EDUCATIONAL PLANNING

Vol. 12, No. 2

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EDUCATIONAL PLANNING

(A Journal Dedicated to Planning, Change, Reform, and the Improvement of Education)

VOLUME 12   **NUMBER 2**

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A New Wrinkle in Planning Post-Secondary Education in Ontario
Degree Holders Enrolling in Colleges of Applied Arts and Technology

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One interesting artifact of the 1991-95 recession in Canada has been an unprecedented surge of university graduates, likely unable to find employment after graduation, pursuing technical and vocational programs at community and technical colleges. It is ironic that there has been no discernible response to this trend by planners at The Ontario Ministry of Education and Training. This article explores why there has been no such response and what measures might be taken to facilitate planning to accommodate this trend. This article examines this new phenomenon and explores whether this is a trend likely to be sustained in the near-term future, and if so, how to generate planning data.

INTRODUCTION

One interesting artifact of the 1991-95 recession in Canada has been an unprecedented surge of university graduates, likely unable to find employment after graduation, pursuing technical and vocational programs at community and technical colleges. Although the recession has ended, albeit without significant improvement in the unemployment rate in Canada, this enrolment phenomenon has not abated. Currently, somewhere between 7 and 19 percent of the Ontario College of Applied Arts and Technology (CAAT) enrolment consists of holders of previously-earned Bachelor of Arts (B.A.) degrees, or those who have some 'previous postsecondary experience (AAACTO, 1997b). It is ironic that there has been no discernible response to this trend by planners at The Ontario Ministry of Education and Training. This article explores why there has been no such response and what measures might be taken to facilitate planning to accommodate this trend.

The difficulty of macro-level planning to accommodate this new trend was compounded by the inexplicable decision taken in 1993 by a former Deputy Minister in The Ontario Ministry of Education and Training to cease the collection and publication of enrolment data for the Ontario CAATs. It is noteworthy that, even though the decision resulted in the cessation of publication of such enrolment data, the CAATs continued to collect and provide these data to the Ministry and the data were available from Ministry personnel as late as 1996. It was rumored that the Deputy Minister was unaware that his orders had been contravened. In contrast, CAATs with viable statistics and planning capabilities continued to engage in micro planning to accommodate the increasing number of either B.A. holders or entrants with previous post-secondary experience.

This article examines this new phenomenon and explores whether this is a trend likely to be sustained in the near-term future, and if so, how to generate planning data. This enrolment phenomenon is

considered to be a direct result of the twin impact of the globalization of trade and rapid technological change upon the workplace. The failure of university graduates to secure employment during the 1991-95 recession may have created a climate conducive to the substitution of employment-related credentials for previous considerations of the status and prestige accruing from university degrees. It is also of interest to question how much of these perceptions – and student flows – is attributable to the controversy whether education should serve the acquisition of skills required in the labor market or serve the acquisition of general knowledge.

The data availability issue is considerably more complex than is apparent at the Ministry level. Since data on previous educational attainment is not required for CAAT applications, the exact magnitude of this new trend has not been measurable. The researcher has been able to obtain some data from one Ontario CAAT for the purposes of this paper. In a few months time, the new Student Information System (SIS) being developed by the Ontario College Application Service and The Association of Ontario Colleges of Applied Arts and Technology (ACAATO) will likely remedy this lacuna (AACTO, 1997a). The adoption of the proposed Ontario Education Number (OEN) cohort coding system would also facilitate the collection of data that would enable measurement of this trend.

The Ontario CAAT system differs from most post-secondary community and technical college systems, due to historical reasons. The foremost difference is the binary nature of post-secondary education in Ontario. Since 1965, when the Ontario university infrastructure expanded and the CAAT system was created, students have entered *either* university degree programs *or* two-year certificate or three-year diploma programs at the CAATs. The CAATs "were established as community-based institutions to provide a comprehensive array of career-oriented programs in applied arts, business, technology and health sciences (Smith, 1996, p. 19). Transferability between the two systems was virtually impossible for the first 25 years and remains quite difficult at present.

OUTLINE OF POSTSECONDARY EDUCATION IN CANADA

The rate of secondary school completion in Canada is about 70 percent of the 17 and 18-year-old age cohort in Canada. However, due to Canada's excellent "second-chance" remedial secondary school programs, by the age of 25 years the completion rate rose to 85 percent nationwide and 87 percent in Ontario (Statistics Canada, 1993, p. 3). Statistics Canada (1996) reported that in 1995 19.6 percent of the Canadian population over fifteen years of age had completed secondary school, while 8.9 percent had attained some post-secondary education, 25.4 percent held certificates or diplomas from community and/or technical colleges, while 13.3 percent had attained university degrees (p. 5).

Following twelve years of elementary and secondary education in the Provinces of Alberta, British Columbia, Manitoba, New Brunswick,

Newfoundland, Nova Scotia, Prince Edward Island, Saskatchewan and the Yukon and Northwest Territories, students proceed to either community colleges or universities. In Québec, all students must attend two or three-year *Colléges d'enseignement générale et professionel* (Cégeps) after Grade Eleven, selecting programs leading either to university (two years) or to receive a technical education in specific occupations (three years). Currently, over 30 percent of the 18-24 year age cohort attends post-secondary education. The post-secondary completion rate is 38 percent for females and 27 percent for males (Wilson, In Press).

In Ontario, although Grade 13 was "officially" eliminated in the 1984 reform, the Ontario Academic Credit (OAC) system effectively necessitates most students completing their courses in thirteen, rather than twelve years, prior to entering either universities or CAATs. This will cease by 1999. Both Québec and Ontario effectively have thirteen years of pre-university education in publicly supported institutions, while other provinces only have twelve (Wilson, In Press).

King and Pert reported that 82 percent of the 1992 first-year university students entered directly upon high school completion.[i] In contrast, Cummins reported that only 60 percent of first-year CAAT students in 1992 came directly from Ontario secondary schools (Cummings, 1998, p.4). These data reflect the late entry that has historically differentiated the Ontario CAATs from universities.

Seventeen of the 82 Canadian universities are located in Ontario, as are 25 of the 289 community and technical colleges. Governance of both universities and community colleges is at "arm's length" from the provincial governments responsible for education. While most community and technical colleges are governed by distinct Boards of Governors, they have less autonomy than universities, which also have Boards of Governors to whom complete autonomy has been delegated by provincial governments. In Ontario, an advisory body, The Council of Ontario Universities (COU) co-ordinates provincial government relations with universities, while Council of Regents that is a more centralized unit directly affiliated with The Ontario Ministry of Education and Training, exercises control over the CAATs (King & Peart, 1994).

Prior to the 1960's, when the community and technical college infrastructure expanded, the Canadian post-secondary, non-degree sector was a *potpourri* of different types of institutions. During the 1960's, each province began to organize these institutions into provincial post-secondary *systems,* either by changing existing institutions or founding completely new ones. Gayfer (1991 describes the outcome of this restructuring as:

> . . . designed to offer a range of advanced programs as an alternative to those traditionally associated with university. The term now describes institutions that offer semi-professional career or technical and vocational programs leading to a diploma. In some instances, the institution offers university transfer programs (p. 3)

Programs at Canadian community and technical colleges are provided in most technical, professional and commercial fields. However, there are geographic variations in program availability; e.g., fishing technologies, mining and forestry technologies, agricultural technologies, petro-chemical technologies, etc. Québec reported that enrolment in technical education stabilized at 25.1 percent in 1995/96, following an increase of nearly seven percent in recent years (Ministière d'Éducation du Québec). Cummins (1998) reported that "by 1995, 76 percent of Ontario youth aged 22-24 had pursued further education or training beyond high school ... [of whom] ... 37 percent had pursued further education at universities and 31 percent" at Ontario CAATs or Québec Cégeps (p.4).

In one, two or three-year programs, community and technical colleges award trade Certificates (1-year), technician Certificates (2-year), and technologist Diplomas (3-year) in Technology, Trade, Allied Health, Applied Arts and Business/Commercial programs. During recent years, many colleges have developed post-diploma programs in higher-technology areas.

In several provinces – Alberta, Saskatchewan and British Columbia – colleges have *university transfer* programs that enable students to take first and second year university courses that lead to transfer to four-year universities. These colleges resemble the U.S. 'model' of community colleges. In contrast, it is not easy for Ontario CAAT Diploma graduates to transfer to universities.

During the past few years, a number of individual CAATs and Ontario universities have developed *articulation* agreements to facilitate such transfers, with advanced standing course credit negotiated as part of such agreements. Recently, three CAATs and three universities have developed *joint* Diploma-B.A. programs, which enable students to obtain both a CAAT Diploma and a university Bachelor of Arts degree. There has been some discussion during recent years whether the CAATs might offer an Associate Arts (A.A.) degree, like U.S. community colleges (Desbiens, n.d.). However, these discussions have been inconclusive and there are groups with vested interests in both options. The current term, 'diploma,' is a widely used credential in Ontario, but it has no single standard. The Advisory Panel on Future Directions for Postsecondary Education recommended an *Ontario College Diploma* (OCD) "as a unique designation, backed by a review process on standards, and allowing for modifications to the credential to recognize particular specializations and accomplishments" (Smith, 1996, p. 12). However, the Panel also saw:

> . . . no reason to eliminate the distinctions between colleges and universities; the existing duality captures an important reality in postsecondary education. But the ease with which a student can move between the two systems and draw on the different strengths of various institutions will be a key factor in the delivery of the type of academic and vocational and advanced training programs that students need now and in the future (Smith, 1996, p. 12).

The Panel also examined co-operation between the two systems and as Smith (1996) noted that:

> Cooperative activity of colleges and universities has also come to include arrangements to share facilities and resources. Canadore College and Nipissing College (now Nipissing University) set a precedent in 1972 by entering into a partnership to establish the Education Centre that houses both institutions. More recently, Seneca College and York University have entered into an agreement to build a Seneca at York campus where joint programs will be offered. Mohawk College and McMaster University have entered into a partnership to build an institute for applied health sciences and to offer integrated health-related programs. Increasingly, and often with the benefit of technology, institutions are looking at collaborative ways to share the costs of administrative services (p. 45).

> The Durham Alliance for Training and Education provides university programming in a region where no university exists through a partnership between Durham College and Trent, Ryerson and York [Universities] (p. 54).

Statistics Canada reported that community and technical college enrolment totaled 386,930 full-time students in 1995-96, of which 72 percent, or 278,592 were registered in career programs and 108,338 in university transfer programs. The number of certificates and diplomas conferred by community and technical colleges nearly doubled between 1971 and 1991, from 43,336 to 83,180. These enrolment increases follow a trend that has continued since 1989-90. However, during the three years prior to 1995-96, the average rate of increase has declined to only two percent each year, compared with five percent during preceding years (Wilson, In Press, p. 23). Thus, while enrolment in community and technical colleges continues to grow, the rate of growth appears to have stabilized.

The increase in both university and community/technical college enrolment reflects the significant increases in the post-secondary *participation rate* witnessed in Canada during the past three decades. Statistics Canada (1997) reported that:

> The population base from which most university students are drawn – the 18 to 24 age group – has decreased after peaking in the early 1980s. Rather than resulting in reduced university enrolment, there has actually been an increased level of participation. In 1996, the gross participation rate (calculated as the number of students enrolled full-time as a proportion of the population aged 18 to 24 years) was about 20.5 percent, compared with 14.5 percent in 1986.

The Advisory Panel noted that in Ontario "in 1995-96, full-time postsecondary enrolment in colleges and full-time undergraduate

enrolment in universities as a proportion of the 18-24 age group was 32 percent compared to 22 percent in 1986-87 (Smith, 1996, p. 52). It was noted that Ontario post-secondary participation rates are greater than in other Canadian provinces and compare with those in the United States.

These enrolment trends at Canadian community and technical colleges reflect trends discerned in the economy. That is, the shift in emphasis from resource extraction and productive sectors of the Canadian economy towards the service, informatics and knowledge-based sectors has been reflected in community and technical college enrolment. The development of new high-technology college programs such as computer animation, also reflect the changing nature of the economy and workforce. The challenges precipitated by these trends center upon how Canada's community and technical colleges can keep pace with the broad and pervasive changes in the economy and labor force (Wilson, In Press, p. 23).

Cummins reports that Ontario post-secondary enrolment in 1996 was estimated at 176,400 in undergraduate (3-4 year) programs and 136,128 in 1, 2 and 3-year programs at CAATs (Cummings, 1998, p. 5). He also reported that data were not available to describe enrolment breakdowns by program at either CAATs or universities. However, CAAT enrolment by year of study in 1996 reported 75,420 (55.7%) in the first year, 46,726 (34.5%) in the second year, and 13,155 (9.7%) in the third year (Cummings, 1998, p. 6).

STUDENT FLOWS: UNIVERSITY TO CAATs

The trend, which is the subject of this article, appears to have been virtually ignored by most researchers, planners and writers. Database and web searches yielded no published sources. A telephone survey of informants generated several promising leads. In December 1997, Rodger Cummins, who had retired from The (former) Ontario Ministry of Colleges and Universities, was asked by The College-University Consortium to study 'movement between Ontario colleges and universities' and report by March, 1998. Cummins' study appears to be the *only* study of its kind in print.

In order to address the dearth of data available and generate data useful for macro planning to accommodate this new enrolment trend, this writer requested the provision of data from the databases held at individual CAATs. Cummins (1998) noted in his report that in 1996 The Ontario College Application Service (OCAS):

> application form asked applicants whether they had attached additional academic information in the form of a college transcript, a university transcript, or another transcript to their application form. 10,984 applicants out of a total of 154,615 applicants (about 7%) indicated on their forms that they had attached a university transcript.
> OCAS officials believe that this number understates the total number of persons with university backgrounds that had applied

for admission in 1996 because some submitted transcripts after submitting the application form, many programs do not require post secondary backgrounds for admission, and it is not always in the best interest of applicants to reveal previous study at a university. Finally, the OCAS application form does not require the applicant to account for previous educational and other activity as the OUAC [Ontario Universities' Application Centre] application form does (Cummings, 1998, pp. 7-8).

