

Geosurveillance Through the Mapping of Test Results: An Ethical Dilemma or Public Policy Solution?

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Abstract

In 1997, the Ontario Provincial Government, through the Education Quality and Accountability Office (EQAO) introduced mandatory standardized testing for grades three and six in Public Elementary Schools as the beginning of a process of public accountability and excellence in education. Proponents for this method of evaluation argued that such procedures were valuable to teachers, schools and the community at large since they would inform teaching and learning. However, in an era of cutback and neoliberal reforms public education like many other public services has increasingly become associated with corporate values related to accountability, efficiency and competition. A review of over 140 articles from 1997 to 2004 reveals a fiercely contested terrain slowly evolving over the years. One of the consequences of these debates was the unintended spatial

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ramifications linked to neighbourhood identities that were further exacerbated by the way the results were interpreted. For example, discourse analysis demonstrates how the release of test results to the public over the last few years has encouraged an audit culture leading to the labelling of low and high performance schools and to the further social polarization of certain neighbourhoods. In this paper I explore whether the role of Geographical Information Systems (GIS) often criticized as a disciplinary tool could be flipped around and used as an empowering tool instead. To contextualize findings from the discourse analysis, a three-stage GIS place-based approach explores test results taking into account the particularities of each school, civic links and locality characteristics. The context in which these changes (e.g. dismantling of pedagogical infrastructure) unfold reveal the slippages that occur at various scalar levels yet simultaneously considers the ethical implications for the communities involved.

Introduction

A central tenet driving neoliberal-led policy is for the state to encourage competition not only *among* but also *within* various sectors of public institutions. To assist in the systematic monitoring of competition various technologies of control such as the use of surveillance are often devised and legitimized on the grounds of efficiency, transparency and accountability. Based on the knowledge produced from these outcomes, the expenditure on public goods follows a particular set of norms and practices to ensure that wastage and inefficiencies are minimized, controlled or even eliminated. From a more critical stance, surveillance, thus, can be viewed as a strategic practice that allows power and the knowledge it creates to further entrench its authority or be *rationalized*² (see Foucault, 1981, Flyvbjerg, 1998). The production of such valid truths creates criteria, indices and other regulatory mechanisms to form threshold levels that are normalized or naturalized and thereby amenable to a larger public in a climate of neoliberal governance. Geosurveillance - or the art of governance through the workings of space - is one such strategic activity used to know those governed (see Joyce, 2003); and often, *though not always* as I will argue in this paper, operationalized through the use of GIS.

GIS has been criticized as a powerful planning tool that often perpetuates power differentials. These criticisms are largely centred on, for example, the role of GIS interfering with privacy (see Pickles, 1995), in its facilitation of military usage (Smith 1992), and its sometimes improper categorization and representations

² Rationalization is the process whereby strategies based on power are presented as rationality.

of social space, segmentation and construction of consumer identity (see Goss, 1995). However, during the past few years works by *Critical GIS* scholars have actively engaged in these critiques and continue to find creative and constructive ways of dealing with these various limitations (see Schuurman, 2000). The work by feminist scholars (Kwan, 2002, McLafferty, 2004), PPGIS (Sieber, 2003), and Critical GIS (Crampton, 2001, 2003) users, among others, has seriously attempted to re-envision (Kwan) and re appropriate (Crampton) GIS in an attempt to re-establish its role as a powerful critical tool. Other efforts, such as the most recent publication of two issues of *Cartographica* (2004) are devoted entirely towards theoretical and empirical studies related to these themes. Underlying most of these arguments exists an acknowledgement that GIS is also political and that a balance and careful understanding must be brought into the process. Therefore, for example, by being careful to note its misappropriation as a governing technique (Crampton, 2004), or being sensitive to the importance of data confidentiality while doing meaningful spatial analysis (McLafferty, 2004), GIS critical scholars have sought to work from within to improve the technological relationship to focus on power differentials and develop a *transformative GIS*. While exploring notions of governmentality through GIS, Jeremy Crampton powerfully argues, “it is not technologies of surveillance - mapping or GIS per se - that are problematic, but rather the underlying political rationality of normalization which constituted people and the environment as threatened resources under risk or hazard” (2003:137). On a similar tone, Plummer and Sheppard (2001) argue that emancipatory research need not necessarily be restricted to qualitative methods but can be expanded into the realm of quantitative analysis, including GIS as well. This project contributes in a small way to these larger debates by exploring through a case study analysis the potential of a Heterodox GIS (a term coined by Kevin St. Martin and John Wing, 2005)³ in *reversing hegemonic rationalizations*. This paper is also part of a larger research agenda exploring and unpacking the rationalization of neoliberalism through the techniques and strategies used to legitimize policy in Ontario’s education system during the past decade.

In this paper, I trace acts of governance through the geosurveillance of local public institutions by examining the compulsory release of public school test results made mandatory by the Ontario government since 1997. I will argue that the release of such indicators particularly at the local school level creates a *landscape of perpetual spectacle* - spaces that are under constant observation, scrutiny and judgement. These in turn shape the identities of the neighbourhoods involved. However, the narratives of these local spatial experiences are traced *not* through the techniques of mapping and GIS but through the *discourse analysis* of media reports widely publicized and impartially analyzed during a period of rapid

³ Discussions and paper sessions on *the Possibility of Heterodox GIS* were organized at the Annual Association of Geographers in Denver (2005) by Kevin St. Martin and John Wing.

educational restructuring in the Province of Ontario. I argue that *Heterodox GIS* as an empowering tool can be used to explore and counter explain through a contextual or perspectivist approach a more holistic understanding of the issues that evolved during this intense political period of social and economic upheaval. I argue that *Heterodox GIS*, defined here as a more balanced method, not only purports *multiple approaches* but also provides the opportunities for *pluralistic understandings*. This makes its central task of *transparency* and *uncovering latent power differentials* a more equitable and just and exercise. Thus in this paper I explore whether the role of GIS often touted as a disciplinary tool can be used as an empowering tool instead. By contextualizing local conditions the results lead to a more useful policy approach.

