

MPA Research Paper

**Citizen Participation in the Digital Age: An Evaluation of the Potential of a
Web Site to Encourage Community Involvement in School Board Issues**

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Introduction

The Digital Age has arrived at a time when many people are disillusioned with representative governments. Voter turn out is declining. Politicians with a platform of government action are rejected in favour of candidates who pledge that they will take money away from government coffers and give it back to the people. Unless federal, provincial, and local governments develop new channels to exchange information with citizens, the sphere of government influence will continue to shrink as voters will see no reason to invest in community programs that they do not understand. The Internet may provide a vital new medium for exchanging information with citizens, or the hope for this technology may prove to be as false as the optimism spurred by the advent of radio and television.



The goal of this paper is to evaluate the potential for a school board web site as a means to engage the local community by promoting understanding of school issues and obtaining feedback and creative recommendations from parents. The paper will be most useful to a reader who is considering the use of an existing web site as a tool for drawing the school community into the decision making process.

All 72 Ontario school boards have web sites, so it is possible to gauge the effectiveness of current sites as a medium for communicating with the school community. Most of the current sites are designed to inform the public, but not to solicit feedback as part of the decision making process. A prediction of the capability of a two-way web site with a defined role for citizens within the policy making process relies, therefore, on a review of the results of existing experiments in digital democracy. The modest success of the pioneering efforts has spawned ideas for improving future projects, and speculation on the limitations of fiberoptic fora. For administrators and politicians determined to reach out to the public using the Internet, an overview of these lessons and limitations will help direct the course of a new project.

The paper is divided into four parts matching the objectives noted above.

Part One - Context: speculation on the impact of the Digital Age on society and government.

Prior to embarking on a practical assessment of a web site as a medium for reaching out to parents, it is worthwhile to review briefly the debate on the impact of information and communications technology on governments and democracy. A potential advocate for electronic democracy should be aware of the alternative scenarios for government in the Digital Age. Will a school web site empower parents, or provide administrators with community profile data useful in manipulating local opinion?

Part Two - The present: do citizens use today's sites; what types of information are visitors choosing?

The first part of the paper will be devoted to an analysis of the usage patterns of today's school board web sites. The sites used in the review offer a broad range of policy and program information. If today's sites are not generating any community traffic, then it seems unlikely that more ambitious and dynamic sites will have much more drawing power. The popularity of the information offered on existing sites will also help to define the potential for increased citizen participation. If the curriculum directories are left untouched while most visitors use the site as a quick way to look up school addresses and phone numbers, then the capability for drawing parents into policy debate is called into question.

Part Three - The past: lessons from pioneering digital citizen participation projects.

The second part of the paper reviews to results of three experiments in digital democracy. Where school boards decide to capitalize on the drawing power of their web sites to integrate feedback from

the school community into the policy making process, lessons learned from pioneering projects will provide guidance.

Part Four - The future: ideas from battle-scarred veterans and eternal optimists.

The last section of the paper will focus on good ideas that have yet to be proven. Prophets of digital democracy have digested the successes and failures of the digital medium and have come up a number of suggestions to improve on the results achieved so far.

Part One

The Digital Age, brought on by cheap, powerful computers and the ability to trade information worldwide via the Internet, has revolutionized business, enabled corporate globalization, and created whole new subcultures. The new era of instant and ubiquitous data will certainly bring change to all levels of government. Predictions for post-Internet government abound. The first prognostications were rosy. A new era of Athenian democracy was foretold by optimists dissatisfied with traditional institutions. Others calculated that the ready availability of government information would create more knowledgeable citizens, and more responsive and accountable representative governments (Barber 1984, Ranson and Stewart 1994).

Doomsayers ponder the other edge of the information and communication technology (ICT) sword. The Digital Age will enable government to collect a great deal of information about its citizens. The creation of a surveillance society simply awaits the next corrupt government. Governments may not need to resort to controlling individuals, armed with detailed information about the public and current opinions, an administration could pretend to empower voters by offering electronic plebiscites, while actually manipulating the questions posed and the timing of the polls to advance a hidden agenda (Eulau 1977).

Recently, a third group has joined in the debate. A number of the academics who have studied the results of current ICT initiatives have concluded that governments are using new technology to reinforce the status quo (Bellamy & Taylor 1998, Bimber 2000, Laudon 1977). At the very least, the impact of ICT on traditional institutions has so far been modest in relation to early predictions.

The Dark Scenarios

Based on today's trends, it seems the most likely of the dark Digital Age scenarios is a future where citizens are manipulated by a government elite in possession of vast information about demographics and public opinion. Under the guise of offering direct democracy, the government responds to polls and plebiscites timed and crafted to take advantage of public mood swings. Is this happening today? One does not have to look to far for examples. Mike Harris' otherwise frugal government pays large sums to pollsters to survey a broad range of public opinion. The new Canadian Alliance Party has a strategy of taking controversial issues, including abortion rights and capital punishment, "to the people" by referenda. Like Premier Bouchard in Quebec, one would expect that Stockwell Day would be well aware of the mood of the public before putting any question to the people.

The notion that an ICT enabled direct democracy could lead to a "high tech form of authoritarian populism" was advanced by Heinz Eulau (1977). A study by Kenneth Laudon (1977) concluded that the main use of interactive technology at that time was to refine political marketing techniques. An elite corps of government managers and politicians, armed with comprehensive marketing information, could control the timing and wording of any questions put to the electorate. Rather than the promise of a strong democracy fostered by grassroots access to government information, the result could well be puppet citizenry controlled by Machiavellian mass marketers.

The more information that citizens draw from the web, or offer as a reaction, the more information the government has about citizens. In the best circumstances there would be a balance of information

power, but this will only happen where the public has the expertise and inclination to understand the new waves of information. At worst, in an era where everyone's electronic footprints are deftly recorded in vast databanks, the balance of power may shift to experts within governments, and outside agencies, that can sift through the oceans of data.

A highly-used interactive school web site would collect a great deal of information about parents and students. Information collected about the demographics and interests of registered users could be used by an administration as a secret guide to managing school issues. In the interest of providing a balance of information, non-confidential data on web site use and users should be posted on the site.

A school board web site can certainly empower parents with information where the site provides comprehensive and easy to read documentation on board policies and programs.

Direct democracy

Direct democracy without authoritarian populists is simply direct democracy, a laudable system in the eyes of many. Eighteenth century town hall meetings were certainly the epitome of citizen participation. Representative government has many obvious virtues, however. Some fear that ICT's enabling of direct democracy in the modern era will lead to a tyranny of the majority, and uncoordinated, issue by issue decision making.

Politicians are often tempted to place difficult issues before the public as a question on a ballot. In the era of cheap electronic voting, the temptation becomes stronger. School boards could use web sites to poll parents on school uniforms, sexual education curricula, etc. In some cases the issue will be suited to a vote by the community. Trustees and administrators should be aware, however, that too many polls may create a demand for votes on all important issues. In the end, the stewardship role of the trustees could be compromised as the overall school direction would be determined by a mix of polls

and board decisions. Voters casting ballots on single issue questions may not be aware of the broader implications of the alternatives; trustees responsible for the overall performance of the school system may compromise balanced stewardship by boxing themselves in with too many polls.

The Surveillance Society

Governments everywhere are vowing to treat members of the public as “customers”. ICT gives governments the tools to get to know their customers. Collecting and sharing more information horizontally (between departments) and vertically allows governments to provide better customer service - cheaper, and more tailored to the individual need. But more profile information on citizens opens the door to the Surveillance Society. In Taylor and Bellamy’s words, “.. the danger is that the tradeoffs between 'big brother' and 'soft sister' propensities of ICT's will be overly influenced by the business-driven need to extract the greatest possible value from information resources”.¹

Evidence that governments are collecting profile information on citizens is uncomfortably close to home. Human Resources and Development Canada recently pulled the plug on their “Longitudinal Labour Force File Databank” at the bequest of the Federal Privacy Commissioner.² The Federal department had been linking its extensive data with files from Canada Customs and Revenue Agency and data on social assistance from provincial/territorial governments.

As indicated above, enriched two-way school board web sites will yield a great deal of profile information on the school community. Board policies on the use of profile data, and sharing data with

¹Christine Bellamy and John A. Taylor, Governing in the information age (Buckingham ; Bristol, PA, USA : Open University Press, 1998) p.101

²“HRDC Dismantles Longitudinal Labour Force File Databank”, Human Resources Development Canada web site, May 29, 2000, unpagged
<http://www.hrdc-drhc.gc.ca/common/news/dept/00-39.shtml>

other agencies should be spelled out in advance. All visitors should be made aware of the board's policy on the collection and dissemination of web-generated information.

The end of calm reasoned debate

The (sometimes) calm, methodical, and balanced deliberation of representative governments may be unbalanced and forced to a lightening pace by well-organised and well-informed issue specific cyber-groups.

