often they trust the government to do what is right, whether government is run by a few big interests (or conversely, for the benefit of all people), whether it wastes tax money and whether people running the government are crooked. The reliability of the trust index is 0.76. This instrument was adapted by Converse et al. (1965) and used in this research to measure Trust.

Devaraj et al. (2002) used a hybrid of progressive instruments to measure consumer satisfaction with the e-commerce channel. Applicable dimensions were modified to the e-government context. For example, “online shopping” was changed to read “online government services”. The quality of the e-government experience was first measured using the Assurance dimension of the SERVQUAL instrument (Parasuraman et al. 1988). Orlikowski and Iacono (2001) proposed that the Technology Acceptance Model (TAM) represents a consumer’s internal cost-benefit analysis. Thus, both the Perceived Ease of Use and the Perceived Usefulness dimensions were also used in measuring this construct. Lastly, as the quality of the service experience has a temporal dimension (Williamson, 1975), Time was added.

¹ (Statistics Canada 2003a, Statistics Canada 2002)

Several other independent variables, including socio-demographic variables such as self-reported Internet ability and party affiliation, were added as controls.

Results

The model in Figure 1 was analyzed using maximum likelihood estimation method employed in AMOS (Analysis of Moment Structures) version 4.0. AMOS enables the simultaneous estimation of both measurement and structural equations contained within the model. A LISREL type approach is appropriate to deal with the fit of the theoretical model to observed data (Gefen et al, 2000). Constructs were operationalized using reflective measures. To set a unit of measurement for each of the constructs, a path coefficient for one of the reflective measures was set equal to 1 and the path coefficient for each measure error term was also set to 1.

Tests of Model Fit

Table 2: Goodness of Fit Measures

Measure	Estimate	Suggested	Conclusion
χ^2 /(degrees of freedom)	(102.88/49) = 2.10	< 3.0	Acceptable
Goodness of Fit Index (GFI)	0.911	>.90	Acceptable
Adjusted Goodness of fit (AGFI)	0.859	>.80	Acceptable
Root Mean Squared Res. (RMR)	0.082	<.05	Not acceptable
Comparative Fit Index (CFI)	0.938	>.90	Acceptable
Normed Fit Index (NFI)	0.899	>.90	Marginal
Root Mean Square Error of Approximation (RMSEA)	0.078	<.08	Acceptable

Before results from the estimation are examined, the model fit should be established. The statistics reported

Table 3: Assessment of Reliability for Constructs

Construct	# items	Composite Reliability	Variance Extracted
Internal Political Self Efficacy	3	.744	.509
Service Quality	2	.832	.772
External Political Self Efficacy	2	.731	.581
Political Trust	5	.830	.506

Table 4: Estimated t-values and p-values

Construct	t- value	p- value
Internal Political Efficacy → Political Trust	8.038	0.000
Internal → External Political Efficacy	7.864	0.000
Internal Political Efficacy → Service Quality	1.520	0.129
Service Quality → Political Trust	2.160	0.034
Service Quality → External Political Efficacy	1.248	0.212

Test of the Measurement Model

Having found an arguably acceptable overall fit for the model, the measurement model can be assessed. Convergent validity was tested for unidimensionality and reliability. Unidimensionality was tested by examining

below are consistent with those suggested by Gefen et. al. (2000). Fitting the model to the sample data resulted in a chi-square (χ^2) statistic of 102.88 (df = 49 , n=181, p <.000), a χ^2 /df ratio of 2.10, a GFI (goodness of fit index) value of 0.911, and the goodness of fit adjusted for degrees of freedom (AGFI) of 0.859. The χ^2 /df ratio indicates an acceptable level of fit as it satisfies the requirement of being less than 3.0 (Hair et al, 1995). The GFI indicates an acceptable fit with GFI at .91 (Chin, 1999 and Hair et al., 1995) as does the AGFI with a value of 0.86 that is above the suggested 0.80 level (Segars et al, 1993). The Root Mean Square Residual is 0.082 that is well above the 0.05 level and indicates a marginal fit.

Since the theory underlying the model is not well established, the comparative fit index (CFI) is also recommended (Hair et al, 1995) and provides an acceptable level of 0.938 (Browne and Cudeck, 1993; Hair et al, 1995). The normed fit index (NFI) also

provides a marginal fit with a value of 0.899. The root mean square error of approximation (RMSEA) is 0.078 and indicates an acceptable fit with the 0.08 recommended level (Browne and Cudeck, 1993). With a majority of fit measures in the acceptable level, there is adequate indication of an acceptable level of fit for the model. A summary is provided in Table 2.

factor loadings for each measure in the model. An accepted heuristic for convergent validity is a GFI > .90 combined with an insignificant χ^2 and factor loadings above .70 (Chin, 1999 and Hair et al., 1995). The measurement model provided in Figure 2 meets these criteria except for one item used to reflect internal political efficacy.

