Closing the Achievement Gap Through Evidence-Based Inquiry at Multiple Levels of the Education System

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Many nations within the Organization for Economic Cooperation and Development (OECD) have student achievement profiles that are essentially socioeconomically and ethnically stratified (OECD, 2001). Increasingly, attempts to change these profiles have focused on reforming schools and reeducating the teachers within them because teachers exercise the greatest systems influence on student achievement (Alton-Lee, 2003; Nye, Konstantopoulos, & Hedges, 2004; Rowan, Correnti, & Millar, 2002). Many of these efforts, however, have met with relatively small and typically unreliable achievement gains, whether teachers are given prescriptions with which to work (Borman, 2005; Datnow et al., 2003) or the time and resources to develop their own solutions (Lipman, 1997; Saxe, Gearhart, & Nasir, 2001). In this paper, we describe a project that impacted student outcomes substantively, particularly for students who scored in the bottom 20% of achievement tests, through an approach underpinned by

A national literacy professional development project reduced the achievement gap for students experiencing difficulties in reading or writing in 91 of New Zealand's schools. It was based on two premises: coherence within and between the multiple levels of the schooling and educational administration systems, and a focus on evidence-informed inquiry into effectiveness at each level of the system. Over the 2 years of the project's operation, these two premises interacted in ways that led to ongoing problem identification. Examples include how students understood their learning, how teachers and school leaders taught these students, how professional development facilitators changed their approaches, and how the project leaders and policy makers developed new systems for learning. Solutions were actively and collaboratively sought at all levels. Research data included assessment of student literacy in reading or writing; participant observations of the project leadership operations; interviews with principals, literacy leaders, and teachers; scenario responses; and interviews with facilitators. An analysis of facilitator practice early in the project illustrates how project leadership responded to the problems identified. Ongoing learning resulted from the interaction between facilitator feedback to teachers and their reflective responses to the observations of that feedback. Important to the success of this program is the continued feedback, not only to teachers implementing change, but also to the facilitators and policy makers instrumental in the training of the teachers. This feedback, coupled with reflective practice, at all levels of the educational system provided the means for teachers to improve the success of all students in their classrooms.

summary

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two basic premises: coherence within and between the multiple levels of the schooling systems and a focus on evidence-informed inquiry into effectiveness at each level of the system.

The first premise, coherence, was established both within and between levels of the education system that comprised policy makers, project leadership, visiting facilitators, school principals, senior managers, and teachers. Involving whole schools in improving the quality of instruction, rather than focusing solely on individual teachers, has become increasingly common among initiatives to change problematic achievement profiles. Policy makers and researchers are beginning to recognize that teachers do not practice independently of the social context of their work. Developing within-school coherence in teaching and learning has been a major thrust of these approaches (e.g., Madda, Halverson, & Gomez, 2007; Newmann, Smith, Allensworth, & Bryk, 2001). Coherence between the policy and priorities of district administrators and what happens at the school level has reduced competing, and sometimes conflicting, directives for schools as they grapple with change (Datnow et al., 2003). However, learning and change at the level of policy and project delivery, in response to information about project implementation and outcomes, has not been a strong element of such initiatives. In the project described here, policy makers and those responsible for project delivery provided both strong direction to the project and shifted their priorities in response to the resulting evidence regarding implementation and outcomes.

Coherence between research and practice, which included evidence-informed inquiry, was another important aspect of the project. Often the change is directed by, or occurs in collaboration with, researchers who are responsible for articulating effective instructional practices, gathering data to ensure program fidelity, and analyzing student data to determine if what is enacted is having the desired effect (Gottfredson, Marciniak, Birdseye & Gottfredson, 1995; Stallings & Krasavage, 1986; Van der Sijde, 1989). But, the learning and associated change in these approaches is essentially the responsibility of the teachers and school leaders. In this project, the researchers took a differ-

ent role. Their reflexive research questions focused on addressing issues likely to influence project outcomes with subsequent questions evolving in response to need. As research findings became available, they were discussed with the project leadership, policy makers, and, when appropriate, the professional development facilitators working in schools, in ways that identified issues concerning design, understanding, and implementation. The researchers did not monitor implementation to ensure program fidelity, but rather to identify what was or was not working. Coherence was achieved between the research agenda and the project as problems were discussed and resolved and new research and training priorities set.

