Is sustainability of educational reform an article of faith or can it be deliberately crafted?

Pam O’Connell, Learning Media Ltd
Helen Timperley, University of Auckland
Judy Parr, University of Auckland
Kane Meissel, University of Auckland

Paper presented at the British Educational Research Association Conference

3 - 6 September, 2008
Edinburgh
(Please do not cite without permission from authors. Contact pam.oconnell@learningmedia.co.nz)
Introduction

Most studies examine the sustainability of professional learning in schools in terms of the maintenance of particular principles of instruction, alongside teacher self-report of improved practices, yet we know that teachers’ confidence ratings and shifts in practices do not always guarantee improved student outcomes over time (Timperley, Phillips, & Wiseman, 2003). Indeed, sustainability of educational reform initiatives has certainly not been neglected in the literature but appears to be treated more as an article of faith than a condition subject to empirical verification (Timperley, Wilson, Barrar, & Fung, 2007).

This paper begins with an analysis of several limitations of the current definitions of sustainability that exist in the research literature. It then investigates those conditions that research indicates promote sustainability of professional learning in schools. We present a two-dimensional conceptual model for describing and measuring sustainability in this paper. The model has been used to shape the investigation of Phase 1 and 2 of a longitudinal study that is tracking students’ literacy achievement and school-based conditions in 16 schools that exited at the end of 2005 from a two-year national Literacy Professional Development Project (LPDP) in New Zealand. Analysis of the theories of practice held by teachers and school leaders suggests that schools’ views of sustainability may be self-limiting in nature, reinforcing sustainability as being only about single professional learning programs. Phase 1 results indicated that 83 per cent of the schools in the year after their exit from the LPDP sustained their student achievement results with a new cohort of students. Ten of the schools sustained or, indeed, improved their patterns of improvement with new cohorts of students when compared with the already impressive gains they had made while being supported by external facilitators. In two schools, whilst improvement continued to be made, the rate of gain for students in 2006 was not as great as when they were supported as part of the project. Three schools presented data for only one point of time in 2006 so comparisons in gains could not be made and one school did not present their data. After two years these patterns do not change dramatically. By the end of 2007 ten of the 13 schools that presented data sustained their gains, three schools reduced the rate of progress (although students have still improved beyond expected levels of progress) and three schools did not present their data.

In those schools that sustained the gains made in student outcomes there is evidence that the principal and literacy leaders had a more sophisticated understanding and application of inquiry as a means for schooling improvement. At the same time, these leaders were making more explicit links with effective pedagogical practices from other initiatives to bolster transfer of learning across projects. Phase 2 of the study more closely examined school-based conditions in four of the 16 schools, almost two years on from their participation in the literacy program. These cases reinforce the earlier evidence. Only one of these four schools that had sustained their gains in 2006 was not able to maintain that rate of progress in 2007.

The research data are constrained by several factors, including the size of the sample and the limitations of the student assessment tools. Nevertheless, they offer a more robust starting point for further debate on sustainability than evidence of teacher satisfaction or shifts in practice alone.
Towards a definition of sustainability

The research reported in this paper deliberately sets out to define and expand the notion of sustainability beyond the context of a single professional learning project. Its purpose is to focus closer attention on whether schools “craft” their new learning and practices onto a coherent set of principles about effective instruction, within and across the curriculum. The research is focused on developing a working definition and theory of practice for achieving sustainable school improvement that is underpinned by four key assumptions, derived from the literature on sustainability. These include:

- Sustainability is measured by continuous improvement in student achievement, particularly for those students whose patterns of achievement place them at risk of not meeting expected levels over time.

- Any adaptation of professional learning program practices over time, and any new programs and practices, are explicitly reviewed against the principles of effective instruction that are proven by research to improve learning and achievement and tested for their efficacy using school-based inquiry and knowledge-building improvement processes.

- A professional learning project contributes to the overall coherence of effective instruction in a school (and is not “sustained” as a single entity) and to the knowledge and practices in that school about effective schooling improvement.

- Sustainability of effective practices and continuous improvement in student achievement requires strategic action in schools to offset the impact of teacher and leader attrition, the reduction of funding and changing educational priorities.

This theory of sustainable improvement also assumes the critical focus for each curriculum professional learning project to develop teachers’ pedagogical and content knowledge. There are strong research indicators that teacher pedagogical and content knowledge is linked to improved student achievement (Parr, Timperley, Reddish, Jesson, & Adams, 2006). The theoretical framework promotes recognition and transfer of knowledge across professional learning projects, so that new practices and the beliefs that underpin them are aligned and further strengthened. Understanding this coherence can avoid the creation of separate processes for each project in the wake of their implementation period, instead promoting commonality of purpose in improving existing infrastructures.

Since 2000, researchers have more consistently attended to defining and describing sustainability and drawing conclusions about the links backward to the professional learning design. Despite this, there are still relatively few research studies that clarify a definition of sustainability or trace how or why schools discontinue, adapt, or even transform the changes they make over time. Coburn (2003) argues that scaling up and sustainability of professional development is “under theorized” and Wood (2007) suggests that the term is yet to acquire a shared meaning within educational contexts. Typically, sustainability is defined either in terms of shifts in school and teacher practices or, less commonly, in terms of ongoing improvement in student achievement outcomes. Measuring whether these practices have been sustained or not is still a complex issue. For instance, how much fidelity in school-wide and classroom practice should there be to the original reform? How much improvement in student achievement can you realistically expect to achieve with new cohorts of students?
Century and Levy (2002) offer a definition of sustainability that addresses the notion of adaptation, at the same time, embracing the institutionalisation of key changes, and resilience to any ideas that might derail the changes. They explain sustainability as “the ability of a program to maintain its core beliefs and values and use them to guide program adaptations to changes and pressures over time” (page x) and distinguish their definition of sustainability from that of “program maintenance”, where what is embedded into everyday practice is just a replica of what was introduced in the program and has not been adapted or improved. They believe that a program must be maintained before it can be sustained, that it cannot be stalled at maintenance, but must develop an ability to evolve and adapt. The adaptations, however, must still be guided by the core beliefs of the program intent (ibid, p. xi). Dede and Rockman (2007) comment that ‘leverage’ of successful initiatives may be the paradigm to consider when designing systemic change that is sustainable, rather than being ‘trapped’ by the idea of scaling up and replication of such programs.

This notion of adaptation is still problematic. Teachers inevitably adapt new professional learning program practices both during and after a professional learning program as they take up new ideas or try to decode policy. Spillane, Reiser, and Reimer (2002) argue that the complexity of the sense-making process is often ignored as researchers and policy makers try to explain the failure of many teachers to implement new practices as intended. They contend that teachers’ active comprehension of reform combines with the richness of their individual experience, knowledge, and beliefs. They say that typically teachers encode new information by adapting it to fit what is known or they encode it without exploring the implications of the new ideas for what they already know, resulting in pockets of inconsistent knowledge.

**Student outcomes as a measure of sustainability**

The critical issue related to any adaptation of practices is whether these adaptations lead to improvement in student outcomes. Timperley, Phillips, and Wiseman (2003) studied seven suburban, low decile schools in South Auckland, New Zealand that participated in a professional development program focused on literacy. They identified that those teachers who made the greatest adaptation to the literacy teaching approaches promoted in the program had poorer student achievement outcomes than those who implemented the approach as intended. The teachers who made these adaptations believed that the changes better met the needs of their students but did not test them for their effectiveness in improving outcomes. Brown and Campione (cited in Wood, 2007) also discovered “lethal mutations” of practices after a program had ended that negated the original objectives of the professional learning.

Timperley, Phillips, and Wiseman’s study found that those schools that had sustained improved student outcomes used student achievement data as a “touchstone” for measuring the effectiveness of their teaching methods. This study was a watershed in the research about sustainability, at least in the New Zealand context, and its messages have been further endorsed in the findings of the Teacher Professional Learning and Development Best Evidence Synthesis Iteration (TPLD BES) (Timperley et al, 2007). Only seven of the 96 studies that demonstrated substantive student improvement also documented ongoing improvement of student outcomes after the program funding and support had dissipated. The evidence from these seven studies is limited but consistent. Where sustainability was achieved, the providers of the
professional learning had focused on developing pedagogical content knowledge in sufficient depth that teachers could make principled decisions about practice, as well as developing evidence-based inquiry skills with teachers that allowed them to test the impact of new practices. Any definition of sustainability must therefore reference ongoing improvement in student outcomes. This reference also differentiates sustainability from notions of spread of ideas and scale (Wood, 2007, Dede & Rockman, 2007).

We argue that privileging student achievement as a measure of sustainability may sharpen the urgency and improve the responses that schools make to ongoing professional learning opportunities and the stance they take to adapting practices.

The research literature explored to date does not provide expectations for student achievement patterns in the years following the professional development. If students do make gains in the initial period, will these same improved trajectories be maintained, or even improved, for new groups of students once the schools exit the training program? Will schools follow an iterative inquiry model, where they ask more searching questions about their own practices and knowledge to help solve the issues at each cycle of data analysis, or will they continue to analyse each data set as they did the year before?

**Conditions that promote sustainability**

The research literature offers considerably more guidance on the challenges that schools face in trying to retain the shifts that they make. These constraints include the impact of changing personnel, shifting priorities, and internal competition for funding, and have most often been studied in the context of the early years of school participation in professional development (Century & Levy, 2002; Coburn, 2003; Gersten, Chard, & Baker, 2000; Hargreaves, 2003).

Researchers promote a plethora of conditions that they argue contribute to the sustainability of reform at school level. These include: leadership for improvement (Fullan, 2006; Robinson, 2007; Spillane, 2006); the extent to which leaders and teachers are equipped with inquiry skills to assess if their changed practices are having the required impact on student outcomes (Earl & Katz, 2006; Reid, 2004; Robinson & Lai, 2006; Sutherland, 2004); sufficient depth of content and pedagogical knowledge (Bishop & O’Sullivan, 2006; Elmore, 1996; Elmore, 2002a; Parr & Timperley, 2006); communities of practice that enable ongoing and shared ownership for improvement in student outcomes (Elmore, 2002a; Lima, 2001; Little, 1993); and learning processes for teachers that penetrate teacher beliefs about learning and the efficacy of the practices they engage in so that principled knowledge can be transferred to different contexts and curricula (Timperley et al, 2007). Substantive research lies behind each of these conditions. The issue for educators is to work out how to balance and apply these conditions to professional development design, while acknowledging that context matters in all engagements with teachers.