Cynthia Alexander and Leslie Pal warn that ICT amplifies the power of pressure groups, with the possible result the citizenry will be fragmented along narrow, issue-specific interests.³ The power of interest groups, when combined with instant communications, may destroy the calm space needed for democratic deliberation. Mark Taylor and Esa Saarenin caution: "if politics is the art of negotiation, speed is the death of the political. Negotiation takes time...negotiation and deliberate decision become impossible. Speed privileges certainty and assertion.... It is not possible to slow down long to allow time for uncertainty and questions."⁴

Placing a wealth of school board information on a web site carries the risk of empowering aggressive groups with a narrow interest. The determined groups of parents that quickly form at the first news of a possible school closure will be able to organize and assemble a case very quickly using a board's posted files and web discussion space, for example.

There are a number of tradeoffs to be considered when providing comprehensive information and convenient electronic meeting space to the community at large. If slowing the pace of deliberation

³Cynthia J. Alexander and Leslie A. Pal, Digital Democracy - Policy and Politics in the Wired World (Toronto: Oxford University Press Canada, 1998) p.6.

⁴Mark C. Taylor and Esa Saarinen, Imagologies:Media Philosophy (New York: Routledge, 1994) p.31.

means making it difficult for the public to access information, then it may be better to risk hasty resolution. A popular and comprehensive web site will provide resources to special interest groups, but the school board also has a good platform from which to make its case. Board administrators should be aware that a web site will be well-used by policy opponents. Where a board has a strong case for its decision, access to information should not be a threat. Anticipating the use of board data and preparing a counter argument in advance may stem a lightening retreat from a good but unpopular decision.

The Information Poor

Governments providing information and services exclusively using ICT are ignoring the numerous households that do not have Internet access. The creation of “information rich” and “information poor” citizens will only serve to exacerbate current inequities. Unless the gap between information rich and poor is closed, any attempt to form digital grass roots will really only tap into a segment of society.

Resources used to provide services using a school board web site will create a disparity between families with and without access. School boards can mitigate this problem by refraining from providing enhanced services, e.g., a directory that provides parents with the answers to tonight’s homework. The alternative is to provide after hours access to school computers, and to advertise the school web site at libraries where free terminals are provided.

The Bright New Frontier

In many quarters, ICT has been hailed as a tool for the return of Athenian democracy via Virtual Town Hall meetings. You will note right away that the optimistic scenarios are usually the flip side of the dark predictions. Direct democracy provides for massive citizen participation and involvement. The

benevolent view is that citizens will take this responsibility seriously and become well informed on all important issues.

Others see ICT as the enabler of strong representative democracies. As noted above, ICT makes it easy to inform citizens, and collect constructive feedback. This, of course, is the intended function of a school board web site. One could argue that if citizens were not interested when they had to seek out documents and attend meetings, an interest contrived of convenience is faint and capricious. The counter argument is that web access simply makes it easier to get involved, once parents become aware of the issues and feel a part of the process, the interest will be strong and genuine.

Current governments have been hampered in their efforts to address many social problems because of poor inter-department and inter-agency coordination, a problem ICT can solve. ICT can be used to share information between departments/services/agencies, fostering a new level of coordination and synergy. In the past, as many as a dozen different agencies might be working independently to solve the issue of youth crime. ICT will, perhaps, provide the platform for a coordinated effort. If this is true, it is worrisome to note that this era of privatization may destroy a golden opportunity as the horizontal information flow necessary for well-coordinated decision making will be held by a collection of independent, privatized service providers. Just when large governments are gaining the ability to perform in a cohesive and comprehensive fashion, the scope of information and action is being collapsed.

The opportunities of ICT will, I believe be realized by default where the abuse of information power is prevented. School boards that ensure their web sites create a balance of power with the school community will share the benefit of community understanding of school issues, and community input.

Certainly inter-agency coordination can create an ominous database at the same time as same time as it allows schools to work creatively with other community agencies to best support children. Full public awareness of the use of information in inter-agency profiles is an important counter balance.

The balance of information power

Based on the projections reviewed so far, we know that data will become ubiquitous, but information may only be useful to experts who can make sense of arcane government documents. It would seem that, unless governments make the effort to repackage their administrative information, the future will see information shift from the halls of government into other organizations with in-house expertise.

Most of the dangerous scenarios reviewed in this section are the product of an imbalance of information power. It is ironic that in the coming age of omnipresent information, today's information mandarins could become still more powerful. Unless citizens have the inclination, patience, and expertise to make sense of the information offered by governments, the balance will shift towards the groups that have the incentive and resources to utilize the data bounty. It seems that the public can only gain power in two ways as informed and engaged citizens, or as consumers.

Part Two

Internet access statistics in Canada today

Any evaluation of local government web site use must be viewed in the context of the demographics of citizens with Internet access. The level of access among Canadian households is increasing, and representation from low-access groups, older citizens and low income households, is beginning to improve. Recent statistics from three different sources confirm that access is improving, but still far from universal. The Statistics Canada information listed first measures Internet access from home for

the year 1998. The Media Metrix publication measures the demographics of people who have web access during the early part of this year (2000). The Angus Reid poll is a current measure of access from home and the workplace.

Statistics Canada detailed a number of Internet use measurements in a July 15, 2000 news release. The following excerpts highlight the agency's findings.⁵

Households increased their use of computer communications from various locations according to the 1998 Household Internet Use Survey. The most notable increase was in use from home. Whereas 16.0% of all households in 1997 included someone using the Internet from home in a typical month, this rose to 22.6% in 1998, narrowing the gap between use from home and use from work. Work use still ranked first at 23.3%, while connectedness through school ranked third (12.1%).

In 1998, 4.3 million households used computer communications from one location or another, up 24.6% from 3.4 million in 1997. These connected households accounted for 35.9% of all households in 1998, compared with 29.4% the year before.

The higher the household income, the more likely that Canadians used the Internet in their homes or workplaces in 1998. However, access from schools and public libraries narrowed the usage disparity between highest- and lowest-income households.

Use of computer communications increased substantially with education, according to the survey. Households headed by someone with a university degree were far more likely to use the Internet.

⁵"Internet use by households," The Daily published on Statistics Canada Web site: <http://www.statcan.ca/Daily/English/990715/d990715a.htm>

People in all age groups were more likely to be connected in 1998 than in 1997, regardless of the location of use. Despite this growth, usage rates still differ substantially between younger and older age groups.

Strong relationship between income and Internet use

The survey, which categorized households into four groups based on their income levels, found a strong relationship between household income and Internet use.

Overall, individuals in highest-income households were nearly five times more likely than those in lowest-income households to regularly use computer communications.....

Internet use rose substantially with education

Connectedness increases substantially with education, according to the survey. In 1998, the rate of connectedness for households where the head has a university degree (68.1%) was over five times higher than the rate for households where the head did not complete high school (12.6%).

The statistics Canada findings confirm that access is improving, but still far from universal. Any government planning on large scale Internet services or citizen participation projects must devote resources to providing improved access at libraries and other public sites. These statistics have been included as the most credible and conservative measure. The information below from private companies is more current, but perhaps less reliable than Statistics Canada.

On July 26, 2000, the private company Media Metrix released web use profile information based on their survey of web users.⁶ Media Metrix provides information to businesses and advertisers. The following are highlights from “the first detailed profile of Canadian surfers”.

Expanded Demographics ----- For the first time, Media Metrix Canada is expanding its profile to release a detailed view of Canadians on the Web with results showing the following: - Age Distribution - Children aged 2-11 made up 10% of on-line visitors in June, with teens aged 12-17 representing 13%. 41% of Web surfers were men, primarily 25-49 years old, and women aged 25-49 made up nearly 37%.

Media Metrix Canada found that Web site preferences varied considerably according to the regions in which surfers lived. Most popular in B.C. were Regional/Local sites, Networks, Auctions and Hobbies/Lifestyle. Ontarians preferred Business categories, while Quebec Internet users tended to visit Government and Search/Navigation sites.

Household Income ----- 42% of Canadians households on-line had incomes of \$40,000-\$75,000. The distribution of those with higher and lower incomes was similar, at 29%. Households with a lower income spent more of their time visiting education, careers and government sites, whereas households with incomes of \$75,000+ favoured Real Estate, Travel and Automotive sites.

This survey indicates that, despite the ongoing concern that governments are ignoring the information poor, the modest percentage of low income households with Internet access are spending more time visiting government sites than more affluent surfers. This casts doubt on the simple view is that all

⁶ News release, Media Metrix Canada
http://www.mediametrix.ca/PressRoom/Press_Releases/one.html

people with access will visit government sites with the same frequency. The survey also reveals regional differences as the preference for government sites varies with income and province.

This survey is sampling the demographics of people who have web access. Twenty-nine percent of the web users may be low income, but this does not provide an indication of the proportion of low income families with access.

A recent article in the Globe and Mail indicates that access is improving outside the group of young well-educated surfers dominant in the 90's.⁷

The digital divide is narrowing as poorer, less educated and older Canadians push levels of Internet access to record levels, says a survey released yesterday by Angus Reid Group Inc.