The second basic premise underpinning the evidence-informed inquiry approach of the project was guided by key principles of self-regulated learning (Butler & Winne, 1995) at all levels of the system involved in creating change. Self-regulated learning typically is researched in relation to student learning, and many different theoretical perspectives have emerged (Zimmerman, 2001). The principles used to inform action at the multiple levels of this project were consistent with Butler and Winne's portrayal of self-regulated learners as those who ". . . judge performance relative to goals, generate internal feedback about amounts and rates of progress towards goals, and adjust further action based on that feedback" (p. 258). Self-regulation is, in their view, a deliberate, judgmental, adaptive process (Butler & Winne, 1995). These notions of self-regulated learning were applied to multiple levels of participants including students, teachers, the principal and senior management, professional development providers, and policy makers from the Ministry of Education (MoE) as shown in Figure 1. Engaging in self-regulated learning required each to understand the project's goals, and then to monitor, shape, and improve their performance in response to the feedback provided.

The touchstone for judging the effectiveness of the inquiry process was progress in student learning, particularly in relation to the lowest 20% of achievers in literacy. The effectiveness of practice at any level of the system was judged according to the
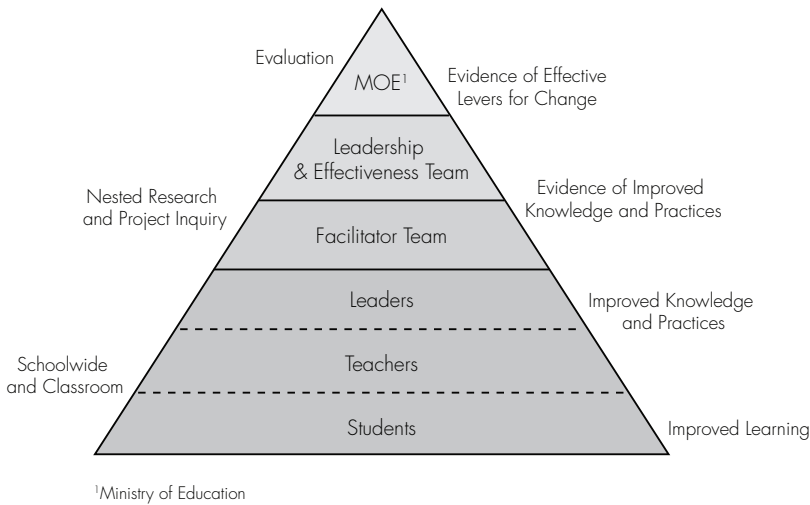
Figure 1. Multiple levels of learning.

Pyramid figure contents (top to bottom):

- Evaluation — MOE[1] — Evidence of Effective Levers for Change
- Leadership & Effectiveness Team
- Nested Research and Project Inquiry — Facilitator Team — Evidence of Improved Knowledge and Practices
- Leaders — Improved Knowledge and Practices
- Schoolwide and Classroom — Teachers
- Students — Improved Learning

[1]Ministry of Education

Figure 1. Multiple levels of learning.

likely impact on student learning for this population. Principles of effective literacy teaching practice derived from the research literature formed the basis of the content of the professional development. However, it also was accepted (and expected) that implementing such principles, even with high levels of fidelity, may not have the desired outcomes. Effective practice was not determined independently of the context in which it was enacted. Building school leaders' and teachers' capacity to inquire into the impact of their practice was a central part of the process.

The focus on inquiry did not mean that the project was content-free. We argue that unless participants in an inquiry process have sufficiently sophisticated pedagogical content knowledge on which to draw when difficulties with outcomes are identified, inquiry into the effectiveness of practice is unlikely to result in positive change for students. Thus, the project had a strong emphasis on building the pedagogical content knowledge of school leaders and teachers. This emphasis also served to achieve coherence at different levels of the project. National experts in literacy identified effective literacy principles and practices. The project leadership team and others with expertise conveyed these principles to the facilitators, using readings, workshops, discus-

sions, and demonstrations. In turn, facilitators conveyed these key ideas to school leaders who, together with the facilitators, assisted teachers to understand and implement the key principles in their classrooms. These principles and practices were not prescriptions for teaching. Instead, they were developed as effective approaches to literacy teaching within a given context.