Cummins added that 65 percent of these 10,984 applicants with university experience were female and 34 percent were male. In addition, their median age was 24 years, which is "older than [the] general college population whose median age is 21." He noted further that "the median age of 1990 bachelor's graduates at graduation ... was 23 years" (Cummings, 1998, p. 8). Further, he provided a tabular breakdown of these 1996 CAAT applicants with university experience, provided by OCAS.

1996 CAAT APPLICANTS BY THE FIRST CHOICE OF PROGRAM

AREA	1-Year	2-Year	3-Year	Post Dip Grad	Not Known	TOTAL	Percent
Soc. Serv.	29	1,461	197	559	34	2,280	21.2
Visual & Crtve Arts	76	679	706	578	27	2,066	19.2
Hospitality	68	118	19	2	8	215	2.0
Office & Bus. Adm.	107	966	558	936	50	2,617	24.4
Health Technol.	622	352	357	151	5	1,487	13.8
Nursing	94	12	242	35	12	395	3.7

Technol'gy	62	383	848	343	47	1,683	15.7
TOTAL	1,058	3,971	2,927	2,604	183	10,743	
Percent	9.9	37.0	27.3	24.2	1.7		

Finally, Cummins (1998) cites OCAS data to indicate that 6,593 of these 10,984 applicants, or 60.02 percent, "subsequently submitted a confirmation of acceptance of an offer of admission to a college through OCAS." Confirmations of acceptance "from those with university backgrounds represented 6.8 percent of all confirmations," which Cummins noted "provides some evidence of the size of the university-college transfers in relation to overall movement into the college system through OCAS (p. 9).

Cummins was clearly disadvantaged, because the available data were inadequate, his study time-line was extremely short, and virtually no information and published materials existed. His study enumerated what was *unknown:*

- whether they are seeking admission to 1st year or advanced standing;
- whether they also had some previous college experience in addition to university experience;
- whether their applications were approved, rejected or "died on the vine;"
- if admitted, what they were admitted to and at what level;
- whether they studied full-time or part-time;
- what programs they studied at university;
- anything about their grades at university (p. 8).

Most researchers and planners in Ontario are also disadvantaged because the Ontario Ministry of Education and Training ceased collecting and publishing enrolment data for the CAATs in 1993. The last available CAAT1 Survey, which was *not* published, is included as Appendix One that was facilitated by one of my graduate students.

An examination of the OCAS table indicates that 24.2 percent of 1996 CAAT applicants with university experience indicated 'Post-Diploma' and/or 'Graduate' programs as their first choice. Many post-diploma programs prefer applicants with Bachelor's degrees. Thirty seven percent of these applicants indicated two-year Certificate programs as their first choice, with 36.8 percent favoring Social Services programs, 24.3 percent favoring Office and Business Administration, 17.1 percent favoring Visual and Creative Arts, 9.6 percent favoring Technology, 8.9 percent favoring Health Technologies, 3.0 percent favouring Hospitality and .3 percent favoring Nursing.

The first choice of programs for applicants to three-year Diploma courses was quite different with 29.0 percent favoring Technology, 24.1 percent favoring Visual and Creative Arts, 19.1 percent favoring Office and Business Administration, 8.3 percent favoring Nursing, 6.7 percent favoring Social Services, and .65 percent favoring Hospitality programs.

The dynamics for Post-Diploma and Graduate programs were also quite different with 35.9 percent favoring Office and Business Administration, 22.2 percent favoring Visual and Creative Arts, 21.5 percent favoring Social Services, 13.2 percent favoring Technology, 5.8 percent favoring Health Technologies, 1.3 percent favoring Nursing, and .08 percent favoring Hospitality programs.

Examination of the calendar for Canada's second largest community college, Humber College of Applied Arts and Technology in Toronto, confirmed that for 23 of the 40 post-diploma programs the admission requirements are either a university degree or a CAAT Diploma (Humber College Catalogue, pp. 92-119). My informant at Humber indicated that 95 percent of those admitted to these programs held a B.A. degree (Telephone conversation, Smith – Jones, 1998). Centennial CAAT, also located in Toronto, reported that they do not track separately whether previous degree holders apply for their programs. Their Admissions Manager said that she was "grateful that OCAS will be doing" this tracking in the future. She also indicated that they now have two joint diploma and B.A. programs with York University and that the trend for B.A. holders to pursue Centennial courses in Business dated from the 1980's.

Centennial has four post-diploma programs. In the Work Specialist program, 19 of the 24 students admitted held B.A. degrees; in the Wellness and Lifestyle program, they expect 50 percent to hold degrees; in the Journalism fast-track program, over 80 percent hold university degrees; in the Book and Magazine program, 80 percent hold degrees; and in the 16-weeksCommunications program, which commenced in 1997, either a B.A. or a CAAT Diploma is required for admission (Telephone conversation, Wilson-Centennial, 1998).

In the absence of Ontario-wide data, the researcher requested data from those CAATs which had developed data bases and student information systems which collected the desired information. Algonquin CAAT in Ottawa indicated that such data were not readily available and would require manual retrieval from their database. The Algonquin Registrar indicated that she had enquired several months ago and determined that six other CAATs faced similar data constraints (Telephone conversation, Wilson, et al, June, 1998).

ENROLLMENT DATA: - HUMBER CAAT

The only CAAT that collects data useful for this study is Humber College of Applied Arts and Technology. The Director of The Humber Research Network, Peter Dietsche, began the collection of these data for his Ph.D. at The Ontario Institute for Studies in Education and has

continued to collect these data on a regular basis (Data, Diesche, 1998). The Humber CAAT "Freshman Survey," for the 1995 to 1997 student cohorts provides data useful in addressing many of the questions posed in this article. In 1995, Humber enrolled 1,314 new students with previous university experience, of whom 801 held university degrees and 513 had some university experience. In 1996, this group totaled 1,332, of whom 812 held degrees and 520 had some university experience. In 1997, this group totaled 1,329, of whom 810 held degrees and 519 had some university experience. Among those with some university experience, 52.4 percent were female and 47.6 percent male while those holding university degrees were 66.1 percent female and 33.9 percent male.

Although precise intake and enrolment data was not made available, the Humber website indicated a total enrolment of 11,000 (http://www.humber.on.ca/"gradnpt/intro/htm). This figure appears to be lower than those shown in Appendix One of 12,048 in 1994 and 11,666 in 1993 (Appendix One). If the first year percentage of 55.7 percent of enrolment, noted in Cummins' report, is applied to this figure, this yields a likely first year intake of 6,127 students. Therefore, the 810 entrants holding university degrees would be 13.2 percent and the 519 entrants with some university experience would be 8.5 percent of this first year intake. These percentages are within the 7 to 19 percent figures provided by other sources for CAAT students with university degrees and/or experience. Until better data become available, these 'collateral' and crude percentages will have to suffice.

The breakdown of these new students with previous university experience by selected Humber programs for 1997 shows the following distributions:

Program/Course	Some University	Univ. Degree	Total
Post-Program Courses			
Human Resources Management	3	102	105
Public Relations Certificate	2	79	81
Journalism Advanced	6	75	81
Marketing Management	0	46	46
Media Copywriting	1	45	46
Regular Courses			
Funeral Service Education	43	65	108
Ambulance and Emergency Care	22	45	67
Computer Information Systems	29	32	61
Pharmacy Assistant	24	30	54
Computer Programmer	23	22	45
Legal Assistant	21	21	42
Early Childhood Education	16	24	40
Business Administration Diploma	32	7	39
Nursing	30	9	39
Occupational Therapy Assistant	7	27	34
Phsyiotherapy Assistant	13	17	30

Practical Nursing	9	12	21
Industrial Design	14	6	20
Business Management	14	3	17
Computer Engineering Technology	10	6	16
Public Relations Diploma	16	0	16
Film and TV Production	7	9	16

The percentage differences between post-program and regular program enrolment confirm the intended differences between these CAAT offerings. The post-program enrolment is comprised of 96.7 percent university graduates and only 3.3 percent with some university experience. In marked contrast, enrolment in regular Humber programs is evenly divided between 50.4 with university degrees and 49.6 percent with some university experience.

These regular program differences are even more pronounced when examined by program area. The program areas with greater enrolment of university graduates are:

	Percent
Occupational Therapy Assistant	79.4
Ambulance and Emergency Care	67.2
Funeral Service Education	60.2
Early Childhood Education	60.0
Practical Nursing	57.1
Physiotherapy Assistant	56.7
Film and TV Production	56.2
Pharmacy Assistant	44.6
Legal Assistant.	50.0

In contrast, program areas with greater enrolment of those with university experience are:

Public Relations Diploma	100.0
Business Management	82.4
Business Administration Diploma	82.1
Nursing	76.9
Industrial Design	70.0
Computer Engineering Technology	62.5
Computer Programmer	51.1
Legal Assistant.	50.0

These percentage differences appear to reflect both gender and status/prestige considerations which may reflect the types of career decisions being made by those who are "voting with their feet" and entering Humber CAAT to obtain credentials which they perceive will provide them the employment which their degrees, or previous university experience, has not provided. Among the responses to the 92 questions contained in the Humber CAAT Freshman Survey that may shed

additional light upon the decisions to pursue CAAT programs are the following:

% Some Univ.	% Univ. Deg.	Total	
35.1	64.9	65.6	chose program for career in mind
36.0	64.0	68.0	decided to attend due to job potential
34.3	65.7	47.4	decided to attend due to program reputation

% Some Univ.	% Univ. Deg.	Total	Felt that CAAT programs:
39.3	60.6	92.2	help acquire knowledge/skill for my future
37.3	62.7	74.1	increase chances of career advancement
39.6	60.5	40.0	help them decide on a career
43.0	57.0	46.3	help them make more money
33.9	66.1	58.0	are related to work after graduation

% Some Univ.	% Grads	Total	Strongly believed that:
40.9	59.1	33.2	college grads find more satisfying jobs
39.1	60.9	55.9	college grads have a better chance for jobs

While these responses do not address *all* of the issues for which information would be useful, they afford a glimpse into the motivations of those who "voted with their feet" and are partially generalizable to the students with either some university experience or previous university degrees who entered all Ontario CAATs. Until such time as the OCAS data become available, these data are all that exist.

UNIVERSITY ENROLLMENT PATTERNS

It is now useful to examine university enrolment patterns that may have contributed to the decision of many recent graduates to 'vote with their feet' and seek additional credentials that they perceive useful in gaining employment. In 1996-97, undergraduate enrolment at

Canada's 82 universities totaled 714,080 and graduate enrolment totaled 114,200. Of this total, Ontario's 19 universities enrolled 227,680 full-time and 80,010 part-time students, Québec's 19 universities enrolled 131,360 full-time and 99,800 part-time students, Alberta's four universities enrolled 54,920 full-time and 15,740 art-time students, and British Columbia's five universities enrolled 50,040 full-time and 24,790 part-time students (Wilson, In Press, p. 25). Between 1981 and 1991, the number of university degrees increased by 36 percent, with the largest increase in the fields of Social Sciences and Humanities. Canadian universities conferred 178,074 degrees in 1994, of which 76,470 were awarded to males and 101,604 to females. Of these,

- 69,586 were in the Social Sciences
- 30,383 in Education
- 23,057 in the Humanities
- 12,183 in Health Professions and Occupations
- 12,597 in Engineering and Applied Sciences
- 10,087 in Agriculture and Biological Sciences
- 9,551 in Mathematics and Physical Sciences
- 5,308 in Fine and Applied Arts
- 5,322 in Arts and Sciences (Wilson, In Press, p. 25).

The Conference Board of Canada described the failure of Canadian universities to produce sufficient numbers of graduates in the fields of science and technology, as follows:

> Canada, like Australia and the United States, has a much larger share of graduates in the Humanities than Sweden, Germany, Norway or Japan. In 1992, 52 percent of Canada's degrees were in the Humanities, compared with only 7 percent in engineering; Japan in contrast, granted 22 percent of its degrees in engineering. Science degrees are also under-represented in Canada (Conference Board of Canada, 1992, p. 7).

These trends are also likely to have contributed to the *flow* of university graduates in the Arts, Humanities and Social Sciences to community and technical colleges. In the absence of direct data, it is always useful to examine 'collateral' data. For example, Québec enrolment data indicate that in 1994-95, 25 percent of all high school graduates enrolled in Cégep *technical* programs, rather than in Cégep university preparatory programs, which declined by four percentage points since 1992-93, standing at 35.6 percent in 1994-95 (Ministère d'Éducation du Québec). This enrolment trend suggests that economic developments do influence student decisions about educational and career choices, albeit belatedly. The increased enrolment in technical programs during the recent recession only took place *after* many students had already invested in a four-year university degree that did not lead to immediate employment (Wilson, In Press, p. 26).

THE EDUCATION – EMPLOYMENT NEXUS

The foremost impact of the twin forces of *globalization* and rapid technological change has been upon the *structure of employment.* Globalization is defined as:

> a process that widens the extent and form of cross-border transactions among peoples, assets, goods and services and that deepens the economic interdependence between and among globalising entities, which may be private or public institutions or governments (Lubbers, 1998).

This writer describes the impact of globalization upon the structure of employment, as follows:

> The days when a Grade 10 dropout could enter productive life-long employment in agriculture, fishing, forestry, industry, mining, and even the service sectors, are rapidly coming to an end. The transformation of our natural resource sectors means that future farmers, foresters, and miners require at least fourteen years of education in order to operate computer-controlled agricultural, fish-finding, mining manufacturing and timber-cutting equipment. The need for technological literacy in nearly every occupational area in the resource, production, service and informatics sectors also implies enhanced educational attainment. The introduction of new production technologies appears to be one force driving these trends (Wilson, 1998, p. 1).

The same study noted that "the widespread youth unemployment in Canada and other nations, coupled with studies indicating that those with advanced diplomas and degrees have greater access to employment," reinforced measures to "encourage youth to continue their education" (Wilson, 1998, p.13). Non-standard employment, i.e., part-time, contract and temporary employment, is growing at a faster rate than all other forms of employment in Canada. Between 1990 and 1996, part-time employment increased 23.7 percent, while full-time employment *decreased* by 2.5 percent (Wilson, 1998, p. 13). A 1995 Statistics Canada survey indicated that 1.3 million working Canadians, or 12 percent of paid workers, described their positions as 'non-permanent' and an additional 2.1, or 19 percent of those sampled, reported that they were self-employed. This represents an increase of 15 percent from 1990 to 1995 (Statistics Canada, 1997).