Seven in 10 Canadians are able to log on at work, home, school or public institutions as of June, up from 55 per cent a year ago.

Angus Reid said most of the new users don't fit what has been the profile of the typical Web surfer: high income, with a university education and aged 18 to 34.

"The new Internet users are basically . . . everybody," said Steve Mossop, senior vice-president of Angus Reid.

.....The annual poll on Internet access shows big gains among groups that have been traditional technological have-nots:

49 per cent of low-income Canadians -- defined as a family earning less than \$40,000 a year -- now have access, compared with just 30 per cent a year ago. That's 63 per cent

⁷"Digital divide narrows - Poorer, less educated make more use of Net," Toronto Globe and Mail, July 27, 2000 p.A1

higher, far outstripping the 13-per-cent growth rate among high-income Canadians. However, high-income Canadians (families earning more than \$60,000 a year) still have a sizable lead, with 90 per cent having Web access.

51 per cent of Canadians with a high-school education now have access, up 55 per cent from a year ago. That contrasts with the growth rate of 18 per cent for those with postsecondary education and just 8 per cent for those with university degrees (although both groups are much more likely to have access).

Women closed the gender gap slightly, with 66 per cent having access compared with 73 per cent of men. That seven-percentage-point gap is down from nine points in 1999.

75 per cent of Canadians aged 35 to 54 now have access, up 39 per cent from a year ago -- closing in on the dot-com generation (aged 18 to 34), which has an 83-per-cent access rate.

Angus Reid's Mr. Mossop predicts that the number of Canadians with access to on-line services will level off at around 85 per cent by 2003, since the remainder of the population simply won't be interested in logging on.

If we assume that most visitors to school board web sites are parents of school aged children, then statistics of the population aged 29-50 is of most interest. As noted above, this group have an access rate of 75%+. Some of this access may be from the workplace, however, which may explain the difference from the Statistics Canada report which measures access from home. Most employers discourage Internet surfing for personal reasons, so it may be best to assume that the effective access rate is somewhere between 75% and 23%. This rate will be influenced by the affluence of parents in the community, as low income family web access is slightly less than 50% for all access and 10% for home access.

The community cannot be viewed as uniform consumers of government web information however, as the Media Metrix survey results predict higher use of government sites by lower income users (although this may not apply specifically to the education sector).

Access to the web is not universal, and according to Mr. Mossop, it may never be. The provision of valuable and exclusive web site education services will run counter to the egalitarian purpose of public schools, unless some way can be found to provide access to the last 15% of the population.

School board web site use patterns, Spring 2000

School board web sites have the potential to draw great interest from parents with children in school. Despite a strong motivation to communicate with parents, in that it is generally accepted that parent involvement improves student performance, local school web sites are not yet featuring nightly homework assignments with password access answers. Test results are not being posted, and report cards are still printed on paper. Boards are posting curriculum documents, parent guides, news releases, and school calendars to their web sites.

Are the current sites attracting the level of traffic that would justify further enhancement of the web sites? Is there any evidence that the Internet is providing a conduit for exchange between boards and school communities? At the inception of this project I posed the following specific questions.

- Some of today's school board web sites offer a broad range of information, what do today's access records tell us about the Internet's potential as a channel to the school community?
- How much effort should a school board devote to creating a comprehensive, interactive web site (based on the recorded use of today's most developed web sites)?

- Do school sites out-poll the board sites (where should we look to make contact)
- What types of information is the public looking at? Is it consistent between boards?
- Can any of the variation in board site usage be explained by the effort devoted to the site?


Web tracking software: what, when, where, and sometimes who.

Before investigating these questions it is important to review the opportunities and limitations of web site statistics: what we can and can't find out from the tracking software?

All web site activity can be recorded, one need only install a shareware program and allocate some disk space. The most common term applied to site traffic is "hits". A hit on a web serve is a single request for a content, graphic, or any other single element of a web page. A page with several images will generate several hits each time it is requested. Hit counts are, therefore, somewhat deceiving. Fortunately, there is another statistic called an "access" which records page use (all hits generated by a single page are grouped into an access). The access statistic is obviously the preferred measure for page popularity, but unfortunately not all published access data lists the access count.


The precision of the analysis of site visitors is limited by the domain-level data. For example, web tracking software records the user's domain information, e.g. `au.com.ozlinx`, but no information on the actual user. Community use statistics are muddled with "hits" from internal staff, researchers, accidental visitors, etc.

Using access traffic and the limited user information available, web site managers can gauge the use of all features on the site (page visits), user traffic by domain type (.com, .org, .mil, etc.), traffic by time of



day, and number of repeat visits. Some software measures “hover time” - the time between user mouse clicks.

This information is very useful for site management; resources can be directed to the most used features, and decisions on how much to spend on the site can be made with knowledge of current use, etc. Today’s user access information is limited as a scientific research tool, however, in that the population cannot be specifically identified. The goals of this paper are modest by limitation. The research will give an indication of the general use of the sites, and the popularity of pages. It will be impossible, however, to make any firm conclusions about the site as it relates to the local citizens. We can assume that for the most part local citizens must comprise the majority of visitors, but there is still outside and internal traffic to contend with. We also can’t say anything about who in the community is using the site (men, women, rich, or poor).



A web site can be a rich tool where visitors register to participate in surveys. The potential for future research will be discussed later.

Published web site usage research

Published reports of web site usage studies are still rare. Private corporations no doubt perform extensive analysis of their sites, but the results are kept secret. My survey of Ontario school boards found that while all 72 school boards have web sites, very few bother tracking user access at all. This is the result of common but rarely spoken view that a web site is merely an electronic brochure that indicates that the organization is ‘up with the times’.

Librarians, however, view their web sites as a program that must be evaluated. Most of the published reports are case studies by university libraries seeking to gauge the performance of their site in relation

to libraries.⁸ If school board officials followed the librarians' example and kept track of web site user statistics, this study could have been used to develop benchmark usage information. Given the ease of collecting and sharing this information, boards could pool data at one site to create a rolling benchmark. This would certainly be the first step towards more sophisticated research, while providing some basic feedback on site effectiveness (allowing for differences in local demographics, culture, and ISP access).

Web site tracking by Ontario school boards

My initial interest in government web site usage research was prompted after reading the ministry of education web site access reports. The ministry monitors every aspect of site use, and the statistics are shared with staff on a regular basis.

A quick search of school board web sites produced an access report directory on the third try. Both the Toronto Catholic District School Board (DSB) and the Ottawa-Carleton Catholic DSB publish user access statistics as a feature on their public web sites. This I deemed to be the tip of the iceberg, since it seemed logical that most other boards would keep the statistics as internal information. After an initial review of the numbers provided by the two boards, I turned to research on digital government issues, hoping to unearth the hidden information later on. This proved to be a mistake as an e-mail request posed to all school board web masters produced little additional information. More than half of the web masters failed to respond. Most of the rest of the replies indicated that collecting data was a "work in progress" or that data collection had been abandoned because it was difficult to sift out internal hits from external hits (this can be done, however). Several boards used an external agency to track data. Beseen Inc. will track any web site data "for free" (<http://www.beseen.com>) It is a

⁸For an example of a library web site study see: *Benchmarking: a tool for web site evaluation and improvement*, by Kelsey L. Johnson, *Internet Research: Electronic Networking Applications and Policy*. Vol. 9 Issue 5, 1999.

little disturbing to find local governments sending all their data to a private enterprise. There is nothing private or personal about web site statistics, however, this seem to confirm the trend toward private sector domination over public information.

In the end the only boards that would admit to collecting the data, and willing to share the data (the Beseen boards were willing to mirror their activity to Beseen, but not to me!) are the Toronto Catholic District School Board (DSB), Ottawa Catholic DSB, and Halton Catholic DSB. It is ironic that the Peel DSB with its “award winning” web site does not track site usage.

Case One: Toronto Catholic DSB

The Toronto Catholic District School Board serves 95,000 students in the (mega) City of Toronto. By comparison to most Ontario school boards, the Toronto Catholic board web site is reasonably rich in features and information. Site visitors can find policy information, course profiles, news releases, staff directory information, school links, etc. The site does not feature any interactive, parent participation features, nor do any of the other school boards sites, with the exception of the odd e-mail suggestion box. The site address is: <http://www.tcdsb.on.ca/>

The board’s web site access statistics are linked to the home page. The user access information includes month by month information on traffic (daily and hourly hits and bytes requested), on visitors (by domain name), on directory use, and on specific page hits. The board uses the “access” statistic, which is referred to as “requests” in its reports. This board does have an Intranet which captures much of the internal traffic, but not all of the public site features are duplicated on the Intranet, so the request statistics will include requests from board staff.

Listed below is the table of total access statistics for the 1999-00 school year.