The Educational Context

The project involved 91 schools across New Zealand. Although New Zealand is a small country of approximately 4 million people, it forms a single educational jurisdiction, and so it can be thought of as equivalent to a medium-sized state in the United States. However, one key difference is that there is no equivalent to district administration in New Zealand. Individual New Zealand schools are responsible for most operational decisions; the central Ministry of Education is responsible primarily for policy and funding, including national professional development initiatives such as the one described in this paper.

The problem of disparities in educational outcomes, however, is shared with other Western educational jurisdictions. Although recent international studies affirm that New Zealand students typically perform very well in literacy, these studies have highlighted disquieting trends, including a wide variation in performance and the underachievement of particular groups. New Zealand has one of the largest standard deviations in literacy achievement in the OECD (OECD, 2001; Ogle et al, 2003). The lowest performing 20% are 2 years or more behind the average of their age peers. Moreover, this pattern has remained stable over a number of years and across different surveys (Caygill & Chamberlain, 2005; Elley, 1994; Martin, Mullis, Gonzalez, & Kennedy, 2003; OECD, 2001, 2005).

In 1999, a literacy taskforce (Ministry of Education, 1999) established the goal of raising literacy achievement for all children. They advocated students getting the best possible teaching through high-quality teacher education to best prepare teachers,

strong professional leadership to support teachers, and ongoing access to professional learning and support for teachers. The Literacy Professional Development Project, the focus of the discussion of this paper, was designed to reduce the persistent disparities in student outcomes.

The purpose of this paper is to explain how the two basic premises of coherence within and among levels of the project and evidence-informed inquiry contributed to the project's success. It is not intended to "gloss over" the difficulties, but rather to illustrate how these difficulties were identified and effective solutions developed.

The Literacy Professional Development Project: Background Information

The form of the project was a response by the Ministry of Education to a negative evaluation (Timperley, Parr, & Higginson, 2004) of an earlier project called Literacy Leadership. This evaluation found that a targeted focus on instructional leadership and evidence-informed decision making did not yield evidence of the desired impact on student achievement. It was apparent to the Ministry of Education officials responsible for redesigning the initiative that changing student outcomes required a wider focus that included classroom teachers, combined with the support to make the intervention more intensive and firmly embedded in classroom practice. There also was recognition of a possible overestimation of the professional capacity within the schools' leadership teams to engage in both evidence-informed decision making and to use student achievement information to judge the effectiveness of initiatives (Timperley et al., 2004). The Literacy Professional Development Project resulted as a school-based, job-embedded model of professional development that essentially involved visiting facilitators working with individual schools, including the principals, nominated literacy leaders, and teachers.

Structurally, the project functioned on four levels, not unlike similar projects internationally. At the apex was the Ministry of Education, whose officials contracted the professional development providers and monitored the progress of the project. Key personnel from the provider's organization combined with regional team leaders of school-based facilitators, two researchers, and a Ministry of Education representative to constitute a leadership team. This team met regularly to review progress, make project adjustments, and plan implementation strategies. The regional team leaders from the leadership team coordinated and headed a small team of facilitators in their geographic areas who met together regularly. In addition, the facilitators, as a group, met for several days on three occasions each year at national seminars. Each facilitator worked with a small number of schools, a number that varied according to school size and geographic isolation. Schools appointed literacy leaders from within the staff to provide the main interface with the visiting facilitator, and the school-based literacy leader was progressively up-skilled to become a resource and leader in an ongoing professional learning community within each school. At other times, facilitators also worked directly with individual classroom teachers.

The project providers were bound by four contracted outcomes determined by the Ministry of Education: evidence of improved student achievement, evidence of improved teacher content knowledge, evidence of improved transfer of understanding of literacy pedagogy to practice, and evidence of effectively led professional learning communities. In this initiative, professional development was designed to be based on the individual and collective professional learning needs of the teachers and leaders in each school.

To identify these needs and, depending on the focus of the schools, facilitators interviewed the principal, nominated a literacy leader in the school, and observed teachers' reading or writing instruction. All school personnel were asked to complete a two-part questionnaire. The first part involved rating a hypothetical classroom lesson in which the learning aims were misaligned to the teaching activities and feedback was provided to the students

using a 6-point Likert-type scale. The second part involved two scenarios related to use of evidence. One scenario presented a description of the decision-making process of a school addressing a literacy problem. It was deliberately inadequate in terms of key aspects such as evidence-informed analysis of need, the match between the literacy problem and intervention measure, and the appropriateness of measures to test the effectiveness of the chosen intervention. Another scenario asked participants to interpret a set of student achievement data in reading or writing for a colleague.

