A Comparative Examination of Outcomes of a Longitudinal Professional Development Experience in Writing Instruction in Schools for Kindergarten to Grade Three

by

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Abstract

Professional growth is a complex process that requires thoughtful planning, persistence in execution, collaboration, and a common goal if it is to be successful. Classroom teachers have many opportunities to participate in professional development, but experiences vary and it is important to determine which have the greatest effect. The purpose of this comparative study was to examine the strengths and differences of three models of professional learning communities involved in a three-year project to improve writing instruction in kindergarten to Grade 3 classrooms. Based on the work of Routman (2008a), professional staffs at treatment schools were involved in a multi-year, inter-divisional, professional learning community. Teachers and principals in the project participated in one of three experiences of varying intensity. Results are compared to a control group of schools.

The study design takes a pragmatic worldview and utilizes mixed methodology to conduct an ex post facto, quasi-experimental analysis. Artifacts collected from 2009 to 2012 include questionnaires, written self-evaluations, and samples of student writing that were examined to determine the degree and nature of change in principals' increased perceptiveness of the school literacy team, teachers' increased sense of efficacy in writing instruction, and significant changes in student writing. These are compared to samples from a control group of schools that were not involved in the experience.

Several aspects of this multi-year project bring to light three critical observations. First, real-time, live experiences with an expert facilitator have a dramatic effect on teacher learning. Second, students in the first four years at school are capable of much more sophistication in writing than is generally expected. Third, principals' involvement as educational leaders is critical to enduring teacher change and ongoing student improvement.

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Dedication

I dedicate this work to Matthew, who was there at the beginning.

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Chapter 1

This study, a secondary analysis of data, concerns professional development models. It is an analysis of data generated in a project conceived by school division administrators, teachers, staff developer Regie Routman, and myself in 2008. The project was designed to increase teacher expertise in the area of writing through an examination of beliefs about teaching and learning, improved pedagogy and assessment, and whole school collaboration.

The first chapter presents an introduction to the rationale for an initiative to increase teacher expertise through a persuasive discussion based on a literature review. The background and genesis of the project are delineated, and my personal perspectives and hypotheses are described, the significance of the study, its scope and limitations are discussed in Chapter 1.

The public school system is available to all individuals between the ages of five and eighteen (Province of Manitoba, 2014). Public schools cannot prescribe the characteristics of a student, home environment, financial circumstance, cognitive ability, or family background; nor is it within the purview of public schools to concern themselves with altering any of these factors for students. Universal acceptance of all children crossing the threshold of school each day is mandatory. Teachers in the public school system must be able to deliver curriculum to all students assigned to them. This requires acceptance of the facts of student lives and a determination to support the learning of every student:

> Children are who they are. They know what they know.
> They bring what they bring. It is not the job of teachers to
> wish their students knew more or knew differently. It is the
> job of teachers to turn each student's knowledge and diversity
> of knowledge into a curricular strength rather than an instructional

> inconvenience. Teachers can only do this if they hold high expectations for all students, convey great respect for the knowledge and culture they bring to the classroom and offer support in helping them achieve those expectations. (Pearson, 2006, p.272)

In Hattie's 2012 meta-analysis of more than 50,000 studies, he concluded that factors related to students themselves, such as socio-economic factors, home and family accounted for almost 50% of the variance in student achievement. Those are the very factors that public schools have no mandate to control or change. However, Hattie also concluded that the instructional quality of teachers accounted for about 30% of the variance. This is something that schools *can* influence. Teacher expertise can be expected, developed, and fostered provided the conditions are right. "The quality of the teacher is the key to improved student performance, regardless of the condition of the schools, the affluence of the child, the nature of the community, or any other element in the lives or educational environment of school children." (American Council on Education, 1999, p. 5-6).

The expert teacher is one who can create positive learning environments with little competition, consistently reinforce student achievement, adjust instruction to individual student needs, actively scaffold, and provide consistent encouragement of self-regulation (Pressley et al., 2001). They teach at a brisk pace, ask open-ended questions, and embrace a constructivist theoretical orientation (Poulson, Avramidis, Fox, Medwell & Wray, 2001). Effective teachers believe in their own effectiveness and have a thorough understanding of their students' needs (Owings and Kaplan, 2001). They communicate high expectations to students regardless of their socio-economic backgrounds (Kannapel & Clements, 2005; Wharton-McDonald, Pressley, & Hampston, 1998). Darling-Hammond (1999) cites a number of studies that find that "teachers

who are able to use a broad repertoire of approaches skillfully . . . are typically the most successful. [This] occurs in the context of 'active teaching' that is purposeful and diagnostic rather than random and laissez faire" (p. 14).