The Association of Colleges of Applies Arts and Technology of Ontario (ACAATO) reported that CAAT graduates have been successful in securing employment, with employment rates averaging 80 percent during the past five years. However, they also report that the full and part-time employment status of 1995 graduates varied considerably by program area. With regard to the flow of CAAT graduates into Ontario universities, ACAATO also reported that the proportion of college graduates not in the labor force increased on average from 14.6 to 18.2

percent between 1991 and 1995, which "reflects a growing trend for students to continue postsecondary studies to gain further credentials and skills in recognition of the increasing competitiveness in the employment market (ACAATO, 1997). This comment suggests that *both* university *and* CAAT graduates "vote with their feet," when dissatisfied with their employment prospects. These under-documented trends demand access to better data.

Perhaps, the foremost reason why many university graduates who were unable to secure employment "voted with their feet" to pursue employment-related programs at Ontario CAATs is explained by the goal of the CAAT system:

> . . . to develop graduates who have achieved learning outcomes that are consistent with broad-based employment and societal needs and who are able to adapt to changing employment/workplace demands, within an environment that facilitates student learning and promotes personal and professional growth (ACAATO, 1998, p. 5).

The employment status of CAAT graduates was shown by program area in 1995, as follows:

Employ-ment Status	Social Services	Visual & Creative Arts	Hospit ality	Office & Business Admin.	Health Technol' gy	Nursing & Related	Techn ol'gy
Full-Time related	48.8 %	60.1%	70.8%	64.7%	54.1%	42.1%	71.5%
Full-Time unrelated	20.9%	19.5%	12.4%	19.1%	14.5%	8.4%	21.2%
Part-Time related	20.9%	19.5%	12.6%	7.7%	24.3%	42.2%	2.1%
Part-Time unrelated	9.4%	7.9%	4.2%	8.5%	7.1%	7.3%	5.2%

These data indicate that an average of 58.9 percent of CAAT graduates secured employment in positions either fully or partially related to their programs of study, while an average of 16.6 percent took employment in positions which were not related to their CAAT programs of study (Ontario Ministry of Education and Training, 1997)
It would have been desirable to have comparable data for Ontario university graduates, but such data do not appear to be collected.

QUO VADIS?

It is apparent that The Ontario Ministry of Education and Training has de-concentrated both its statistical and macro-planning functions to both the institutional [CAAT and university] level and to "arms-length" intermediate bodies to which responsibility for planning and finance have been delegated. These include The Council of Ontario Universities, The Council of Regents for The Ontario Colleges of Applied Arts and Technology, and a new institution intended to link these two "arm's-length" agencies.

The College-University Consortium Council (CUCC), established in 1996, is mandated to enhance co-operation and linkages between Ontario CAATs and universities. Jones, Skolnik and Soren (1998) state that the CUCC "has the potential to become a forum for encouraging and facilitating inter-sectoral coordination (p. 14). In 1997, an agreement was made between the Ontario College Application Service (OCAS) and the Ontario University Application Centre (OUAC) "to plan and construct an electronic infrastructure for the revised Ontario College-University Transfer Guide" (Shipley, 1997, p. 2). The CUCC noted that:

> The creation of collaborative programs and the establishment of pathways from colleges to universities and vice versa calls for good will, creativity, and sensitivity to the demands of the external environment. The different mandates of the two sectors are clear; the challenges are understood; the solutions are still elusive. As is so often the case, there are grounds for optimism at the grassroots where the committed and enthusiastic project team partners from colleges and universities are exploring what is appropriate for the two sectors to work together and what obstacles are in the way. These teams see that in collaboration there is much to gain and little to lose. It will take institutional commitment and active support by the decision makers for the projects to break through any barriers that are no longer relevant to postsecondary education for the next century (Shipley, 1992, p.3).

As noted earlier, the OCAS data processing manager informed this writer that data concerning the flows of both university graduates and students with university experience into the Ontario CAATs will be available in six months time.[1] Therefore, at this juncture the reader must be satisfied with the limited institutional data available, the assurances given by the CUCC, and the promises of the OCAS. Meanwhile, the flows of unemployed university graduates, desirous of securing credentials which they perceive will secure employment, and students with some university experience, continue to constitute between seven and nineteen percent of Ontario CAAT enrolment.

It is apparent from this examination that only one CAAT, Humber College, has adequate data to facilitate micro planning to accommodate this new enrolment trend. The data promised by The Ontario College Applications Service may facilitate limited macro planning at the College-University Consortium Council, if it is provided as promised. However, until *all* Ontario CAATs begin to collect and process data similar to that available at Humber CAAT, effective macro-planning at the provincial level and effective micro-planning at the institutional level will not be possible to address the new challenge presented by CAAT students holding B.A. degrees or with previous university experience.

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APPENDIX ONE

FULLTIME POSTSEOCNDARY COLLEGE ENROLLMENT BY DIVISION
1994 FALL TERM

CAAT	Technol'gy	Business	Appl. Arts	Health	1994 Total	1993 Total	% Change
Algonq uin	2,272	3,691	2,903	871	9,737	9,179	6.1
Coll. Boréal	not open yet	-	-	-	-	-	-
Cambr ian	991	1,080	1,810	560	4,441	4,088	8.6
Canad ore	565	994	1,230	373	3,162	3,065	3.2
Centen nial	1,829	3,068	2,747	614	8,258	7,460	10.7
La Cité Coll.	517	733	1,440	350	3,040	3,014	0.9
Conest oga	1,073	1,382	1,149	619	4,223	4,191	0.8
Confed er'n	799	1,093	1,086	350	3,328	3,305	0.7
Durha m	720	1,038	1,702	719	4,179	3,994	4.6
Fansh awe	1,772	2,082	3,425	985	8,264	7,466	10.7
Geo. Brown	1,079	2,265	2,987	1,196	7,527	7,331	2.7
Georgi an	1,000	1,594	1,641	712	4,947	4,556	8.6
Grand Lacs	not open yet	-	-	-	-	-	-
Humb er	2,068	3,960	4,543	1,477	12,048	11,666	3.3

Lambton	451	605	1,358	194	2,608	2,693	-3.2
Loyalist	745	732	1,563	185	3,225	3,197	0.9
Mohawk	2,523	2,213	2,440	1,163	8,339	7,800	6.9
Niagara	608	1,411	2,066	511	4,596	4,731	-2.9
Northern	395	396	588	206	1,585	1,649	-3.9
St. Clair	1,368	1,531	1,460	882	5,241	5,341	-1.9
St. Lawr'nce	720	1,267	1,634	882	4,503	4,688	-3.9
Sault	1,030	463	932	203	2,628	2,751	-4.5
Seneca	2,861	6,438	3,720	717	13,736	13,061	5.2
Sheridan	1,221	3,300	5,100	579	10,200	9,551	6.8
SS Fleming	2,306	1,281	1,466	269	5,322	5,094	4.5
1994 Total	28,913	42,617	48,990	14,617	135,137	129,872	4.1
1993 Total	28,116	40,424	46,205	15,127	129,872	-	-
% Change	2.8	5.4	6.0	-3.4	4.1	-	-

Source Ontario Ministry of Education and Training
CAAT1 Survey, 14 September 1994

A Contingency Model of Educational Policy Implementation: Implications for the Planning of Standards-based State Education Reform

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While standards-based education reforms have been adopted by many states during the 1980s, the central question is under what conditions the states effectively combine a centralized vision with local responsibility. This article probes the relations between key characteristics of policies (policy goals, policy mechanisms and policy benefit/cost) and the institutional/organizational context of the state education system (professional values, governance structure and service function). One theme in the article is that achievement-oriented, regulatory, cost-efficient state education policies "fit" with school systems that prioritize academic goals, centralize the distribution of power, and take collective responsibility for student learning. However, it also points out that these contingencies favorable to the systemic implementation of policy are not accomplished without potential risks. Implications of the contingency perspective for successful policy planning are discussed.

INTRODUCTION

The 1980s has been characterized as a decade of state education reform (Fuhrman, 1988; Murphy, 1990). Most states increased course credit requirements for graduation, raised standards for teacher preparation, mandated tests for teacher certification, developed state curriculum guidelines and frameworks, and established statewide student assessments (Blank & Dalkilic, 1992). State education reform of the 1980s is often said to be unique in terms of the scope and momentum of the movement. The reform agenda has been sustained longer than previous efforts (Firestone, 1990). The sustaining source of reform is also different: a major source of reform comes from outside the school system. There is greater public attention and a wider coalition of reform actors than often has been the case in the past (Underwood, 1990). *A Nation at Risk* created a crisis atmosphere, connecting U.S. economic decline with educational performance and suggesting that educational upgrading would lead to economic revitalization (National Commission on Excellence in Education, 1983). While most commission reports and reform policies focused on the context of policymaking, there were few clear considerations of the context of policy implementation.

Successful policy planning requires systematic understanding of how institutional and organizational context of the multi-layered school system operate on the implementation of state education reform. When each of nested hierarchical layers of the school system has a conditional and contributory relation to events and outcomes occurring at adjacent ones (Barr & Dreeben, 1983), even well coordinated reform policies are not expected to automatically lead to desired policy implementation. On the one hand, there are mechanisms that coordinate or control the flow of policies and practices within the school system. Reforms that are

isomorphic with the fundamental tenets of the institutional environment stand a better chance of survival than reforms that are not (Meyer & Rowan, 1978; Rowan, 1982; Cuban, 1992). On the other hand, there are also relationships at each level of the educational system that coordinate the technical aspects of delivering services. The distribution of resources necessary for learning forges vertical connections among the system's hierarchy of offices (Gamoran & Dreeben, 1986; Barr & Dreeben, 1988; Wong, 1994). When each state education system as a whole has its own collective identity in normative, structural, and functional aspects, the central question is: under what conditions do states effectively combine a centralized vision with local responsibility.

Past policy implementation research focused primarily on variations in the response of individuals and institutions, and on the conditions of successful implementation. The Rand Agent Study, for example, concluded that successful implementation is characterized by a process of mutual adaptation in which project goals and methods were modified to suit the needs and interests of local staff and in which that staff changed to meet the requirements of the project (McLaughlin, 1976). Yet implementation research has come under increasing criticism for its lack of parsimonious theory that specifies in any systematic way the relationship among the policy problems being addressed, the basic design features of a policy, the implementing organization, and the political and organizational context in which policy targets must respond (McDonnell & Elmore, 1987). While standards-based reforms initiated by the states during the last decade are distinctive in all of these aspects, previous implementation models based on discrete, re-distributive federal programs may not fit the case of comprehensive, developmental state policies.

In light of these concerns, I attempt to explore the contingencies under which state education reform policies interact with the institutional and organizational context of the state education system to bring about successful policy implementation. Building on the literature review, I identify key policy characteristics that affect the process and outcome of policy implementation. Given the proposed policy goals, designed policy instruments, and expected outcomes, I develop a model of educational policy implementation that is applicable to the case of "standards-based" state education reform, and discusses implications of the model for successful policy planning.

KEY POLICY CHARACTERISTICS OF STATE EDUCATION REFORM

In the case of standards-based state education reform adopted during the last decade, three interrelated policy characteristics are identified: policy goals, policy mechanisms, and policy benefit/cost. First, policy goals refer to ultimate values or goals that policymakers intend to accomplish through concrete policy actions. During the last decade, there has been a subtle shift in the basic goals of the American education system from an emphasis on equity and freedom of access to concern for quality education and an awareness of the importance of higher order

skills (Mitchell, Roysdon, Wirt, & Marshall, 1990). The basic skills emphasis of the 1960s and 1970s is now being challenged in many local districts and states which have instituted reforms emphasizing higher order thinking and a more challenging curriculum (O'Day & Smith, 1993).

However, there are tenuous links between the goals set by the reform reports and their actual recommendations and even more tenuous links between the recommendations and changes in the schools (Ginsberg & Wimpelberg, 1987). Moreover, the imperatives of centralized educational policymaking may have led to a substantially narrower view of the purposes of education. As policies are more and more centrally determined, abstract and salutary goals are reduced and trivialized, and only those goals that can be measured are implemented. It is argued that the exigencies of the policymaking process, together with the limited technology for making policies, causes "goal reduction" (Wise, 1979).

Secondly, policy mechanisms refer to the ways in which policies are designed to be implemented. This involves decision-making on what policy instruments are used to accomplish the policy goals. McDonnell and Elmore (1987) proposed four generic classes of policy instruments: mandates, inducements, capacity building, and system changing. Many times the imposition of new mandates seems the most feasible option because it appears relatively inexpensive and presumably sends a clear signal about what policymakers expect from those being regulated. Inducements like grants-in-aid are most often used when policy must move through the intergovernmental system or when consensus about the change that needs to occur is low. Indeed, state policymakers have relied primarily on regulation and/or inducements as their major policy instruments (Elmore & Fuhrman, 1995).

Capacity building and system changing are more challenging than mandates and inducements in terms of implementation problems and expected effects. Capacity building captures those policies that focus mainly on longer-term developmental objectives rather than short-term compliance or production. The notion of transfers of authority underlying system-changing captures a common problem confronted by policymakers—how to match purposes with existing or potential institutions. As the states move to the second-wave of reform, there have been many attempts to build the capacities of schools and teachers and/or to redistribute power among the layers of school system. However, the states' successful use of these challenging policy instruments requires a fundamental rethinking and restructuring of the process of schooling—decentralization, professionalization, and bottom-up change (Smith & O'Day, 1991). Consequently, states are exhibiting no clear shift in direction from the first wave of reform to the second, and the easiest-to-implement reforms have stayed in place (Danzberger et al., 1992).

Thirdly, policy benefit/cost concerns the costs and benefits of policy implementation. State education reform has been poorly defined in terms of its expected policy costs: little attention has been paid to the financial or procedural requirements for putting policy recommendations into practice (Ginsberg and Wimpelberg, 1987). Likewise, the expected

benefits of state education reform are difficult to figure out because many state legislatures have developed legislative reform packages that considered the effects of change on the total system (Underwood, 1990). Previous studies found the large number of "unfunded" initiatives and/or the relatively low magnitude of dedicated funds for education reform policies and programs on the one hand (see Jordan & McKeown, 1990), and the strong political rhetoric for academic excellence and school improvement on the other hand (see Sunderman, 1995). This indicates that the adoption of standards-based reform policies was intended to bring about cost-efficient changes in education.