The intention was for facilitators to collate and analyze this teacher assessment data with the school professionals, identifying their professional learning needs. Then together they could construct each school's professional development program. Consistent with the collaborative approach, schools were to ascertain their progress in achieving the contracted outcomes through evidence-informed discussions between the visiting facilitators and school leaders at 6-month intervals. These reports formed the basis of semiannual milestone progress reports to the Ministry of Education.

Overview of Research

Although the project is ongoing, the present paper relates to the first cohort of schools that participated in the 2004–2005 school year. Both authors are contracted researchers on the project and members of the project leadership team. Thus, they were, at times, observers of and contributors to the research data and the decision-making processes that occurred in this forum. They observed and sometimes participated in facilitator development. Additionally, as described in the previous study (Parr, Timperley, Reddish, Jesson, & Adams, 2006), the researchers undertook independent research in a sample of schools using multiple methods. The data used for this paper represent aspects of the data from the project as a whole. Essentially, this research involved the analysis of the student

literacy outcomes in both the case study schools and all project schools; interviews of principals, senior managers, and teachers to understand their learning processes and the perceived impact of facilitators' interventions in the case study schools; audiotaped feedback conversations between visiting facilitators and teachers following classroom observations; and written responses, audiotaped discussions, and interviews with visiting facilitators. An overview of the data collection is presented in Table 1 and described in greater detail below.

Participants and Measures

All elementary schools (N = 91) participating in the first cohort of the project reported their student achievement data to the researchers. The project involved all students from kindergarten to grade 7, although achievement data represent only students from grade 2 onwards, as this is the earliest grade level for which national normative data are available. Reading achievement data were available for 3,787 students. For writing, data from a sample of 1,064 students were available. The data collection for students followed a three-phase cycle: at the beginning of the project (February 2004), at the end of the first year (November 2004), and at the end of the second year of the project (November 2005). In reading, data were from a standardized test of reading, Supplementary Test of Reading (STAR; Elley, 2001), alternating the use of forms A and B. In writing, data were obtained from a criterion-referenced (to the national curriculum) measure of writing, Assessment Tools for Teaching and Learning (asTTle; Glasswell, Parr, & Aikman, 2001) that has associated national normative data (grades 3–7).

Qualitative data were collected in a subset of research schools (n = 14), which were selected to represent a range of geographical areas. The participants, or their caregivers, provided signed consent to be part of the research. All of the professional staff, including principals, literacy leaders, and teachers, at the reading schools (n = 73) and writing schools (n = 43) participated in the

Table 1

Overview of Research Data Related to Current Analysis

Research Data	When
Student achievement data collected by facilitators checked for accuracy and analyzed by researchers for all schools to determine impact of the project.	February–March 2004, November 2004, November 2005
Observations of project development as part of leadership team.	2 days in each of January 2004, April 2004, October 2004, January 2005, April 2005, October 2005
Observations of and intermittent participation in facilitator development.	4 days in each of February 2004, July 2004, December 2004, February 2005, July 2005, December 2005
Interviews with school principals, senior management, and 3 teachers in each of the 14 research schools to understand initial perceptions of the project and the impact of facilitator interventions after completion of needs analysis process. Interviews with visiting facilitators in July 2004 to identify their facilitation practice.	February 2004, July 2004
Interviews with principals and literacy leaders to determine process of determining schools' progress on the contracted outcomes and impact of changes in facilitator practice in 14 research schools.	November 2004, November 2005
Audiotaping of 16 episodes of facilitator feedback to teachers in 14 research schools and follow-up teacher interviews to identify extent of learning as a result.	June–October 2005
Written responses to a questionnaire by 95% of facilitators, audiotaping of follow-up team discussion, and interviews with 5 volunteers to ascertain facilitator learning and changed facilitator practice in schools.	July 2005, November 2005
Ministry of Education interviews and discussions to establish reasons for policy changes.	November 2003, July 2004, December 2004, February 2005, July 2005, December 2005

study. Teaching experience ranged from less than 1 year to more than 30 years, with a mean of approximately 14 years.