**Co- and self generative improvement practices**

Inquiry appears to be a fundamental shift from traditional ways of working for leaders and teachers in schools. Leaders may have fostered new practices but not have dealt with the teacher beliefs that underpin those practices or examined the evidence of their impact on student achievement (Timperley, Parr & Higginson, 2003). Processes that gather and analyse evidence to find the impact of *current*
theories of practice on student achievement, and that also reflect on the impact of new practices, are at the heart of an inquiry model.

Student achievement data support teachers to problem-solve issues of underachievement and to question, challenge, and articulate their practices rather than simply adopt some new idea or strategy (Timperley, 2003). Teachers’ professional dialogue about classroom-based problems and issues of practice is then grounded in evidence, not anecdotes. Earl and Katz (2002) provide a further list of competencies that together ensure ongoing improvement. They report that teachers need to:

- be data literate with all of the assessment tools available in their curriculum area of expertise;
- be able to identify trends and patterns;
- know what evidence to gather to investigate problems;
- know how to compare results over time;
- value data.

These competencies “accentuate” the goal of promoting student learning and achievement in schools and appear essential to sustainability.

Co- and self-regulated improvement practices include effective leadership and knowledge of inquiry processes within schools and operate at several levels in the school. Franke, Carpenter, Fennema, Ansell, and Behrend (1998) describe this capability as “self-sustaining, generative change” brought about by individual and collective problem-solving rather than just acting out a process or set of procedures. These inquiries occur within a collaborative model that supports collective responsibility for rigorous investigation of evidence, theory engagement, and selection of solutions. Reid (2004, p3) describes inquiry in the school context as:

*a process of systematic, rigorous and critical reflection about professional practice, and the contexts in which it occurs, in ways that question taken-for-granted assumptions. Its purpose is to inform decision-making for action. Inquiry can be undertaken individually, but it is most powerful when it is collaborative. It involves educators pursuing their ‘wonderings’ (Hubbard & Power, 1993), seeking answers to questions or puzzles that come from real-world observations and dilemmas.*

Thus, inquiry is a process where it is essential for people to develop the ability to regulate their own learning (Parr, Timperley, O’Connell, & Arnerich, 2006). The TPLD BES (Timperley et al, 2007) is clear in making the distinction between inquiry as using evidence about student needs to inform teaching decisions and using the same data to reveal teacher learning needs. Inquiry without a determination to build new knowledge will not lead necessarily to improvement. Once new learning is undertaken new or adjusted teaching actions are transferred to practice and then these practices are regularly monitored for their effectiveness. Coburn, Toure & Yamashita (2008) describe the “interpretative space” that follows being confronted by evidence of student under-achievement. In their study decision-makers at district level did not return to the data to ask further questions, often determining new pathways without fully framing the problem that they were dealing with. If we apply this to the school setting, then school leaders and teachers also need to acquire skills to support this interpretative space so that they can
interrogate their data to gain a finer grained understanding of the issues of student achievement that they face.

The importance of coherence

Organisational change theory suggests that messages in the environment shape patterns of action and beliefs in schools through regulative means (that is, it becomes regulation to change practice in a certain way), through normative means (teachers feel pressured to adopt certain practices to maintain legitimacy), and through cognitive means (beliefs and practices are taken for granted as being the way to teach). Messages about policy are carried by many means – policy, curriculum, texts, professional development, professional organisations, assessment systems, and individuals. This “outside in” model of learning needs to be coherent and aligned with the “inside” or “inside-out” model of learning (Fullan, 2000). Levin, Glaze, and Fullan (in press) are optimistic about recent school reforms in Ontario being sustained, pointing to elements such as planned strategic coherence at system level impacting on coherence of school instruction, paying attention to all elements of schooling simultaneously, fewer initiatives, and more focus on deeper implementation.

There is limited research at the classroom level to indicate whether instructional program coherence is, in fact, critical to sustaining student achievement. Newmann, Smith, Allensworth, and Bryk (2001) define instructional coherence as:

- a set of interrelated programs for students and staff that are guided by a common framework for curriculum, instruction, assessment, and learning climate and that are pursued over a sustained period.
- Reform that strengthens instructional program coherence contrasts with efforts to improve schools through the adoption of a wide variety of programs that are often un-coordinated or limited in scope or duration.

page 297

These researchers contend that the problem is that too many unrelated improvement programs exist for schools and that their teachers divide themselves across various initiatives because they want to access all available support and knowledge. In order to avoid this “Christmas tree” approach to improvement, many school districts now favour whole-school initiatives but, as these authors point out, there is little research yet on how instructional coherence might constitute an important schooling improvement strategy, nor a theoretical explanation about why coherence might advance student learning. “Although whole-school models may spur more extensive improvement or restructuring efforts, they may or may not address links between the reforms and their collective links to student achievement” (Newmann et. al, page 299).

Supovitz and Taylor (2005) expand on this theme of coherence, arguing that powerful improvements in teaching and learning can come from developing coherence and alignment across the complex and different elements of an educational system. When multiple messages converge on schools via professional learning projects, this coherence has to be deliberately “crafted”, according to Honig and Hatch (2004). These authors view coherence as a dynamic process, not as an outcome, a process that might provide a more productive organizing construct for both policy-makers and schools. Newmann et al (2001) point out that while the responsibility for the alignment of key messages is located at the school level, it seems likely that little support is given to schools to continually craft the fit between external
policy demands and the schools’ own goals and understandings. In this educationally “demand-rich” environment schools have to develop internal mechanisms to “buffer and bridge” the complexity of messages, to translate them into day-to-day operations and thinking and, more importantly, test their efficacy in achieving improved outcomes for their students.

Adelman and Taylor (2003) suggest that sustainability should be the focus from the day a professional development program is implemented and the keys to sustainability are “clarifying value and demonstrating feasibility” (page 2). Sustainability of “what” must be explicit and framed within a “big picture” context of school and community efforts to improve outcomes for students.

While external providers can influence the outcome, sustainability is inevitably about what the school does in the wake of reform.

*Obviously no single project can transform a school, never mind a school district. At the same time, any project can be the catalyst for change.*

Adelman & Taylor, 2003, page 20

Different reforms might work to amplify the key messages about effective practices as a way to scale up reforms that do produce effective outcomes for students. To achieve breadth as well as depth, Coburn (2003) suggests building “normative coherence” between professional learning projects. This is an alternative way to achieve breadth of outcomes rather than thinking solely in terms of expanding to more schools. It means that coherence operates at a systems level as well, to further assist schools to craft their effective instructional coherence.

**Strategic action in schools to support coherence of effective instruction**

Honig & Hatch (2004) agree that school leadership is of crucial importance in developing this capability to bridge and buffer those big ideas operating in schools that may be “riddled with conflict about professional practice”. Robinson (2007) points to planning, coordinating, and evaluating teaching and the curriculum as a leadership dimension that has considerable evidence of impact on student achievement. Her major message is that the closer leaders get to the core business of teaching and learning, the more impact they have on their students. Instructional leadership therefore requires skills to be able to help teachers make links across programs and build coherence of effective classroom instruction across the curriculum.

We apply Robinson’s findings to sustainability of effective practices and continuous improvement in student achievement. Sustainability of professional learning requires strategic action by leaders in the schools. These actions should aim to support coherence of effective instructional practices across the curriculum and to achieve the breadth, critical mass, and consistency needed to offset all those factors that inhibit ongoing uptake of new practices. They might include:

- Deliberate and explicit links made between professional learning projects so that the key messages about effective instruction can be recognized, amplified, and transferred into new contexts by teachers
- Surfacing and challenging the routine defence systems that work against uptake of reform
• Induction programs for new teachers to the school that amplify these key messages and set expectations for their application.

More recently some strategic actions that promote coherence have been exemplified in the research literature. Stein (2005) and Stein, Hubbard and Toure (2008) have focused on instructional improvement across the system rather than viewing instructional improvement as the adoption of a series of unrelated “programs”. They argue that leaders can spearhead and frame coherence of instructional changes ensuring that there are scaffolds to support cognitive levels of improvement at work in the school. They draw on a framework from the National Academy of Education (1999, cited in Stein, Hubbard & Toure, 2008) that identifies how learning is facilitated by ideas, people and tools and the various mixes of these. The tools that are developed by the school (or the program developers) can embody both the theory behind the change to the practice and how people learn while, at the same time, guiding individuals actions. They become a de-facto representation of what the educational idea looks like in practice and support new users of the idea to understand the design principles and how to enact them. They also describe a fourth dimension at work in the learning process; the “pedagogy of travel”, by which they mean the stance taken by those promoting the changes to instructional practice and their adaptation to a new context. Robinson, Hohepa and Lloyd (in press) present a similar notion of “smart tools” in their research on leadership and its impact on improved student achievement. They describe a range of tools that have particular qualities and that support routines that enable users to understand the theories that are applying in their teaching. These tools can therefore promote coherence and alignment of practices across a school consistent with best evidence about effectiveness. They may be developed by central government, at district level or within a single school. These tools may prove to be a critical element to support sustainability. Timperley, Parr, O’Connell, Meissel, Nelson & Hulsbosch (2008) warn, though, that while a particular tool may represent the core learning of the project, it is how the tool is integrated into the routines of practice that may effect is impact on student achievement.

A conceptual framework of sustainability

Based on what is currently known, it seems reasonable to group the school-based conditions for sustainability into two dimensions that are closely interrelated and can impact on learning at two or more levels – for the individual teacher, for school communities, for local or district level support, and systemically.

The first dimension is the degree to which the professional development program is integrated into coherent effective instruction across the curricula in a school. Elmore (2002a) describes a necessary corollary for school improvement as the connection between the “big ideas” about improved practice and the “micro-world of teaching practice” (page 29). These big ideas may compete or conflict, and so must be processed or resolved in some way so that teachers can lift their thinking beyond the practices to the underlying principles that they represent. In this way, a school can develop a coherent set of principles and practices, both shared and explicit, which are regularly tested for their efficacy in improving outcomes for all students. Elmore (2002a) also argues that professional development is a collective good rather than a private or individual good. Its value should be judged by what it contributes to the individual’s capacity to improve the quality of instruction in the school and school system. Therefore,
this research argues that the lens for sustainability should be broader than a single project and focused across projects within the system or a school and all investigating how they impact on individual practices.