As we move to the stage of policy implementation, the definition of policy costs and benefits becomes closely related to the characteristics of implementors and their workplaces as well as the type of policy instruments. For example, mandates require enforcement, and enforcement is costly to the enforcing agency as well as to the objects of enforcement. The benefits of mandates sometimes accrue to policy implementors as well as to the clientele or society as a whole. Thus, policy benefits may be classified into private versus social benefits according to the incidence of the benefits.[1] Whether private or social, it is benefits as perceived and realized by policy implementors that are most critical in policy implementation. Teachers who are already predisposed to teach content prescribed by state policies are more likely to realize their expectations about curriculum and pedagogy (Archbald & Porter, 1994). At the same time, policy costs include not only direct outlays but also all opportunity costs, some of which are implicit rather than explicit costs. Teachers who are required to do more paperwork as a result of new state policies are less likely to prepare for their instruction (Murphy, 1990).
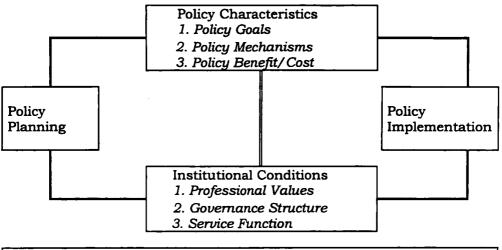
Contingency Model of Educational Policy Implementation

In the previous section, standards-based state education reform was described in terms of three interrelated aspects: 1) academic excellence as policy goal, 2) mandate and regulation as policy mechanism, and 3) cost-efficient changes as policy benefit/cost. These characteristics of state reform policies are likely to interact with the institutional and organizational context of the state education systems to affect policy implementation and ultimately policy effects. There may be two different scenarios. One is that as consultation with the local school administration and faculty increases, better implementation takes place. One also expects professionals to draw on their training and judge on an effective course of action for a given situation. Thus, this situation may lead to planned educational changes. A second scenario is that the state imposes a vision of bureaucracy that standardizes the process of teaching and results in both teachers and principals feeling that they have little influence on curriculum. One finds measurable skills stressed by the state and little in the way of humane education, perhaps because standardization of the processes of work is usually done through so-called "the cult of calculation" (see Mintzberg, 1983). This situation may bring about unintended negative consequences.

These scenarios are based on the assumption that policy implementation is a dynamic organizational process of interactions between policymakers and implementors. In this section, I propose a contingency model of educational policy implementation where the effectiveness of policy implementation depends upon the fit or convergence between the three policy characteristics and their corresponding institutional conditions (see Figure 1).

FIGURE 1: CONTINGENCY MODEL OF EDUCATIONAL POLICY IMPLEMENTATION

TABLE 1
THE CHARACTERISTICS OF STANDARDS-RAISING POICIESFOR STUDENTS AND TEACHERS

	Policy type	
	Student-oriented	Teacher-oriented
Policy mandate	Raising standards for high school graduation (course credit, exit test, attendance)	Raising standards for teacher education and (re)certification (GPA, skills test, observation)
Policy goal	Enhance overall quality of student learning	Enhance systemwide teacher quality
Policy mechanism	Regulate the promotion and exit of students	Control the entry of individuals into the teaching profession

Policy benefit/cost	Benefit: Improve student exposure to more rigorous curriculum/assessment Cost: Minimize cost requirements through greater flexibility in the use of increased lump-sump fund	Benefit: Improve student access to better teachers Cost: Diffuse costs to several stakeholders (i.e. IHEs, LEAs, schools) accountable for different stages of teacher training
Potential risk	Make educationally disadvantaged students drop out of schools rather than help them meet high standards	Screen out people rather than develop the talents of people who wish to become or remain teachers

First, policy implementation depends on the congruence between policy goals and professional values, in other words, the extent to which policy goal is accepted and shared by practitioners who are expected to implement the reform policies. Loose linkage between policy goals and professional values in education has been suggested. According to this perspective, the policymaking process has an affinity for a rationalistic conception of teaching and the teacher, where standards-based teacher education policy is viewed as the embodiment of the set of expectations which the policymaking process would like to have about potential teachers (Wise, 1979). If teacher certification and evaluation policies are designed to provide an operational basis for assessing competence for entry, for defining functional specificity of performance, and for circumscribing authority, teachers are not likely to readily accept a rationalistic characterization of their roles. It has been observed that teachers tend to translate formal goals into personalized objectives (see Jackson, 1968; Lortie, 1975).

Despite the alleged disjuncture between the rationalistic model of education and the reality of life in the classroom and variation among teachers in their adoption of stated goals, a process of mutual adaptation between policymakers and implementors has been observed during policy implementation (see McLaughlin, 1976; Peterson, Rabe, & Wong, 1986). At the initial stage of policy implementation, ambiguity of policy goal has an important function for policymakers and administrators because it allows them to hold people with different interests (Elmore, 1976). As the input-oriented reforms of the early 1980s become irrelevant to instructional changes in classrooms, state policymakers refined their policy goals to get renewed support for content-driven reform.[2] As a result, the notion of "high academic standards for all students" became institutionalized throughout the system, overcoming an organizational affinity for curriculum differentiation and professional autonomy. Thus, from a longer-term policy implementation perspective, any differences between proposed policy goals and prevailing professional values that

exist at the time of policymaking may recede over time, depending on the process of mutual adaptation.

Secondly, policy implementation also depends on the compatibility between policy mechanism and the governance structure. Power in a multi-layered state education system is distributed to the degree to which state policymakers enable lower levels of policy actors, bureaucrats, and practitioners to implement policies. Given the regulatory nature of reform policies, highly centralized decisionmaking may be more favorable to ensuring compliance with policy directives than decentralized decision making. By attributing policy dissonance among the educational system's organizational levels to dispersed authority over school practices, previous perspectives conceptualize public education as a loosely coupled system, a system composed of fairly insular organizational subunits (see Bidwell, 1965; Weick, 1976).

Despite the defining characteristics of loosely coupled systems, important changes in the organizational structure of schools have been observed that rendered them much more receptive to rationalistic, mandated changes than in the past (Murphy, Hallinger, and Mesa, 1985). New theoretical perspectives on organizational coupling also admit that symbolic and strategic factors guide policymaking by manifesting themselves in the structure, and organizational characteristics of schools (Loveless, 1993). Indeed, state officials adopt three basic types of structural changes with varying frequencies: 1) new support structures aimed at assisting local educators with planning and implementation of programs, 2) new agencies for monitoring school performance or compliance with state policy, and 3) new collaborative structures aimed at bringing administrator, teacher, and citizen groups together in new ways (Odden & Dougherty, 1982). Thus, from a long-term policy implementation perspective, a convergence between designed policy mechanisms and system wide governance structure may evolve over time depending on the process of mutual adjustment.

Finally, policy implementation depends on the extent to which policy benefit/cost matches the service function that schools perform for their clientele. Because the clients might not know what is best for them, they are vulnerable, subject to exploitation, and dependent on the integrity of the professionals (Hoy & Miskel, 1987). In the case of the quasi-monopolistic public schools, goal-displacement often occurs so that the professed goals of human service organizations (e.g., production of valued student learning outcomes) are overwhelmed by the various functions that they perform for employees (Boyd, 1982). Critics of standards-based reform argue that elaborate and formalized student standards often fail to be meaningful to teachers for two reasons (Rowan, 1996). First, the outcomes described in such standards often are not those that teachers personally value, and second, school systems rarely reward or punish teachers based on the achievement of these standards.

Despite the limitations of educational standards as incentives for individual teachers per se, the school, rather than the individual or a small group, has become the critical unit of change from which teachers derive their sense of community (see Louis & Kruse, 1995).[3] Further, the relatively poor academic performance of schools in the reform states may

have legitimated policymakers' initiatives to hold schools accountable for student outcomes (see Powell & Steelman, 1984; Berliner & Biddle, 1995). If the states reward schools for placing large proportions of their students in college, schools will naturally seek to enroll those students who already have a high chance of succeeding, namely students coming from more advantaged backgrounds. Likewise, if there is no incentive for staying in low performing schools, these schools will have a greater share of mediocre or bad teachers (Benveniste, 1985). These unintended consequences will lead to modifying the original policy in a way that takes into account school differences. Thus, from a long-term policy implementation perspective, any discrepancy between the expected and realized cost or benefit of a policy may narrow over time if a process of mutual correction takes place.

DISCUSSION

Given state activism in education reform during the last decade, the central question is how different levels of the state education system responded to state educational policymaking and how values and resources were used to produce policy outcomes. Our body of knowledge around policy implementation derives primarily from studies of federal program implementation aimed at specific populations. This knowledge/research base has not caught up with the more recent policy context of pervasive state "standards-based" reforms. Indeed, coincidental changes in both policy characteristics and institutional conditions have been observed or alleged during the period of state education reform.

First, as the primary policy goal of the state education system shifted from equality of educational opportunity to academic excellence during the last decade, the notion of outcome-based accountability for all students became more institutionalized throughout the system. Secondly, as the state shifted to the use of more powerful strategies aimed at changing instructional practices, the governance structure of state education systems became more centralized with regard to curricular decisionmaking. Finally, as the state policies came to link rewards and/or sanctions to the performance of schools, all testing, auditing, information gathering, and incentive distributions became better organized around schools rather than school districts or individual classrooms.

In light of these changes, this study developed a contingency model of educational policy implementation and proposed the hypothesis that state education policies fit with the institutional/organizational context of the state education system as a result of long-term, mutual adaptation. The study concurs with previous implementation research in that respect, but points out that contingencies favorable to the systemic implementation of policy are not accomplished without potential risk. Achievement-oriented, regulatory, cost-efficient state education policies may fit with the school systems that prioritize academic goals, centralize

the distribution of power, and take collective responsibility for student learning. While this "fit" is expected to contribute to short-term policy conformity, the ultimate impact of these policies on schooling depends on the ways in which institutional conditions are made more favorable.

First, state reforms that propose academic excellence as key policy goal are more likely to be implemented, when school practitioners place a greater emphasis on measurable educational goals. But this may lead to promoting achievement-oriented education at the risk of neglecting humane education. Secondly, state reforms that rely mandates as key policy instrument are more likely to be implemented, when school practitioners view the state's curricular control as more legitimate. But this may lead to empowering the state department of education at the cost of weakening school-based management. Finally, state reforms that seek cost-efficient, school-wide changes are more likely to be implemented, when school practitioners commit themselves to educational service that involves self-sacrifice. But this may lead to holding schools accountable for student outcomes without providing them with adequate incentives and support.

To accomplish standards-based education reforms without their potentially negative consequences, state policymakers need to think strategically about policy design by specifying and questioning the contingencies that link policies to desired outcomes. Long-term policy success depends on whether states are able to formulate desired connections between adopted education policies and the institutional contexts within which they are implemented. Subsequent studies are needed to address the question of how institutional/organizational constraints on policy implementation can be transformed into opportunities in the long run.

NOTES

[1] "Private" benefits are those benefits that are retained by the individuals involved in policymaking and implementation and the individuals targeted by policies. Social benefits, on the other hand, include "external" benefits that the individuals cannot appropriate and that are therefore absorbed by the society as a whole.

[2] While input-oriented reform sought mainly to expand or improve educational inputs (longer school day, increased requirements for graduation, better teachers), content-driven was intended to change the technical core of schooling by aligning state education policies with the challenging curriculum framework. Content-driven reform was added onto input-oriented reform instead of replacing it.

[3] Individual teacher autonomy does not necessarily promote school-wide professionalism or school change. Thus, teachers in a school-wide community turn away from traditional autonomy, from operating as they wish within their own classroom, to consider the impact of their collective actions and practice on students.

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Educational Reform and Teacher Professional Development: "Caught in the Headlights!"

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The new school reform movement has relied on top down pressures to institutionalize the use of new standards and assessments as key elements to produce increased student performance and systemic accountability. Teachers today are faced with a need to respond to higher standards and new high stakes assessments administered by the state. One of the strategies commonly used to prepare teachers for the new demands is the expansion of teacher professional development.

Our study focuses on teachers' experiences during the early stages of the reform process. We examined their pedagogical responses to the reform initiatives and the way in which those were mediated by the professional development activities to which they were exposed. We report here on findings from case studies carried out during an entire school year with five teachers. The teachers in our study are highly rated elementary teachers who have received specialized training in Literacy in preparation for improved teaching in the context of school reform. Multiple interviews, classroom observations and document analysis were utilized to describe their experiences, concerns and the adaptations they have made in their professional practice to respond to educational reform in their classrooms.

Our findings reveal strong support for the standards promoted by the reform initiatives mixed with serious concerns about the impact of tests on their students and the ability of schools to respond to the new demands given the available resources.

INTRODUCTION

The waves of education reform that brought House Bill 1209, the Education Reform Act of 1993, to the state of Washington began nationally in 1983 with the publication of *A Nation at Risk*, the report of the National Commission on Excellence in Education. *A Nation at Risk* galvanized state legislatures and governors who eagerly examined the remedies proposed by that report and launched an extraordinary number of blue ribbon commissions and panels to study education in their states and propose actions. State legislatures were flooded with bills patterned after the report's recommendations to raise educational standards and stem "the rising tide of mediocrity." In many states these strategies were implemented in the form of mandates for accountability.

A shift in emphasis from *inputs* (what teachers teach, curriculum materials, etc.) to *results* (or performance based learning outcomes) is to date the most dramatic change in the ideological underpinnings of educational reform. It is argued that by setting explicit standards, policy mechanisms like curriculum frameworks, instructional materials, testing, and staff development can be keyed to the standards, thus fashioning coherence out of the fragmentation that plagued previous educational reform movements.