Foucault's (1981) theorization of knowledge and power is useful in understanding how discourses are created, modified and constantly evolving, as power according to this conceptualization, is constantly shifting and spread across different social practices. Power, he argues is also something which is *performed* (evident here through testing regimes), something more of a strategy than possession. Knowledge in turn is a negotiated process and coupled with power has consequences on the production of truth. According to this perspective since universal truths are unattainable, and multiple and competing rationales exist side by side, the focus should be on how *truth effects* are created through discourse (see Philips and Jørgensen, 2002) or what Flyvbjerg refers to as the *process of rationalization*. Foucault argues that discourse is both the means of oppression *and* resistance and should be seen as a system which structures the way we perceive reality (Mills, 2003). In their discussion on the theory and methods of discourse analysis, Philips and Jørgensen (2002) note that different perspectives provide different forms of knowledge about a phenomenon, so that taken together, they produce a broader understanding (pg 4). They argue that knowledge is created through social interaction in which competition for predominance or discursive hegemony creates and competes for what is true and false. What I will illustrate further on in the paper is also that power operates in specific ways in specific places. It is within these spaces and across different scales where power is enacted or resistance faced. Discourse thus is neither a fixed or closed entity, but is constantly being transformed through contact with other discourses - what they refer to as a *discursive struggle*. Mills (2003:66) similarly argues, "work on discourse and power is useful in helping theorists to consider the way that we know what we know; where the information comes from; how it is produced and under what circumstances; whose interests it might serve, how it is possible to think differently; in order to be able to trace the way that information that we accept as true is kept in that privileged position."

The paper is structured as follows: First a background that discusses the creation of a climate amenable for a particular kind of neoliberal governance is introduced. A discourse analysis of newspaper articles from 1997- 2004 then

explores the debates that arose in the province and its effects on particular locales. This is followed by a discussion on the consequences of such governance in the form of scales of geosurveillance. Second, I present a pluralistic or four-stage context analysis model that explores test results taking into account the particularities of each school, neighbourhood, and agency. I argue that the context in which these changes unfold (i.e. neighbourhood context which also reflect local power relations) must inform stakeholders in the education system, policy makers and the media in order to offer a more realistic picture of performance. Finally, a prospective framework for conceptualizing Heterodox GIS is presented at the end.

Creating a Climate Amenable for Governance: The Rationale of EQAO

The neoliberalization of education policy in Ontario, particularly during the 1990s, was widely embraced by the electorate because of its promise of a more academically rigorous, globally competitive yet fiscally restrained agenda. Underlying most of these reforms was a market-oriented ideology and the policies had a profound effect in all areas of education such as in governance, finance and curriculum (see Basu, 2004a). In local communities all over Ontario, the removal of library and music programs, after school activities and supplies in the classroom, the sharing of principals, closure of schools, among many other changes, have led to what some may argue as a crisis in public education (Basu, 2004b; see Figure 1).



Figure 1. Resisting Change © R. Basu

Working alongside the retrenchment and actual gutting of programs during the process of restructuring was a simultaneous implementation of standardizing practices to gauge and measure performance in various sectors of education often legitimized through the appointment of what appeared to be arms length advisory bodies or quangos. For example, in 1997, the Ontario Provincial Government, through the Education Quality and Accountability Office (EQAO) introduced

mandatory standardized testing for grades three and six in Public Elementary Schools as the beginning of a process of public accountability and excellence in education (also see Harris and Mercier, 2000). Proponents for this method of evaluation argued that such procedures were valuable to teachers, schools and the community at large since they would inform teaching and learning. The rationalization of the overall restructuring in education was legitimized by a *perceived need* to remain globally competitive in a knowledge based economy while at the same time maintain fiscal efficiency and accountability. Sceptics argued however that test results would be used instead as a political instrument to create a climate of dissatisfaction and unease amongst voters about the state of education in the province.

Governmentality, or the *art of governance* through political reason as defined by Foucault (1991) and as exemplified in the above example, is often rationalized through a series of strategies and tactics to normalize hegemonic agendas. The production and reorganization of knowledge in this way constitutes new forms of power and dominance (see Rouse, 1994). Such logics of the state operate under the assumption that before populations can be governed they must be *known or identified*. In this case schools are known by their success in standardized test outputs. Yet, paradoxically, as Joyce (2003) argues, in the new liberal state governmentality depends upon reaching a balance which involves not only knowing the governed but *not knowing* them as well (pg 13). This danger is particularly alluded to on the web site of the EQAO which explicitly states:

It is important to emphasize that the assessment results should *not be used to rank schools*, they should be used to improve teaching and learning. Ranking provides *no information* about why scores are high or low; it invites simplistic and misleading comparisons that *ignore the particular circumstances* affecting achievement in each school and it distracts from addressing the more critical issues of how to improve learning for all students.⁴

Despite this warning a review of 140 article headlines from 1997 to mid 2004 reveals a fiercely contested terrain slowly evolving over the years. One of the consequences of these debates was the unintended spatial ramifications that were further exaggerated by the way the results were interpreted. The following sections demonstrate the spatial ramifications by noting how the release of test results to the public over the last few years has encouraged a value neutral audit culture leading to the labelling of low and high performance schools and to the further social polarization of certain neighbourhoods.

⁴ <http://www.dpcdsb.org/EQAO/>

Part I: Discursive Struggles under Neoliberal Regimes (1997-2004)

In this section, an attempt is made to explore the discursive struggles and corresponding negotiations that took place regarding competing ideologies and the logics of testing during the earlier years of restructuring. A review of 141 newspaper article headlines from 1997 to 2004 traces the process of testing in Ontario's public schools and reveals a fiercely contested terrain slowly evolving over the years. The language used in headlines serves as a proxy to preliminary statements⁵, various assumptions, purposes, effects and outcomes. The articles, accessed primarily from the *Canadian Newswire* and *Canadian Periodical Index* contain footage from major newspapers in Canada and reflect various dimensions of the debates - both positive and negative. In general, discussions revolve around the rationale provided for such measures, responses by various groups, policy recommendations and the political nature of EQAO in Ontario. As meanings are never fixed but in constant flux, these ambiguities are evident in the results provided below. Table 1 summarizes the headlines as positive (26%), negative (43%) and neutral responses (31%) with respect to perceptions and discussions on testing; with negative opinions peaking in 2001 (at 51%) after a period of lull in 2000, when negative opinions were the lowest (10%) (See Table 1). Many of the articles mention particular geographies and these are listed in the table below and discussed ahead. It is through the conventions, negotiations and conflicts evident through such discourses that structures and meanings get temporarily fixed and are challenged (Philips and Jørgensen, 2002:25).