Expert teachers are a priority for parents as well. Funding invested in human capital is valued by the community at large. Haselkorn and Harris (2001) stated that 89% of Americans said it was very important to have a well-qualified teacher in every classroom and that 80% agreed strongly that fully qualified teachers should be provided to all children, even if that means spending more money. Further, 60% identified investment in teachers as the most crucial strategy for improving student learning – more than setting academic standards or instituting testing programs. In the mind of the public, nothing can replace the power of a great classroom teacher during a child's formative years. Studies confirm parents' perceptions. "Enhancing teacher quality is an investment in human capital that yields real and lasting results. The effect is even greater on students who are at risk of low achievement than it is on other students" (Strickland, Snow, Griffen, Burns, & McNamara, 2002, p. 23).

The importance of teacher expertise and the importance of the teacher in relation to student learning cannot be understated. In 1994, Carroll emphatically stated: "Nothing, absolutely nothing, has happened in education until it happens to a student" (p. 89). Professional development plays an important role in changing teachers' teaching methods, and these changes have a positive effect on students' learning (Borko & Putnam, 1997; Warwick & Reimers, 1995). In fact, in their multi-year project Borko & Putnam found "powerful evidence that experienced teachers' pedagogical content beliefs can be affected by professional development programmes and that such changes are associated with changes in their classroom instruction and student achievement" (p. 55).

Teachers make a difference for children who have greatest need of their support. Snow (1991) found that children from very low literacy homes could make achievement gains if they had consistent and strong classroom experiences. Excellent classrooms can compensate for low literacy home situations if children have at least three years of experience in excellent classrooms. Such students were able to establish successful patterns of reading and writing achievement.

Professional Development and Student Outcomes

As delivery methods for professional learning continue to evolve, the important consideration is: what are the essential elements of high quality professional development when improved student achievement is one measure of change? In particular, how can large-scale instructional practice become more powerful when the goal is to improve emergent and early writing in kindergarten to Grade 3?

While time and monetary investment of any plan for professional development must be examined carefully, cost alone cannot determine the value of implementation. Some programs are highly effective, but their costs appear to make prohibitive. At the same time, evaluations of a program's effectiveness often focus on a narrow range of outcomes. "Access to a full picture of a program's costs relative to the total scope of its outcomes would provide a stronger basis for decision making." (Ashdown & Hummel Rossi, 2002, p. 44) The critical outcome to be studied is whether or not the professional experience increases teacher efficacy and improves results for students. It will be important to establish what kind of approaches will close the gap between the lowest achieving and the highest achieving students, rather than increasing the gap between the two ends of the achievement distribution.

Broader Context

The current education climate of whole-school improvement in times of economic restraint leads to inquiry concerning the most effective delivery method of professional learning for teachers working in the school system. This is particularly highlighted in the area of literacy.

Teachers' learning journeys begin with the achievement of an undergraduate degree. When teachers are thrust into the complexities of daily classroom instruction, they face responsibilities for individual student growth on a day-to-day basis. The added complexity of student diversity necessitates teachers' awareness of aspects of pedagogy and curriculum that can only be achieved through further study and greater depth of understanding. On-going professional learning is critical for teachers to increase their competency in a school system where the reality-imposed challenges of varied student needs are encountered daily.

Many studies examine various aspects of professional practices for teachers. Themes that persistently run through this research are teacher learning, learning how students learn, and transforming knowledge into practice for student growth (Hattie, 2012). These studies highlight the complexity of the professional growth process, which requires cognitive and emotional involvement of teachers both individually and collectively. They reveal that capacity and willingness of individual teachers to examine their convictions plus the ability to enact appropriate alternatives for instructional improvement are all positive signs of increased teacher expertise. Hattie proposed that the measure of professional engagement in further learning depends on the objectives and needs of teachers dictated by diverse student needs. Learning opportunities with formal structures such as courses and workshops may serve some purposes, while involvement in curriculum development committees, collegial discussion of assessment data, or sharing instructional strategies may serve other purposes. These opportunities for

professional development can occur within educational environments influenced by policies at a micro- and macro-level. The opportunities can vary significantly in the degree of support and the expectations of professional learning.