Each construct's reliability was also assessed. Table 3 summarizes the composite reliability and variance extracted for each construct. All of the scales met Nunally's (1978) minimum criteria of 0.70 for reliability. The scales also achieved 0.50 for variance extracted (Hair et al, 1998). Based on these results the measurement properties of the model are acceptable.

Tests of the Structural Model

The standardized coefficients are provided in Figure 2. The t-value and p-value for each path in the structural model are provided in Table 4. The results indicate significant direct relationships between: 1) Internal Political Efficacy and Political Trust, 2) Internal Political Efficacy and External Political Efficacy, and 3) Service Quality and Political Trust, and 4) Service Quality and External Political Efficacy. The squared multiple correlations (SMC) are provided in Table 4. The estimated measurement and structural model is provided below in Figure 2.

These results support three of the four hypotheses *H1a*, *H1b*, and *H2a*. *H2b* was not supported. The squared multiple correlations (SMC) for Political Trust (0.64) and External Political Efficacy (0.60) suggest Internal Political Efficacy and Service Quality explain a significant amount of the variance of the dependent measures. The SMC for service quality is low (SMC=.02) indicating Internal Political Efficacy explains only a small amount of the variance in service quality.

(2002:199). However, their research fails to address ongoing trust issues, limiting itself to transactional responses. Agarwal and Venkatesh (2002) also fail to do so in presenting an instrument to assess a firm's web presence. Ngai and Wat, in their meta-analysis of e-commerce research, explicitly consider public policy, but note that studies dealing with trust in public agencies are limited to those that cover "...[the] assurance between what a trading partner says and actually does." (2002:419). No studies we know of consider the effect of, and on political capital.

Recent studies have taken broad measures of political trust (cf. Moon, 2003) and assessed the impact of IT on trust. Other studies have examined the role of self-efficacy (cf. Hinnant and Welch, 2003). However, no studies have looked at the elements of trust that political efficacy embodies.

In some way, internal political efficacy is indicative of the power a citizen feels they have over government after the election has taken place. This study shows that this construct, more so than the overall perceived quality of the web site, significantly influences and explains the citizen's overall trust in government, and ensuing belief that government will be responsive to citizens.

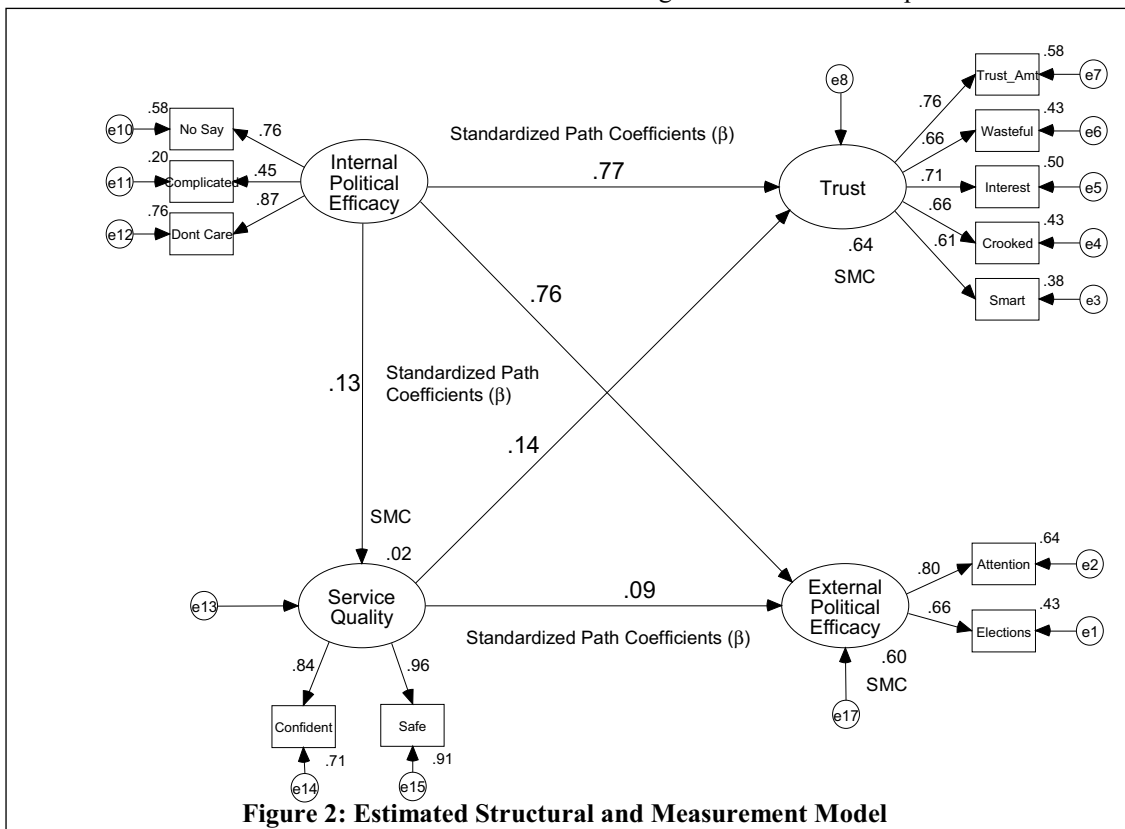


Figure 2: Estimated Structural and Measurement Model

Discussion

Torkzadeh and Dhillon bluntly state that "The ultimate questions[sic] about the success of Internet commerce depends on how customers perceive its value."