At the beginning of the project, researchers interviewed principals, literacy leaders, and 3 teachers in each school to ascertain their expectations of the project. They participated in a second interview in July 2004. At this time, they were asked to choose a category that described their reactions to information from the needs analysis process, including classroom observations, student achievement data, and questionnaires for the staff. The response category options were *major new insights*, *minor new insights*, *confirmed what I knew*, and *not useful*. As the research interviews proceeded, an additional category, *can't remember*, was added. At the end of each year, principals and literacy leaders participated in interviews to ascertain the impact of the project on their learning and school operations, the changing role of the facilitator in each school, and the process of determining their school's progress on the contracted outcomes.

Five of the facilitators provided data about facilitation practice in the research schools. Data collected in July 2004 ascertained their approach to the professional development. The interview questions for the facilitators paralleled those asked of the school personnel. Episodes of audiotaped feedback to teachers ($n = 16$) collected between June and October 2005 documented the form and content of the feedback of the facilitation practice. Following the audiotaping of facilitator feedback, interviews with teachers asked them what they had learned from the feedback, whether they agreed with the feedback, and what, if any, aspect of it they could or would put into practice.

In addition, near the midpoint and at the end of the project, 95% of the facilitators ($n = 21$) responded to written questions about the challenges they faced and their learning over the course of the project. At both times, following the completion of these questionnaires, the regional teams of facilitators' discussions were audiotaped and transcribed. A subset of the volunteer facilitators ($n = 5$) from the larger cohort was also interviewed to provide more in-depth understanding of their facilitation challenges and learning. Facilitator question-

naires differed according to the time of administration. In July 2004, the questionnaire asked facilitators to provide written responses to a scenario that described a difficult situation in a school followed by a request for assistance by a senior manager at the school. At the end of the year, they were asked to identify what they had learned over the 2 years and the implications for further practice.

Data Analysis

Classroom teachers scored student reading achievement tests using the scoring sheets that accompanied the tests. Accuracy of scoring was established by sampling within each class. A measure of gain or progress was calculated for each school. The magnitude of gain over time was calculated for each class using Cohen's d effect size. For writing, expert facilitators moderated the scoring in all schools. Because asTTle writing is scored on a common scale, gain was calculated from total scores at the three time points.

All interviews and facilitator team discussions were coded according to the identified challenges and the extent to which the learning process and practice described were consistent with a co-constructed needs analysis approach.

The protocols for the analysis of feedback episodes were developed from the literature on self-regulated learning (Butler & Winne, 1995). Researchers coded the feedback episodes according to the extent to which specific goals were identified, the analysis of the observed practice and discussion of any recommended changes was co-constructed, and the ways devised to obtain ongoing feedback were identified within the classroom situation. Teachers were interviewed about the usefulness of the feedback and their understanding of how to make recommended changes. The accuracy of these analyses was checked with each facilitator. Accuracy was not contested by any of the facilitators. However, in some instances, they requested that more contextual information be included when it was reported to the project leaders and Ministry of Education (Parr et al., 2006).

Results

The project was successful in meeting the goal of raising student achievement in writing and reading in schools catering for students in kindergarten to grade 7. The average Cohen's *d* effect size gain (Cohen, 1988) relative to where the students started on standardized assessments for schools that chose to focus on writing (*n* = 1,064 students) was 1.28 (Ministry of Education, 2006), equivalent to 2.6 times the expected gain over the 2 years of the project. For the target group of students who scored in the lowest 20% in achievement, the effect size was 2.05, approximately 4 times the expected gain over the 2 years. For reading (*n* = 3,787 students), the effect size gain was 0.87, equivalent to approximately twice the expected gain over the 2 years of the project. A ceiling effect on the reading assessment can partly explain the lower effect size, so the results for the lowest 20% of students are possibly more relevant. For these students, the effect size gain in reading was 1.97 (Ministry of Education), equivalent to approximately 4 times the expected gain over the 2 years of the project. To put these gains in perspective, a recent review of the impact of professional development on reading and writing (Timperley, Wilson, Barrar, & Fung, 2007) indicates that the average project gains overall and the gains for the lowest achievers in this project are at the high end for literacy interventions, particularly for populations who have been traditionally underserved by the education system.