Toronto Catholic District School Bo

Total Requests per Month Excluding Home Page (default) Req

Student Population 95,073

	Sept.	Oct	Jan	Feb	Mar	Apr	May	June
Days in month (# of days recorded)	30	31	21.2	29	31	30	31	30
Including default page	90,158	87,050	108,083	143,101	179,304	175,497	229,823	213,038
Excluding default page	62,326	53,788	49,318	76,888	96,825	86,239	112,682	94,959
Daily request including default	3,005	2,808	5,098	4,935	5,784	5,850	7,414	7,101
Daily request excluding default	2,078	1,735	2,326	2,651	3,123	2,875	3,635	3,165
Daily requests per student excluding default	0.022	0.018	0.024	0.028	0.033	0.030	0.038	0.033
Daily req. per student excluding default &	0.010	0.009	0.012	0.013	0.015	0.014	0.018	0.016

The November and December reports were not produced due to technical difficulties.

The separate lines showing requests excluding the default page are listed to show all the activity beyond the home page. Since the home page only lists site features, simply viewing the home page is not a good measure of use; requests beyond the home page indicate the visitor has found at least one "content" page to be of interest. You will note that the number of requests per day, excluding default page requests runs between 2,000 and 3,500. Using the student population as a proxy for the number of households with children in school, the number of hits per day per community population is .03, which equates to a visit every 33 days by each "household". If we further discount for the approximately 30% (possibly as high as 50%-60%) of the families that do not have web access, the rate jumps to a visit every 23 days by households connected to the Internet.

If every household was visiting the school board site 10-15 times a year, the site could be deemed to be a reasonably effective tool for reaching out to the public. Is it likely that the numbers are inflated by staff hits and repeat users, however. A look at the report on the domain of the users in the month of

June 2000 indicates that 53% of the hits came from within the board system. This reduces the rough figure for household visits to about 5-7 times a year, if the visits were spread out evenly. (This leads to a conservative estimate, as we are deducting staff hits on the home page twice) The household visit count must be further reduced by about two-thirds, because each single visitor is averaging about 2.5 requests after the home page. This adjustment reduces the household visit statistic to twice a year. It is difficult to say how evenly the requests are spread among users. The access report includes a list of "top twenty" hosts, each of these hosts visits the board site hundreds of times a month, but there is no way of telling if this is one user, or a number of users from the same host.

This board site is attracting a significant number of community visits. It may be that 20% of families are visiting 4-5 times a year, or perhaps a broader group is visiting once or twice. In either case, there would seem to be enough interest to build a much higher base of traffic through word of mouth if more dynamic services were offered.

This board's site experiences more than a nominal amount of traffic from the community. The next question is, what information is being requested? Listed below is the table of the directory (topical) access statistics for the 1999-00 school year and analysis.

Popular Directorys - May 2000

#reqs:	%reqs:	directory	
118068:	51.37%:	root directory	home page
35642:	15.51%:	external	visits to school web pages
27026:	11.76%:	schools	listing of school web sites
7387:	3.21%:	ice	course profiles
6040:	2.63%:	images	images on home page (automatic)
4899:	2.13%:	news	board news releases
4465:	1.94%:	lorettoabbey	secondary school site
4072:	1.77%:	search	site search utility
3893:	1.69%:	policy register	listing of all board policies
2963:	1.29%:	adulterd	information on adult education programs
2256:	0.98%:	administration	directory of administration
1807:	0.79%:	trustees	directory of trustees
1399:	0.61%:	links	link to other education sites
1299:	0.57%:	stbasilcollege	secondary school site
1245:	0.54%:	curriculum	information on course curriculum and subject depar
1182:	0.51%:	ourladyofwisdom	secondary school site
1075:	0.47%:	services	information on services, e.g. rental of facilities
936:	0.41%:	bishopmtm	school site
924:	0.40%:	w3svcl	Internet user statistics!
601:	0.26%:	overview	general profile of board statistics, mission, etc.
2651:	1.15%:	not listed - 14 directories	

The numbers for "ice" and "lorettoabbey" are inflated by additional images on the page.

The popular directories are reasonably stable from month to month. It is encouraging to see that the policy register, news releases, and curriculum directories are popular, as this indicates some interest in school government. The "external" directory captures the visits made directly to the school sites. The "schools" directory is the directory of schools, and the directory for schools such as Loretta Abbeys represent visitors to the schools who arrive via the board web site "schools" directory.

This table does highlight room for progress, however. The curriculum directory is averaging about 1,200 visits per month. If the board were to post sample, or actual, daily homework assignments, however, one can imagine that at least 5% of the parents would visit a couple of times a week, creating 38,000 visits per month. Homework assignments are not the same as curriculum documents, but knowledge of the homework shows the parents what their children are supposed to be learning, which for most parents amounts to the same thing.

The board's statistics do not provide a breakdown of directory hits between internal and external users. It could be that internal users are distorting the measure of community use. This question will only be answered by more precise web site tracking.

The hour by hour, days by day statistics provide a rough measure of parent use, which is confined outside normal working hours (for most parents). Approximately 45% of the web site visits occur outside of the nine to five-time frame, if the time between 12:00 pm and 2:00 pm is deemed to be parent access time. If a researcher was able to use the software to produce an hourly report excluding internal traffic, a better measure of community use could be made.

Any conclusions about the community use of this site requires a number of assumptions. It is safe to say that most households are not visiting on a regular (monthly) basis. It is all but certain, however, that the visits from the community number in the thousands per year, which must well exceed the level of information previously delivered by phone calls and visits to the board office.

Case Two: Ottawa-Carleton Catholic DSB

The Ottawa-Carleton Catholic DSB serves 36,000 students in Ottawa and the surrounding suburbs. The Ottawa area economy is dominated by the Federal government and telecommunication and software industries. This would seem to be a ripe field for digital communication with the community.

The Ottawa Catholic board web site is remarkably similar to the Toronto site in features and format. The site address is: <http://www.occdsb.on.ca/>

The board collects the same type of user access information as does the Toronto board, but the report does not aggregate the data to the same degree. The report for any given month is about 60-70 pages

long! The user access page provides a link to previous months' reports, but this feature has been disabled for some time. The analysis of the traffic was, therefore, restricted to the month of June 2000. This board has an Intranet site, but not all the content of the public site is mirrored on the internal site, so the access statistics will include visits from board staff. The requests-by-domain report indicates that about 45% of the hits on the public site are from within the board. This site is also arranged so that all visits to both the board and its schools are recorded (the Toronto report only records the "first hit" on the school sites). A table of site traffic statistics is listed below.

Ottawa-Carleton Catholic District School Board
 Requests per day for the period June 1 to June 28, 2000

	Requests	%Bytes	Bytes sent	Requests
June 1	5.88	5.12	230,837,983	61,991
	6.11	4.3	193,727,344	64,489
	1.46	2.66	119,996,234	15,369
	1.51	2.52	113,759,453	15,966
	6	4.98	224,506,716	63,295
	5.48	4.97	224,329,281	57,851
	6.1	4.71	212,184,977	64,371
	6.21	5.46	246,140,141	65,506
	5.35	4.35	196,354,869	56,417
	1.86	2.98	134,233,323	19,598
	1.62	2.72	122,761,217	17,141
	5.46	4.23	190,720,034	57,627
	5.15	4.64	209,292,081	54,380
	5.29	4	180,431,707	55,804
	3.85	3.85	173,680,317	40,668
	3.48	3.32	149,704,436	36,681
	1.53	2.48	111,930,533	16,192
	1.68	2.63	118,391,522	17,705
	4.01	3.74	168,784,674	42,355
	3.7	3.94	177,537,040	39,053
	4.25	3.96	178,765,305	44,828
	3.35	3.54	159,658,444	35,303
	2.24	2.77	124,763,812	23,599
	1.43	2.22	100,316,412	15,047
	1.7	2.68	120,711,311	17,954
	2.09	2.81	126,809,177	22,032
	2.21	2.99	134,633,190	23,267
June 28	0.99	1.43	64,560,042	10,471
	Total		4,509,521,575	1,054,960
	Average		161,054,342	37,677
	Student Population			36,387
	Average daily requests per student			1.0354561
	Default page requests			190309
	Default page requests per day			6796.75
	Average daily req. per student excl default			0.849
	School site hits included above			66600
	Average daily excl def, & schools			0.783
	Ave. daily excl. def, schools, & internal			0.509

The visit per day per student number is higher than the Toronto number, the average for June, excluding default page visits, was .33 for Toronto and .831 at the Ottawa site (.78 if the extra school traffic is deducted). This could be explained by any number of factors, including socioeconomic patterns, local culture, local cost of Internet access, etc. If you compare the two web sites, you will

see that it seems unlikely that the difference is due to the web site design and features. Some of the difference can be explained by the international interest from the staff of Ottawa's embassies. This site receives numerous visits from domains outside Canada and the United States, most likely from embassy staff gathering information about the school their children will attend. Ottawa also has a popular employment opportunities feature that Toronto does not have.

The patterns of the directory (topic) traffic shown on the table below is somewhat similar to the Toronto board, which is not surprising when you note that the directories linked to the main page are similar.