The second dimension for the conceptual model is an orientation for teacher and system learning that enables co- and self-regulation for improvement. It conceptualises teacher change in terms of teachers carrying out authentic inquiry into problems of practice and student achievement that requires deeper analysis at each new cycle of inquiry. Phases 1 and 2 of the study investigated if schools were engaged in a recursive inquiry where they asked the same questions of their student achievement data as they did the year before, or whether they worked iteratively, connecting each ongoing inquiry, asking different questions as they began to pinpoint groups of students that still needed attention, while always testing their assumptions and linking their literacy practices to the impact on achievement.

![A conceptual model for sustainability](image)

**Fig 1: A conceptual model for sustainability**

Figure 1 incorporates these dimensions on two axes. Each axis represents a continuum of understandings and practices that may be present in the school. The horizontal axis describes the development of effective and coherent classroom instruction. One end of this continuum might begin with a perspective
of viewing professional development projects as disparate, each concerned with its own set of changes to knowledge and pedagogy. The other end may represent a stance that can allow teachers to make connections across projects and to explore and understand the beliefs that exist about the nature of effective pedagogies. The vertical axis describes the development of the professional learning community in a school, starting with learning activities and structures that support teachers to learn from and with each other and with experts in an ongoing way, and works towards an inquiry culture where teachers can self-regulate their practices, both as individuals and as a community, to support ongoing improvement in student outcomes (Timperley et al, 2007). In other words, inquiry is ongoing and leads to more focussed investigations and better questions (Earl and Katz, 2006). The curriculum content knowledge of the professional development project serves as the backdrop to these axes, as does the particular context of each school.

This conceptual model is being investigated in the wake of an intensive two-year, whole school professional learning initiative in literacy undertaken by 91 schools during 2004–05. The project was demonstrably successful in these years in meeting its goal of raising student achievement in literacy. The average effect size gain (that is, relative to where they started) for schools that chose to focus on writing (data from a moderated sample of 1,064 students) was 1.28. For reading (data from 3,787 students) this was 0.87. Moreover, the gain was more marked for those students in the lowest 20 per cent at Time 1. In writing, the effect size gain was 2.05 and in reading it was 1.97. Substantive as these gains seem, the project team still queried if this was enough to support sustainability (Bareta & English, March 2006).

The LPDP has articulated a set of core beliefs across various project tools and working papers over 2004-6. The project’s theory of improvement is based on the hypothesis that effective classroom teaching will lead to improved student achievement and, in turn, that effective facilitation of reform will enable schools to sustain their gains over time (Bareta, English & O’Connell, 2006). Schools participate in the project for a period of two years focusing on several improvements; in students’ literacy learning and achievement, in teachers’ content and pedagogical knowledge and in transfer of this knowledge into classroom literacy practice. Project schools are supported to focus also on improving the ways that teachers learn together as professionals and on the effective leadership of these communities of practice.

The LPDP has particularly focused its efforts on promoting sustainable change in schools. The intervention design draws on and is explicit about a number of school-based conditions that research evidence indicates will prepare schools to sustain improvements well beyond initial implementation. The conditions explicitly promoted by the program include:

- Leadership for effective professional learning and improved student outcomes
- Deepened content and pedagogical knowledge
- Learning processes for teachers that penetrate teacher beliefs about learning
- Knowledge about inquiry and data literacy in order to test the efficacy of teacher practices

**Method**

Ninety-one schools participated in cohort 1 of the LPDP in 2004–5. Forty-nine schools (593.6 teachers) had a writing focus and 42 schools (589.5 teachers) had a reading focus (Bareta & English, March 2006).
A sampling method was applied to this cohort to select schools for the Phase 1 study. The selection criteria included that they were a facilitator case study school¹ and that the sample was representative of reading and writing focus schools and a range of deciles², school types, and facilitators.

Twenty schools were invited into the study and 16 schools (17.6% of cohort 1) agreed to participate in a one-day school visit in 2006. Comparative percentages indicate that significantly more intermediate schools, fewer primary schools, and fewer writing schools are represented in the research sample.

The researchers used mixed methods to collect data, including interviews, questionnaires, and audio-taped recordings of literacy lessons and teacher meetings. They gathered student achievement data on each school’s specific literacy focus and other documents related to the schools’ analysis of that data. Sixteen principals, 28 literacy leaders, 126 teachers (including 21 new teachers who had participated in LPDP for only one year and 24 teachers who did not experience the project at all), and 94 students offered their responses in questionnaires, semi-structured audio-taped interviews, or classroom lessons. Two researchers independently coded the transcribed responses to questionnaires and interviews, the school meeting transcripts, and other documents. The reliability of the coding was established by calculating the percentage of responses that the markers coded to the same criteria. The agreement ranged between 80.5 and 100 percent. Any disagreements were then discussed and resolved.

Each research instrument probed one or both of the dimensions in the conceptual framework. A pre-visit questionnaire asked principals to describe what sustainability of the LPDP meant for their school and how they might articulate that with other school leaders. The researchers wanted to determine whether principals recognized the schooling improvement processes inherent in the project as being transferable. A second closely related question asked principals how they would know if the project was being sustained in their school and what evidence they might seek for this. The Leaders’ interview involved the principal and the literacy leaders responsible for ongoing literacy learning for teachers. They were also asked to describe their views of the key messages and indicators of sustainability of the LPDP, the nature of the student achievement data gathering processes used in 2006 for their literacy focus, the learning processes for current and new teachers, and if they were making any links to new or previous professional learning foci. In each school a literacy leader and a new teacher to the school were interviewed after a lesson observation and asked about their understandings of the core beliefs and messages of the LPDP and how they might have been evident in their lesson, the purpose of their assessment practices, the links, if any, they were making to other areas of the curriculum.

School documents were gathered at the time of the school visit. The school’s literacy action plan and any written analysis of student achievement data used with the Board, school community or with teachers were requested, in order to examine the schools’ understandings of ongoing inquiry into issues of achievement. Schools also taped a teacher meeting that focused on literacy and student achievement so that leaders’ and teachers’ understandings of inquiry as a means for improvement could be analysed.

¹ Each facilitator had two case study schools whose program they fully described in their milestones during the implementation period.
² All New Zealand schools have a decile rating that indicates the socio-economic status of the communities from which they draw their students. Low-decile schools receive a higher proportion of government funding.
The transcripts and documents were coded and scored according to understandings about coherence of instruction across the curriculum and transfer of learning from one professional learning initiative to another, and/or according to evidence of inquiry knowledge and processes being described or applied to practices. Each school’s data for coherence and inquiry were then aggregated and graphed as coordinates on the axes, as shown in Fig 4.

In 2007 the researchers visited four of the 16 schools to continue the inquiry and coherence probes they had used the year before with school leaders. The criteria used to select these four schools included that they all had similar contexts, large numbers of students and represented both the reading and writing focus of the original project. In particular, these schools presented with different mixes of the two dimensions of the conceptual framework in our Phase 1 analysis. In Phase 2 we aimed to test this analysis and investigate some challenges it revealed about the theoretical framework. Three of the schools selected for this phase had sustained their gains in 2006-07 with a new cohort of students but had different positions in terms of their inquiry and coherence knowledge and practices. One school had sustained their results in the first year after exiting the LPDP but their students dramatically lost ground in the second year. The researchers used mixed methods to collect data in the four schools, including interviews and document analysis.

The analysis of the schools’ 2006 - 2007 student achievement data aimed to describe whether each of the schools was able to maintain or improve on the shifts in students’ literacy achievement that occurred while participating in the LPDP or whether the patterns of improvement had reduced.

The LPDP used asTTle writing (Assessment Tools for Teaching and Learning) to determine the shifts in writing achievement from 2004 to 2005. asTTle tests student’s writing performance over seven “deep” and “surface” features and provides normed data to enable schools to compare their students’ performance with each other and similar groups of students from New Zealand schools (see www.asttle.org.nz). The administration, marking, and scoring of asTTle is complex because it relies on the markers having a very sound knowledge of writing features as described in the asTTle indicators. However, the national norming data determined an average of 75 per cent exact score marking and an average dependability of .77 (asTTle Technical Report #26, 2003). These levels of agreement provide sufficient confidence in the reliability of marking in the conditions used within the LPDP. The data presented from each LPDP school were a random sample of approximately 10 percent of the students in each school, moderated and/or marked by the facilitator. Five of the six schools that had assessed their students in writing in 2006 and 2007 used similar moderation processes as those that were applied in 2004-05, identified when researchers gathered their data for comparison with the previous school cohort.

The LPDP used Supplementary Tests of Achievement in Reading (STAR) to determine the shifts in reading comprehension. STAR is a standardised test that uses “the scores of a large representative sample of students to establish Stanine Norms for each class level” (NZCER, 2001, page 18). If student

---

3 The four schools in Phase 2 are all ‘intermediate’ schools, that is, they have Year 7 and 8 students only.
4 School F did not collect writing data using asTTle in 2006. At the time of their interview (Oct 2006), the principal indicated that one asTTle school-wide writing analysis would be completed in November but this was apparently not actioned when the researcher later requested this data and subsequent data for 2007.
achievement remains at the same relative level over time, the stanine remains the same. Any shift seen in the mean stanines for each year group therefore represents improvement over expected achievement levels.

There are some limitations related to the choice of STAR and the data sets collected by the LPDP facilitators in 2004–5 and subsequently by the researchers in 2006 and 2007. The tool appears to have a ceiling effect for year 6 students and those students at stanines 7–9 (Parr, Reddish & Timperley, 2007). The 2006 and 2007 STAR and asTTle data, collected by the researchers are from a different set of students than that of 2004–05, and mostly includes two or more time points, with testing at the beginning and end of the year.

The research literature on sustainability offers little guidance on what improvements in student achievement might be expected for new cohorts of students after the school exits a professional learning initiative. Nor did the LPDP set expectations for schools about their ongoing data patterns, focusing instead on embedding the processes and structures for inquiry and knowledge-building in each school. Certainly it seems unreasonable to expect shifts in achievement to improve ad infinitum over time, statistically there are limits. To that end we have considered the assessment tools that the LPDP schools were using over 2004-7 and considered their test characteristics to propose reasonable benchmarks for sustainability specific to each tool.