Evidence-Informed Inquiry and Coherence

The remainder of this paper seeks to explain the positive impact of the project. The first example of systematic inquiry and learning occurred when the project was formulated. The Ministry of Education officials became aware, as a result of the evaluation of the project's predecessor, Literacy Leadership (Timperley et al., 2004), that focusing on leadership alone was insufficient to change teaching practice in ways that improved

student outcomes. Leaders were not sufficiently focused on student outcomes and typically did not have the literacy knowledge to work in sufficient depth with their teachers. Hence, the new project involved facilitators with expertise in literacy working with both teachers and leaders.

As a result of the previous project, the Ministry of Education also realized the need for clarity in contracting the outcomes, including improved student achievement and directing teacher learning toward this end. In the new project, the contracted outcomes formed a key role in achieving project coherence. The project leaders accepted these as relevant and important foci and structured the project to provide the conditions necessary to achieve them. The team of facilitators understood the target outcomes; their semiannual milestone reports addressed each of them. The reporting of the project leaders to the Ministry of Education also included progress updates to each of the target outcomes. Moreover, the milestone format provided a framework that assisted facilitators and schools to inquire in evidence-informed ways into their progress in meeting the contracted outcomes. Progressions toward achieving each were identified with criterion statements to enable schools and facilitators to judge progress and identify the evidence to substantiate a particular judgment.

For example, in the progressions that referred to building teachers' content knowledge and the transfer of that knowledge into practice, schools were considered to be in the initial stage when they provided evidence that they were constructing an informed knowledge base. Progressions in this domain included building knowledge and implementing change. The final phase was evaluating and sustaining change. Determining from the evidence the extent of progress toward each outcome was cooperative, evidence-informed, and, deliberately, a learning process for schools. Facilitators worked with school leaders in each of their schools to draw inferences from the collected evidence at mutually agreed upon points in time. School principals and senior managers had typically worked in an input-focused environment and believed that the project involved simply updating teach-

ers about effective literacy practices. Through this process, they gradually came to realize that, for the project to be successful, their school needed to adopt a whole-school improvement focus to achieve coherence in both practice and the inquiry processes within the schools. Leadership knowledge and skills became an increasing focus within the project.

The emphasis on developing evidence-informed inquiry took a different form at each level of the project. In the first year of the project, the focus was on teachers and their students. Participants at other levels, including their leaders, were not charged with the same extent of learning and change. The focus for the teachers was to develop two interrelated areas of knowledge as a basis for their learning. The first area was to deepen their pedagogical content knowledge in fostering reading comprehension or writing, and the second was to use a variety of evidence of student learning to monitor whether their existing or changed strategies were having the desired effect on student learning. Personal professional learning goals were developed with each participating teacher in relation to these areas.

At the student level, the focus was on assisting students to understand explicit learning goals, as opposed to performance goals (Dweck, 1999) for particular activities, articulating criteria for success, and developing self- and peer systems for monitoring their progress toward their learning goals.

Although facilitators accepted they should improve their literacy content knowledge, the need to set personal, specific learning goals; to receive feedback; and to monitor progress toward these goals was not an initial focus. However, as the project evolved, it became increasingly apparent through observations and interviews in the schools that facilitators should develop learning at deeper and more personal levels to work effectively with the diversity of teachers. More details of how this occurred are described in the example in the following section.

Similarly, the members of the leadership team responsible for improving facilitator knowledge became aware that they also needed to have their practice open to similar levels of scrutiny. Learning needed to extend beyond teachers and their leaders

to include those responsible for delivery of professional development. As a result, in the second year, they also developed learning goals and gathered evidence about their effectiveness in achieving these goals. Policy makers and project leaders also realized project facilitation required greater emphasis, and they agreed on a new contracted outcome, namely evidence of effective facilitator practice. Effective project leadership practice was part of this outcome.

Goals and the monitoring of progress and feedback, the essence of self-regulatory learning (Butler & Winne, 1995), became an integral part of the learning process at each level of the project. Operating iteratively and recursively, this cycle of evidence gathering, evaluation against goals, and adjustment of practice comprised a system within which learning could take place at all levels. When analyzing the project's learning processes, we invoke a broader systems perspective of self-regulation to think about the project itself as a learning project; activities at one system level influenced and enabled learning at another.

Theory in Practice: An Example of How the Inquiry Process Promoted Learning and Coherence at All Levels

The above, relatively abstract description of how the project functioned as an inquiry-based project, is exemplified in this section by describing how evidence from one level in a specific situation resulted in changes and outcomes at other levels, leading to greater project effectiveness and coherence. This example is one of many.