Context of this Study

My role as an Early Literacy Consultant and Reading Recovery Trainer (Clay,1976) for Manitoba Education and Training included monitoring data related to early literacy intervention and literacy development for children most at risk of difficulties within their first two years of school throughout the province of Manitoba and to support Manitoba school divisions in the implementation of early literacy intervention. Student data for early literacy interventions --- Reading Recovery and all other interventions, which vary from division to division --- result from administration of *An Observation Survey of Early Literacy Achievement* (Clay, 1993, 2002, 2013) employed at entry, exit, and end of grade 1 for all students included in any of the interventions. School divisions implementing Reading Recovery, which number 29 out of 37 divisions in 2015-2016, have reported on progress of students included in the intervention to the end of grade 2 and 3 through annual school division reports since 2001**.**

After eight years of reporting *Observation Survey* data, a trend in ongoing progress in reading and writing was persistent and evident. School division annual reports from 2004 to 2008 submitted to the Reading Recovery trainer revealed that students continued to progress satisfactorily with the class cohort in reading. However, progress for the same students remained stagnant or declined in writing over the years in Grade 2 and Grade 3. The same reports discuss that in comparison to grade level cohorts, there was no difference between students who did and those who did not participate in early literacy intervention. The implication is that there were challenges in classroom writing experiences for all students grade 1 to 3. These results were

discussed with the authors of the reports and their senior administrators in my role both as a provincial consultant and as the Reading Recovery trainer responsible for the implementation of Reading Recovery in Manitoba. It was also within the purview of my role as consultant to discuss possible actions to resolve challenges to concerns such as these.

Designing a Plan of Action

The action plan that was conceived by myself, the Reading Recovery teacher leaders, and senior administrators from three urban school divisions in May, 2008 was a professional development project that would support classroom teachers in the delivery of writing instruction during the early years. An outcome of my role as a provincial consultant is a co-operative, professional relationship with the senior administration with all school divisions in Manitoba, making collaborative work de rigueur. This group became the project leadership team and I was tasked with investigation of possibilities to engage Routman as an expert facilitator. Routman's work in school change was a research based approach (Routman, 2005) that employed a model of instruction based on Vygotskian principles of the Zone of Proximal Development (Vygotsky, 1978, Ball, 2000), gradual release of responsibility (Pearson & Gallagher, 1983), and principles of research-based writing instruction (Strickland & Feeley, 2003; Sulzby & Teale, 2003; Graves, 1983).

The goal of the project was to create professional learning communities where teachers could extend their own knowledge about writing instruction in the first four years of school and create a core team of models, mentors, and facilitators that could then influence other professional learning communities. The three senior administrators from the school divisions set out to explore the willingness of schools to participate in a professional development experience designed to support writing instruction (see Appendix A) and to find funding from within

existing budgets to implement the project. Manitoba Education and Training supported the project through my role as a consultant, but did not initiate or provide funding through existing government initiatives or extra provincial funding. In the Manitoba context, it is common for school division leaders to work with provincial consultants in collaborative endeavors.

Beginning with an on-line submission process to Routman's publisher, the purpose, goals, and level of commitment in terms of time and use of resources were shaped and submitted. This was followed by multiple telephone conversations with Routman and meetings of the leadership team. As the multi-year project took shape, it was decided that we would need to find ways to monitor the short-term and long-term outcomes in order to determine whether or not the desired changes were being achieved. It was determined that criteria for participation by schools would be established, a questionnaire would be developed, regular open-ended evaluations would be carried out and student writing samples would be collected on a regular basis. The consideration of teachers' and principals' dispositions was the result of school divisions' experiences in the effective implementation of Reading Recovery, where the roles of teachers and principals as part of an effective school team has been examined (Clay, 2005). These data sources were established prior to the commencement of the project and were intended as assessment for instructional purposes and alignment of the project implementation with school division plans, reported to Manitoba Education and Training annually (Government of Manitoba, http://www.edu.gov.mb.ca/k12/ssdp/index.html). School division planning requires detail in the following four areas:

1. Expected Outcomes: What specifically the school division was trying to improve for student learning. These must be observable and measurable.
2. Strategies: The actions the school division would take.

3. Indicators: How the school division would know they are making progress.
4. Data Collection: How the school division would collect evidence of progress.

Thus, the project was not originally designed as a dissertation study, but as a well-formatted part of school division literacy plans for three urban school divisions. Work as a dissertation study was the result of encouragement by my faculty advisor and committee once the project had evolved into a second three-year phase. Permission to do this secondary analysis of the data gathered in the first phase of the project was sought and granted by Routman, by each of the three senior administrators, and by the principals of each of the school staffs. It was recognized that the concerns reflected in these school divisions was part of a larger picture of school improvement mission and increased literacy achievement where professional development played a major role was a priority. The questions leaders ask are, "What will provide the greatest impact?" and "Will it be cost prohibitive?".