In asTTle the average growth per year based on multi-year cross-sectional sampling is generally 25 points to 50 points in primary schools and around 50 points in secondary schools (p. 25, Chapter 3, asTTle V4 Manual 1.1). The 2006-07 school achievement data that we have collated from schools record mean differences from asTTle norms, comparing rates of progress between tests times with data from 2004-05. Any slope on these graphs indicates progress beyond that of the normed populations, that is, beyond even expected progress. For schools that used the asTTle writing assessment we considered their gains as a proportion of the standard deviation for the normed groups (1 sd = 100 points) and judged that if students’ net gain in asTTle scores represented over 0.5 sd then their achievement results had been sustained.

Similarly, for schools that had used the STAR tests for reading comprehension over 2004-07, any increase in mean stanine for each year level meant students had scored beyond previous rate of progress. When considering stanines shifts it appears easier to make gains if students enter at scores lower than stanine 5; alternatively it is harder to make gains if students start at a higher mean stanine because of the ceiling effect already described. Taking these factors into account and for the purposes of this paper, we have defined sustainability of achievement using STAR data as when students have a net gain greater than 0.2 mean stanines. We note that it may be more accurate at a later date to define graduated benchmarks for sustainability using STAR data in particular because of the ceiling effect and factors such as regression to the mean. The difference in benchmarks between the two tools is therefore different according to different characteristics of the tests themselves.

Findings

The findings have been grouped in three ways. Firstly, the qualitative data from Phase 1 were aggregated across the 16 schools in order to investigate how schools’ perspectives of sustainability might compare to
the theoretical framework that is promoted in this paper. Secondly, the student achievement data for 2006-07 were used to sort the schools according to their ongoing patterns of progress for students. The frame for analysis was to ascertain if there was indeed any link between the rates of progress in students’ literacy achievement data and schools’ ability to craft coherence of effective instruction between professional learning projects, and to describe and apply co- and self-regulated inquiry processes to their school-wide and classroom practices. Finally, Phase 2 data from four of the 16 schools were analysed to investigate aspects of this link between achievement results and school-based conditions.

**Schools’ perspectives on sustainability**

Analysis of the theories of practices held by principals, schools leaders and teachers in most of the research schools suggest that their view of sustainability maybe self-limiting in nature, reinforcing the notion that sustainability is just about a single project.

**Principals**

Table 1 synthesizes 69 ideas or “descriptors” of sustainability obtained from the responses of principals across all of the 16 schools. Principals typically described the learning activities and structures for teachers as their indicators of sustainability. Almost 30 percent of the descriptors related to the ongoing use of teacher observations and feedback, modelling of effective practices, professional readings, teacher goals for professional learning, and teacher reflection. The following comment illustrates a focus on maintenance of structures for learning:

> [For teachers to] be observed/get feedback – coaching model. Ongoing emphasis on literacy as a school-wide focus ... setting aside specific staff meetings each term to focus on literacy.  

(Pincipal, School D. 2006)

Effective literacy practice represented just over 20 per cent of their descriptors for sustainability, describing one or all of those practices that the LPDP promoted as effective in raising achievement: linking to students’ prior knowledge, explicit use of learning intentions and success criteria, providing specific feedback to learners, sharing quality literacy models with students, and catering for diversity. The language of the descriptors in this category was about such practices remaining “evident” and achieving “consistency” across classrooms.

Almost 20 per cent of the descriptors of sustainability discussed a needs-based approach to planning for learning, with classroom teachers using student achievement data to identify the needs of their students so that they could “group” for literacy instruction. Often these responses were limited to the assessment tools used in the LPDP such as STAR, Running Records[^5], and asTTle. For instance:

> Staff talk readily about students needs … Teachers are using valid/reliable assessments.  

(Principal, School G, 2006)

[^5]: Dr Marie Clay developed Running Records as a means of analysing young readers’ decoding strategies. They provide rich information about students’ reading strategies and fluency.
These responses, together with the 14.49 per cent of descriptors from principals that referenced sustainability to ongoing improvements in student achievement, suggest that the notion of the use of data for making decisions at school and classroom levels was represented in only a third of the descriptors.

Significantly, only two responses described sustainability in terms of accessing ongoing external support. These principals appear to have moved away from an externally driven model of sustainability, confident that their school could continue to drive any further work in literacy from within. This idea of “going it alone” is consistent with the findings from the LPDP exit survey (Bareta & English, March 2006, page 99). However, it does not necessarily align with the notion of evidence-based inquiry, whereby expert help may be needed when the data reveal the need for knowledge that cannot be accessed within the school.

In contrast to the models for schooling improvement espoused by the LPDP (Bareta, English, & O’Connell, 2006) most of the conceptual frameworks described by principals in the study do not reference an “inquiry habit of mind” (Earl & Katz, 2002). The responses were examined for mention of co- and self-regulated improvement practices, distinct from those that describe evidence-based decision-making in the school. None of the indicators explicitly linked the teacher learning activities to any measure of effectiveness in improving literacy outcomes for students. Only three responses from principals clearly described an inquiry design in the school as evidence of sustainability, where student achievement data are used to test the efficacy of the practices that teachers engaged in and/or to highlight the gaps in their own knowledge. These were clearly distinguished from the more common indicators about using evidence to support “next steps”. Challenge and justification of teacher practices were qualities judged important in this category. For example:

We continue to identify gaps in our knowledge.  (Principal, School B, 2006)

Teachers continue to inquire into their own practice.  (Principal, School L, 2006)

Similarly, only a very small number of principals articulated the idea that sustainability of the LPDP might be conceptualized as anything broader than the context of literacy; that the processes and key ideas might be transferred to other curriculum learning areas. Less that three per cent of responses were categorized as “transfer of skills or knowledge”.

Most principals in this study described sustainability as operating at more than one level in the school: at the organisational and classroom level. They were concerned about “consistency” and about “ongoing use” of processes. This appears to be the language of maintenance, where principals are expecting a replica of what they experienced in the LPDP (Century & Levy, 2002). Their perspectives of sustainability were concerned with breadth, rather than depth. Very few described sustainability within an improvement or coherence paradigm or even used the term “inquiry” in their responses.

When interviewed as a group in each school, the schools’ leaders replicated the self-limiting notions of sustainability captured in the previous data. These leaders’ responses were divided into two dimensions for this analysis: those about literacy teaching and learning and those related to schooling improvement. This split was intended to investigate if the leaders would identify this difference and indicate where
transfer of the schooling improvement processes might occur. The ratio of those responses categorized as literacy-focused ideas to those categorized as schooling improvement responses was 2.3 to 1.

Leaders did not identify developing their own or others’ leadership capacity in instructional literacy as a key idea being promoted in the LPDP\(^6\). Only one school described improved leadership capability in their response to this question.

Some leaders did mention the big ideas of the project such as “collective responsibility for student outcomes” (School I, 2006) and “having clear expectations makes a difference” (School F, 2006). These were interpreted as expressing the LPDP’s core beliefs and clearly different from any activities or processes that might be replicated in the school. These ideas are powerful (Elmore, 1996) but, in this study, rarely expressed or linked across projects by the participants.

**Teachers**

The researchers asked teachers what they regarded as the key messages from the LPDP and applied the same coding to their descriptors. The teachers naturally focused more at the classroom level than leaders. Their responses revealed the diffusion of the LPDP’s key ideas about effective teaching and learning even more starkly than those of the leaders.

Table 2 summarizes the categories for 81 teachers who were project participants in both years of the project, 21 teachers who were new to their school in 2005, and 24 teachers who arrived in their school in 2006. The less direct experience teachers had with the project, the less they described the key messages espoused by LPDP, particularly those related to schooling improvement.

The two most frequent categories were those related to effective teacher literacy practices and the use of data to inform planning and teaching. Two-thirds of the descriptors from teachers who experienced the project in both years, 88 per cent from those who experienced one year, and 68 per cent from those that had not participated during 2004–2005 mentioned the use of learning intentions or success criteria, being specific about the learning in each lesson, or using their assessment data to “diagnose students’ needs” (School H) and/or to group their students for instruction and support their next steps in learning. Both messages about effective literacy teaching appear to be embedded, albeit not thoroughly, even for those teachers who did not participate in the project. This response from a teacher who was new to the school in 2006 indicates that these key messages have survived and appear to be a part of the fabric of her teaching.

*The importance of learning intentions clearly stated to keep your focus and success criteria. The benefit of having a target group, which consists of children that are going to move levels at a consistent rate are pushed.* (Teacher, School P, 2006)

Clearly teachers are thinking about literacy, and not any larger notion of schooling improvement, when articulating ideas about this project and its impact on their teaching and work.

---

\(^6\) This is a similar finding to that in the evaluation of the Literacy Leadership programme, an earlier national project that did not demonstrably succeed in improving student outcomes as intended. (Timperley, Parr, & Higginson, 2003). The LPDP was designed using evidence from this evaluation.
**Co- and self regulated inquiry practices**

Table 3 categorizes the leaders’ responses about how literacy student achievement data were analysed in 2006 and what was being investigated. The schools’ responses illustrate the divergence of understandings about co- and self-generative inquiry that may have been gleaned from the LPDP. Again, the notion of making teaching decisions from the data was relatively well represented, as well as the sense of working collaboratively with all teachers to support this process. Both ideas were reflected in 20.9 per cent of the responses. Comparing sets of data to support calculations about students’ progress over time is a key action to support inquiry into school effectiveness and for reporting on targets set for improvement. Significantly, though, the notion of evidence-based inquiry being a knowledge-building process was not well articulated. There are major gaps in the leaders’ thinking about data, as well as in their responses to similar questions about the purposes of school-wide and classroom data analysis. Only seven per cent of the responses to this question were about asking further questions of the data or linking data to effectiveness of teaching. Therefore, variance from targets for achievement may not be questioned or linked to teacher effectiveness, in our view inhibiting schools from sustaining further gains.