Interactions at all levels of the project centered on evidence. This evidence could include evidence of student learning from assessments and interviews, evidence of teacher practice from observations and their knowledge from their written responses to a hypothetical lesson scenario, evidence of school leadership practice from observations of meetings, or evidence of facilitator

practice from feedback sessions and teacher responses. Evidence was used to hone practice to achieve outcomes.

The evidence served two important functions. The first was to identify learning needs of participants at the different levels, and the second was to determine the extent to which those learning needs had been met. In keeping with these functions, initial work by facilitators in each school focused on obtaining evidence to undertake an analysis of both student and professional learning needs. As the project developed, professional meetings were observed to identify leadership needs in this area. These data were intended to be used to plan professional learning.

However, it was clear from responses to the interviews with school-based personnel 6 months into the project that few principals, literacy leaders, or teachers perceived the reason for this needs analysis, particularly as it might concern them. Thirty percent of the teachers interviewed did not remember receiving feedback from the observations, nor did they understand how their responses to the scenario had been analyzed or used. The remainder indicated that the process had led to minor new insights or confirmed what they already knew. Facilitator interviews established that they were insufficiently clear themselves, at this early point in the project's history, to explain the purpose of the needs analysis to the school-based professionals and, more importantly, to illustrate how the data would inform their activities within the schools. Initially, both schools and most facilitators viewed the needs analysis as an exercise to get through as expeditiously as possible. Although they were familiar with the diagnostic use of data in the classroom, they were not familiar with utilizing schoolwide data in ways that might inform whole-school action. Schools and facilitators steeped in a traditional delivery model of professional development were anxious to start the professional development delivery sessions.

Consistent with this view, it also was established that the semiannual milestone reports were frequently being completed by facilitators alone who perceived it to be their job to report on schools, rather than to discuss the progressions with school lead-

ers. The participants were missing an important co-constructed learning opportunity.

These findings from the research interviews were shared and considered at a project leadership meeting. The leadership team realized that the planned needs analysis process required that facilitators first recognize the concept of a needs analysis and the advantages of a more co-constructed approach. Further, they realized that facilitators needed to possess considerable skill to utilize the data from each school to challenge current practices. The project leadership team considered the issue as one of understanding the need for, and supporting the acquisition of, deeper knowledge of facilitators with regard to data interpretation. Also, the facilitators needed more expertise in how to use this data to change teacher and leader practice. This realization led to the identification of five core acts of facilitation and the subsequent training of facilitators. The first of these acts stated that all interactions and activities should be contracted to develop shared understanding of the reasons for the activity, shared agreement about its relevance, and shared responsibility for presenting the evidence and for formulating the next steps. The second core act specified that every piece of evidence should be discussed with those involved as it was collected. The third act followed from the first two by specifying that action plans should be based on the facilitators', teachers', and school leaders' shared understanding of the evidence related to professional and student learning needs at the time. The fourth provided a focus for change by specifying that all activities should be focused on the question, "What needs to change to improve?" Particular reference was made to feedback that not only affirmed teacher practice but also challenged that practice. The final act related to the leadership of schools and stated that challenge also may involve challenging management practices when this proved necessary (Learning Media, 2004). With guidance from the project leadership team, at national seminars and in regional teams, facilitators built their knowledge and skills in these acts of facilitation.

When school leaders worked with facilitators to use student data to identify student learning needs, they also began to see the

relevance of examining what teachers knew or needed to know in order to meet these needs. Combining student data with classroom observations and data about teacher knowledge from responses to the scenarios gave facilitators and teachers evidence from which to draw inferences about practice and how it needed to improve. This evidence became the basis for conversations that included the joint analysis and subsequent co-construction of new practice.

The leadership team supported facilitator learning about how to undertake such conversations. The leadership team provided multiple opportunities to learn and high accountability requirements. To approach their work in more co-constructed ways, facilitators required knowledge of how to construct interactions that enabled the conditions necessary to work effectively in a school, how to learn from evidence, and how to give constructive, useful feedback to teachers, literacy leaders, and principals.