Definition of Terms

- *Hub school:*

A school identified to host a weeklong residency by an expert facilitator once a year, for a three-year period. Teachers in the school agree to be coached by the facilitator while colleagues observe and the principal agrees to be mentored as a literacy leader.

- *Professional Learning Community (PLC):*

Also known as a *Professional Literacy Community*, is a school staff committed to a dedicated and intensive study about teaching and learning. Regular, whole school meetings led by the principal and/or a leadership team are held with professional reading and notes of observation of live or video-based lessons used as a provocation.

- *Reading Recovery:*

This early literacy intervention has been implemented in Manitoba since 1993. Developed by Clay (1976), it is an intervention of individually designed and delivered literacy lessons for grade one children demonstrating the greatest difficulty making the transition to literacy. It is also a professional development course delivered to teachers by trained Reading Recovery teacher leaders who have been guided through a year of academic study by a qualified Reading Recovery trainer.

- *Regie Routman in Residence (RRiR)*:

The project title for all schools involved in the multi-year professional learning event. Named for the project lead, whose work is studied, and who customizes the process for individual schools involved.

- *Residency*:

A weeklong event wherein an expert facilitator, either Routman or one of her team members having been trained as a facilitator and coach, works full days in the school. The facilitator demonstrates writing instruction, coaches teachers, mentors the principal, leads an after-school professional learning community session, and maintains contact over the rest of the school year with the staff.

- *Satellite school*:

A school identified to observe the weeklong residency held at the hub school in the same school division.

- *Self-directed school*:

A school that undertakes the professional learning using the video based module, *Read-Write Connections* (Routman,2008a), does not participate nor observe a residency, but is free to consult with principal or staff of the hub or satellite school at any time.

Purpose of the Secondary Analysis of Data

This study used evidence of change in emergent and early writing performance of students in kindergarten to Grade 3. It also used teacher and principal questionnaires and written evaluations that were gathered in order to evaluate and compare the effectiveness of four different conditions in a four-year program of professional learning undertaken by multifarious educational committees. It took a pragmatic worldview and employed mixed methods to perform a secondary examination of extensive and varied data collected over the course of the project (Creswell, 2014, Glass, 1976). The professional learning process of kindergarten to Grade 3 teachers in 27 schools in three urban school districts was examined. Four conditions were compared. First, *hub schools* where staff hosted week-long, in-school residencies with expert facilitators for one week in each of three years. Second, *satellite schools* where staff observed the live experiences at hub schools. Third, *self-directed schools* where staff used a video-module for their professional learning. Fourth, *control schools* where the staff continued with instruction as they normally would.

The notion of comparing face-to-face interactions with a video module is modeled after analysis done by Ya Ni (2003). In that study, student grades were compared for courses delivered in person and those delivered on-line, with the on-line condition resulting in significantly lower grades (p. 206).

The study involved an exploratory sequential mixed-method design in the form of surveys and self-evaluation by teachers regarding their sense of competence in providing writing instruction to young children. This was followed by an evaluation of writing competencies by their students. The study utilized quantitative and qualitative analysis to answer the following three questions:

1. Which blend of professional development created the greatest change in principals' perceptions of the functionality of their school literacy team?
2. Which process(es) created the greatest change in kindergarten to Grade 3 teachers' sense of efficacy in classroom writing instruction?
3. Which process led to the greatest change in kindergarten to Grade 3 students' writing competency?

These questions are important in the current climate of professional development offerings and the restricted budgets that exist. Senior administrators must be able to weigh the value of available opportunities in professional development and become informed consumers with student benefits as the determining factor. The project design presented an opportunity to examine different delivery models for the same content and purpose. Key features in each variety allowed hypotheses to be formulated regarding outcomes related to the intensity of the experiences for school staffs.

Hypotheses

Prior to data analysis, informed by the work of Moore and Thompson (1990, 1997), Harrington (1999), and Thirunarayanan and Perez-Prad (2001), I hypothesized that the professional learning circumstance that fostered the most intensive relationship building between expert and novice and among novices themselves, i.e. the *hub school* setting, would result in the

greatest shift in learning for students and teachers and would also result in sustained change that would be observable by principals. The impact of live lessons delivered to the students of the hub schools plus the personal interactions with the facilitator and with other staff, would result in most powerful shift, in my estimation. Phipps and Merisotis (1999) had found in studies of distance learning that there were shortcomings in the research for on-line events, since there is no control for extraneous variables, lack of randomization of subjects, weak validity and reliability of measuring instruments, and no control for any "reactive effects" by the instructors (p. 3 and 4).