An underlying theme which becomes apparent through the articles is the various *geographies* and *scales of surveillance* that emerge - a form of disciplinary measure, as Michel Foucault has coined these forms of power (1977). These principles of order, in terms of expected norms of outcomes and standardizations, ensure a sense of structure and uniformity in the modern education system. The geographies with regards to testing regulations and practices are noted from the international to the local level in a number of articles. Internationally, comparisons are made between countries, nationally among provinces, regionally between different school boards, and locally through the mention of neighbourhoods and local schools. Mitchell (1991) argues that such forms of power are particularly effective in their *localized* ability to infiltrate, rearrange and colonise (pg ix). Mitchell states, "disciplinary power works not from the outside but from within,

⁵ The analysis focuses primarily on headlines in this paper and one must keep in mind that the body of text that follows might convey a slightly different tone or could even emphasize a different argument. However, though a discussion of this is beyond the scope of the current paper, an analysis of headlines is useful as it is the point of entry to an article and often makes the first impression on readers.

not at the level of an entire society but at the level of detail, and not by restricting individuals and their actions but by producing them” (1991: xi).

	Total Articles	Positive Responses	Negative Responses	Neutral Responses	Geography
1997 (Mar-Dec.)	6	0 (0)	3 (0.50)	3 (0.50)	1 (0.17)
1998 (June-Dec.)	7	2 (0.29)	3 (0.43)	2 (0.29)	0 (0.0)
1999 (June-Dec.)	3	2 (0.67)	1 (0.33)	0 (0.0)	1 (0.33)
2000 (Apr.-Dec.)	10	5 (0.50)	1 (0.10)	4 (0.40)	3 (0.30)
2001 (Mar.-Dec.)	45	9 (0.20)	25 (0.56)	11 (0.24)	7 (0.16)
2002 (Jan.-Dec.)	29	9 (0.31)	12 (0.41)	8 (0.28)	7 (0.24)
2003 (Jan.-Dec.)	26	7 (0.27)	9 (0.35)	10 (0.38)	4 (0.15)
2004 (Jan.-May)	15	3 (0.20)	7 (0.47)	5 (0.33)	0 (0.00)
TOTAL	141 (100%)	37 (26%)	61 (43%)	43 (31%)	23 (16%)

Table 1: The production of truths through popular discourse: Summary of Newspaper Article Headlines related to Testing (Source: Canada News Wire; Canadian Periodical Index).

Through the means of rigid testing set by provincial mandates, communities become landscapes of surveillance. Yet, as the discourse also indicates, resistance was not entirely absent and this is evident within and across the same educational spaces. We see instances of various actors involved in the process (e.g. parents, teachers, unions) criticizing the conditions in their lives (e.g. cutbacks, testing) and the way certain policies and institutions affect their lives (e.g. stigmatized neighbourhoods). The following discourses summarized and elaborated on below fall under three time periods based on dominant themes that emerge: 1997-1998 (preparatory framework); 1999-2001 (competitive framework); 2002-2004 (identification framework). Within these broader themes, however, competing perspectives emerge and the few examples of newspaper headlines illustrated below reflect this divergence⁶.

Testing Rationales: 1997-1998

During the early years of announcement there appears to be a *message of preparation amidst a climate of apprehension*. An objective rational framework is presented with an underlying sense that there needed to be order in an education

⁶ [For the reader's convenience please note that the statements are also colour-coded in black (neutral perceptions), blue (positive perceptions) and red (negative perceptions)].

system that was disorderly. For example, preparatory headlines dealing with the technicalities of the project including the preparation of test booklets, teacher involvement and process in general set the stage:

Schools undertake two weeks of testing for all Grade 3s (*Toronto Star*, 1997, March 20).

Home Questionnaire is key component of research (*Toronto Star*, 1997, March 31).

1000 teachers set to mark Grade 3 tests next month (*Toronto Star*, 1997, April 25).

Teachers following directions (*Toronto Star*, 1998, May 24).

Test booklets ready (*Toronto Star*, 1998, 15 November).

These neutral objective tones were augmented by positive reassuring messages that would lead to, for example, *good measure of basic skills* and gender equality:

School tests of primary students a good measure of basic skills (*Toronto Star*, 1998, May 24).

Young girls often underestimate their math skills (*Toronto Star*, 1998, June 1).

However, these messages also appeared amidst numerous criticisms made by individual schools, unions and boards of education. From the very beginning uneasiness is evident from comments such as *misrepresented results, horse-race, waste of taxpayers, money and unfairness*.

Grade 3 tests will become political weapon (*Toronto Star* 1997 November 29)

Birchbank Public School test results misrepresented (*Toronto Star* 1997 December 4).

Reducing test results to horse-race is disturbing (*Toronto Star* 1997 December 27).

Tests revealed big problem (*Toronto Star* 1998 15 November).

Education-quality tests are waste of taxpayers money (*Toronto Star* 1998, 17 November).

Misleading headline unfair to Catholic schools (*Toronto Star* 1998, 22 December).

Promoting Competitive Acts: 1999-2001

From 1999-2001 both positive and negative implications are weighed with inputs from teachers and unions some joining the bandwagon *depending* on their individual losses or gains. What is particularly interesting to note are the various actors that are engaged in the discourses on and perceptions of testing. Competition amongst boards is evident in various headlines and questions are raised regarding the legitimacy of the process. For example:

OSSTF Gives Commission's Report Mixed Grades (*Canada News Wire* 2000 13 April).