Washington State was an early leader in state-directed alternative models of decision making whereby the state set the goals and

expectations; the local education agency determined how best to achieve those goals. The Education Reform Act of 1993 established four learning goals that called for students to:

1. Read with comprehension, write with skill, and communicate effectively and responsibly in a variety of ways and settings;
2. Know and apply core concepts and principles of mathematics; social, physical and life sciences; civics and history; geography; arts; and health and fitness;
3. Think analytically, logically, and creatively, and to integrate experience and knowledge to form reasoned judgments and solve problems; and
4. Understand the importance of work and how performance, effort, and decisions directly affect career and educational opportunities.

In March 1995, the Washington Commission on Student Learning operationalized the learning goals by adopting Essential Academic Learning Requirements in reading, writing, communication and mathematics. Subject Advisory Committees comprised of teachers, parents, students, business people, and community representatives developed the Essential Academic Learning Requirements, nicknamed, EALRs. In April 1996, the Commission adopted the new standards in science, social studies, the arts, and health and fitness. All eight subjects were again reviewed and updated in February of 1997. By late 2000, when the entire legislation is to be fully implemented, high school seniors will be required to pass a proficiency test to graduate from high school and the entire system will be focused on proficiencies and outcomes rather than "seat" time. A critical piece of the reform was embodied in the Washington Assessment of Student Learning (WASL) which imposed new high stakes performance assessments to directly measure the learning outcomes of students at the fourth, seventh, and tenth grade levels. These assessments are specifically constructed for the state of Washington and are tailored to assess student performance in relation to the EALRs. Washington's reforms have been implemented in unique context-specific ways, but as mentioned earlier, they reflect the national trends in educational reform in which emphasis has been on higher standards and accountability for schools, students, teachers, and other professionals.

Washington State University Vancouver is a regional campus committed to community service, teaching excellence and research. The university formed a partnership with five of the local school districts and the regional educational service district (ESD 112) to improve the professional development of educators and, at the request of the districts, it also made a commitment to assist the districts as they responded to the demands of the state's reform agenda. The partners theorized that teacher preparation was an essential component of successful school reform and consequently sought and received a grant from the state's Goals 2000 funds to enhance the preparation of teachers to implement the new EALRs and to study the impact of professional development on teachers' abilities to change their practices. The literature on school reform supports the partnership's theory. Darling-Hammond and Mclaughlin (1998) recognize the importance that improvements in the

practices of teachers have to the national reform agenda. They assert that it will require teachers and to teach in ways they have never taught before. They claim that teacher development from preservice to inservice must focus on involving teachers as learners.

The literature on the importance of teacher professional development in the context of school reform is growing. The current literature of Elmore & Associates (1990), and Murphy & Hallinger (1993), suggests that significant improvement in student learning in public schools will require a systematic restructuring of these schools wherein educators reconceptualize the school organization, the roles of the individuals involved, the outcomes to be obtained, and the practices used to accomplish their goals. Many proponents view the adoption of new curriculum content, instructional practices, and assessment approaches as critical elements of the required reform.

A number of themes regarding desired innovations in these areas can be found in the literature (Cohen, McLaughlin & Talbert, 1993; Fuhrman, 1993; Newmann, 1991; Porter, Kirst, Osthoff, Smithson, & Schneider, 1993; Smith & O'Day, 1991). Fred Newmann and Gary Wehlage (1995) in particular have identified the importance of teacher professional development. In a report for the Center on Organization and Restructuring of Schools (CORS) they synthesized five years of research from more than 1500 elementary, middle and high schools throughout the United States and conducted field research in 44 schools in 16 states. They present evidence that structural reforms can work, but only when human and social resources are organized to provide particular forms of support for schools and students. They conclude that the recent education reform movement gives too much attention to changes in school organization that do not directly address the quality of student learning and that student learning can meet high standards only if students receive three kinds of support: a) teachers who practice authentic pedagogy; b) schools that build organizational capacity by strengthening professional community; and c) external agencies and parents that support schools to achieve the high quality student learning previously described.

According to Fullan and Hargreaves (1996), two of the best known students of the current school reform movement, the calls for school reform, while adding some welcome attention to education, have left few educators better off. Even those educators who are genuinely interested in reform have a feeling of overload, isolation, fragmentation and increasing despair. They express their concern as follows:

> Educational reform has failed time and time again.
> We believe that this is because reform has either
> ignored teachers or oversimplified what teaching is
> about. And teachers themselves have not yet taken
> the initiative to build the new conditions necessary
> for reversing a trend that has overburdened
> schools with problems, and ironically added insult
> to injury by overloading them with fragmented,
> unworkable solutions. Teachers have been too
> busy responding to the latest forays to steer a bold
> and imaginative course of their own. (p. xiii)

They advocate the investment of professional development resources not to workshops and in-services, but to opportunities *for teachers to learn from, observe and network with each other* (p.103). Goldenberg and Gallimore (1991) extend this thinking, asserting that staff development must be grounded in the mundane but very real details of teachers' daily work lives and in a form that provides the intellectual stimulation of a graduate seminar. By intellectual stimulation, they mean engagement with the substantive knowledge to be taught and the sustained analysis of teaching as a professional pursuit (p. 69).

Our Goals 2000 grant efforts reflected these perspectives on teacher learning and development, relying in large measure on teacher-developed and directed in-service experiences as a means of supporting the implementation of state reform mandates. Our research interest focused on teachers' experiences of the reform process, their pedagogical responses to the reform initiatives, and the way in which those were mediated by professional development activities such as those initiated by the Goals 2000 project. We report here on findings from case studies we carried out with five teachers who were actively involved with our grant project, as well as with reform activities within their school buildings and districts.

METHOD

Participants

Five teachers were invited to participate in this study. Criteria for selection included:

(a)   each teacher taught in a school district which had been identified by a GOALS 2000 grant as a district for study;

(b)   each teacher had participated in all four sessions of the "Year of the Reader" workshops presented by ESD 112, Washington State University Vancouver, and SW Washington's Literacy Leadership Team during February, March, April and May of 1995; and

(c)   the widest possible variation in demographics was desired, given the limitations in the service area of the grant project.

The sample consisted of five teachers (four females and one male) whose teaching experience ranged from two to 20 years. Three held Master's degrees, and one was in the process of obtaining a Master's degree. One teacher taught at an isolated rural school, two taught at a rural school contiguous to a suburban area, and two taught at a school located in a suburban area. Three teachers were members of committees involved in planning ways to locally implement reforms and/or ways to align curriculum to the Washington State Essential Academic Learning Requirements, while two of the participants had no involvement in planning or curriculum alignment.

PROCEDURE

Data Collection

Data collection took place from November-May of the 1997-98 school year. The data set was constructed from multiple sources (Merriam, 1988), including:

- A series of four to five observations of the participants. Each observation lasted for over an hour, and extensive field notes were recorded. Each participant was given a copy of the field notes along with an evaluation form on which they were asked to respond to and verify the accuracy of the observations. "This dialogue between the researcher and those studied provides the researcher with an opportunity to learn...and the validity check that comes from this dialogue can be of great value" (Erickson, 1986).
- A series of four hour-long interviews distributed over the months of the study were conducted with each participant by a research assistant. All interviews were audiotaped and transcribed verbatim.
- in some cases, classroom aides and school administrators were informally interviewed without audiotaping. Field notes of these interviews were written by the research assistant.
- Examples of classroom lessons were collected.
- Examples of student assessment data were collected.

Data Analysis

Data was triangulated by the collection of multiple sources of data and multiple methods to confirm the emergent findings (Merriam, 1998). Researchers wrote preliminary case summary reviews halfway through the data collection period and these provided the research team with:

(a)   emerging themes,
(b)   a direction for further interview questions, and
(c)   a lens for additional observations.

Formal data analysis occurred during a series of four intensive two-day sessions. Before each data analysis session, interview transcripts, field notes and documents were independently scrutinized for themes and recurring patterns of meaning by members of the research team, utilizing a constant-comparison method (Strauss & Corbin, 1990). The first three sessions occurred while data collection was still in progress, which informed subsequent data collection, allowed for tentative findings to be probed further, and subsequently substantiated or revised (Erickson, 1986; Goetz & LeCompte, 1984; Merriam, 1998; Miles & Huberman, 1994).

During the first two-day analysis session, researchers continually moved back and forth between descriptions of what had occurred and

their analyses of those descriptions (Merriam, 1998). Initial observations were discussed and statements of relationships among the data were noted. Data were coded according to a matrix that was developed to help focus the analysis on three general areas:

(i)   context variables, or "What is going on around the classroom?"

(ii)   process variables or "What are the teachers actually doing as evidenced by classroom practices, political relationships, and professional development?"; and

(iii)   outcome variables or "How the participants had changed as a result of the reform movement."

Using the constant comparative method (Strauss & Corbin, 1990) combined with analytic induction, categories were constructed to capture recurring patterns that cut across a preponderance of the evidence. Data were compressed, integrated, and written into interim case summaries which included descriptive narrative and direct quotes (Erickson, 1986; Glaser & Strauss, 1967; Goetz & LeCompte, 1984; Merriam, 1988; Miles & Huberman, 1994; Strauss & Corbin, 1990).

During the second two-day analysis session assertions and arguments were put forth and analyzed through deliberate and systematic critical reflection by the research team. Excerpts from the data were cited which substantiated or disconfirmed the assertion or argument. This process was undertaken in an attempt to discover what Erickson (1986) calls "concrete universals" which is arrived at by:

> Studying a specific case in great detail and then comparing it with other cases studied in equally great detail...The task of the analyst is to uncover the different layers of universality and particularity that are confronted in the specific case at hand...Thus, the primary concern of interpretive research is particularizability rather than generalizability...Each instance of a classroom is seen as its own unique system which nonetheless displays universal properties of teaching...The paradox is that to achieve valid discovery of universals one must stay very close to concrete cases (Erickson, 1986, p. x).

Each senior member of the research team was assigned an individual case record to review and analyze. During the third two-day session, the interpretation of each *within-case* analysis was reported in depth. Each researcher presented his or her case to the team, with attendant assertions and evidence to support the assertions. The team then carefully analyzed the case study to confirm, disconfirm, or extend the findings.

The final two-day data session consisted of cross-case analysis in which researchers sought to synthesize interpretations and build abstractions across cases (Merriam, 1988; Miles & Huberman, 1994).

The aim was to "see processes and outcomes across [the] many cases, to understand how they are qualified by local conditions, and thus to develop more sophisticated descriptions and more powerful explanations" (Miles & Huberman, 1994, p. 172).

CASE STUDY FINDINGS

Tom: Joining Up

This is Tom's second year of teaching fourth grade in a small rural elementary school. He clearly loves what he is doing, and talks often and enthusiastically about how he's learning. Tom has 17 students in his class--only four of whom scored below grade level in reading. He talks about his "philosophy" of teaching in terms emphasizing his efforts to make lessons interesting and meaningful for students. Despite the fact that this district reports one of the lowest per student expenditure rates in the state, Tom characterizes his building as one in which fiscal resources are not an obstacle to implementing reform. He describes his work situation as one in which he receives lots of support.

Constructing Practice in the Context of School Reform

Tom comments often on the value of the EALRs and other reform standards as guidance for someone who is trying to figure out what to teach: "I think it's good (the curriculum standards) because it's telling us what needs to be done...it's a guideline". He describes himself and his colleagues doing what he refers to as "aligning" the curriculum with the EALRS:

> Our staff is ... going through this workbook and we're trying to align our curriculum with the EALRS. So I was forced to look at each Essential Learning and see: "Do I teach this, and how?"

The "alignment" process as described by Tom seems often to serve as affirmation of the value of what teachers are teaching, but does not necessarily lead to curriculum change:

> I can look at what I'm doing and see how they fit in. But as far as reading them and then setting up my curriculum now to meet specific goals, I haven't gotten to that point yet.

> I haven't changed what I'm doing...but I'm thinking about it (the EALRs). I'm thinking about 'oh, this addresses that Essential Learning', as I teach a lesson. So, I'm making connections.

In contrast, our data suggest that Tom's daily practice has been more directly affected by the testing policies adopted as part of the reform movement. He described a number of activities he has added to his curriculum to better prepare his students for the 4th grade tests:

> I've added practice tests. I've added those kinds of lessons.
> They aren't taking over my curriculum, but we're doing
> those sorts of things also. I was talking to the other 4th
> grade teachers, and we're all pretty much doing the same
> thing.   I'm making those sample tests part of my
> curriculum.

On two of the three observations conducted in his classroom, Tom was
actively engaged in teaching his students how to respond to test items
taken from the OSPI "Tool Kit" of sample items from the 4th grade
assessments.   The following vignette is drawn from one of these
observations:

*(Tom explained to me that it was reading time and they were working on
learning to take the Example Test for the Grade Four assessment.
Yesterday he read the story "Bartholomew" to the students and they took
the sample test. Then, Tom walked them through the test and the answers
and showed them what would need to be done to get a "4" for each
answer. Today, he planned to have them take the test again, this time for
a grade.)*

Tom asks the class to name some things they must do to get "4"
on the test:

Jacob:	"Put in a lot of details"
Tom:	"Instead of saying `the dog died', you might say her puppy, Buttercup, died'".
Jessica:	"Complete sentences".
Tom:	"Yes" (gives several examples).
Holly:	"If you use someone's name you must say what it is".
Tom:	"Yes, be specific so I know who you are talking about. Buttercup is the dog, Sheena is the girl, Bartholomew is the cat."
Tom:	"What can you do if you forget someone's name?" (no response). "You can look at another test question and maybe the name will be there".

Tom reads the story again. The children are quiet and listening
attentively. When he is done reading, he passes out copies of the test,
saying: "I'm passing these out face down. Don't turn them over until I
tell you to. You'll have 20 minutes to finish".

Tom reports with enthusiasm that he had recently received
complete copies of the sample tests, so they could be duplicated for each
child: "This year I'll be able to get started from the get-go. Right now it's
February. I think the test isn't until May, so I have a lot of time to
prepare them for it."

Kathi: Staying in Control

Kathi is a fourth-grade teacher at an elementary school in a medium-sized district in Southwest Washington who has taught every grade from first to fourth in the past 20 years. As an acknowledged teacher leader in her district, Kathi may be characterized as a strong-minded, articulate, and humorous individual who is not at all reluctant to express her views on a number of subjects in education. Teaching is not just a job to Kathi, but is her main interest and passion in life.