Informed by the same research, a second hypothesis was that *satellite schools* would also show marked change, but by being one level removed from a personal experience the effects would not be as great. Although communication amongst schools was encouraged by the expert facilitator and the senior administration, the responsibility to take action to initiate communication was left to the individual principals and teachers and these communications were not tracked.

Finally, I also speculated that maintenance of interest and energy would wane over time with the *self-directed* schools unless regular communication occurred. It would be up to the staff to determine how well this initiative would be sustained and changes in staff members could result in diminished effects in all aspects. *Self-directed* schools' outcomes would be completely dependent on teachers and principals to maintain momentum over time and determine for themselves where expectations for their own teaching and student learning needed to shift. Thus, I hypothesized that the change in student writing would be less than that of the *hub* and *satellite* schools and that student writing in *control* schools would not change significantly in a positive or negative way.

Personal Perspective

Early literacy intervention is delivered to Grade 1 children experiencing the greatest challenges getting underway with reading and writing. Manitoba Education and Training provides funding to support the implementation of short-term early literacy intervention programs in all Manitoba school divisions (Province of Manitoba, 2014). School divisions, in return, provide student specific data based on scores on *An Observation Survey of Early Literacy Achievement* (Clay, 2002, 2013) at three points in time in Grade 1; entry to lessons, exit from lessons, and the end of Grade 1. Scores at the end of Grade 1 are the first longitudinal data to monitor the progress of each student at the conclusion of the intervention. Based on the assessment, all intervention students made gains and the majority of them moved into the average band of literacy achievement. The intervention students are then able to benefit from classroom instruction without the need of supplementary literacy support. Teachers continued to monitor the students' progress in reading and writing to the end of Grade 3, since these students remain at-risk of further literacy difficulties, particularly if they experience stress in life circumstances. This longitudinal data revealed that while the students continued make gains in reading, there was little progress in writing. However limited their growth in writing, they were still in the average band for the class. In other words, growth in writing was limited for not only the at-risk students, but also the rest of the Grade 2 and 3 cohorts.

Informal discussions with the students' teachers about classroom practices revealed that they were willing to discuss reading instruction and their own professional development efforts in that aspect of literacy, but were uncomfortable or dismissive when the talk turned to writing instruction. With respect to student literacy achievement, early years teachers were quick to describe student progress in learning to read but had to be questioned further in order to describe

progress in learning to write. This discomfiture may reflect a lack of confidence in providing instructional opportunities to the students or a lack of clarity about the purpose, potential, and pedagogy of the writing process.

Studies have shown that student gains in reading are correlated to gains in writing (Clay, 2005, 2013; D'Agostino & Brownfield, 2015). Clay's updated norming study, previously published in 1993, is reported in the third edition of *An Observation Survey of Early Literacy Achievement* (Clay, 2013) which was published posthumously. This assessment is highly valid and reliable for children age 5 to 7 (Robinson, 1972; Pinnell, et al., 1994; Denton, et al., 2006; Holliman et al., 2010; D'Agostino, 2012). The correlation of scores between the number of words a child is able to write and the complexity of the text the child is able to read are highly correlated (p 172-173). The New Zealand (2000) analysis found an overall correlation for children age 5 to 7 to be high at 0.85. During the child's first year at school, the correlation coefficient is 0.59 in the first half of the school year and 0.84 by the second half. In the second year at school, the correlation coefficients are 0.82 in the first half of the school year and 0.78 in the second half of the year. This demonstrates quantitatively the two way relationship between writing knowledge and reading progress.

Although the importance of balance in the curriculum is evident and Manitoba provincial guidelines suggest 35% of the school day should be spent in the English Language Arts (Manitoba Education and Training, 1996), it is left to the individual teacher to ensure that writing, as one of the English language arts, gets the time and attention it deserves.

Since writing is not assessed through Manitoba provincial assessments, the Programme for International Student Assessment (PISA), or the Pan-Canadian Assessment Program (PCAP), but only through provincial exams at grade12. There is no formal accountability for writing

instruction using common provincial assessments from kindergarten to grade 11. Teachers do report on student progress in writing to parents in grades 1 to 6 on the provincial report card (see *Appendix B*). Progress is broadly described on the report card with scores of 1 to 4. A score of 1 indicates "limited understanding and application of concepts and skills: see teacher comments" and a score 4 indicates "very good to excellent understanding and application of concepts and skills". The format of assessment in writing is left to individual teachers (Manitoba Education and Training, 2016). Reports to parents for kindergarten students are designed by individual school divisions and vary in content and format.