Elementary Teachers respond to EQAO test results (*Canada News Wire* 2000 2 November).

Regular education reviews benefit all (*Toronto Star* 1999, 3 November).

Testing results show gains in Grade 6 mathematics (*Canada News Wire* 2000, 2 November).

What was the standard on how tests were marked? (*Toronto Star* 2001, 10 March page LT01).

Marking standard needed to judge results (*Toronto Star* 2001 9 March, page A23).

Ontario warned school tests vulnerable before theft (*Globe and Mail* 2001, 12 December).

Objections are raised on the marginalization of certain schools and the surveillance of neighbourhoods as results are released to the media based on individual school test scores.

Analysis Tests not meant to rank schools Grade 3 and 6 tests just a snapshot of pupils' knowledge (*Toronto Star* 2000, December 2, page O1).

School tests measure affluence, not quality (*Toronto Star* 2000, 9 November, page A41).

Column one: Education: is it really as bad as we think? Canadians are deeply divided over the state of their schools. Many pine for the good old days. Should they? (*Globe and Mail* 1999, 29 June).

What soon follows is a *competitive spirit* whereby boards begin to aggressively advertise their own performance with respect to the provincial indicators. This geographical reasoning is also made at an international level. The consequence of such discourses was shouldering off responsibility to individual boards and schools while broader concerns (e.g. cutbacks in the system) were sidetracked.

Durham students improve (*Toronto Star* 1999, 16 December).

Peel students achieve above-average results in provincial tests (*Canada News Wire* 2000 2 November).

Toronto District School Board students score above the province in EQAO tests (*Canada News Wire* 2000, 2 November).

EQAO releases Third International Mathematics and Science Study Repeat Project (TIMSS-R) results Ontario Grade 8 students show significant improvement in mathematics and science (*Canada News Wire* 2000, 6 December).

Peel board uses results of literacy test as 'launching pad for improvement' Bottom line is learning, not ranking, says director (*Canada News Wire* 2001 8 March).

Toronto District School Board Students Continue to Succeed In Grade 3 and 6 EQAO Tests (*Canada News Wire* 2001, 6 November).

International test results show Ontario students measure up (*Canada News Wire* 2001, 4 December).

Knowing the Governed?: 2002-2004

As I have argued earlier on in the paper, one of the primary objectives of testing was to objectively and systematically know and identify those governed. Yet, as Joyce (2003) has argued one must be critical of this form of knowing and measuring as it can often be an incomplete way of governing. From 2001-2003 there were 100 articles related to the discussion of test results. Of these approximately 40% of the articles were negative. There was an urgent effort by the ministry to quell the rampant criticisms that were growing daily and commend on

the benefits that were arising. For example comments made by education minister in 2002 and deputy education minister in 2003 state:

Grade 10 Literacy Test helps improve student achievement (*Canada News Wire* 2002, 14 February).

Ontario students do well on literacy test (*Canada News Wire* 2003, 24 April).

However, criticisms regarding the re-evaluation of policy, procedural problems, and flaws and cutbacks in the system are strongly evident. These criticisms came mainly from teachers. For example:

Ontario's annual \$50 million expenditure on student s assessment may not be paying off, Catholic teachers warn (*Canada News Wire* 2002 11 March).

Secret provincial tests for students may end up on Web (*Globe and Mail* 2002, 16 April).

View EQAO test results with caution, say elementary teachers (*Canada News Wire* 2002, 7 March).

Standardized tests just a tool for ranking schools (*Toronto Star* 2002, 13 May).

OSSTF calls for review of applied curriculum based on grade 9 math results (*Canada News Wire* 2002, 5 December).

Education money wasted on tests (*Toronto Star* 2003, 27 January, page A19).

Social cost of shifting schools (*Toronto Star* 2003, 12 May, page E06).

EQAO tests offer false sense of accountability (*Toronto Star* 2003, 11 May, page A12).

EQAO tests do little to improve student learning, say elementary teachers (*Canada News Wire* 2003, 30 October).

Geographical responses (by individual schools, boards and at the provincial level) are increasingly evident (20% of the articles) creating educational spaces that are branded as successful or not. For example:

Tests just give good schools a bad name (*Toronto Star* 2002, 2 June page B07).

Peel students score above average on provincial grade 3, 6 tests and national grade 4 standardized testing program (*Canada News Wire* 2002, 6 March).

Students Continue to Succeed - Toronto District School Board Releases Individual School Results for Grade 3 and 6 Assessments (*Canada News Wire* 2002, 6 March).

Ontario students show significant improvement in national test results (*Canada News Wire* 2002, 3 April page B08).

Peel board shows 'significant' improvement in results of provincial literacy test (*Canada News Wire* 2002, 30 September).

Toronto District School Board Students Show Steady Improvement in EQAO (*Canada News Wire* 2003, 23 January).

By June 2003, the Fraser Institute (a Right-wing policy think tank) published its first ever Report Card on Ontario's elementary schools. By 2004, unrest in the province resulted in legal action against the Ontario government testing policy.

Grade 10 literacy test 'a farce': Former marker (*Toronto Star* 2004, 12 January, page A02).

Students and parents bring legal action against the Ontario government over the Ontario Secondary School Literacy Test (*Canada News Wire* 2004, 16 January).

Consequential Governmentalities: Scales of Geo-Surveillance

What was absent in the way the policy and discourse of testing had evolved so far was an acknowledgement of a *contextual* understanding of local communities or the physical, socio-economic, and interdependent relationships that might have affected the outcome of these processes. Though this might have been obvious to the communities directly linked to the schools, a systematic analysis of other underlying problems would have involved a greater investment of resources in an already cash-strapped education system. Instead what is evident from the discourse analysis discussed so far is the emergence of a landscape of surveillance that is quick to judge, create conflict and unhappiness in already demoralized communities. In the discussions so far, human conduct is conceived as something

that can be regulated, controlled, shaped and turned to specific ends through rational objectives (see Dean, 1999). The geographic dimensions of an audit culture in education as a tool to advance neoliberal policies is evident at various scales both totalizing and individualizing results (see Table 2) from the macro (province), meso (boards), micro (schools), individual (principals, teachers) and relational (media, activists, real estate agents) levels (also see Figures 2a-2c).