Kathi is presently spending a second year with her students, having taught third grade the year before and "looping" up to fourth grade with the same group. She team-teaches with another teacher and their double class contains 63 students in various configurations during the day. Kathi teaches and evaluates language-related studies and history while her partner teaches mathematics, science, and social studies. Kathi's classroom teaching program is project-based using thematic units and integrations of reading, writing, and social studies. Language arts consists of daily Writers Workshop, one hour of Guided Reading daily, a phonics workbook once or twice per week, and spelling tests geared to phonics and themes.

Modifying Practice in the Context of School Reform

Kathi feels that education has gone from one extreme where everything was textbook-based and teacher driven, to a constructivist extreme where things are so student-driven sometimes that great holes in the curriculum open up. She is taking these two extremes and saying, "There has to be a balance." For Kathi, teaching is about high expectations. She believes students must be encouraged to take risks and make choices, and to fall "flat on their faces" if they make poor choices. Kathi believes in giving children choice wherever possible; however, she prefers to structure the choices herself because she doesn't believe children are developmentally ready for totally free choice.

Control is an important concept for Kathi, who expresses concern about the reform movement in terms of what areas she can control. Classroom observations reveal that Kathi maintains control of the class and directs most of the instructional sequences. She chooses the book to be read, uses a whole class guided reading format, selects the round robin oral readers, asks the literary and skill questions, evaluates the students' answers and provides most of the expertise. Rather than the discussions that Kathi refers to in the interviews, in both observations of her teaching, she utilizes the ubiquitous I-R-E pattern identified by Mehan. Children don't appear to ask questions, only to answer them. However, Kathi sees herself as an interactive teacher. "I've been trying harder as I've gotten older to be a team player. When I was a young teacher, I was not a team player. And it's not that I wanted everyone to do it my way, it's just that if you didn't agree with me that's fine, but I'm still gonna do it my way."

Kathi has an uneasy relationship with higher education. She believes, for example, that teacher-training programs don't operate to create good teachers, stating, "I guess my theory of education really is

figure out what works and do it." She did approve of her "practical, hands on" Master's program from City University. And yet, while she may be faintly anti-academic, she is definitely not anti-intellectual. She reads widely and participates in a large number of professional development activities.

Kathi has worked on many committees (she calls it "death by committee") that helped form the Essential Learnings and align them with curriculum in her building. She believes the Essential Learnings are good for beginning teachers who may need a "road map" and she likes knowing that she can go to that list to check her own teaching. Still, she claims to be somewhat cynical about the reform effort because she has seen so many things come and go. She claims she has been sort of sitting back waiting to see if the Essential Learnings are really here to stay before she really changes everything over.

However, Kathi feels that her classroom practice has been positively impacted by the reform efforts in Washington. She now makes her students write every answer in a complete sentence. A lot more time is spent thinking about how things are done. Students not only talk about the answer and the data that they have been working with, but also about how they got the data and what they are thinking in their heads. She believes this has been a beneficial change but that it is going to take a lot of time to align her curriculum so that she has the time to have those kinds of discussions with the students. She wants to know that in this "great search for accountability" teachers will still be given the freedom to be creative and will still be given the freedom to take a class of children from where they are to where they can go, without having unreasonable expectations about the level of achievement demanded of them.

She makes up her own mind about the relevance of "reforms." "I don't like change very much. For somebody who has done as many innovative things as I've done in the last 20 years, I really like my rut." She is concerned that students she teaches today are not as skillful in reading/language arts as those she taught several years ago. She has returned to the middle, to "balance" because she is concerned that education reform reflects the concern that the community has about education, basically a loss of confidence in public schools.

However, her biggest concern about the reform effort has to do with the area of assessment. She has doubts about whether the state's expectations can be met and is concerned about being held accountable for something that is not possible to achieve. "I'm really frightened by the new state assessments. I'll be up-front about that. I don't want to be held accountable for something I can't achieve." Last year she saw the 4th grade teachers and their students terribly frustrated over the test. The children were so frustrated that they gave up in the middle of the test, and Kathi thinks that a lot of work must be done with students as far as teaching them how to take the test--even as young as first and second and third grades. "We're going to be having kids writing down how they're doing what they're doing. And if that's the intent of the state --that we need to have our learners be conscious of their processes -- then great, then that's what we're doing. And that tests that. But if what the state wants to test is their level of literacy, I don't know if it tests that."

Beverly: Propelled to Excel

Beverly is a first grade teacher with 11 years of experience: seven years in first grade and four years in second grade. She teaches in a rurally located elementary school that serves a predominantly Caucasian population. The majority of her students' parents work in the local community or commute to the nearby urban centers with a small percentage of the students in her class (10%-15%) coming from fractured or low income families. There are two students with disabilities in her classroom that tend to occupy a significant part of her time. Her classroom is neat, decorated and organized into various "stations" which include a core desk area, a listening area, a computer area and two group work areas.

One of her main goals as a teacher is "to expose children to good literature, to foster their curiosity about it and direct their learning of it." Although none of her students entered the class being able to read, by February they could all read the sentence, "Animals keep themselves clean." Beverly is a strong believer in direct instruction: "At this level students need to have direct teaching. It is fun to watch them discover on their own, but they need tools." She is a confident and highly regarded professional who holds a B.A. and M.Ed. She feels more excited than pressured by the demands posed by the state reform initiatives and feels they will help her teach in a more focused manner and a bit more directly to "some of the content type ideas" outlined in the state's Essential Academic Learning Requirements. She feels that her motivation to improve instruction comes not from federal or state mandates but rather from her recognition of students' needs for social and academic growth, parent expectations and the goals of her district.

Modifying Practice in the Context of School Reform

Beverly is familiar with the state "Essential Learnings" although she says she can't quote them. She finds the process of clarifying what is essential for students to know to be useful for teachers and the schools. She participated as a team member in the districts' efforts to articulate the essential learnings with the first grade curriculum. She believes the essential learnings will be adjusted over time and the good features will be retained. One of her objections to the process of developing the essential learnings is that parents were not involved. She is very pleased with the opportunities to improve her practice that emanated from the effort to reform and restructure teaching in her district. Her interest in instructional improvement is motivated by her professional motivation and integrity. She attributes her involvement in professional development to her personal interest in learning more about how to teach in her first grade classroom. On a scale of 1-10 she places the reform mandates as a 4 1/2 in its level of influence on her interest in improving practice. In particular she identifies herself as the type of teacher that always strives to learn more about how to teach literacy and is gratified by her opportunities to attend workshops in literacy organized by the district including the workshops offered as part of the Literacy Leadership Team.

She is adamant that her interest in improving practice has not been motivated by a need to meet state or federal mandates. She has "a real problem with top down reform and wants more community

participation that is more than a rubber stamp process." She wants real influence by parents and teachers. In addition she is concerned about the impact that the reform movement will have on "students who make remarkable progress but started behind the rest of her class, like Mary, one of the students with disabilities in her classroom." She feels that these students have been dumped in her classroom and that the district neglected to give her the support that is required for teachers like her who have no expertise in how to integrate them in the classroom. She claims to have been offered immediate and continuing support, neither of which she received. This issue was very impactful for her because she prides herself in her ability to care for her students, and she found that she did not have the skills to help her special need students. She felt betrayed and helpless. Only when she went to great pains to document the need for assistance did the district offer assistance, but this assistance was very limited. She got an aide for 15 days. She was so upset that she was tempted to write the district and explain that she had a child in her classroom that "did not have the correct placement. I never felt that frustrated and helpless".

According to Beverly the most significant barriers to school reform are:

> (a) the inclusion of standards that are too high for students to meet;
> (b) the addition of benchmarks for Social Studies and Science when first grade teachers should be teaching that basics; and
> (c) lack of resources including the ability of teachers to plan improvements and get substitutes to allow them to observe each other.

She believes that teachers should be well prepared professionals, but they don't have time for professional development because they are too busy teaching and planning class activities. The work of teachers is overwhelming and leaves very little time in their lives for any other activities. She appreciates the opportunity to participate in study groups and other professional development activities. The reform movement has made her look at instruction more globally. She recognizes that she has a class of fairly privileged students in part because she teaches a straight first grade class and the parents who assigned students to her class did so to avoid the 1-2 split class which is their other alternative.

Becky: Still Learning After All These Years

Although Becky received her teaching credentials in 1964 and has had a variety of teaching jobs in four states since, she considers herself to be almost a novice in her current third grade teaching assignment. She taught elementary school music for nine years and has also taught kindergarten, second grade, and a three-four-split grade. During her career she has taught in both public and private school, has substituted, and has job-shared a teaching position. She says, "Sometimes, I think a person my age should have it all down pat and have this neat little order of doing things--but I don't. I feel like a young teacher even though, age wise, I'm not."

She often expresses uncertainty about whether or not she is doing the "right things" in her classroom and checks frequently with others who teach third grade at her school about what she and they are doing. "I guess I feel like I never really have it right so I'm always trying to learn more and trying to incorporate what I learn into my classroom," she says. She prefers workshops and in-service sessions to be practical rather than focused on theory. "I don't like to get bogged down in the theory. When I go to workshops and it's all theory, I don't get as much. I need the hands-on, practical application. To me, the theory part is the least desirable."

Modifying Practice in the Context of School Reform

Becky welcomes the guidelines provided by the reform movement. "They have given us some basic guidelines but there is still a lot of freedom in how we teach and the materials we use. The guidelines for literacy seem to be reasonable," she says. The district is making a real effort to help us know how to assess and how to work with children to meet the guidelines. She mentions study groups on guided reading, spelling, and six-trait writing assessment. "I'm always encouraged by meetings that get me re-thinking and re-evaluating and seeing what I can do better. I enjoy in-service!" As a result of the in-service sessions prompted by the reform movement that she has attended, she's trying to do more guided reading instruction. "I like working with small groups-- sitting on the floor together so that we can just book-talk. I am incorporating more writing with the reading. The children respond to what they are reading, look for aspects of the story that they can write about, retell, or summarize," she says. "It's having a positive impact on the children's learning."

However, there is much more concern about the assessment piece of the reform movement and her comfort level there is significantly lower. "I think assessment is going to be the biggest challenge," she posits. She hopes that the state will give districts some assessment tools and some materials with which to work in order to attain the goals of reform. She seems to equate assessment with grading student work. "A lot of grading is very subjective. It's your opinion on how the student is doing. People want to revert back to the old way when you graded on a percentage basis. You had a standardized way of grading. Subjective grading is much more difficult."

She sees a real dilemma in working with children at their developmental level and there being benchmarks or expectations by grade level. "If we believe in developmentally appropriate instruction, then is it okay that some children are not meeting the guidelines at the level were they're supposed to be?" she asks.

However, overall Becky concludes that the reform movement is positive. She says, "They're coming out with a lot of specifics that are going to be pretty hard to assess and I worry about getting all the kids working up to that level. I'm glad to have the guidelines. I just wonder how we're going to do it all."

Rebecca: Leading the Charge

Rebecca has taught elementary school for nine years at the P-4 school in a small, rural school district. There are 457 students in kindergarten through grade four at this school. It is the only elementary school in the district, which has among the lowest per pupil expenditures in the state. The students in Rebecca's class are all of European-American heritage with the exception of one student who is Hispanic. Rebecca has a Master's degree in curriculum and instruction and has taught 3rd grade for the past six years. Rebecca's classroom has a welcoming atmosphere; the door is always open and the room is usually buzzing with activity. It's important to Rebecca that her 23 third graders feel "good about learning." She describes practices such as affirming student attempts, making learning fun and interesting, and enforcing respect. "A lot of that is through dialogue and through honoring each other. I insist on a certain amount of respect...so that there is a feeling of safety."

There is an emphasis on reading and writing in Rebecca's classroom. Posters around the walls describe 'Thoughts for Literature Circles,' 'Writing Topics,' 'Story Elements,' and other related subjects. There is a table called the 'writing center' that has boxes full of writing paper, book paper, crayons, colored pens, and other accouterments. There is a 'job board' that guides the block of time that is devoted to reading and writing processes each day.

Rebecca related her emphasis on literacy directly to the state curricular reform policies. Although she is aware that many teachers know little about the state reforms, Rebecca has been a local leader in the movement. She knew as early as 1989 about reform talk, but became actively involved three years ago when she applied and was accepted for the state 'reading cadre,' attending a two week summer workshop with a well-known educational consultant. Since that time, Rebecca has been a member of the Literacy Leadership Team organized through the local Educational Service District (ESD) and the Washington State University Vancouver campus. She has participated in and been an instructor for many workshops offered at the ESD.

Rebecca's practice has changed over the past few years, particularly in the area of reading instruction. She attributes those changes directly to her early involvement with the state reforms, especially the Literacy Leadership Team summer course.

> She impacted the way I taught reading incredibly. For example, in my 3rd grade class a lot of my kids were reading and I was under the belief that if I just get them to read more, their reading would just magically improve. Margaret really showed me the continuum of, okay, certainly they've learned reading, but then where do you take them? And it's so hard to make it relevant to all the kids when they're on this incredibly huge range of reading. So she really helped me become more purposeful about what my objective is for every child.

Rebecca is heavily involved in both teaching and taking courses at the ESD, most of which relate in one-way or another to the state reform process. Referring to a literacy workshop series that included other elementary teachers, Rebecca commented on the benefits she has experienced through the collaboration, "but I think that I learned as much from them as they learned from me." And in curricular areas in which she feels less confident, Rebecca credits teaching classes and working with other teachers as helping her to deal with reform pressures. "In math, we've just been working on math assessments and so we've done another series and I have just facilitated that--I have not taught it at all. Actually that is an area that I feel weak in, as far as the state requirements and how I can meet them. But we have received some good materials. We're hoping next year to work with groups of teachers writing our assessments--not just here, but from a number of different schools."

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Rebecca believes in the State Reform Effort. "I believe the standards are great. The benchmarks are great." All of Rebecca's efforts to both learn about and teach about the reform--as well as the evidence of ongoing struggles to actually reform her own practice--are evidence of her support of the reform movement in the state. But, Rebecca is also painfully aware of the difficulties that the broad-based curricular changes hold for elementary school teachers. "I think the reform is wonderful, but perhaps it should be one goal for five years, or at least for elementary. We teach everything. They may say, 'Well, we're not really testing on science yet,' but they will be in two years!"