Ottawa-Carleton Catholic District School Board
 Total transfers by URL/Archive Section
 Popular pages
 note: this board lists the transfers in raw form (1000's of lines)
 listed below are the more popular sites (excl school sites)

Directory	Hits
Default (home page)	190309
Employment opportunities	2153
Site for Grade 6 teachers to share ideas	1055
News releases	751
Board room	584
School directory	509
Kindergarten - Grade 8 Educational programs	458
School family	392
Senior administration	364
Publications	348
Special events	337
Guidance	327
Meetings	302
Trustees	249
Mission Statement	220
User statistics	143
	198501

The visits listed above represent "first hits" on the directory page and do not include subsequent activity within the directory. The "news releases" directory, for example, generates numerous additional requests as visitors choose from the list of headlines.

The popularity of the “employment opportunities” directory from the table below demonstrates yet another confounding factor for inter-board comparison. Toronto does not include this feature, and so the total number is skewed. Directories featuring news releases, curriculum information (in this case entitled Kindergarten to Grade Eight Educational Programs), and board room directories are well used, indicating some public interest in board policy and decision making. It is worth noting that the only interactive feature, the page heading the area where grade six teachers share ideas, is the second most popular page. Interactive features are popular because the users can actually contribute, and the content changes every day. These pages are more difficult to manage, however, and are conspicuously rare on today’s sites. Once again, note that this teacher-dominated activity distorts any comparison of community use.

This site records all visits to school web pages, which provides an opportunity to compare the popularity of board and school sites. For the month of June 2000 the school sites attracted 18,500 visits to the school home pages, as compared to the board total of 198,501 to the home page (of which 508 were visits to the schools’ directory). The schools generate an average of 3.6 requests after the home page, and the board site visitors click on an average of 4.1 subsequent pages. The board is attracting a lot more traffic, but the board site is a good deal more elaborate than most of the school sites, which often list only a school calendar and some student pages. It could be that schools are communicating well enough by sending information home with students.

Case Three: Halton Catholic DSB

The Halton Catholic DSB track’s basic site statistics in a directory not linked to the public web site. The Halton board has a student population of 21,600 students from Burlington, Oakville, and Milton area. The board’s site address is: <http://www.haltonrc.edu.on.ca/>

The site's statistics listed below are for a four-month period.

ASP Track	
Summary For Web Site: www.haltonrc	
Daily Hits	
Total Days	115
Today	138
Yesterday	157
Average	252
Highest Day	Tuesday-6/13/00
Highest Day's Hits	524 hits
Weekly Hits	
Total Weeks	17
Current Week	730
Last Week	1005
Average	1708
Highest Week	#25-6/11/00-6/18/00
Highest Week's Hits	2312 hits
Monthly Hits	
Total Months	5
Current Month	1797
Last Month	8626
Average	5809
Highest Month	June 2000
Highest Month's Hits	8626 hits
Highest Hour	02:00 PM
Highest Day	Tuesday-6/13/00

Halton RC

Tracking for 4 months, monthly statistics not provide

Home Page included

Requests for May 8626

Average requests 5800

Student Population 21639

Requests per student 0.268

Daily request average 270

Four months ending June 2000

This table does not provide much detail. Based on the 19-week average the board is averaging .07 hits per student. There is not enough information to make adjustments for default hits and staff use, but if a similar pattern applies, staff use and default page traffic would account for 65% of the traffic, leaving a community use tally of .024 per student. Despite having a web site page that seems to offer all the features of the other boards, the proportionate visit count is far lower.

Case Four: The Ministry of Education web site

Statistics from the Ontario ministry of education web site are included here to provide a rough comparison of a senior government site use to the local board site traffic. The ministry and the board are posting similar types of information in most topic areas. Parents often have a hazy idea of the role of the ministry and the role of the board. Phone calls to the ministry are often from parents dissatisfied with board advice, but sometimes parents call the ministry unaware that there is a local school board. Visitors may be attracted to the web sites in the same pattern.

There are almost two million students in Ontario's publically funding elementary and secondary schools. The ministry web site offers extensive features including everything from curriculum and policy documents, to school statistics and biographies of the minister of education and deputy minister. The ministry has an Intranet, but most of the features are not replicated on the public site, and vice versa. Internal traffic is deducted from the ministry user access reports (except where employees access the page from home accounts) The site address is:

<http://www.edu.gov.on.ca/eng/welcome.html>

The total number of visits to the ministry site was reasonably stable over the March-June 2000 period, averaging around 700,000 visits per month. The month of May 2000 was the exception with a dramatic increase in traffic to almost 3.5 million visits. The ministry was posting information on two controversial government Bills at this time, but most of the extra visits were to the ministry's summer job pages. The table listing March 2000 site traffic is listed below.

Date & Time This Report was Generated	Tuesday April 04, 2000
Timeframe	March 1-31, 2000
Number of Hits for Home Page	70,324
Number of Successful Hits for Entire Site	827,019
Number of Page Views (Impressions)	121,245
Number of User Sessions	43,825
User Sessions from Canada	64.64%
International User Sessions	0%
User Sessions of Unknown Origin	35.34%
Average Number of Hits Per Day	26,678
Average Number of Page Views Per Day	3,911
Average Number of User Sessions Per Day	1,413
Average User Session Length	00:13:48
Number of students in province	1,960,000
Requests per student per average day	0.014
Request excluding home page	0.012

The ministry report provides more detailed measures than the school board sites including user sessions and page views (equivalent to the “access” measures noted in the introduction to this section). The number of page views is considerably smaller than the number of hits, as the ministry site pages are loaded with graphical images. The number of user sessions indicates that visitors are viewing 2.7 pages per session. The user session per day, at 1,413, equates to a daily average household (per student) rate of .0007, or a visit once every 3.9 years.

Ministry subdirectories providing details on new releases, jobs, and curriculum information are popular. Information about jobs should, of course, be discounted when gauging community use of the web site. Yet another confounding feature can be seen here: many people are using the ministry site to locate a school board address or web site.

The most popular documents after the menus and general information pages were:




April 2000

1. Ontario Summer Jobs
2. Curriculum and Policy
3. District School Boards and School Authorities
4. News Release: Ontario Summer Jobs, 2000
5. Training and Jobs
6. Ontario Government Summer Student Hiring
7. Jobs at the Ministries
8. Summer Jobs Service
9. News Releases and Statements
10. Career Gateway

(Access counts range from 21,000 for #1 to 6,000 for #10)

May 2000

- 
1. Ontario Summer Jobs
 2. News Releases and Statements
 3. Curriculum and Policy
 4. News Release: Ontario Summer Jobs, 2000
 5. District School Boards and School Authorities
 6. Ontario Government Summer Student Hiring
 7. Summer Jobs Service
 8. What's New?
 9. Jobs at the Ministries
 10. Postsecondary Education

June 2000

1. Secondary Curriculum
2. Ontario Summer Jobs
3. District School Boards and School Authorities
4. News Releases and Statements
5. Jobs at the Ministries
6. Training and Jobs
7. Postsecondary Education
8. Elementary Curriculum
9. What's New?
10. Fact Sheet: Ontario Summer Jobs (Chart), 2000

Certainly the ministry is “distributing” a lot more information on curriculum and policy documents than was ever requested in the paper format.

The ministry site is not nearly as popular on a per pupil basis as the Toronto and Ottawa school board sites. This is curious because the ministry site offers a number of features, including a number of documents drafted specifically for parents. It’s not that the ministry site is unknown. Most school board sites feature a link to the ministry site.

Overall research observations

The Ottawa Catholic board site has the most community visits per day. After home page, staff, and school page visits are deducted, a visit level of .05 visits per day per student is established as at the end of the 1999-2000 school year. Using the same adjustments, the Toronto board (.033 non-default visits per student per day less 53% internal traffic) the visit level was .0155 per student per day.

Halton Catholic traffic for the last four months averages about .07, with no adjustments. There is little in this small sample that would suggest a base line traffic total for Ontario school boards. The board site features are not all that different, so it would seem that the majority of the difference in use must be due to community factors.

If we allow that the student total is a surrogate for the household total, then Catholic school families in Ottawa are visiting school sites once every 25 days. Each user session generates about three page requests, so the visitor total must be divided by three, dropping household visits to an interval of 75 days. Of course, the traffic would not be evenly distributed. It is more likely that a modest cadre of heavy users generate at least half of the traffic, while the occasional users make up the difference. There is software to distinguish repeat users from new users, but the board are either not collecting or not publishing this data.

As discussed above, the interpretation of web site statistics is compromised by the inability to drill down to information on the specific users. For the purposes of gauging the use of the Internet to build bridges to the community, today's data does not provide the right features to measure. If we put our shoes of a parent viewing one of today's web sites, there few features that would attract frequent visits, and no opportunity for interaction. The most curious parent might download a curriculum document and a directory of staff phone numbers, but the next visit would certainly wait until there was an issue at school or in the newspaper. In this context, the number of visits shown above is surprisingly large.