<p style="text-align: center;"> International Provincial (comparing) Boards (promoting) Stakeholders in the Education System (teachers, unions) Media (table, maps, neighbourhoods) Schools (self surveillance) Parents (protectionists) Real Estate Agents (property values) Activists (advocacy) </p>
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Table 2: Scales of Geo-Surveillance

Strathern (2000: 2) describes such audit cultures as procedures for assessment which have social consequences, including locking into the moralities of public management; and notes that these forms of accountability are at once obstructive and enabling of good practice. Beginning with the release of test results to the media and by the Ministry of Education and individual Boards on their own web sites, schools are judged and ranked or, in other words, *disciplined* by others and *by themselves*, based on fixed performance indicators (see Figures 2a, 2b, 2c). Through these examples we see that governance of public schools is accomplished through multiple actors and agencies (and at various scales) rather than a centralized set of state apparatuses (see Dean, 1999). The state society relation is considerably blurred in this strategy of governing. By tackling the process in this way, we see the many ways in which power and influence are brought to bear as schools are forced to act as they are being constantly watched and surveyed - a panoptical effect - even when they are not.

To maintain legitimacy the justification of results are backed up by press releases from the province. Further, comparisons of Ontario are made at an international scale to contrast global assessment and gain support of the public at large. At a regional scale, competition among boards is evident in news releases whereby boards promote their own positions. Stakeholders in the education system, particularly those working at the grass roots level (teachers, principals, activists,

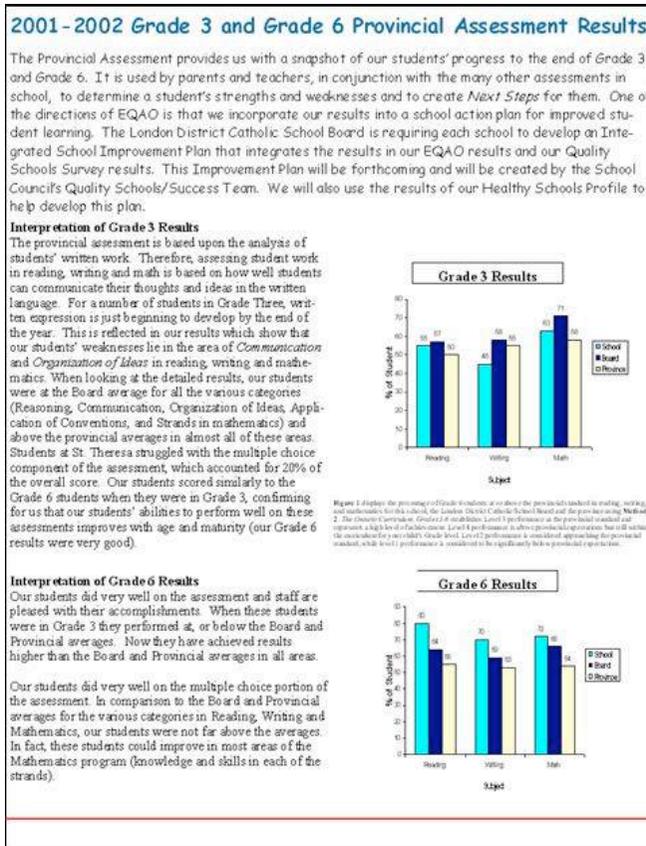


Figure 2a: Individual Schools Results (Source: ldcsb.on.ca/schools/theresa/eqao.htm)

parents) respond by justifying the poor performance of individual schools often demoralized through this process of accountability, celebrating schools that perform well, or as in a few cases refusing to participate in the annual testing exercises as an *act of defiance*. In this way we see how relations of authority, obedience and conflict are constituted in and through overlapping spaces.

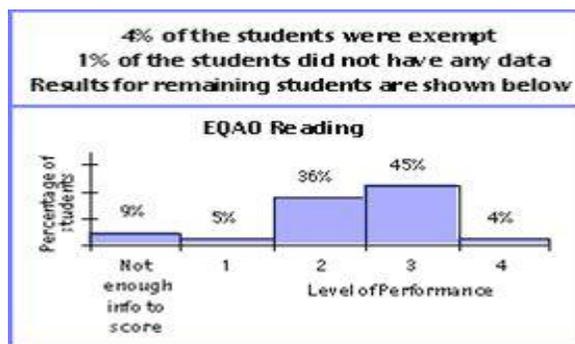


Fig 2b: Provincial and Board Results

Source: www.ocdsb.edu.on.ca/.../EQAO/EQAO_Results98.htm

Part II: Advocating Context via GIS: Pluralistic Understandings

Multiple power relations are *not necessarily easy to observe in play: the relations of power are perhaps among the best hidden things in the social body...*[our task is] to investigate what might be most hidden in the relations of power; to anchor them in the economic infrastructures; to trace them not only in their governmental forms but also in the intra-governmental or para-governmental ones; to discover them in their material play (Foucault: 1988; quoted in S. Mills 2003).

The results of the discourse analysis presented in the previous section suggest a decontextualisation from the spatial realities and complexities of everyday life and of the individual circumstances within school communities. It appears that what was also imposed was a sense of conformity which was to be followed to maintain a certain order and regularity in the political system. As noted in the introduction and in accordance with Foucault's argument, all acts - GIS and discourse analysis included - can be both oppressive and empowering. GIS as an empowering tool can be used to explore and counter-explain, through a contextual or perspectivist approach, a more holistic understanding of the issues that evolved during this intense political period of social and economic upheaval. Its strength lies in specifically uncovering what Foucault notes as the 'materiality of power relations' at local levels (see Mills, 2003). *Heterodox GIS* can be conceptualized as a method to uncover governmental rationalities. As I mentioned at the beginning of the paper, it purports *multiple approaches* (in this case study discourse analysis, GIS and regression), but more importantly provides the opportunities for *pluralistic understandings* (including perspectives from the various parties involved - governing and governed) that make its central task of *transparency* and *uncovering latent power differentials* a more equitable and just exercise. This can involve the community directly in the analysis if necessary (such as in PPGIS) or can be performed independently when many and conflicting parties are involved. The results in turn can be shared and can form the basis of progressive and activist planning.