**Teachers**

Table 4 categorizes responses from 16 literacy leaders and 16 teachers who were new to the school about their purposes for gathering classroom data on literacy. Evidence-based decisions about next steps for their students is well embedded in teachers’ narrative of practice but, again, the notion of co- and self-generative inquiry is not strongly evidenced at the teacher level. Collaborative problem-solving and using data to inquire into students’ literacy needs was found to be much more evident in the teacher meetings in each school than examples of co- and self-generative inquiry practices at work. Eleven of the 157 transcripts connected their discussions on student achievement data to the specific needs that these data generated for students and 12 indicated that teachers were being supported to discuss data in relation to a genuine inquiry. Seven transcripts had evidence that the data were being investigated and linked to lack of teacher knowledge or effectiveness of their practices. Only two schools had substantive evidence of using student achievement data to plan and monitor a new inquiry, including new learning for teachers and/or monitoring the impact of new learning.

**Developing coherence between the LPDP and other professional development projects**

A key aspect of the inquiry into schools’ perspectives on sustainability in Phase 1 was related to their understandings about coherence. The researchers wanted to know whether schools recognize and transfer principled knowledge and effective practices gained from professional learning projects such as the LPDP to other areas of the curriculum.

**School leaders**

Leaders were asked to nominate any links they were making between the LPDP and professional development projects they had participated in more recently or were currently involved with. Table 5 categorizes the links leaders were making across professional learning projects.

7 School E’s teacher meeting transcript is missing in this data set.
Five schools nominated the Information and Communication Technologies Professional Development cluster program (ICT PD) as one of the projects that they were participating in, but only one of these could nominate commonalities or connections with the LPDP. The most common connections were made between assessment initiatives and the Numeracy Development Project (NDP)\(^8\), and these were about evidence-based practices and use of explicit teaching.

The most commonly described connection (26 per cent) was the emphasis the projects have on explicit teaching; that is, the teacher’s practice of sharing the lesson’s learning intentions and building the success criteria with students. This was viewed as being more precise and less activity-focused, with “quality questioning and feedback” based on more precise indicators of learning. For example:

> the learning intentions, while they were there for maths, I think now they’re a lot more, people are using them a lot more explicitly with the students than what they were beforehand. I think they were still being used beforehand but now I think you would see that everywhere that you perhaps didn’t see all the time beforehand. (Literacy Leader, School H, 2006)

Almost 12 per cent of the responses emphasized a connection between projects as being the focus on students being more involved in their own learning, aware of their progress, their new learning and their next steps. A similar percentage of the comments recognized the role of professional learning communities in each of the projects they had been involved with. For example, the following conversation about links between the LPDP and the NDP took place in School H.

Leader Observations is another thing, too, staff actually asking to be observed.
Researcher And it was happening in Numeracy as well?
Leader Mm, through the action plan.
Leader And that’s that confidence factor of staff being prepared to allow people to see the good and the bad and discuss about it, and I think that’s a critical hurdle to overcome. So staff feel confident enough to say “Well, hang on a minute, you know I’m not too hot here, I want to get better here”, and be prepared to front up because sometimes it’s hidden away … It’s a huge hurdle to overcome.

Most leaders did not identify the use of evidence to determine next teaching steps as a connection between learning in different projects, and even fewer saw links in messages about the use of data to measure the effectiveness of teaching practices.

Just over 14 per cent of the descriptors about links between projects reported non-alignment, and one even described a “clash” between the LPDP, Numeracy, and Gifted and Talented\(^9\) projects.

> No, if anything they sort of clash. Isn’t that terrible? Because you know the inquiry learning thing would almost override if we did it in its pure form, it would override our programmes in numeracy and literacy, and so writing could be just contorted to whatever the inquiry was. (Principal, School F, 2006)

Interestingly, the projects were not viewed as competing for time, an issue that is often raised about sustainability but, instead, competing for teaching approaches.

A further 11.9 per cent of responses implying connections between projects were termed in very general ways such as “effective teaching practices” (School B, 2006), “talking school-wide” (School J, 2006), and

---

\(^8\) A nationwide project aimed to develop teacher knowledge and raise student achievement in numeracy.

\(^9\) A program focused on developing schools’ ability to support students identified as ‘gifted’.
“resources” (School M, 2006). This category combined with that of non-alignment means just over 26 per cent of the descriptors did not name specific connections. This is not so surprising since the LPDP project leaders have had few formal interactions with other key national projects. School leaders may not have been supported to make connections between projects or to identify any perceived conflict between the ideas they are promoting. They have been largely left to make sense of the coherence between projects for themselves.

**Literacy leaders and new teachers**

Similar patterns emerged when a literacy leader and a new teacher from each school were interviewed after a literacy lesson. If they made any link between professional learning projects, it was mostly focused on the explicit teaching approaches that they now employed. Almost exclusively, they described the specific and “visible” learning intentions and success criteria, the progressions that students make in their learning, and specific feedback. The next most common connection recorded was using evidence to plan for teaching and very general links. They made no mention of catering for diversity or prior knowledge as a connection between projects.

Only one literacy leader suggested the idea of teacher effectiveness as a link between the LPDP and other projects:

> That it’s the teachers who make the difference and it’s what we do in our classrooms, and we’ve got to look at our practice, and what we’re doing, and the changes we make for learning and not just saying, “Oh, well, you know, it’s the kid’s fault and he’s not going to learn”. It’s really addressing what we need to do.
> (Literacy Leader, School B, 2006)

New teachers to the schools seemed to struggle to make connections. Either they had not experienced any other projects, since they were in their first year of teaching, or they focused on general ideas such as “resources” or “engaging the students”.

**Patterns of ongoing improvement in student outcomes**

Phase 1 results, in the year after their exit, indicated that 83 per cent of the schools sustained their student achievement results with a new cohort of students. Ten of the schools sustained or, indeed, improved their patterns of improvement with new cohorts of students when compared with the already impressive gains they had made while supported by external facilitators. In two schools, whilst improvement continued to be made, the rate of gain for students in 2006 was not as great as when they were supported as part of the project. Three schools presented data for only one point of time in 2006 so comparisons in gains could not be made. One school did not provide data. Interestingly after two years these patterns do not change dramatically. By the end of 2007 ten of the 13 schools that presented data have sustained their gains, three schools have reduced the rate of progress (although students have still improved beyond expected levels of progress) and three schools did not present their data.

Each school’s data have been graphed to illustrate these comparisons. Fig 2 and Fig 3 present examples of these graphs to represent particular patterns described below. For example, School L, a large suburban
intermediate school, increased their students’ mean stanine by 0.48 over two years (n=206 students) in 2004–5. In 2006 a new cohort of students, who began at approximately the same level as the previous cohort, increased their mean stanine by 0.83 within just one year (See Fig. 2) and then made only a modest gain over the second year. Overall though, in 2006-07 the cohort in this school had an impressive mean stanine gain of 0.91, improving even further on gains made whilst in the project.

What is clearly apparent is that in the first year after exiting the program there was a higher rate of progress for students than in the second year. For all of the 10 schools where this comparison can be made, a levelling off effect was evident. For example, School H is a school where the gains made in the project were not sustained. The 80 students in School H from Cohort 1 achieved a mean stanine gain of 0.36 over the two years of their participation in the LPDP. The second cohort of 80 students entered the school in 2006 with a slightly higher mean stanine than Cohort 1, but made an impressive mean stanine gain of 0.6 over that year. This then falls away dramatically in 2007 (see Fig. 3). Overall Cohort 2 made a mean stanine gain of only 0.11 over 2006-07. This pattern does not match that found in the student achievement data from the cohort of 127 schools who were actually working in the project over 2006-07. These data indicated that the rate of progress was generally the same in both years for writing focused schools and around double that of the first year for reading focused schools in the second year of the project (English, Bareta & Winthrop, 2008). Unlike School H most of the research schools were able to sustain their gains after two years according to our definitions but the levelling off effects indicate these gains may remain fragile in the longer term.

Comparing school’s perspectives on sustainability and school-based conditions to their patterns of student achievement outcomes

The frame for analysis of Phase 1 data was to investigate the depth of understanding and practices about the two dimensions of the theoretical framework for sustainability offered in this research at the individual school level and then to compare this to their patterns of student achievement outcomes, as defined above. Fig 4 aggregates the qualitative data for each school from Phase 1, according to their understandings and practices around coherence of effective instruction and co- and self-generative improvement practices.

Coherence and inquiry as indicators for sustainability of student outcomes

These Phase 1 data appear to indicate links between those schools that sustained their patterns of progress in student achievement data in 2006-7 and their understandings of coherence of effective instructional practices and transfer of processes and knowledge. Seven schools scored above the mean score on the coherence axis and five of them sustained their gains over 2006-07. Six schools scored above the mean score for the inquiry dimension in Phase 1 and four of them managed to sustain their student achievement gains after two years. We selected four schools for Phase 2 of the research in order to further investigate school-based conditions and any links to coherence and inquiry practices. School A scored the highest on the inquiry dimension in Phase 1 and sustained the student achievement gains after two years. School A

---

10 Schools A, B C, D, G, I, K, L, N and P all sustained their rates of progress for a new cohort of students in 2006-07, compared to rates of progress while participating in the LPDP. Of these, School L, improved their rate of progress even further for a new cohort of students in 2006-07.
did not change their professional learning focus in the year following their participation in LPDP but did have a change in principal. It scored more moderately on the coherence dimension. School L who scored the highest on the coherence dimension in Phase 1 was also the only school to further improve on their gains after two years. School H had the second highest score for coherence and sustained their gains in their first year after exiting the LPDP but their rate of progress fell away over 2007. Lastly, School C was positioned mid-range on the coherence/inquiry axes for Phase 1, but managed to sustain their student achievement gains over two years. Schools H and C therefore offered challenges to the theoretical model being investigated. We also wanted to examine if there were other school-based conditions at work in these four schools that we may have missed in our first visit.

**School L**

School L is a large suburban decile 3 intermediate school with over 500 students per annum over 2004-2007 and with 75 per cent of the students identifying as New Zealand Maori in 2007. School leaders and teachers focused on reading comprehension in the LPDP. This school had a relatively stable leadership over the two years since the school first participated in the LPDP, but by 2007 only 12 of the 20 staff had actually experienced the LPDP. In May 2006 their literacy action plan boldly began, “We are resolute not to lose our gains”. What followed was a detailed plan of action for continued focus on teacher knowledge and its transfer to practice, with collaborative learning opportunities and professional readings and observations. This plan was reviewed three times over that year and shared with all staff.