The ministry of education's modest per capita visit count may be due to a number of factors, including parent confusion about the role of ministry. The notion that a feature-rich site with theme material will attract more interest is called into question, however. It is hard to be conclusive based on this research, but it would seem that local governments have an advantage in attracting web traffic. It could be that community web surfers see local government sites as sources of practical information while senior government sites are viewed as repositories of high-level policy information. The local government "information squeeze" scenario described earlier in the paper may be overstated. Local governments may have the opportunity to dominate the Internet information channel!

Returning to the questions posed at the outset, we can make some very general observations.

- Some of today's school board web sites offer a broad range of information, what do today's access records tell us about the Internet's potential as a channel to the school community?

The Ottawa Catholic board generates the most per capita traffic. If the visits were evenly spread out among the community, each household would be visiting at least twice a year. This is impressive when you consider that boards are not providing the features that would provide for frequent visits,

and the sites are not providing for parent feedback. Given the visits generated by the best non-interactive site, the potential for building a strong channel to the community appears to be great.

- How much time and effort should a school board devote to creating a comprehensive, interactive web site (based on the recorded use of today's most developed web sites)?

The research in this paper did not provide any information on who is using the board sites. It could be that only a narrow sector of the community is visiting. Posting more information to a site carries a small incremental cost and is, therefore, justifiable. Large scale citizen participation or education service initiatives should not be undertaken until better measures of local user demographics are available.

- Do school sites out-poll the board sites (where should we look to make contact)?

The school sites at the Ottawa-Carleton DSB are far less popular than the board site. The school sites are, however, very basic in comparison. As long as school sites and board sites feature cross-links, the point of access may not matter.

- What types of information is the public looking at? Is it consistent between boards?

The popular information directories were reasonably consistent between boards (and the ministry). Employment opportunities, news releases, curriculum information, and course information directories are well used.

- Can any of the variation in board site usage be explained by the effort devoted to the site?

The research is inconclusive on this point. The Halton Catholic and Toronto board sites offer similar features to the Ottawa site, but the traffic is lower. The ministry of education site offers extensive features, and yet it is out polled on a per capital basis by the school boards. This measurement is apt to be distorted by a number of outside variables. The question may be answered when data from a number of boards is compared on a consistent basis.

As stated above, the goal of this paper is to evaluate the potential for a school board web site as a means to engage the local community by promoting understanding of school issues and obtaining feedback and creative recommendations from parents. Current usage statistics are generated by sites offer comprehensive, high level information for parents, but no feedback, and few school and student level features (e.g. homework assignments, test results). Today's sites are attracting thousands of non-staff visits per day, however. Visitors are taking about three steps beyond the home page and features on board news releases, curriculum, course information, and board policies are viewed on a regular basis. This result suggests that the potential for community engagement exists.

Features that encourage daily visits, and channels for parent feedback would, presumably, first increase the visits of the existing users, and then, by word of mouth, expand the base of correspondents. As home access to the Internet increases beyond the 50% mark, still more visitors will emerge. The research does not present proof positive that more costly and elaborate features will return more traffic, but it does suggest that new services will be viewed by enough parents to spread the news within the community.

This research project provides several basic lessons for future web site use analysis. To be able to make any worthwhile comparisons between web sites, the researcher must convince the web masters to use a software package that can be customized to produce a variety of measures based on page access. There are many free software packages available, so it would only be a matter of convincing the web masters to install the chosen package. Good web tracking software can be used to

filter/segregate information on internal users, repeat users, number of sessions, visit duration, etc. These tools would enable more accurate measurement of community use.

The research presented in this does little more than scratch the surface. The tables simply provide a stepping stone for the next researcher. The discovery of the many factors which confound web site traffic analysis will serve as a warning against placing too much value on web site user data. There is great potential for public administration research using web site data however, as the suggestions for future research listed below describe.

Direction for further research

As we have seen, the ability to draw conclusions from basic web traffic statistics is severely curtailed by the inability to relate “hits” back to the community population. There are a number of technological tools and survey techniques that future researcher can use to find out more about the way web sites are used by citizens.

Where citizens can be convinced to register as web site users, the information about the users is only constrained by the amount of registration information that can be collected. Specialized services offered only to communities members require user registration, and therefore these services will prove to be excellent sources of research data. As municipalities offer on-line features like tax payment, zoning inquiries, licenses, etc. a large body of community users will be identified.

Baseline usage patterns will be defined as research continues. A pooled database of access statistics would be relatively easy to organize among local governments. Ontario municipalities could, for example, decide on a common web site tracking format and then mirror web site usage statistics to a central agency, such as the Association of Municipalities of Ontario (the same way school boards are sending their information to Beseen Inc). Once the pooled information is available, municipalities will

be able to test the popularity of their site features against the offerings of other municipalities. The pooled statistics could be used to constantly highlight successful site features, providing an evolutionary process for improving digital communication for citizens.

Once access to the web becomes more widespread, and as the profile of users and baseline traffic emerges, the Internet will provide the medium for quick and inexpensive surveys of public opinion on local government issues. The usual costs of distributing, and collecting data will be all but eliminated; the data is entered by the correspondents and can be tallied automatically. Municipal pollsters should remember the cautions noted above, however.

As local government web sites become more interactive, e.g. issue consultation, on line form completion, registration for e-mail updates, a wealth of statistical information will be generated for future researchers. Traffic analysis of today's sites only reveal page visits. There is no information about the community users, and no feedback.

This review of school board web site traffic indicates that school board web sites are not ignored, some community traffic is generated and many visitors investigate beyond the home page. For administrators determined to engage the public via the Internet, this is a base to build on! Before brainstorming interactive features for a web site, it is worthwhile to review of the results of some pioneering work in electronic democracy.

Part Three

Experiments in electronic democracy: what have we learned so far?

Three major civic networking projects are cited in most of the current e-democracy literature: Santa Monica's Public Electronic Network, Bologna's IperBoIE, and Amsterdam's Virtual City. These projects are large scale experiments designed to foster citizen engagement using ICT. A review of the results of these late-nineties projects provides insights into the challenges by those who reach out to the public using ICT.

Local government web sites can serve three purposes. A site can be used to distribute information to the public (a prerequisite for participation?), to improve services and affording the convenience of providing on-line transactions, and to foster citizen participation by providing public forums and encouraging two-way communication between the public, politicians and staff. Public web sites could also be used for direct democracy plebiscites, but this use will (hopefully) be delayed until access to the web becomes universal. All three of the projects reviewed below took aim at the difficult goal of creating vigorous and constructive fora for debating local issues. Based on the reported results, the projects have proved to be more successful at information distribution and on-line transaction, than as a medium for building citizen feedback into the policy decision making process.

Santa Monica Public Electronic Network

A number of case studies of Santa Monica's pioneering Public Electronic Network are summed up in a concise review of the project by Sharon Docter and William H. Dutton.⁹

Santa Monica's Public Electronic Network (PEN) was introduced 1989. Predating the use of the Internet outside academic and military circles, PEN was offered as a dial-up service which local citizens could register to use free of charge. Santa Monica is a relatively affluent city with a history of

⁹Sharon Docter and William H. Dutton, The First Amendment Online: Santa Monica's Public Electronic Network from: Cyberdemocracy: Technology, Cities, and Civic Networks, Edited by Roza Tsagarousianou, Damian Tambini, and Cathy Bryan (New York: Routledge, 1998).

active citizen participation. The City provided this service as another channel for distributing information about city services and issues, and as a new forum for citizen participation. The City acknowledged that many of its citizens did not own computers with modems. Twenty terminals were set up at public library locations so that people who did not own a computer could participate. The provision of public access terminals was indeed a worthwhile program component as almost 20% of the e-mail traffic emanated from the library locations.

In the beginning only city residents could register to use the network services, registration was later expanded to include people who worked in the city but lived elsewhere. Citizens could send messages to department mailbags, or they could participate by contributing e-mail to a number of topical conferences.

PEN started off very well. The first year ended with 1,800 registered users, and by the third anniversary there were 4,505 participants. These numbers are not large in comparison to the size of the City (at that time 86,000), but the tally is great when compared to the numbers of citizens attending council meetings. E-mail debate in the conferences was vigorous and a number of politicians and other civic leaders participated. Early reports on this project accurately described PEN as a successful medium for galvanizing public debate. As time wore on, however, the tone of the debates became less civil; a number of aggressive correspondents came to dominate the conference and most politicians abandoned the service. The City considered moderating the conferences, but this method of controlling rogue behaviour was rejected because of the threat to First Amendment rights, and because of the anticipated workload. By the seventh year of the service, the number of active users dwindled to 313 and city politicians totally abandoned the debates.

The advent of affordable local Internet service caused participation in the PEN dial up network traffic to dwindle. Faced with more options for computer interaction, many computer owners choose the wider world of the Internet. The city's view of the utility of PEN began to change at this time. In

order to justify PEN's \$110,000 annual budget, staff began to develop electronic transaction services. The City began to view PEN as a tool for improving public service and saving money. A visit to the web site in this year 2000 reveals that the City is meeting three objectives, an extensive amount of city information has been posted and indexed to the site (including live "netcasts" of city council meetings), online forms and services are provided, and the PEN conferences live on.¹⁰ It is encouraging to see that the conference feature has not been cancelled. Unfortunately, conference participation is still restricted to registered Santa Monica residents and workers, so the content of the debate cannot be explored by a researcher from Ontario.