	Passable level of achievement	Moderate level of achievement	High level of achievement (Provincial Standard)	Outstanding level of achievement (above Provincial Standard)	At or above Provincial Standard
ACADEMIC	Level 1	Level 2	Level 3	Level 4	(3/4)
BOARD	13%	18%	63%	5%	68%
PROVINCE	14%	17%	58%	5%	63%
Belle River	8%	14%	71%	6%	77%
Century	n/a	n/a	n/a	n/a	n/a
Essex	10%	25%	63%	1%	64%
Forster	35%	24%	36%	0%	36%
General Amherst	5%	18%	71%	6%	77%
Harrow	10%	21%	60%	6%	66%
Herrn	25%	21%	50%	1%	51%
Kennedy	21%	20%	53%	5%	58%
Kingsville	8%	13%	75%	3%	78%
Leamington	12%	16%	66%	2%	69%
Massey	9%	14%	68%	9%	77%
Riverside	11%	16%	66%	5%	71%
Sandwich	7%	14%	71%	8%	79%
Walkerville	22%	25%	50%	2%	52%
Western	n/a	n/a	n/a	n/a	n/a

	Passable level of achievement	Moderate level of achievement	High level of achievement (Provincial Standard)	Outstanding level of achievement (above Provincial Standard)	At or above Provincial Standard
APPLIED	Level 1	Level 2	Level 3	Level 4	(3/4)
BOARD	16%	40%	26%	1%	27%
PROVINCE	19%	37%	21%	0%	21%
Belle River	13%	45%	41%	0%	41%
Century	n/a	n/a	n/a	n/a	n/a
Essex	24%	41%	16%	0%	16%
Forster	11%	23%	18%	4%	22%
General Amherst	11%	38%	49%	0%	49%
Harrow	3%	44%	47%	3%	50%
Herrn	23%	42%	13%	0%	13%
Kennedy	18%	51%	22%	0%	22%
Kingsville	0%	45%	52%	0%	52%
Leamington	16%	41%	34%	1%	35%
Massey	16%	38%	38%	0%	38%
Riverside	18%	41%	28%	0%	28%
Sandwich	16%	52%	24%	0%	24%
Walkerville	24%	40%	16%	0%	16%
Western	14%	36%	43%	0%	43%

Figure 2c: Media and Boards of Education Results

Source: www.gecdsb.on.ca/director/EQAO/EQAOG9Math.htm

Thus far an attempt has been made to understand the climate of governance under neoliberal regimes and the ideologies of the time - devolutionary agendas rationalized within a context of competition, efficiency, accountability; the universalization, normalization and responsabilization on communities; and legitimizations through a system encouraging surveillance, a culture of audit and ultimately social control. Through discourse analysis over a longer period of time, the trajectories of attitudes, responses, and prevailing norms are established. GIS however, allows for a different type of interpretation based on a systematic contextual analysis. Drawing on the strength of GIS to incorporate disparate data sets, the following section *creates multiple layers of contextual and more complete understanding* of the variations. Three sets of data are used to explore *power variations* through structural and agency characteristics, i.e. individual school context (available from school profile information), agency or network context (available from school profile information) and neighbourhood context (available from census data). By first mapping and aggregating these various data sets by school districts or school attendance areas (see Basu, 2002) these variables were then regressed with test results – (see Appendix for description of variables). The following results are summarized in four sections below (see Table 3 for results).

Context 1: Individual School Variables

Individual school variables, available from school profile information, include information on enrolment levels, English as a second language support

programs (ESL), presence of nutrition programs and a note on whether a school was classified as an inner city school (see Appendix). These variables provide a *structural* contextual understanding of the individual schools themselves and specific challenges they might face in terms of resource allocation needs.

Not surprisingly, the results indicate that schools with higher percentage of children whose primary language is not English perform below the provincial standard in reading and writing. Not having English as a first language often puts such children at a disadvantage.⁷ Yet, interestingly, children who have been in the country for less than 5 years perform above the provincial standard in reading and writing. This might be attributed to a number of factors including increasing middle class backgrounds of recent immigrant families being previously educated in English, or being trained in an educational curriculum adaptable to the Ontario system. Schools with a number of nutrition programs (breakfast, snack, lunch), often a proxy for schools with higher number of disadvantaged children, continue to remain vulnerable in terms of academic performance.

Context 2: Agency Variables

Agency variables, also available from school profile information include the networks and associational linkages (both within and across the neighbourhood) available to the school. These include a variety of activities ranging from parental involvement, presence of locales in the community, collaboration with other schools, business involvement, community involvement, seamless day programs (see Appendix, also see Basu, 2004b for a further breakdown of these variables). These forms of agency can be conceptualized as latent power structures that provide the impetus for organizing when necessary.

The results indicate that schools with greater fundraising activities (Ps3) are also schools where the reading, writing and math performances are above provincial standards. Increased fundraising often translates into greater resources in the classroom. As a Toronto Star article attests:

My two sons attend a similar high quality elementary school in an upper-middle class area. We raised \$50,000 last year to buy extra resources for our classrooms. I can already predict my sons' school's excellent Grade 3 and Grade 6 test results, although I do not have them yet. (*Toronto Star* 2000, School tests measure affluence, not quality, 9 November, page A41).

⁷This is further a disadvantage because state apparatuses are primarily anglocentric and so there are additional discursive exclusivist constraints that deny effective access to educational structures.

The results also demonstrate that schools with links to more locales (Ns1: child care centres, libraries, community centres) are more likely to perform above the provincial standards in all areas. This again suggests that resource-rich schools are able to offer conditions more conducive for academic performances. In a public education system such as in Ontario, such inequalities are often hidden and not obviously apparent.