Another concern related to the pace of the change is the pressure that the accountability measures are placing on the system. Rebecca commented, "I have a problem with how quickly they're expecting them to be implemented and the testing being done before teachers have time to change their practice." Later, she talked about the fear that the 4th grade teachers have felt regarding the state performance assessments:

> I think the 4th grade is more concerned. At one point they were talking about publishing the names of the teachers of the kids who were taking the test, and I know the 4th grade teachers were really upset, because the test doesn't reflect what the child knows in that classroom. The test reflects what they know for the past 8 or 9 years of their life. Not just in school, but everything. To even put it on four people's back is a little tough. I guess I'm just hoping that doesn't come.

Cross-Case Analysis

After the individual cases were written and shared, our team moved to looking across cases for similarities and differences. When we closely examined the individual cases, several themes emerged which appeared to cross all, or in some cases most, of the case studies. Five themes seemed particularly pertinent to the study, because they directly addressed our initial research concerns.

Theme 1: *All five teachers support the essence of reform with the standards serving as guidelines. Further, teachers interpreted the reforms to fit their own belief/practices systems.*

Tom, a novice teacher, embraces educational reform as expressed by the Washington State Essential Academic Learning Requirements or EALRs by speaking often on the value of EALRs and other reform standards as a "guideline" for teaching. His enthusiastic compliance with all the assumptions underlying the reform initiatives speaks to Tom's "philosophy" of teaching--stated as "making lessons interesting and meaningful for students"--and to the context in which he begins his career in a relatively homogeneous rural district where curriculum "alignment" is seen as a valued goal.

Kathi agrees that the EALRs provide a roadmap for beginning teachers, but values them less for her own practice. In contrast to Tom, Kathi is a veteran teacher who has seen other reform movements in education come and go. Kathi approves of the EALRs because they bring a "balance" back into education, and will be useful in restoring public confidence in schools. As a teacher who maintains control and expertise, Kathi envisions the reform as a validation (checklist) of what she already knows and does; she resists change, but can be persuaded to change if she is eventually convinced that such change is warranted. She reads, observes, and reflects on issues before she forms her own opinions and adapts the change to her own style.

Beverly feels excited by the new demands of the reform initiative, finding that "the process of clarifying what is essential for students to know" impels her to look at instruction more globally. In contrast, Becky seeks validation of her teaching, confirmation that she is "doing the right thing" in the reform initiative. Rebecca is a leader in the movement, relating her emphasis on literacy directly to the state curricular reforms, and stating that the standards and the benchmarks are "great."

Theme 2: *The Washington State educational reforms have impacted teachers' practice, but practice has lagged behind awareness, perhaps as is developmentally appropriate.*

Rebecca, a member of the Literacy Leadership Team, attributes recent changes in her practice to her participation in the reform initiatives. Her literacy instruction, in particular, changed first because of the professional development opportunities which came her way (Margaret Mooney's work being particularly influential), and second, because of her own role in collaborating to provide professional development to others. She admits to feeling less confident in other curricular areas such as mathematics but works to inform herself and change her practice by participating on committees and in professional development work in that content area. As might be expected, Rebecca's practice evidenced the reform initiatives most deeply.

Others were frank about the need for change in their practice to align with the reform initiative. Tom stated, "I haven't changed what I'm doing...but I'm thinking about it.... I'm making connections." Limited observations of Tom's teaching revealed that he was utilizing the test

preparation packets provided by the state as the basis for his classroom instruction. Kathi, while waiting to see if the reform will last, talks about making a few changes which "positively impact" her practice. One example, she talked about involving students to think about how things are done rather than just provide answers. Our limited observations of Kathi's practice did not substantiate this change. Beverly's advocacy of "direct instruction" was confirmed by observations in her classroom and she remains at the awareness level with regard to changes in her practice, and she is resistant to the idea of including other content areas to her first grade curriculum. Becky sees the guidelines for literacy to be "reasonable" and mentions utilizing more guided reading in her class; however, observations revealed that she still utilized a "round robin" reading approach with the small groups rather than guided reading.

While the teachers' practices clearly lagged behind their knowledge/awareness level with regard to classroom changes, we view this as developmentally appropriate. In keeping with what is known about the change process, the individual responds to new ideas with differing levels of awareness based upon his or her own belief system. First, the learner must conceptualize the new learning over time and talking about it facilitates this. At some point the learner may try out new practices, which will approximate the desired behaviors. As mentioned before, sustained professional development efforts appear to support this change process. Clearly, the teachers needed to "talk the talk" before "walking the talk."

Theme 3: *All five teachers worried about the assessment/accountability component of the reform. They were concerned for their students and for themselves.*

Unsurprisingly, the teacher who appeared to be least concerned with the new Washington Assessment of Student Learning (WASL) was Rebecca, but even she is aware of the "pressures" the time frame for implementation is putting on teachers. She is most concerned about fourth-grade teachers, who will be first to administer the test and for the students whose academic history will be assessed. The prospect of having test scores published in the newspaper seems very intimidating to Rebecca.

Tom's worry about the test is expressed more obliquely: "This year I'll be able to get started from the get-go. Right now it's February. I think the test isn't until May, so I have a lot of time to prepare for it." In fact, the practice tests became Tom's curriculum.

Kathi's "biggest concern" is with assessment. She watched the piloting of the fourth-grade test the preceding year and saw teachers and their students terribly frustrated over the test. She's afraid that the expectations are unreasonable, suspicious of the "great search for accountability," and frightened by the high stakes nature of the test. She also maintains that the test doesn't measure students' level of literacy.

Becky is concerned for students who will not meet the standards required of them by the WASL, particularly special needs students. She strongly feels that the standards have been set too high, and that first grade teachers should not be responsible for teaching content areas like social studies and science, but should concentrate on "the basics."

Theme 4: *Most of the teachers were resistant to top down reform to some degree. This resistance was more personal and reactive than analytic and systemic.*

Examples of the resistance are situationally specific. Rebecca has a great personal and professional stake in the success of the reform initiative; yet, she is painfully aware of the pressures that teachers experience regarding the assessments. Her resistance takes the form of concern about the accountability constraints imposed by the WASL and the timeframe imposed from above by the state. Rebecca's resistance seems rooted in her participation--the collaborative nature of which is highly valued by her. She feels that teachers should have a voice in the decisions about implementation rather than being told when they would accomplish it.

Kathi wants to be in control. When reforms are imposed from above, Kathi's reaction is to resist and to do things "her way." She determines what she will adopt into her practice. She fears and resents the intrusion of the WASL onto her "turf."

Beverly is adamant that the impetus for change in her practice comes from her professional motivation and integrity--the recognition of students' needs for social and academic growth, parent expectations, and the goals of her district--rather than from federal or state mandates. Beverly's objection to the EALRs is rooted in her belief that real teacher and parent participation was excluded. Beverly also feels overwhelmed and frustrated by the imposed standards.

Becky is also resentful of and overwhelmed by the unreasonable amount that she is expected to accomplish. She sees a real dilemma in the reform initiative based on her belief in developmental curriculum and the conflict between the individual needs of students and the standardized benchmarks those individual students are expected to meet.

Unsurprisingly, the resistance of each teacher is focused upon his or her specific context and does not reflect much conceptual criticism of the reform initiative. Rather, the resistance seems to emanate from a very personal fear of the consequences of the reform. None seems to question or critique the underlying assumptions (the legitimacy) of that reform.

Theme 5: *All teachers valued a learner-centered professional development process, which included features such as choice, sustained collaboration, active participation and a contextual relevance to their teaching.*

Each teacher in the case study was a participant in the yearlong professional development series known as the Year of the Reader Workshops, which were planned and presented by the Literacy Leadership Team and comprised of area teachers who had developed strong classroom literacy programs. The series was highly successful according to workshop evaluations. The case studies provided evidence that teachers valued this series primarily because they had regular opportunities to discuss responses to reform with other teachers, because they had high levels of choice about topics and issues for study,

and because the role of teachers in these workshops was active and influential.

Every teacher in the study expressed the desire for "practical" professional development in which they could be active participants and in which an appropriate mixture of theory and practice are presented. In particular, Kathi and Becky mentioned the need for "hands on" participation in workshops. Beverly thought that "theory was more useful after several years of experience," but recognized that she still preferred professional development activities that devote the majority of the time to the improvement of instructional practices. Tom put his views about the importance of an active role for classroom teachers in professional development activities this way:

> I think having a practicing teacher in there and not just some expert on the subject.... she knew what she was talking about...and the next day she was going right back to her classroom. She was a teacher and she was one of us.

Most of the teachers we studied also noted the importance of collaboration with other classroom teachers in figuring out how they might respond to the reform initiatives. The following comment was typical of the viewpoints expressed:

> There's a group of second, third and fourth grade teachers in that class, and we talk about what we do, and how to teach those things (the EALRs). So I'm getting ideas from other teachers, and by talking about it and reading it through, I'm able to see how to do it.

DISCUSSION

Our case studies led to deepening questions about teachers' responses to state mandated standards-based school reform. Overall, our concerns have to do with: a) the dilemmas teachers faced in attempting to implement progressive reforms (which require creativity and risk taking) in the context of highly coercive accountability policies and limited resources, and b) teachers' uncritical acceptance of the reform agenda, even as they voice beliefs that it may negatively affect historically marginalized students and neglect necessary professional development.

The teachers in this study uniformly support the goals of state mandated standards their support was frequently justified with praise for the usefulness of knowing "what is expected for students to learn and for teachers to teach."

The effects of the accountability dimension of the reform agenda in Washington appear to be at cross-purposes with the goals of curricular reforms. Curriculum reform is aimed, in part, at providing higher standards while emphasizing high level thinking skills, application of knowledge and problem-solving skills. However, the most salient preoccupation for teachers is preparing students to pass state mandated criterion referenced tests. This was most directly evident in the practices of the newest teacher in our study, Tom, who began to adopt the practice

test items distributed by the state as a curriculum for his class. Ironically, it appears that a curriculum reform grounded in rather progressive views of teaching and learning is being implemented in a climate of high stakes testing that leads many teachers to respond as Tom does--using direct and explicit instruction on test items as an increasing focus of his classroom curriculum. Anecdotally, since the time of this study we have observed more and more teachers adopt these kinds of practices, in some cases at the direct admonition of school administrators.

Successful teachers need to be able to "provoke, stimulate, and support students' thinking" (Thompson and Zeuli 1999 p. 349), and this was the stated purpose of the Washington school reform agenda. However, the idea that students must think and problem solve runs counter to our general understanding of the educational process which has traditionally presented knowledge as facts, identified teaching as telling, and learning as memorizing. Alternative presentations of instruction require significant changes in teaching practice.

The teachers in the study don't feel in control of the events that affect their practices, and they exhibit personal rather than systemic resistance to the imposition of top down reform. This finding is consistent with the conclusions of Berman & McLaughlin (1976, 1978) who found in their Rand Corporation studies that where the implementation of school policy change was successful, the process was recognized as one of mutual adaptation rather than simple implementation of externally developed innovations. More recently Cohen and Ball, (1990) and Darling-Hammond (1990), found that individual teacher reactions to new policies ranged from token compliance to co-option of the policy to fit individual preferences and agendas. An important finding in all these studies was that the implementation of changes in instruction in response to policy changes was *always* mediated by the teachers' prior beliefs and practices.

We found that the accountability dimension of the reform agenda affects teacher practice significantly. The state assessments (WASL) have great influence on teacher practice. The publication of school average test scores in the media and the negative consequences of that exposure add a punitive accountability element that leads principals and teachers to compress their curriculum into a direct response to the tests. Teachers, in their responses to the test, rather than focusing on instruction as the construction of new meaning, are concentrating on providing new facts and knowledge in the format anticipated in the tests. As one of the teachers remarked, many teachers seemed like "deer caught in the headlights," immobilized by an educational reform movement in which they perceive increased demands for accountability and excellence accompanied by limited support structures to help teachers and students meet the new demands.

Although these teachers were very concerned about students, and themselves, being able to meet the changing standards and expectations of the state and district, they did not appear to be particularly critical or even questioning, of the basic assumptions of the reform movement. They appeared anxious to comply with state and district mandates, even when they had substantive questions about the viability of the reform agenda.

The teachers in this study were in many cases concerned about how well certain of their students would do on state tests. They did not, however, demonstrate an inclination to couple larger social context issues to the inability of marginalized students to meet higher standards and assessments. The level of support by the teachers in the study for the new demands and standards is surprising in the face of their concerns about the ability of their students to meet those demands. Their concerns were primarily about the adequacy of resources available to enable these students to succeed on the tests. They did not appear to question the assumption that a single curriculum (and evaluation system) was appropriate for all children. While we recognize that this question can be argued coherently from a variety of positions, our concern is that considerations about differences in students' needs and interests, whether related to ability, language, ethnicity, or economic status, are no longer a salient part of discussions about what shall be taught in these classrooms.

The role of teachers and other professionals in school reform is of concern to Slee, Weiner, & Tomlinson (1998) who call for a more critical preoccupation on the part of researchers, policy makers, and teachers with issues of power and equity in the school reform/improvement process (p.3). What is left out or underemphasized in most reform movements, they opine, is the issue of power. Top down reform movements tend to focus on management issues rather than on the complexity of the issues faced by teachers. The accountability movement tends to be reductionist in its approach to school reform. Perhaps it is no wonder that teachers, by and large, accede to the demands placed on them from people in power. Noddings (1997) has expressed similar concerns and argued that the current emphasis on standards is distracting us from larger social problems that must be addressed, including the need for more democratic education and for the critical examination of the need for and impact of individual educational standards (p.185).

The teachers in the study were concerned about the impact of the assessments on their students. Their concerns include unreasonably high standards and the punitive impact of the tests on those with reason not to do well: low income students, English language learners and students with disabilities.

They were also resistant to top down reform and expressed a desire for improved professional development that would prepare them for the new standards. They called for practical professional development with appropriate mixture of theory and practice in which they would be active participants with the guidance of successful peer teachers. Collaboration with other teachers was another strategy recommended by the respondents. They in effect called for the creation of what Fullan and Hargreaves (1992) call "professional learning communities" which are essential to the success of school improvement and success. Newmann and Wehlage (1995) have similarly argued that learning which engages students in constructing knowledge through disciplined inquiry and produces products and performances that have value beyond certifying success in school can be achieved if educators and the public give students three kinds of support, one of which is the building of organizational capacity by strengthening the professional community.