*Coherence of instructional practices*

School L appeared to have more fully embedded the notion of coherence of effective instructional practice when compared with other schools in Phase 1, a sense of coherence that had extended beyond the leaders in the school to teachers. The principal articulated that a key reason for moving to a new numeracy focus in 2007 was to build links across the two projects about learner needs and teacher responses.

Literacy leaders reiterated that this transfer of ideas was occurring already amongst teachers.

*One of the big outcomes was that teachers started to say, “I want my maths teaching to be as good as this ... I want my maths teaching to be as informed as my writing teaching ... I had a teacher come to me where they did not have data available to them and you know, they said… “I am finding it so difficult to know what to do with these kids when I don’t have data to support my teaching decisions”. (Literacy Leader, School L, 2006)*

The transcript of the school’s teacher monitoring meeting¹¹ in 2006 also raised this idea of transfer of learning for students. The analysis of their literacy action plan indicated that leaders would work in an ongoing way with new teachers, and pay attention to the ongoing learning of the literacy leaders themselves.

---

¹¹ A monitoring meeting is a practice that may have emerged specifically out of LPDP, where teachers bring data about specific students for discussion with other teachers. It is a collaborative inquiry into what next steps a teacher might take with a student in order to move them forward.
So in the year after the LPDP leaders in School L appeared to be have more deliberately “crafted” their previous learning and practices, together with more recent professional development, into a coherent set of principles about effective instruction, within and across the curriculum, and at the same time taking strategic action to promoting inquiry about under-achievement as a key knowledge-building strategy for literacy for their staff.

A year into their participation in the Numeracy Project the Principal reflected that:

\[
\text{we were very hopeful that there would be a real transfer of skills from the LPDP protected to the numeracy project and we have seen it. Probably not as much as we would have liked.}
\]

One leader identified that a key transfer of professional learning pedagogy between the LPDP and Numeracy Project was that teachers felt they could reveal what they do not know more comfortably after their experiences of the former project. The leaders had not discussed their experiences in LPDP with the Numeracy Project providers or what they might transfer. Nor were they asked. School L took a passive stance to this transfer of ideas in 2006, at the same time the two providers, in this case, did not actively support the handover by promoting coherence and alignment of the ideas inherent in their interventions.

The second area of transfer considered by the leaders in School L was how teachers learn effectively in context in a collaborative and evidence-informed way, and that this learning needs to be monitored for its impact on achievement.

\[
\text{There’s actually a whole philosophy isn’t there behind the literacy that we have kind of just embedded. So that whole evaluation. Like we have something that’s not working now it’s just automatic, oh this is not working what are we going to do about it? (School L, Literacy Leader 1)}
\]

\[
\text{Looking at the whole model of [Numeracy] professional development we have evaluated that and decided that it hasn’t worked for our people and so we are looking at next year a completely different PD model and hopefully we are going to get some results from that. (School L, Principal, 2007)}
\]

Finally, leaders appeared to have learned to be more explicit about the links between professional learning as they moved from one focus to another. In thinking about improving their writing instruction they returned to the earlier learning they had undertaken in using the National Exemplars in English and blended the inquiry approaches from the LPDP to their design for further professional development in literacy.

\[
\text{Because what the teachers were thinking was if we are doing this in reading and getting these great results then we have got to do a similar thing in writing so they have been far more astute in terms of their levelling of the writing samples and then basing their teaching on next steps so there has been a direct transference of those skills into writing and the other link of course is that we read exemplars before we write ... and so that the link between reading and writing has become much tighter and we are also working on an integrated planning model so that what we read about and what we write about is all to do with the same stuff so there’s been a really great shift in the writing. (Literacy Leader 1, School L 2007)}
\]
**Inquiry practices**

Few schools leaders or teachers in Phase 1 even mentioned the word inquiry in their responses to questions about the key messages of the LPDP. School L was a key exception. In 2006 the literacy leader set expectations about individual classroom inquiry with an “Inquiry into Practice” template for teachers that scaffolded the entire process, linking it to student data and requiring a set of monitoring criteria. This tool meets the qualities of smart tools set by Robinson, Hohepa and Lloyd (in press) in that it embraced the core elements on inquiry as expressed by the LPDP and incorporated sound theory, albeit not that explicitly. Teachers used the tool as part of their goal setting process for appraisal so inquiry into practice had been translated from being a project requirement to being integrated into school routines.

In 2007, the researchers again focused on approaches to inquiry in School L with school leaders in order to evaluate if the school has developed any long-term expectations about improvement (linked to their teaching) in student achievement over time and with new cohorts of students.

Leaders (the principal and two literacy leaders) in School L were asked to predict what their 2006-07 achievement graph might look like in comparison to their 2004-5 graph in reading achievement. They were cautious in their response. They said they while they expected improvement for new cohorts of students, they recognized that this improvement was tied to the teachers’ literacy knowledge. They were worried about their 2007 data as they had a higher teacher turnover and fewer literacy leaders to guide the staff.

*Logically it should be better because we should be more skilled but then there’s a hiccup to that when we have to start retraining [new teachers].* (Literacy Leader 1, School L, 2007)

*What we saw was that they increased more in the first half of the year than the second half of the year, that was exactly the same in 2006 as what we had seen before but that average is at the end of it, my guess would be that it would have been higher than our previous year.... Last year [2006] we were in an enviable position of having all of our teachers returning. So it’s got to show in the data.... Having new staff coming on board this year would not be as good as last year.* (Literacy Leader 2, School L, 2007)

The literacy leaders had an impressive knowledge of their actual data. They talked about entry points for their students and the progressions of the cohort during the year, indicating that their monitoring was not about just measurement of achievement but also about planning their responses to that data. There was more evidence in 2007 that School L had adopted a systematic inquiry into achievement and that this was much more embedded than the 2006 Phase 1 data had revealed.

*Our STAR data, we used that as a sieve and then we probed them, you know the probe running records. So anyone below a stanine 3 ...in any class has a probe running record and that’s specifically for teachers to find out more about what these students’ reading behaviours, why things are happening, why they are not happening.* (Literacy Leader 1, School L, 2007)

The leaders reset their reading targets in 2007 to reflect stanines rather than chronological age and debated this difference with teachers. Leaders were interested in focusing more on data about actual comprehension skills and making teachers understand that they were responsible to these targets.
There were some great philosophical arguments...Because the teachers have become, actually “I need to know what you want us to do because we are going to have to do it. Because we know that you are going to actually come and ask us about it” and so we need, I think they are demanding much more. I mean you used to have these goals and targets and things and you just go oh yeah whatever. Nobody would ever actually come and say well actually “I have noticed that most of your class haven’t reached the target. Actually none of your class have reached the target, what have you been doing?” ..A new teacher who’s come in mid year [asked] where do you actually expect me to have got these children, we have just done a STAR test yesterday and I am just marking them. (Literacy Leader 1, School L, 2007)

Inquiry was used as an explicit principle and as an expectation for all staff in School L. This became more starkly evident in Phase 2 of the study. The induction and staff booklet for reading instruction for 2007 focused explicitly on underachievement and the need to fully interrogate their student achievement data.

The questions, discussions and “solutions” are what make the difference, not the data....We need to fully understand why the data is the way it is – what is the real issue – so that the right intervention is used

(Literacy Leader, School L, 2007)

The literacy leader had attended a writing workshop in her region with an external expert. She recognized that it was not just a matter of her replicating the writing strategies presented in the workshop, but that she would have to supplement this with learning about content knowledge for herself.

She worked with Dickens which was very impressive. But the thing she was doing, it was very specific and it was very exciting but I feel like I can’t teach like that because I don’t know enough yet. (School L Literacy Leader 1, 2007)

Teachers were supported to set more finely tuned goals as a result of data analysis, and leaders recognized that teachers needed professional support for this task. The memo to staff about STAR testing (not dated, 2007) provided a template for STAR data and their translation to learning intentions and information about links between data and needs of students for each of the subtests. Other templates provided in their school reading booklet scaffolded individual inquiry and included ways to monitor impact of new practices, suggested daily checks such as doing a “quick survey of target students work”, having a “mental focus on one student” or “interviewing 2 students during the lesson”.

A more differentiated approach to school-wide goals was also established in School L in 2007. Goals focused on shifts for particular groups.

Year 7 students with a Star Stanine 1-3 in February will shift 1 or 2 stanines by October (we need to accelerate these students). In the Star sub-tests our aim is to:- move “critical” and “at risk” student to typical - Move typical students to above typical (p. 4. The 2007 Resource Book about Reading Instruction)

Nor were these goals static over time, they were revisited and debated with teachers. Goals for students in Stanines 8 and 9 goals were added as well in 2007. The school had initiated learning academies in 2006 that specifically grouped students with their learning needs and interests. Those students with high
literacy needs (STAR Stanine 1) were placed in the “adventure” academy where they had guided reading instruction five days a week for 40 weeks.

School L not only sustained the gains they had made in reading comprehension with their students in 2006-07 compared to the 2004-05 cohort, but was the only school that managed to improve on them. These examples indicate the extensive range of deliberate acts of leadership taken in School L to craft coherence of professional learning experiences and to embed inquiry into under-achievement as a routine practice for their teachers.

School H

School H is a decile 2 urban intermediate school of approximately 230 students. Their focus for the LPDP was reading comprehension and their patterns of student achievement data are explained in the previous section and illustrated in Fig. 3. In the analysis of Phase 1 data School H had scored well over the mean for coherence, but close to the mean score for inquiry in the Phase 1 data (see Fig 4). They also did not move onto a new professional learning focus, opting instead to try to embed the LPDP across the school in 2006 and to strategically position their literacy leader as a full-time mentor for teachers. Like School L they had experienced a low turnover of staff in 2006, all nine staff had participated in the LPDP. By 2007, however, School H had three new staff and their Literacy Leader went on study leave.

Coherence of instructional practices

School H did view sustainability in broader terms than the other schools in the sample and their 2006 literacy action plan revealed that one of their goals was for teachers to have an “understanding of theories of learning” as the basis of their work in literacy, whilst still linking to specific knowledge about literacy teaching and learning. School leaders specifically identified learning processes for teachers that would be transferred to new professional learning. The Education Review Office supported this notion of coherence by suggesting that the same “model” as they had used in the LPDP could be usefully applied in other curriculum areas.