Finally, schools which offer (Sh1) support services (parenting centres, shelters, family literacy) continue to be vulnerable. With increased funding restrictions such social support services are first to fall under the axe and the consequences of these cutbacks have implications for the vulnerability of certain schools and future results.

Context 3: Neighbourhood Variables

Neighbourhood variables include information on the overall social structural context of the surrounding area available from census data. These include information on unemployment and education levels, recent immigrants, movers, value of dwellings, condition of dwellings, number of lone parent families (see Appendix). Such information was aggregated using GIS techniques by *school catchment areas* and then regressed with school test results.

The results indicate that schools in neighbourhoods with most recent immigrants perform better than the provincial average. These results are similar to the results in Context 1. Schools in neighbourhoods with greater proportion of residents with low education appear most vulnerable. It is in such neighbourhoods where morale is affected the most and where more sensitive educational policy needs to be explored. Not surprisingly, schools in neighbourhoods with higher incomes and where the average dwelling price is higher perform above the provincial average. (see Figure 3 for similar results in 2002). Better resources and opportunities even within a public education system translate into better outcomes.

Context 4: All Variables

The results show similar trends when all the variables are combined together with two other interesting results. It appears that in terms of parental involvement, fundraising has a positive impact but not other forms of parental involvement in the school. External migrants have similar trends to recent immigrants. Finally, and interestingly, schools labelled as inner city schools do not necessarily perform badly compared to the provincial average, probably due to additional funding allotted from the province.

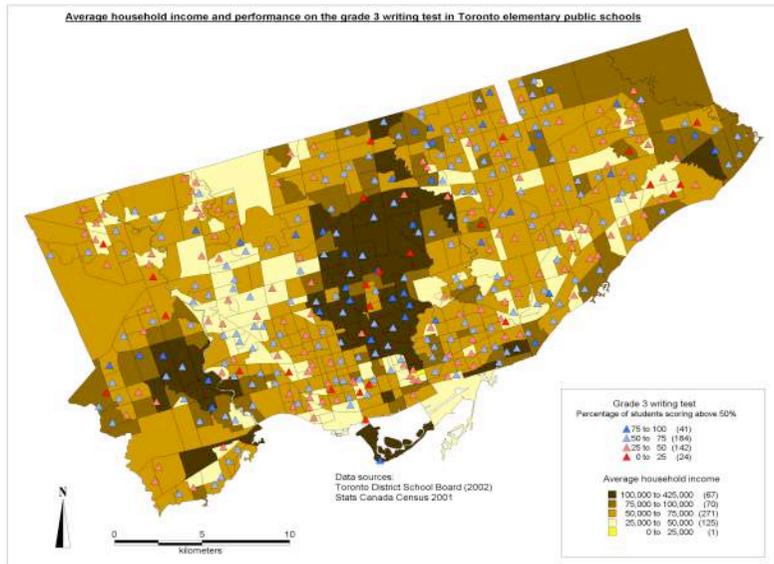


Figure 3. Performance by Income.

Armed with such contextual information, alternative interpretations can be made in response to universal surveillance techniques and how and whom it monitors, disciplines and governs. The vulnerability of schools in areas of lower education, lower fundraising capabilities, less resources in terms of time, money or after-school services, language knowledge, effects of nutrition programs - all have important effects. Planners and policy makers could take into account the variation of these contexts to learn the underlying reasons for success stories or specific challenges faced by marginal communities. Once the results of such analysis are available they could feed into alternative and progressive policy design and constructive change. For starters, Boards could detract from the public release of *individual* school results and instead opt for aggregated results.

Discussion and Conclusions

The geosurveillance of elementary school performance through the public release of test results in the media among other outlets raises a number of ethical questions. First, it has led to a form of governmental rationality that champions neoliberal market based ideals of competition, accountability and efficiency in the public education system and that appears to foster formal as opposed to substantive social cohesion. Second, through a standardized value system, rules and regulations are rapidly and universally applied which are often not logical or pedagogically sensible but more disciplinary in nature. Finally, a concentrated focus on narrow outputs diminishes the importance given to other learning experiences in the classroom and unique challenges of some children.