The experiences of the five teachers in the study coincided with the observations and recommendations of other observers of politically charged, high stakes reform. Louis and Krause (1995) and Newmann and Wehlage (1995) provide explicit evidence on the relationship between professional community and student performance. Using measures of standardized achievement tests and more authentic performance based measures of learning they found that schools did much better in math science and social studies if their schools had "high professional communities".

This study allowed us to begin what is intended to be a long-range analysis of the condition of teacher practice in the evolution of state initiated school reform that implements new standards and assessments. Our study exposed us to teachers in the early stages of the reform agenda that are supportive of the direction but suspicious of their ability to achieve the standards put forth. In part, this is because of the nature of those standards and their corresponding assessments and partly as a result of what they perceive as inadequacies in the support structure and professional capacity of the teaching force.

In future research it is our intention to investigate how the teachers in this study are continuing to respond to the reform agenda. In particular, we will gauge the degree to which these teachers demonstrate a marked change in their consideration of sociopolitical issues, the extent to which they have made progress toward meeting the new standards and the degree to which they have received adequate support and professional development.

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BALANCING THE HIGH-TECH NEEDS OF CONTEMPORARY EDUCATORS WITH THEIR HIGH-TOUCH PERSONAL AND PROFESSIONAL NEEDS FOR THE EFFECTIVE IMPLEMENTATION OF TECHNOLOGY

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As we rapidly approach the new millennium our educational experiences, at all levels, are enriched and accelerated by our technological advances. However, as technology progresses and our educational systems constantly change it is imperative that a balanced relationship between high-tech and high-touch be maintained for academic productivity as well as personal and professional satisfaction.

BALANCING CHANGE

The stresses upon individuals caused by change whether physical or emotional have been comprehensively researched. Hans Selye's (1956) seminal work, *The Stress of Life*, established the significance of homeostasis in our personal lives and the imperativeness of developing coping skills to maintain the balance in the face of change. Our real world technological changes must be balanced against the very personal human world of each individual to make our new technologies truly effective. John Naisbitt (1982) in his classic work, *Megatrends*, comprehensively evaluated the significance of this equilibrant relationship.

A review of the contemporary research and literature on this human side of change reveals that five key attitudinal or personal "high-touch" needs must be carefully considered and integrated with technological advances to make change effective. These five "high-touch" personal needs are: Challenge, Commitment, Control, Creativity, and Caring. (Polka, 1997)

A further review of the historical research and literature on this human side of change reveals that there are six key professional "high-touch" needs that must also be carefully considered and integrated with any curriculum change (technology) to make the change significant in educational settings. (Beane, et. al., 1986) These six "high-touch" professional needs are: Freedom to Teach (Empowerment), Time for Teacher Preplanning, Improved Communication and Articulation, Instructional Leadership, Assistance in decision making areas, and Opportunities for Individual Professional Growth. (Harnack, 1968)

RESEARCH AND LITERATURE REGARDING THE HIGH-TOUCH PERSONAL NEEDS

Mihaly Csikszentmihalyi (1990) identified that since people resist change for a variety of reasons, it is imperative that the change be transformed into a "challenge" for them. Each individual must look at life as a constant challenge and develop the ability to enjoy all situations even those that seem to allow only despair. This ability to transform adversity into an "enjoyable" experience and to see change as an opportunity as opposed to a crisis is the key to developing the challenge need.

"Commitment" as a high-touch need was researched specifically by Kobasa, et al. (1982), in terms of those individuals who were able to develop a personality of hardiness and confront changes in a positive fashion. Those hardy people who were able to cope successfully with significant life changes exhibited strong commitment to themselves, their families, and their organizations. They also maintained a committed perspective to both short and long term goals.

The third need of "control" refers to the proclivity of individuals to believe and act as if they are in control and can influence the course of events in their particular lives. William Glasser (1990) specifically identified that human beings are born with five basic needs built into their generic structure: survival, love, power, fun, and freedom. He contends that throughout our lives we control our behavior so that our choices reflect these needs. People need to feel that they are in control of technology and not adversely influenced by it or "shocked by" it as Alvin Toffler (1990) wrote in *Future Shock*.

"Creativity" was comprehensively explored as a basic human high-touch need by Abraham Maslow (1968). He was convinced that to be self-actualized would lead to satisfaction and productivity. Additional studies have identified that those who were "creative" on the job enjoyed their work more and were more productive. Contemporary research has focused on the autotelic personality or the person who has the ability to create optimal experiences even in the most barren environment. This person makes the job inherently resemble a "game" with varied challenges, clear goals, and immediate feedback. (Csikzentmihalyi, 1990)

DePree (1989) in *Leadership Is An Art* specifically develops the significance of the correlate high-touch need of "caring". He contends that people must be treated as members of a family in the work place in order to be more effective and efficient. Warren Bennis (1989) also identified the significance of using a high-touch caring approach to introducing change in organizations in his work, *Becoming A Leader*. His research on effective leaders concludes that they relied as much on their high-touch skills as they relied on their high-tech skills to facilitate effective change.

Therefore, the following five high-touch personal needs must be addressed when introducing any change into an organization, but especially when introducing technological changes:

1. *CHALLENGE.* The individual must possess a sense of challenge towards technological change.

2. *CONTROL.* The individual must feel personally in control of technological changes in order to use them in a satisfying and productive fashion.

3. *COMMITMENT.* The individual must possess a strong sense of personal commitment towards technological changes and to the organization in order to enjoy the change process and be productive.

4. *CREATIVITY.* The individual must possess a creative sense that enables him to construct and reconstruct the uses of new technology in a unique manner.

5. *CARING.* The individual must possess the sense that he is respected and personally notated both at home and at work in order to confront the impacts of technological change in a positive manner.

RESEARCH AND LITERATURE REGARDING THE HIGH-TOUCH PROFESSIONAL NEEDS

Harnack (1968) in his work, *The Teacher: Decision Maker and Curriculum Planner* identifies six significant teacher needs which are related to successful curriculum development and instructional improvement activities at all levels of the educational spectrum. These six professional need areas were initially identified as: (1) Freedom to Teach (Empowerment), (2) Time for Teacher Preplanning, (3) Improved Communication and Articulation, (4) Instructional Leadership, (5) Assistance in decision making areas, and (6) Opportunities for Individual Professional Growth.

The significance of these six high-touch professional needs of teachers were reconfirmed by subsequent regional (Yuhasz, 1974) and national (Polka, 1977 and Miller, 1981) studies conducted at the State University of New York at Buffalo and are integral components of contemporary professional literature and research on curriculum development and instructional improvement. (Ornstein & Hunkins, 1988)

Accordingly, educators possess the following high-touch professional needs:

1. *EMPOWERMENT.* The individual must possess a sense that there is significant opportunity in their organization for their personal involvement in decision-making.

2. *TIME.* The individual must possess a sense that their organization will provide them with the necessary time to determine and select aims, objectives, activities, and

evaluation tools related to their specific job function.

3. *COMMUNICATION.* The individual must possess a sense that open and honest communication between and among peers and colleagues is promoted by their organization.

4. *LEADERSHIP.* The individual must possess a sense that their organization will provide them with adequate human, material, and technological advanced resources to do the best job possible.

5. *ASSISTANCE.* The individual must possess the sense that their organization is ready, willing, and able to provide assistance to them in planning and implementing technologically advanced changes on the job.

6. *OPPORTUNITY.* The individual must possess a sense that their organization encourages their participation in various professional growth experiences that enhance their personal and organization knowledges and skills.

THE EFFECTIVE IMPLEMENTATION OF TECHNOLOGY

Research conducted at Niagara University and SUNY – College at Buffalo, New York commencing in 1992, with a sample of two hundred and seventy-nine (279) educators, reconfirmed the significance of the five personal high-touch needs and the significance of the six professional needs. (Polka, 1994) Most recently (1998), two different samples of educators with a combined total number of three hundred and twelve (312) who use technology in their educational settings also completed the comprehensive survey instrument. Additional research using the same instrument is being conducted at Eastern Michigan University. However, there are definite trends in all of the studies completed and analyzed to date *vis-a-vis* balancing the high-tech needs of contemporary educators with their high-touch personal and professional needs for the effective implementation of technology.

THE FINDINGS REGARDING HIGH-TOUCH PERSONAL NEEDS

Generally, educators surveyed over the past six years rank the five high-touch personal needs for the effective implementation of technology into two broad categories as follows:

A.   The high-touch personal needs of most importance have consistently been identified as those of *Control, Creativity* and *Caring.*

B.   The high-touch personal needs of moderate importance have consistently been those associated with *Challenge* and *Commitment.*

The most important high-touch personal need components from the above categories that the various samples felt were priorities for the effective implementation of technology have consistently been the following:

A.   *Control:* being able to select the degree of technological use in your teaching-learning situations; being able to say "yes" to some technologies and "no" to others; modifying the uses of technology in education; controlling the levels of use of both hardware and software; and being able to reconfigure the various technologies available to suit personal and professional views.

   Creativity: developing the ability to change the use of technology as the teacher sees fit; having a sense of fun in using educational technology; experiencing technological applications in a variety of different situations; exploring new and different uses of technology; changing software and other prepared programs to meet special situations.

   Caring: being a member of an organization that exhibits high-touch caring on a regular basis; having others in the school assist in the learning and using of technology; being able to take risks using technology without fear of criticism; having supervisors who demonstrate concern for your personal feelings *vis-a-vis* technology use in educational settings; and experiencing a warm, caring, "personal touch" from technology experts such as salespeople and suppliers.

B.   *Challenge:* positively approaching the use of technology in organizational settings and developing a personal coping skill that views change as an opportunity as opposed to a crisis.

   Commitment: being able to see the "long" term advantages for using technology and being part of an organization that has a commitment to the use of technology in education.

Therefore, those introducing technological innovations in educational settings must definitely focus on addressing the high-touch personal needs associated with *Control, Creativity* and *Caring.* However, those introducing technological innovations must also be aware of the high-touch personal needs associated with *Challenge* and *Commitment.* Subsequently, as has been reported in previous accounts of the studies related to the effective implementation of technology in education, those introducing technological innovations must recognize that educators need to be assured that technological changes will be introduced in their environments with attention given to these high-touch personal needs. Individuals need to know that those in charge of introducing changes will: present them with challenges, reinforce their personal and organizational commitments, provide them with opportunities to express

their sense of control, encourage their creativity, and genuinely care about them. (Polka, 1997)

THE FINDINGS REGARDING HIGH-TOUCH PROFESSIONAL NEEDS

Educators surveyed over the past six years generally ranked the six high-touch professional needs into the following three distinct categories:

> A.   The professional needs of greatest importance have consistently been *Empowerment* and *Time.*
>
> B.   The professional needs of considerable importance have consistently been *Assistance* and *Leadership.*
>
> C.   The professional needs of moderate importance have consistently been *Communication* and *Opportunity.*

The most important professional need components from the above categories that the various samples felt must be considered as priorities for the effective implementation of technology have consistently included the following:

> A.   *Empowerment:* the identification of specific instructional objectives for an individual or group of pupils; the choice of content, subject matter, centers of interest, or educational technology; the choice of classroom activities or techniques, including software; the identification of appropriate measuring devices to appraise student progress; the choice of instructional equipment (i.e., hardware).
> *Time:* time to determine specific aims and objectives for the classroom which are stated in relation to the over-al task of the school; time to determine specific group and individual classroom activities that will be used; time to select the subject matter area, issue, or problem that will serve as the vehicle for accomplishing the objective; time to select from a wide variety of possible instructional materials, including software to be used in the learning experiences presented; and time to determine the specific measuring devices, including software programs, to be used in appraising pupil progress.
>
> B.   *Assistance:* help from available resource personnel to aid in the utilization of the latest technology.
> *Leadership:* providing adequate human technological resources for an effective teaching-learning environment.
>
> C.   *Communication and Opportunity:* communication between individual teachers and participation in building-level curriculum development projects.

Therefore, those introducing technological innovations in education settings must definitely focus on addressing the high-touch professional needs associated with *Empowerment* and *Time*. Once, these high-touch professional needs have been addressed then the *Assistance* and *Leadership* needs should be addressed and finally the high-touch needs associated with *Communication* and *Opportunity* should be considered.

Subsequently, as has been reported in previous research studies (Yuhasz, 1974), (Polka,1977), (Miller, 1981), these six high-touch professional needs of educators must be considered when introducing curriculum innovations in school settings. And, since the comprehensive use of technology is viewed as a curriculum innovation at the twilight of the 20th Century, these high-touch professional needs are of contemporary significance.

TWENTY-FIRST CENTURY EDUCATION SUCCESS

Research on implementing educational innovations using the Concerns-Based Adoption Model (CBAM) identified that change in education is a process, not an event, and that it is accomplished first by individuals (Hord, et al., 1987). The most effective changes, or the ones that yield the most personal and organizational satisfaction and productivity reflect attention given to the five personal high-touch needs of Challenge, Commitment, Control, Creativity, and Caring as well as the six professional high-touch needs of Empowerment, Time, Commitment, Leadership, Assistance and Opportunity. Subsequently, any technological innovation introduced in education must be introduced to individuals with attention given to these high-touch needs.

The leaders introducing high-tech innovations must, themselves, model and promote the above high-touch needs for both personal and organizational satisfaction and productivity. Accordingly, Warren Bennis in his work, *On Becoming a Leader*, identifies that the effective leader relies on their high-touch skills as much as their high-tech talents in facilitating personal and organizational satisfaction and productivity. (Bennis, 1989). Leaders must encourage others to maintain balance in the face of Twenty-first Century educational changes and develop a "Twenty-first Century Mind" that uses both high-tech and high-touch approaches to problem-solving. (Sinetar, 1991). They must advocate homeostasis in both personal and professional life in order to effectively cope in the face of continuous change (Selye, 1956).

Therefore, educational leaders at all levels need to be cognizant of the human side of change and must balance the high-tech needs of contemporary educators with their high-touch personal and professional needs for the effective implementation of technology.

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