The PEN experience provides results useful to both optimists and skeptics. For a brief time, when the service was new, and computer users did not have access to vast resources of the Internet, a period of active civic debate flourished. As the unmoderated debate continued, the tone of the exchange was dragged down by aggressive and impolite correspondents who ultimately chased away the politicians and intimidated many others.¹¹

For the most part, PEN did not bring in a large number new participants; most active users were already active in city politics. A survey of registered users did find a modest number of new participants, and some of the respondents said that they could not attend council meetings due to family commitments. It is encouraging to note that a number of self identified "homeless" citizens participated through the library terminals. Homeless people using the free library access initiated a conference on homelessness.

During the honeymoon period of conference participation, city officials were surprised to find that the level of horizontal communication exceeded the missives between citizens and departments. Several

¹⁰The City of Santa Monica web site address is : <http://pen.ci.santa-monica.ca.us/cm/index.htm>

¹¹Rogue characters included one user who insisted on referring to Santa Monica as "Satan Monica".

activist groups (including the homeless group mentioned above) formed as the result of conference correspondence.

After an earthquake in 1994, there was a flurry of activity on PEN as people sought out emergency information. This cannot be seen as a burst of citizen participation, but it does serve to illustrate the notion that digital channels may spring to life and provide an important channel when an issue or event focusses public attention on an event. It may not be reasonable to expect thousands to follow every issue before city hall, but a comprehensive web site will be ready to serve when needed.

Civic Networking and Universal Rights to Connectivity: Bologna

The City of Bologna in Italy began its IperBoLE Internet Service in January of 1995.¹² Similar to the other projects in this section, the initiative was designed to use the information exchange capabilities of ICT to engage citizens in local democracy. This project is unique in that its proponents held that universal free access to the Internet must be a prerequisite for online citizen engagement. IperBoLE offers free Internet access to all subscribers, and a number of terminals have been placed in libraries, local agencies, and social clubs. Equity of access was an important, but secondary, issue in Santa Monica. The Bologna initiative was primarily driven by the notion that the Internet should not be a market driven service for the elite, but rather a public utility. The citizen participation component of this project could almost be described as an excuse for providing free access in the face of complaints from commercial providers!

¹²Damian Tambini, Civic Networking and Universal Rights to Connectivity: Bologna from: Cyberdemocracy: Technology, Cities, and Civic Networks, Edited by Roza Tsagarousianou, Damian Tambini, and Cathy Bryan (New York: Routledge, 1998).

The practical goals of the project were ambitious, especially when you consider that the enactment of most features remained contingent on signs that universal access has been achieved. The goals at the inception of the project were to provide:

- telereferenda;
- telepolls;
- full Internet access as a right for all;
- discussion groups;
- computer literacy programmes;
- direct access to internal Commune (city) information;
- E-mail links to representatives;
- and, local area 'civil society' network between administration, organizations and citizens.

As the project evolved, a number of issues emerged. The first and most visibly contentious issue was the project's displacement of commercial Internet providers. The Internet businessmen were understandably at odds with the egalitarian project architects. The project continued and the legal action was ongoing at the time the case study was published (1998).

More importantly for this paper, the project designers were specifically concerned about the agenda setting effects of city devised polls, surveys, and referenda. This is, apparently, a sensitive issue in

Italian politics; project leaders were as wary of this problem as the Santa Monicans were sensitive to first Amendment rights. Concern over manipulative use of polls and surveys prompted the project leaders to develop a list of criteria for surveys that is worth quoting:

- Consultation of citizens should be based on open interactivity. The citizen should be able to question the questions that are being asked, and ask for more information.
- The citizen should have the opportunity to respond in a conditional way, e.g., if x occurs then y should take place, but in the absence of x it shouldn't.
- The citizen should be able to respond in her own language, and respond in terms of matters of degree. Not just yeas or no.
- It should be possible to annul the referendum if many citizens do not feel represented by the range of options, to avoid the possibility that citizens feel captured by the poll.
- An online referendum is conditional on the universal access to vote.

These conditions certainly compound the work of the survey analysts, but the provisions address the concern that the public can be easily manipulated by the selection and timing of questions.

The issue of content moderation emerged in Bologna, but officials did not share Santa Monica's concern about censorship and First amendment rights. IperBoLE planners saw the problem as a continuum between open discussion laden with poor quality messages, flame wars, and inappropriate material, and high quality content that was subject to the biases of the moderator (often a project official). As we have seen, open discussion groups are prone to low quality-per-message ratios and offensive messages that drive readers away from the forum. Moderated debates are subject to

manipulation by the moderator. The Bologna project partially circumvented this problem by offering free (wide open and unmoderated), moderated, and restricted (moderated with registered subscribers) discussion groups. It seems to me that the Bologna approach could be improved on by adding a link that captured all the moderator-deleted messages, thus providing some accountability to the moderator, and some entertainment for those who enjoy rude repartee. Censorship considerations aside, Bologna's moderated groups did not degenerate as did Santa Monica's open fora.

The participation level and user profile of the IperBoIE project is not all that dissimilar to result in Santa Monica. In a city of 390,000 people about 5,500 subscribed to the service. This comparison may be misleading as there is no specific information about the prevalence of home computers in Bologna as compared to Santa Monica, most reports indicate that access per household number to the Internet is considerably higher in North America. IperBoIE offered free Internet access, a strong draw when compared to the digital soap box opportunity used to lure the Californians. In either case, the result indicates that participation is far from universal at this point in time.

Based on a survey conducted in 1996, the majority of users were young, male, and well educated (86% male, 72% between 20 and 40 years of age). This matches the profile of the citizens of Digital Amsterdam (described below). Age and occupation profiles of registered PEN users were not published. However, most surveys from the late nineties confirmed that the Internet was primarily populated by young well-educated males, with young well-educated females participation on the rise.¹³

The most popular news group topics were apolitical, as signified by the citizen-selected discussion groups (any group of twenty users could sponsor a new group), e.g., Bologna at night, swap shop, cooking, jokes exchange, etc. The most popular of the civic issue groups was the forum devoted to car traffic issues.

¹³Bruce Bimber's web site contains "An American Internet User Profile"
<http://www.polsci.ucsb.edu/~bimber/research/>

The results of this project (up to 1998) have been modest in relation to the goals. The project did address many of the issues that will be faced when (if) access and inclination extends beyond young, affluent males. The project's concern over elitism and agenda setting resulted in a good set of rules for an interactive survey/polls. Free from the threat of First Amendment litigation, the project was able to solve the content-censorship dilemma by offering both open and moderated discussion groups.

Virtual Amsterdam

The Digital City of Amsterdam was the brainchild of a group of computer savvy citizen activists concerned about low voter turnout.¹⁴ The citizen group created a bulletin board site devoted to providing information and debate for voters evaluating candidates running in an upcoming municipal election. The ten-day election information project was wildly popular, and the experiment became an institution which remains viable today.

The virtual city contains a number of "squares" devoted to specific topics. Citizens can build homes (home pages), in the square, institutions and advertisers must purchase their virtual real estate.

The virtual city has a population of about 45,000 (mid 1996), there are about 8,000 visits a day, with 2000 of these from "tourists". Amsterdam has a population of about 600,000. Similar to the Bologna project, most of the registered users are young well-educated males.

Even though the virtual city was started in reaction to low voter turnout, topical conference activity in the city today is only about one-fifth dedicated to civic issues. Still this is an impressive number, given

¹⁴Letty Francissen and Kees Brant, Virtually Going Places: Square Hopping in Amsterdam's Virtual City from: Cyberdemocracy: Technology, Cities, and Civic Networks, Edited by Roza Tsagarousianou, Damian Tambini, and Cathy Bryan (New York: Routledge, 1998).

the overall volume of traffic. Virtual-Amsterdam conferences suffer the same problems as the PEN fora, flame wars and impolite rants have driven many away. Moderation was also considered here, but this was rejected as too intrusive. Moderation was in other ways more difficult here as the "City" is run by unelected group members and a paid staff, so any attempt to censor public issue debates would lack credibility.

The results of the Virtual Amsterdam project add credence to the lesson learned in Santa Monica and Bologna. Unmoderated debates in both Holland and California degenerated as aggressive and uncivil participants came to dominate the discourse. Similar to the Italian experience, the virtual city was anything but representative of the population at large. On a positive note, Virtual Amsterdam would seem to indicate that offering up civic debate on an attractive plate with other utilities can increase the site profile and use of local government "squares".

Based on the results of the early experiments, is there any hope for citizen cyber-participation?