The measure of trust in this survey looks at traditional performance metrics, namely the amount of perceived wastefulness, whether government is perceived to be honest or crooked, and the like. External Political

Efficacy is analogous to this trust, but examines it from the individual's viewpoint of overall responsiveness, and the perception that government attends to the citizen's needs.

This study suggests that in order to do so, government needs to do much more than create and maintain a good web site, and offer quality customer service. It needs to engage individuals with high pre-existing levels of trust if it wishes its online efforts to succeed.

The term 'digital divide' has been used in reference to the gap between those that do and do not have access to e-government. Normatively, it has been suggested that governments need to ensure universal access for these initiatives to succeed (Accenture, 2002). This study would challenge this assumption, at least in the short term, and in the present political climate. Those citizens most likely to gain in trust of government as a result of conducting an online transaction are those with high pre-existing levels of introspective trust, not necessarily those who receive a positive service experience. Put another way, this research suggests that skeptics and cynics will remain so, irrespective of the quality of service offered.

For policy-makers, this suggests two things. First, it suggests a phased approach to e-government, based on target market selection (e.g., citizens with high internal political efficacy), and not necessarily on the government product or service. Secondly, it suggests that if elected officials and bureaucrats wish to migrate from traditional channels of service to online transactions (thereby gaining some operational savings), they should paradoxically not concentrate so much on building a positive web experience, as they should focus on building a trustworthy relationship with the electorate outside the confines of the internet.

Does e-government usage increase trust in government? This research offers a qualified 'yes', and defines parameters that challenge conventional wisdom. E-government, in and of itself, though necessary, is not sufficient to induce trust. Our research shows, rather, that e-government intensifies existing levels of trust if these are positive, with no positive effect on those whose trust is either neutral or negative. E-government is not a panacea for unresponsive, distrusted government.

Limitations

There are three main limitations which constrain the conclusiveness and generalizability of this research.

Firstly, the survey was posted online and employed a non-random convenience sample. The survey is cross-sectional in nature so causality must be considered accordingly. Collecting a significantly larger sample using an alternate survey modality and random sampling methods would be an expensive endeavour. An online survey was selected because it was free from

geographical constraints; the web enabled access to participants across Canada, as is essential for this study of federal government. The online survey was appropriate for collecting data from participants that had experience with eGovernment. Even though a non-random sample was used, Table 1 demonstrates a fairly proportionate representation of provinces. Census data from 2001 shows a median family income of \$55,016 (Statistics Canada 2003b). The average household income in this survey was \$56,000.

A second limitation is that these findings should not be interpreted to be representative of the Canadian voter because the survey was restricted to net-enabled citizens. Bonchek (1997) reported higher levels of political efficacy among Internet users. Comparison with educational attainment from census reveals above average levels of education in this sample. Both biases in the sample could have directed some of the results of this study. Again, this limitation can be addressed in future research.

Finally, the researchers are Canadian and the scope of this study has been limited to the eGovernment experience and its relationship to citizen trust and political efficacy with respect to the Canadian federal government. As such, the results should not be extended to another country whose system of government is not comparable. Nevertheless, the main result of this study, namely validation of the link between political self-efficacy and trust remains removed from the specifics of context. Future research may support the validity and reliability of this link through replication in other countries and contexts.

Conclusion

Governments around the world continue to invest in the Internet, and have largely adopted the mantra of service efficiency. This study challenges this by showing initial support for the salience of political self efficacy as it leads to trust in government.

Individuals with *a priori* trust in government, and correspondingly high levels of internal self efficacy will have these reinforced through electronic interaction with their governments. The reverse also holds: distrustful, low self-efficacy individuals will not increase their trust, irrespective of the medium of interaction. The quality of interaction, while important, is nonetheless secondary.

Therefore, if politicians' aim to increase trust, they would be better-served to focus on non-web-based courses of action. The bureaucracy, seeking efficiency in service delivery, is better served to do the same, perhaps at the expense of improvements in web site performance.

For researchers, this study offers insights into declining trust on the part of the electorate, and a new means to investigate and understand citizen trust.

Sir Francis Bacon wrote that "...states as great engines, move slowly..." (Bacon, 1605, ch. XXII, para. 1). It is as true now, as it was then. Governments have been slow to adopt e-government (Accenture, 2002). As this research partly shows, they have also been unclear in their objectives and expectations. The ongoing body of research into e-government, trust, and citizenry that this study adds to will hopefully lead to manifest changes in policy and practice.

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