		Read 12(a)	Write12(b)	Math12(c)	Read 12(a)	Write12(b)	Math12(c)	
Context 1	ENRO	0.0070	0.0048	0.0065	0.0077	0.0011	0.0035	Context 4 All
Individual School	PERLNOTEN	0.1452 **	0.1016 *	0.0539	0.0689	0.0763	0.0222	
	LESSSYR	-0.3878 **	-0.2249 **	-0.2154	-0.2438 **	-0.0284	-0.1201	
	ESLSUPP	0.0396	0.0772	-0.1000	0.0173	0.0601	-0.1299	
	NUTR	1.4855	2.9141 **	1.7361	1.1052	2.8255 **	1.7548	
	TOTNUKID	0.0068	0.0100 **	0.0121 *	0.0050	0.0039	0.0085	
	INCITY	1.3464	-0.2473	-2.3266	0.2152	-2.2693	-5.3664 *	
	LU_BR_SN	5.7749 **	5.9226 **	9.6074 **	2.3430	1.9345	4.6862	
<i>R square</i>	<i>0.1140</i>	<i>0.1730</i>	<i>0.0920</i>					
Context 2	PS1	-0.4271	-0.6912	0.3248	0.2804	0.1431	1.2011 *	
Agency	PS2	1.6837 *	0.1367	0.7300	1.5154 *	0.1965	0.9738	
	PS3	-3.0109 **	-1.8502 *	-2.6863 **	-2.3661 **	-0.5541	-1.8129	
	NS1	-1.1823 **	-0.6115	-1.5983 **	-0.6489	0.2472	-1.3978 *	
	NS2	-0.1742	0.0611	-0.2392	-0.4684 *	-0.3877	-0.5330	
	NS3	0.2101	0.4142	-0.1074	-0.1895	-0.0178	-0.6833	
	SH1	2.2382 **	3.6617 **	2.6959 **	0.7150	2.3507 **	1.3994	
	SH2	0.0519	-0.1362	-0.1860	0.1825	0.0733	0.0635	
	ES1	-0.2647	-0.2640	-1.0006	0.6904	0.8997	0.0603	
	ES2	0.8721	0.7562	0.7363	-0.3285	-0.8092	-0.1093	
	ES3	0.5358	2.2297	3.5264	-0.4210	0.4372	0.9721	
	<i>R square</i>	<i>0.0650</i>	<i>0.0750</i>	<i>0.0470</i>				
	Context 3	PRREGIMM	-6.5347	-16.9705 *	-19.9589 *	-1.5841	-25.9801 **	-9.9932
Neighbourhood	PREXTMIG	-7.5477	0.1432	-9.7398	-10.9612 **	-2.2242	-13.0403 *	
	TOTPOP	-0.0009	0.0008	0.0002	-0.0008	0.0010	0.0008	
	PROPLP	20.1399	35.7280 *	35.5454	10.2399	33.8585	24.7750	
	PR1SCHUN	33.5377	-8.9815	-51.9968	6.6270	-20.8428	-78.0166	
	PRLOWEDU	50.9043 **	86.9668 **	78.5020 **	28.8579	77.4650 **	50.9566 *	
	PRMOVERS	-8.3745	17.8860	7.8841	-9.9795	6.1443	5.0340	
	INHHLWGT	-0.0001	-0.0001 *	0.0000	-0.0001	-0.0001	-0.0001	
	AYDWWLWG	0.0000	0.0000	-0.0001 **	0.0000	0.0000	-0.0001 **	
	ENVOY30P	0.0033	-0.0015	0.0012	0.0021	-0.0046	-0.0022	
	OWNOV30P	0.0138	-0.0080	0.0015	0.0102	-0.0074	-0.0040	
	PRDWMJRP	12.4451	2.6592	-1.38622	11.2991	-13.3419	-15.2655	
	<i>R square</i>	<i>0.2050</i>	<i>0.2080</i>	<i>0.1990</i>	<i>0.2660</i>	<i>0.3540</i>	<i>0.2330</i>	

Table 3. Contextual Effects on Test Results.

The results presented in the previous section demonstrate the contextual effects on test results. Contextual effects, whether related to individual school characteristics, neighbourhood effects, and social linkages/networks, play a significant role in the outcomes of these processes. Power in these variables reflects both the structural aspects and agency capacities of each community. As Flyvbjerg argues (2005), “As in any other culture where critical voices are suppressed, eventually the dominant players begin to actually believe in their own deception”. This was certainly the trajectory demonstrated in the past few years. For example, schools with higher fundraising capabilities, linkages to community support programs and with higher incomes were certainly at an undue advantage compared to schools with children needing more ESL support or where the neighbourhood education levels were lower than average. The specificities or unknowns of those governed thus need to be taken into account in the governing of schools.

In this paper, I have advocated the use of heterodox GIS as a mixed methods approach to a critical analysis of governance and power. This allows for a pluralistic understanding of the kinds of spaces that need to be explored and further investigated. This should allow for an expanded language of using GIS - drawing on multiple and overlapping methodologies, uncovering power relations, used for transformative and emancipatory purposes for those most disadvantaged, and sensitivity to the ethical implications of the research in question. This *utopian potential* of GIS (borrowing Stacy Warren’s phrase) can be used as a *potential cure* and as a ‘potent weapon for democracy and social justice’ (Warren, 2004: 5). First, through the use of multiple methodologies, such as the content analysis of media reports, competing discourses over longer periods of time are brought to the

forefront. Second by working with multiple data sets complex understandings of how rationalities, truths and knowledges are produced become more obvious. Counter arguments can then be made when ethical dilemmas are faced by educators, communities and policy makers who are pressed to make further cutbacks in 'non-performing' schools. By critically being aware of the techniques and strategies that make a particular political climate more amenable for governance, Heterodox GIS offers a powerful way to further excavate power-knowledge relations presented by neoliberal governmental rationalities.

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Newspaper Sources

Canada News Wire.

Canadian Periodical Index.

Appendix

Dependent Variables (TDSB profiles, 1998-99)

Read12	Reading scores below provincial average
Write12	Writing scores below provincial average

Math12 Math scores below provincial average

Independent Variables

School Variables (TDSB profiles, 1998-99)

ENRO	Enrolment
ESLSUPP	English as a second language (ESL) support
NUTR	presence of a nutrition program
TOTNUKID	total number of kids using the nutrition program
INCITY	inner city school
LU_BR_SN	total number of nutrition programs (lunch, breakfast and snacks)

Neighbourhood Variables (Statistics Canada, 1996)

TOTPOP	Total Population
PROPLP	Total Number of Lone Parents/Total number of Dwellings
PRRECIMM	Total number of Recent Immigrants (1991-1996)/Total Population
PR15CHUN.	Unemployed Population 15 years and over with children/Total population over 15
PRLOWEDU.	Population without Secondary School Certificate/Total population over 15
PRMOVERS.	Total Movers/Total Population
PREXTMIG.	External Migrants/Total Migrants
INHHLWGT	Average Household Income
AVDWVLWG	Average Value of Dwelling
RNTOV30P	Population paying over 30% of Income in Rent Payments
OWNOV30P	Population paying over 30% of Income in Mortgage Payments
PRDWMJRP	Dwellings in need of Major Repairs/Total Dwellings

Civic Agency Variables (TDSB profiles, 1998-99)

Ps1	Sum of activities related to regular parental involvement
Ps2	Sum of activities related to occasional parental involvement
Ps3	Sum of all fundraising activities
Ns1	Sum of all links to locales
Ns2	Sum of all the presence of outside/community involvement
Ns3	Sum of all presence of business involvement
Es1	Sum of all collaboration with other schools
Es2	Sum of all settlement transitions
Es3	Sum of all links to political organizations
Sh1	Sum of all activities at home promoted by schools
Sh2	Sum of all seamless day programs