The Digital Age has yet to provide an example of an effective long term citizen participation initiative using the Internet. Santa Monica, Bologna, and Amsterdam had flashes of success, but enduring effectiveness was brought down as topical groups with no concrete issues, and no obvious connection to the policy making process, degenerated into sounding boards, and then bear pits. In retrospect it seems that there are many ways that the pioneering projects could be improved. The government can benefit from citizen feedback where the issue is still in question, and where politicians acknowledge the need for creative ideas and opinion from the public at large. Citizens, in turn, will only be attracted to participate in compelling issues, and then they will only come forward where it is clear how their contributions will fit into the decision making scheme. Early projects violated these guidelines, so it still remains an open question: can long term digital grass roots be planted in the community?

It is certainly possible that the digital gateway to the citizenry may never attract a constant volume of civic debate. The gateway may only become active when a community is faced with major decisions, a municipal election, a major project, a new landfill site, etc.

If the virtual meeting space is viewed as an extended marketplace for ideas, a place to enhance the community or issue knowledge of the representative government, then low volume, high quality citizen participation is not to be discounted.

James Snider argues that the potential for citizens to be informed makes governments more accountable.¹⁵ It may not be that digital access actually increases citizen engagement, but as long as government officials know that citizens or political intermediaries have broad and instantaneous access to public information, they will be more accountable to the public. This type of "fire alarm" accountability yields a large change in government responsiveness, but little or no change in recorded levels of public participation.

Snider may be right. Large numbers of potential voters fail to cast their ballots, but many of the same people would march in the streets if their right to vote was threatened. A Digital Revolution in citizen participation may simply be awaiting better government communication strategies and universal Internet access. It could also be that the majority of citizens will ignore government digital information channels, but they may still feel strongly that if they did want to e-mail the mayor, or find out about their tax bill, they could accomplish the task in a few key strokes.

Part Four

¹⁵James H. Snider, "New Media: Potential Information & Democratic Accountability: A Case Study of Governmental Access Community Media," Paper presented at the Annual Meeting of the American Political Science Association, San Francisco (August 29, 1996).

Changing today's dynamics

The number of visits to school board web sites does not suggest that there is enough community interest to build into a broad group of correspondents. Until school sites provide reasons for citizens to visit the site on a regular basis, however, a web site will not become a strong fibre optic umbilical cord to the community. Local governments do have the capacity to draw many visitors, however, by offering specific services. This opportunity has been held up by the laudable notion that local government should not provide extensive services via the Internet where access is not universal. In the not to distant future, this barrier may be eliminated by the merging of television and Internet access. What can school boards do then to draw the school community? A recent news article from the Ottawa Citizen provides an example.¹⁶

Ottawa will launch what's believed to be the world's first Internet link to give parents daily updates on their son or daughter's school attendance through a Web site that backers claim is virtually hacker-proof.

Starting next fall, parents of 300 Grade 9 students at Earl of March Secondary School in Kanata can log on to a secure Web site for up-to-date records on what classes their son or daughter attended -- or missed.

If the project works as designed, parents will be able to find out specifically what classes a student attended. So if he or she attended biology and English but skipped math one day, the parent can quickly call the school to find out why.

Drawing parents to a web site to check up on their children's truancy may seem like a gimmick to draw site visitors into the world of school board issues, but it might work. It would matter little if six

¹⁶“Big Parent watches students,” Ottawa Citizen, June 27, 2000 p.A3

months down the road directories devoted to curriculum and school safety became popular as the result of the new volume of traffic. Other services which would certainly draw many visits would be daily listings of homework assignments (with parent-coded answers!), test results, and suggested ancillary home assignments. These types of features would almost certainly draw many visits, whether the traffic will yield a dividend in parent involvement is a question that would soon be answered by web tracking software.

Interesting daily web site features would likely draw many parent visits, but this does not equate to digital citizen participation. Parents familiar with homework assignments, truancy, and test results will no doubt develop opinions about school policy. A web site can only move from an information provision service to an information exchange service by allowing for constructive feedback. There is, however, little hard evidence so far to suggest that citizens can be easily drawn into government digital participation projects. The projects that have been tried so far have, however, been the fairly crude attempts. For the most part, governments, or factions within governments have used ICT to drop an electronic ear to the grassroots to hear what citizens have to say. In Santa Monica, Amsterdam and Bologna topical discussion groups were set up, but it was never made clear how the discussions might ultimately relate to policy. School board web sites feature information and digital suggestion boxes, but there is no theme discussion or e-fora.

The Dutch government published a guide to electronic consultation which features a number of suggestions that we can see in retrospect were ignored by early project architects.¹⁷ The guide lists the following features of an electronic consultation;

- the political administration has decided that an electronic consultation will be held;

¹⁷Electronic Civic Consultation - A Guide to the Use of the Internet in Interactive Policy Making, Dutch Ministry of the Interior and Kingdom Relations
www.statskontoret.se/gol-democracy/links/Government_Online/

- the issue under discussion is well-defined;
- the allocation of responsibilities during the consultation is unequivocal;
- the administration has made it clear how the results will be used after the consultation and what contributions are expected of the citizens.

The city must provide 'accessibility of content' - materials relevant to the issue must be framed in terms that the public can relate to (from the citizens' point of view).

This sort of consultation is meant to tackle a specific, concrete issue, which was never the goal of projects reviewed in this paper. It may be that this is the only type of consultation with drawing power, however; ongoing consultation lacks direction and purpose. We can see that most projects were at fault because the political administration was not clear on how the feedback would be used in policy formulation, and the citizens were not clear either.

The Dutch guide goes on to detail why and when a representative government would consult with citizens:

Consultation may have the following functions in the decision-making procedure, generation of ideas, resulting in a better decision (serving a role that might otherwise be served by consultants or advisory boards); generation of public support (by involvement and by being informed).

.....where all parties believe the consultation can add value to the decision-making process;

where the subject is suitable for public consultation, that is where it is still early in the process and the topic will have some appeal for the citizens


suitable target group - there is no sense consulting about public housing if access to the Internet is not available to most tenants.

There are few examples of consultation projects which have followed this approach (one might expect a few good examples in Holland, however!). It is clear from the popularity of web sites devoted to providing voter information prior to elections that salient issues and the opportunity to change policy (politicians) in a well-defined way draws a lot of interest from the general public. The initial popularity of the Amsterdam election information site, and the ongoing success of the Minnesota E-Democracy site are testaments to the drawing power generated when citizens know that their feedback (in this case their vote) will potentially change the course of government.¹⁸

The craft of engaging citizens using digital channels is still in its infancy. There is much left to learn, and many good initiatives will be held back pending universal access. The web site use statistics examined in this paper do not indicate a heavy flow of digitized information between the community and school boards. Nevertheless, the incremental cost of adding information to a web site is very low. Should a contentious issue arise, a government with a comprehensive, well-indexed web site is ready to provide information to its citizens.

More ambitious information exchange projects are more costly because of the need to provide the information for daily features and manage incoming messages. There is nothing in the research to date that would offer a guarantee of success to a citizen participation project, but grant-funded projects that

¹⁸ The Minnesota E-Democracy site can be located at: <http://www.e-democracy.org/>



take advantage of lessons learned to date may soon provide some data on the likely results of a sophisticated project.

All web-generated information is easy to share. It would require very little effort for school boards to share information about successful or failed initiatives. Shared site statistics will begin the evolution of web site design. As base line statistics on web site use become more commonly available, local governments will be able to better evaluate the use of their site, and identify successful projects and features from other sites.

Bibliography

Alexander, Cynthia J. Digital democracy : policy and politics in the wired world / edited by Cynthia J. Alexander and Leslie A. Pal. Toronto : Oxford University Press, 1998.

Barber, Benjamin R. Strong democracy : participatory politics for a new age. Berkeley : University of California Press, c1984

Bellamy, Christine. Governing in the information age / Christine Bellamy and John A. Taylor. Buckingham ; Bristol, PA, USA : Open University Press, 1998.

Bimber, Bruce. The Internet and Political Transformation: Populism, Community, and Accelerated Pluralism. <http://www.polsci.ucsb.edu/~bimber/research/transformation.html>, May 2000.

Eulau, Heinz. Technology and civility : the skill revolution in politics. Stanford, Calif. : Hoover Institution Press, c1977.

Laudon, Kenneth C. Communications technology and democratic participation. New York : Praeger, 1977.

Osborne, David (David E.). Reinventing government : how the entrepreneurial spirit is transforming the public sector / David Osborne and Ted Gaebler. Reading, Mass. ; Don Mills, Ont. : Addison-Wesley Pub. Co., c1992.

Ranson, Stewart. Management for the public domain : enabling the learning society / Stewart Ranson and John Stewart. New York, N.Y. : St. Martin's Press, 1994.

Taylor, Mark C. Imagologies : media philosophy / Mark C. Taylor, Esa Saarinen. London ; New York, NY : Routledge, 1994.

Tsagarousianou, Roza (editor), Cyberdemocracy: Technology, Cities, and Civic Networks. New York: Routledge, 1998

Wilhelm, Anthony G. Democracy in the Digital Age - Challenges to Political Life in Cyberspace. New York: Routledge, 2000.