However, School H did not embed their 2006 actions for developing coherence of instructional practices. When asked about the key ideas that they were sustaining in 2007 the literacy leader focused on the context of reading instruction and not how these could also be transferred to writing or across other curriculum.

Inquiry practices

School H continued the patterns of inquiry they had begun during the LPDP into 2006, discussing student achievement data in syndicates and using it to drive decisions about the focus for ongoing teacher learning. They also aimed to refine their investigation in 2006 into Pasifika students’ achievements in the school, again following a co- and self-regulated pattern of refocusing on those students who have still not made sufficient progress.

School H leaders accurately predicted that they would have achieved “similar” shifts for students in reading comprehension in 2006 as they had when participating in the LPDP. They did not talk about improving those shifts as we might expect if evidence-based inquiry were embedded as a habit of mind. The literacy leader explained that they had focused on the lowest 25 per cent of students, investigated
ethnicity data and “pulled apart” the subsets of the STAR test to inquire into particular weaknesses. They had responded to this data in 2007 by focusing on paragraph comprehension and would track the impact later in the year. There was no mention of the earlier inquiry they had mentioned about Pasifika students, nor did the literacy action plan in 2007 include focused goals for student achievement. Neither the strategic plan nor the literacy long-term plan mentioned previous data used for setting goals for teacher practices.

In 2007 the principal and literacy leader viewed the school in “desperate need” of further external literacy support. The literacy leader who had been a full time mentor/coach in 2006 was granted study leave in 2007 and the new literacy leader/DP did not want to venture into a writing focus with their teachers without external leadership. School H had also engaged with a local cluster focused on literacy and leaders used this as an opportunity to apply again for the LPDP. In the year that this cluster has taken to gather and analyse their cluster-wide evidence School H’s principal was correct in his analysis that his student’s had lost ground.

There is a cluster initiative going on ...and it’s taking a lot of time so we’ve stood still really in the sense that this is you know reading stuff is here but we need to be into this writing and we’re still are where we are at now. LPDP has been allocated to four of the schools and we are not one of them and so we are in a bit of a catch 22 and the three of the other schools in the cluster have already done LPDP writing (Principal School H, 2007)

In School H movement in leadership, teacher turnover and a fragile understanding of inquiry practices appeared to have combined to reduce the longer-term sustainability of the gains and practices established in the LPDP. In 2008 they have been able to access further support from LPDP facilitators within a cluster schooling improvement initiative.

**School A**

School A is a large urban decile 9 intermediate school that sustained the gains that they made in writing. In 2004, Year 7 students in School A began an average of 37 points below the mean score for New Zealand students in asTTle writing. After two years, they were, on average, 127 points above the mean for their year group. In 2006 a new cohort of students began their year higher in relation to the previous cohort of students, at about the New Zealand mean for Year 7 students. However, they ended their first year 50 points above the mean and so matched the gains made by the earlier cohort. By the end of 2007 these same students, now in year 8, had slightly slowed their pace of progress but still managed to be, on average, 0.8 standard deviations above expectations. They had a 25 per cent turnover in staff in 2006 and a new principal who had been at the school during the LPDP. Significantly though in 2007, the literacy leader went on study leave and two new literacy syndicate leaders were appointed to continue the work of the project. By 2007 only 12 out of 20 staff had participated in LPDP.

*Coherence of instructional strategies*

School A had scored less than the mean score on the coherence dimension (See Fig 4). School leaders had been very deliberate in 2006 about their decision to delay the start of a numeracy focus so that staff could embed their learning from the LPDP. However when the school did take up the new project in 2007
school leaders were critical of their involvement with this project. The Numeracy Project, in their view, had not met their expectations of effective professional learning. However, these leaders did not appear to challenge their own practices or take responsibility to challenge the delivery or craft coherence across the projects for their teachers. This new focus was perceived as competing for time for professional learning in literacy with teachers rather than an opportunity to leverage new learning across two or more knowledge areas.

**Inquiry practices**

School A had the highest score on the self-regulated improvement practices dimension of the Phase 1 data. The interview with one of the new teachers in the school in Phase 1 demonstrates that she had understood the link between data and her own effectiveness, despite having only participated in the LPDP for one year. When asked about how she uses classroom literacy data, she responded:

*I need to be flexible, too, and say, “Maybe there’s something I’m not doing that I need to change to help the kids become writers” so basically it’s [data] for the kids and for me as a growing teacher as well. (New teacher, School A, 2006)*

As the literacy leaders discussed their year it was apparent that they were disappointed with their results and recognized that their student achievement had levelled off in the second year. It should be noted that School A, according to our description of sustained achievement, had still sustained the gains with the second cohort of students, but just not quite at the same levels as 2004-05.

Further probes about their inquiry practices in 2007 revealed that School A had certainly not embedded these as routines. After undertaking an inquiry into students performing at the higher levels of asTTle writing school leaders made a decision to place these students with “effective teachers”. They did not describe whether they had evidence that these teachers were effective in raising student achievement or how they would monitor regularly for the effectiveness of this decision.

The literacy plan for 2007 appeared to be driven by actions, rather than outcomes. Leaders voiced frustration at the considerable time lags evident between data collection, analysis and working with staff on next steps for students. There was no evidence in their interview responses about using student achievement data to reveal what teachers needed to learn, yet this had been a strongly emphasized in their Phase 1 transcripts. The student achievement targets in the annual review documents for the Board of Trustees remained the same as they had been in 2006 and were framed in terms of the asTTle sub-levels. The targets did not describe literacy knowledge or skills that would represent these sub-levels, nor did they refocus their inquiry into those students who were still not achieving in the school. The review described the current best-fit level, and commented that this was “comparable to same time last year”. If inquiry had been an embedded practice in School A then we would have expected new questions to have been asked about those students at risk, particularly where targets had not been met. Their responses for improvement were more about conformity to approaches than about considering the problem more thoroughly.
“This is the second year that we haven’t met our targets. It is obvious that quality guided reading programmes still need to occur in classes. The provision of such programmes needs to be carefully monitored in both Year 7 and 8 classes.”

The evaluation outlined a general need for better leadership and focus on effective pedagogy. Individual classroom data had been collated but there was no attempt, at least publicly, to analyse what actual teaching had occurred in those classrooms that had supported students to exceed the school’s targets for writing.

This shows that the professional development undertaken over the past 4 years is not embedded throughout the school. As Literacy leaders, we need to place more emphasis on effective pedagogy and using formative assessment to inform teaching and learning programmes. This will be a priority in 2008.

Minutes of teacher meetings indicate that actions such as testing and literacy observations were discussed but there were no links to any larger school-wide inquiry into literacy practices and/or achievement. All of this evidence indicates a more fragile set of practices around evidence-based inquiry than the Phase 1 data suggested.

School A had a stronger sense of inquiry than other schools in Phase 1 but this appears to have been eroded a year later. School A had a relatively weak stance on coherence and transfer of professional learning in Phase 1 and this was confirmed in the next phase of the research. School A did sustain their gains after two years but may still be at risk going forward without taking deliberate action to craft coherence and to embed their inquiry and knowledge-building framework more thoroughly.

School C

School C is a large urban decile 7 intermediate that sustained their gains in writing in the two years since their involvement in the LPDP but scored moderately on both dimensions of the framework that we offer on sustainability. Unlike the other schools in the Phase 2 study they had moved immediately into a numeracy focus in the year following their exit from the LPDP. After two years they had a staff turnover of only 20 per cent with 19 of the 24 staff in 2007 having participated in the LPDP.

Coherence of instructional strategies

Leaders in School C were deliberately considering coherence of effective instruction as they inducted their new staff. One literacy leader found professional learning materials from a previous focus on assessment for learning and blended these into supports for new teachers in literacy. In approaching the numeracy focus the principal was able to support staff to recognise that there is always confusion in new learning and that they would build on their knowledge and experiences of the LPDP.

So therefore they came to the numeracy project, I think with a different mindset in respect of saying okay well we may not have a real handle on this at the beginning but we have confidence as a result of the work that has been with us previously that we will get there. (School C, Principal, Phase 2, 2007)

Leaders had been supported in the LPDP to observe in classrooms and they had recognised they could transfer their experience and the tool for from LPDP to the Numeracy Project.
we had a lot of professional development in observations, how to observe….., those observation sheets and the different aspects we were looking at, but pretty much those aspects were really aspects of good teaching, …so when we were doing our observations even though we had a numeracy focus we were able to use many of those techniques that we had learned. (School C Literacy Leader, Phase 2, 2007)

Indeed the Principal espoused a strong belief that effective teachers in literacy could be effective in all teaching areas as long as they built pedagogical content knowledge in each area. He had started 2007 with a professional learning session for teachers to reinforce the coherence of “those big ideas and what makes a difference”. He also had a strong belief about school ownership of the project and had viewed LPDP as a fixed model.

and often we had to say we don’t want to do it that way or sometimes we even said it’s not going to happen that way. That wasn’t particularly easy sometimes.

Inquiry practices

The Phase 1 data had placed School C just above the mean for the inquiry dimension. Certainly the idea of monitoring target students had survived but there was little evidence of any systematic inquiry in place in that data. In 2006 the literacy leaders had indicated that they also wanted to focus their efforts on those students in the high ability range and had allowed teachers to choose their own focus, but one that was linked to their classroom data. Literacy leaders continued the LPDP practice of teacher observations and modeling with target groups of students. By 2007 this emphasis on monitoring teachers and particular students had fallen away as a school-wide inquiry.

a number of our classroom teachers when we identified target groups, identified the target group of high ability as opposed to traditionally going back to the lower ones. I don’t know that it was necessarily across the board thing… in terms of the actual feedback as to how the target groups actually got on I can’t recall. (School C, Principal Phase 2, 2007)

We don’t have any data on those top students but I can remember conversations that I had.. (School C, Literacy Leader, Phase 2, 2007)

In 2007 their asTTle results at the beginning of the year had revealed a need to focus on spelling. They had engaged an expert to run sessions with their teachers and the literacy leader intended to analyse the impact in end of year writing test. Leaders set expectations that data were to be used regularly, insisting that these data should be evident in weekly planning and not just at just at school-wide testing times. Teachers handed on writing samples to the next teacher and leaders had rescheduled school-wide testing so that more use was made of these data from the previous year. There were other indicators in Phase 2 of the study that School C were still engaged in evidence-based practices around data, but that there was less of a link between these data and theory testing, further knowledge building or self-monitoring. For example, a new practice in 2007 was to include classroom data (the averages for school-wide tests at different testing points) rather than just cohort data in their annual literacy review

This would enable each class’s progress to be tracked over the year to … drive its staff and school development focus and classroom programmes (Annual Literacy Review School C, 2007)
The recommendations were specific about what teachers needed to do with their data, but not necessarily focused on those groups who were actually underachieving. The statements about literacy achievement compared cluster results with similar percentages at School C.