Most facilitators were new to the role. They did not understand the notion of co-constructed conversations around evidence or the notion of catering to the diversity of teacher learners. They were provided with some direct instruction, but mainly, they were given opportunities to observe, discuss, and participate, and analyze their own practice. Responses to research tasks and interviews in the second year identified that this training was the area of greatest learning. The project leadership team came to appreciate the complexity of what was involved as they engaged in the process of analyzing their own practice. A focal point of the research became evidence of more effective facilitator practice. This occurred through an in-depth analysis of episodes of teacher learning from feedback. A research analysis of the sample of the facilitator's feedback showed that initial feedback was often generalized, with criticisms embedded in manipulative questioning. Facilitators used this technique in the hope that teachers would say what needed to improve, thus providing an opportunity for facilitators to tell the teachers how they should change. Following discussion about these findings from the research, each facilitator then audiotaped his or her own feedback and analyzed it according to the protocols of conversations

consistent with the joint analysis of existing practice and co-construction of new practice. Then the facilitators discussed with colleagues how they might change. This ever-increasing scrutiny of practice was initially uncomfortable; however, participants gradually grew to appreciate its value, as revealed in subsequent interviews of facilitators.

The new approaches adopted by the facilitators helped school leaders to understand that the project required comprehensive school improvement, not just updating their teachers about literacy teaching and learning. This meant that school principals could no longer stay on the sidelines; they needed to become involved in developing evidence-informed leadership practices and to shift their roles toward a greater focus on instructional leadership. A principals' group was established to advise the project leaders, in response to these new roles.

Part of the project's learning and response to the identified difficulties also occurred at the level of policy. It became increasingly apparent that the learning needed could not be undertaken in one year, but a second year was needed in order to develop and consolidate the required skills and knowledge. The Ministry of Education officials advocated for and obtained a second year of funding for each school. A second cohort of schools is now in the project, but the ongoing learning and adjustment within and among the levels is continuing.

Discussion

Previous attempts to change entrenched profiles of student achievement have been met, in the most part, with limited success, particularly in projects of a similar scale. The research literature documents and explains the problem extensively. The more simplistic explanations blame the policy makers for being unrealistic, unclear about their goals, or having low credibility with politically suspect reasons (e.g., Hargreaves, 2002; Mintrop, 2002). Alternatively, other explanations blame the attitudes, skills, and knowledge of practitioners responsible for implementation (e.g.,

Delpit, 1995; McLaughlin & Talbert, 1993). More sophisticated analyses have allowed researchers to recognize that implementation failures often occur as a result of the complex interactions between the proposed change, as advocated by policy makers, and the existing norms, belief systems, and practices of those responsible for implementation (Coburn, 2001; Spillane, Reiser, & Reimer, 2002). This position recognizes that many of the difficulties occur at the interface between the changes proposed by the initiators and those responsible for implementation.

The project described in this paper deliberately created structures involving overlapping levels of personnel encompassing policy makers and those responsible for delivering the project to schools and the practitioners, thus reducing potential misunderstandings at the interface. These permeable layers provided the opportunity to develop systems for learning and project development. The learning settings were structured to support project implementation, but both these settings and their foci changed to support project learning and improvement. Over time, the expectation developed that everyone needed to learn, not just the teachers and their leaders. The pivotal role of the facilitators to deliver these project messages to schools and develop their capacity to respond became increasingly apparent. Problems of implementation were seen as opportunities for those involved to inquire and engage in a problem-solving process. If one group did not have the capacity to implement particular practices, rather than attribute blame, learning opportunities were created.

Providing consistently focused learning opportunities throughout the levels of the project was instrumental in creating project coherence. Through the commitment to learn from evidence, misunderstandings were identified and greater coherence at the level of the principles underpinned the project. Coherence was not established through more detailed implementation manuals, but through a deeper understanding of the project approach and the knowledge, skills, and rationale to enact those principles.

The developing realization that it was not just schools, their leaders, and teachers who needed to learn and change, but that the visiting facilitators, project leaders, and policy makers also

needed to learn and change is not well documented in the literature. A search of the literature focusing on effective facilitation practices resulting in the kinds of teacher change that has a substantive impact on student learning revealed few empirical studies (Timperley et al., 2007). If we are to solve entrenched student achievement problems through teacher learning, it may be time to turn our focus to the skills and knowledge required for those providing the professional learning opportunities. In doing so, our focus on promoting student and teacher learning must remain the goal. Ultimately, it is within classrooms and student-teacher interactions where activities of highest leverage occur. However, if we are to improve the learning opportunities for students, then creating learning opportunities and expecting changes throughout the system needs to become a necessary and integral part of the process.

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