School C analysed what they had noticed over time in achievement patterns.

The rationale for this decision was that student results appeared to be negatively effected by at least three factors: the Christmas Holiday Break, a new teacher and a new class level. Over the last five years of testing a ‘dip’ of 20-30% was noted in the results gained at the end of the year testing by Year 7s and their results four months later when they were in Years 8. This means that the February results may not be an accurate picture of their achievement. (School-wide Assessment at [School C], 2007)

However, there was more evidence in 2007 that inquiry was becoming more differentiated than what was described in 2006. In the Literacy Committee meeting notes (28 May, 2007) inquiry questions were formed and the targets differentiated, focusing on those students who were not achieving.

What is our literacy target going to be? (– To move as many low achieving Maori students from the below band (Stanine 1,2,3) to the middle band (Stanine 4, 5,6) or above

How might this committee monitor this?

Why are so many year 8 students performing poorly in writing samples?

School C appeared to have carried out more strategic actions focused on coherence in 2007 than in 2006. Leaders had described strong ownership of the professional learning in the school and, despite fragile understandings of inquiry being revealed in Phase 1, inquiry processes appeared to be strengthened across the school in the Phase 2 data. School C sustained their gains in student achievement in the context of a relatively stable staff turnover.

**Conclusions**

These data are not entirely conclusive but they do offer interesting insights into the complexity of sustainability beyond the usual teacher satisfaction ratings and self-report descriptions of practices and their effectiveness for student outcomes. There is some indicative evidence that the two dimensions of inquiry and coherence may be significant in determining ongoing improvement in the years following an intensive professional learning project.

Across all schools in the research sample, the understandings of the nature of sustainability were self-limiting, with only glimpses of any substantive understanding about inquiry, beyond that of replicating actions undertaken in the LPDP. There is little sense of a theory for improvement and sustainability emerging from these schools. While there is a general sense that teachers and schools must be evidence-based in their decisions about learning programs, this falls well short of the LPDP’s core beliefs that inquiry into student achievement must be used to reveal where teachers need to learn more and how adaptations or new practices must be monitored for their effectiveness. Schools in the study generally limited their notion of sustainability to a single project, not recognizing the principled knowledge or processes they could transfer to the next learning program.
What these data do reveal is a critical need for different professional development project leaders to converse at systems level at least, so that schools might be better supported to build and craft the coherence of the key messages in each learning opportunity. More consideration of expected rates of progress for student achievement in the years after schools exit professional learning programs is also required.

Phase 3 of this research program will continue to use inquiry and coherence as the probes into sustainability, focusing more closely again on the four Phase 2 case study schools where different student achievement patterns are occurring over time and where there still presents a challenge to our conceptual framework.

*This project is funded by the New Zealand Ministry of Education through an Agreement with Learning Media Ltd. The views expressed in this paper are those of the authors and do not necessarily represent those of the Ministry.*
References


www.tki.org.nz/r/literacy_numeracy/pdf/literacy_professional_development_project.pdf


http://www.rockman.com/publications/articles/LessonsLearned.pdf


Data related to schools’ perspectives on sustainability

Table 1: Principals’ descriptors of sustainability

<table>
<thead>
<tr>
<th>Descriptors</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning activities/structures</td>
<td>20</td>
<td>28.99</td>
</tr>
<tr>
<td>Consistency of effective practices</td>
<td>14</td>
<td>20.29</td>
</tr>
<tr>
<td>Evidence-based decision-making</td>
<td>13</td>
<td>18.84</td>
</tr>
<tr>
<td>Achievement data-referenced.</td>
<td>10</td>
<td>14.49</td>
</tr>
<tr>
<td>Co- and Self-regulated improvement practices</td>
<td>3</td>
<td>4.35</td>
</tr>
<tr>
<td>Factors that inhibit sustainability</td>
<td>3</td>
<td>4.35</td>
</tr>
<tr>
<td>Accessing external support</td>
<td>2</td>
<td>2.90</td>
</tr>
<tr>
<td>Transfer skills/knowledge</td>
<td>2</td>
<td>2.90</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.45</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>1.45</td>
</tr>
<tr>
<td>Developing leadership</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>69</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Teachers’ views of key messages of LPDP

<table>
<thead>
<tr>
<th>Descriptors of key messages of LPDP</th>
<th>Teachers 04/05</th>
<th>%</th>
<th>NTO5</th>
<th>%</th>
<th>NTO6</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Literacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General statements</td>
<td>19</td>
<td>13.67</td>
<td>2</td>
<td>6.67</td>
<td>6</td>
<td>18.75</td>
</tr>
<tr>
<td>Evidence-based teaching</td>
<td>36</td>
<td>25.90</td>
<td>10</td>
<td>33.33</td>
<td>4</td>
<td>12.50</td>
</tr>
<tr>
<td>Teacher pedagogical and content knowledge</td>
<td>5</td>
<td>3.60</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Effective teacher literacy practices</td>
<td>56</td>
<td>40.29</td>
<td>16</td>
<td>53.33</td>
<td>18</td>
<td>56.25</td>
</tr>
<tr>
<td>Student awareness of their literacy learning</td>
<td>4</td>
<td>2.88</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Focus on literacy underachievement</td>
<td>4</td>
<td>2.88</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Schooling Improvement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborative professional learning structures</td>
<td>6</td>
<td>4.32</td>
<td>2</td>
<td>6.67</td>
<td>1</td>
<td>3.13</td>
</tr>
<tr>
<td>Co- and self-regulated improvement practices</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Developing leadership</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Awareness of factors that inhibit sustainability</td>
<td>1</td>
<td>0.72</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Beliefs</td>
<td>5</td>
<td>3.60</td>
<td>0</td>
<td>0.00</td>
<td>2</td>
<td>6.25</td>
</tr>
<tr>
<td>Transfer</td>
<td>1</td>
<td>0.72</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>No response</td>
<td>2</td>
<td>1.42</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
<td>3.13</td>
</tr>
<tr>
<td><strong>Total descriptors</strong></td>
<td>139</td>
<td>100</td>
<td>30</td>
<td>100</td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>
Data related to schools’ perspectives on co- and self-regulated improvement practices

Table 3: Leaders’ responses about analysis of student achievement data

<table>
<thead>
<tr>
<th>Responses about how literacy student achievement data were analysed and what was being investigated</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboratively with all teachers</td>
<td>9</td>
<td>20.9</td>
</tr>
<tr>
<td>Comparison</td>
<td>11</td>
<td>25.6</td>
</tr>
<tr>
<td>Asking further questions of the data</td>
<td>3</td>
<td>7.0</td>
</tr>
<tr>
<td>Evidence-based decision-making</td>
<td>9</td>
<td>20.9</td>
</tr>
<tr>
<td>Teacher effectiveness</td>
<td>6</td>
<td>14.0</td>
</tr>
<tr>
<td>Co- and self-regulated improvement school practices</td>
<td>3</td>
<td>7.0</td>
</tr>
<tr>
<td>Co- and self-regulated improvement teacher practices</td>
<td>2</td>
<td>4.7</td>
</tr>
<tr>
<td>Transfer</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total descriptors</strong></td>
<td><strong>43</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 4: Literacy leaders’ and new teachers’ responses about their purpose for analysing student achievement data

<table>
<thead>
<tr>
<th>Purposes for analysing student achievement data</th>
<th>Literacy Leaders</th>
<th>Percentage</th>
<th>New Teachers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reporting</td>
<td>1</td>
<td>4.8</td>
<td>1</td>
<td>4.5</td>
</tr>
<tr>
<td>Evidence based decision-making</td>
<td>15</td>
<td>71.4</td>
<td>15</td>
<td>68.1</td>
</tr>
<tr>
<td>Involving students in their learning</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4.5</td>
</tr>
<tr>
<td>Comparison</td>
<td>3</td>
<td>14.3</td>
<td>1</td>
<td>4.5</td>
</tr>
<tr>
<td>Co- and self-regulated improvement practices</td>
<td>2</td>
<td>9.5</td>
<td>4</td>
<td>18.2</td>
</tr>
<tr>
<td>Transfer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total descriptors</strong></td>
<td><strong>21</strong></td>
<td><strong>100</strong></td>
<td><strong>22</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
### Data related to schools’ perspectives on coherence

**Table 5**: Leaders’ views on connections between key national professional learning projects

<table>
<thead>
<tr>
<th>Connections between projects</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>General statements</td>
<td>5</td>
<td>11.90</td>
</tr>
<tr>
<td>Need for teacher pedagogical content knowledge</td>
<td>1</td>
<td>2.38</td>
</tr>
<tr>
<td>Focus on teacher effectiveness</td>
<td>2</td>
<td>4.76</td>
</tr>
<tr>
<td>Evidence-based decision-making</td>
<td>3</td>
<td>7.14</td>
</tr>
<tr>
<td>Explicit teaching</td>
<td>11</td>
<td>26.19</td>
</tr>
<tr>
<td>Student awareness of their learning</td>
<td>5</td>
<td>11.90</td>
</tr>
<tr>
<td>Leadership capacity</td>
<td>2</td>
<td>4.76</td>
</tr>
<tr>
<td>Learning processes for teachers</td>
<td>5</td>
<td>11.90</td>
</tr>
<tr>
<td>Other: specific links</td>
<td>2</td>
<td>4.76</td>
</tr>
<tr>
<td>Non-alignment</td>
<td>6</td>
<td>14.29</td>
</tr>
<tr>
<td><strong>Total descriptors</strong></td>
<td><strong>42</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Patterns of ongoing improvement in student outcomes

Figure 2: School L student achievement data in reading comprehension, 2004–5 and 2006–7

Figure 3: School H student achievement data in reading comprehension, 2004–5 and 2006–7
Coherence and inquiry as indicators for sustainability

Fig 4: Aggregated school scores for coherence and inquiry in 16 schools.