My interest in this study stemmed from a desire to determine what might be possible to ameliorate the challenges for teachers and improve outcomes for students in writing. The initial project was necessary because data (Matczuk & Tolentino, 2013) demonstrated that children were coming into literacy intervention with very little experience and expertise in writing, and children made slow progress in writing in the early years at school. Classroom programs were providing English Language Arts instruction but anecdotal reports reflected that writing was getting very little instructional time, teachers complained that they were not certain how to organize for writing instruction, how to teach children how to be writers, and how to assess writing. New teachers claimed not to have learned how to teach writing in their undergraduate experiences; experienced teachers have either found a methodology to latch onto or have let the emphasis on writing lapse. Both groups insisted that Manitoba English Language Arts curriculum documents (Manitoba Education and Training, 1998) were perceived as "not helpful" regarding instruction in writing and these documents were often left on the shelf. As one teacher expressed, "It's not neat and clean and no one really explains how to do it" (personal conversation, 2009).

While the instructional domain of the project was "writing", the topic of this research is professional development. This study attempts to determine which form of professional developments maximizes professional expertise. Writing served as the conduit for improving pedagogy across a range of grades and curricular areas for the students. Provincial priorities for schools and school divisions are often delineated in yearly plans, and it is common for literacy and numeracy to be cited as areas for improvement as noted in earlier in this paper. Whether a school was aware of the challenges in the development in writing or not is dependent on the knowledge level of the school team and communication that takes place amongst staff from grade level to grade level. Ultimately, comments in evaluations made it clear that the ability for students to express themselves in writing crossed all curricular areas, including numeracy.

Process

Senior administrators from each of three school divisions were invited to nominate a "hub" school, that is, a school to host a live residency. In addition, select up to three "satellite" schools, that is, schools to observe the live residency and to participate in the project. The criteria for selection of these project schools were defined. The schools nominated had to have a population with challenges of high mobility, low socio-economic status, sparse pre-school literacy experiences, limited English language experiences, or any combination of these factors. In addition, the school staff needed to commit to a multi-year professional growth plan that included the participation of the school principal, and a commitment to participate in an ongoing professional learning community that would use the Routman resource, *Transforming our Teaching Through the Read-Write Connection* (Routman, 2008a). Finally, schools needed to be implementing Reading Recovery (Clay, 1991) as their early literacy intervention to support the lowest achieving students in Grade 1. Provincial data revealed this the most effective literacy

intervention being offered in Manitoba (Matczuk & Tolentino, 2013) and writing is included in each child's series of lessons. This requirement assured maximum engagement in classroom instruction, since Grade 1 students receiving support were those having the greatest amount of difficulty engaging in literacy instruction. Implementation of early literacy intervention maximized engagement for students currently receiving support plus those who had received support previously while they were in Grade 1.

The purpose of the inter-divisional design was to create professional learning communities for kindergarten to Grade 3 teachers that would be able to exchange ideas and engage in professional dialogue across the cultures of individual school divisions. Teachers, principals, and senior administrators were included in the professional learning communities, each with their own view of professional learning and literacy instruction. Through a socio-constructivist model whereby the staff of a school, as part of a community of schools volunteered to participate, a project was developed and delivered to allow participation in professional growth experiences that had the potential to improve writing instruction for students.

The concept of *Hub* and *Satellite* school implementation is unique to the project and was conceived during my conversations with Routman. The residency model had been carried out over the last 15 years by Routman and her team but was always limited to individual schools. As Routman described during a panel presentation at the Association for Supervision and Curriculum Development (ASCD) Annual Conference (April, 2016), "This project has been unique. Nowhere else have I been involved in such a large scale project to improve multiple schools."

Video Module

It is important to provide some description of *Transforming our Teaching Through the Read-Write Connection* (Routman, 2008a). Unlike other commercial products, this is a video-based professional development series compiled by Routman to provide an experience similar to a live residency through embedding professional development and teaching in real classrooms. It is described on the publisher's website as "one of three programs in [a] series, includes a full year of professional development sessions–14 in all–that work with any existing curriculum and resources. Each session includes a detailed agenda for facilitators and extensive video (typically 30 minutes per session) of Routman teaching in diverse, authentic classroom settings. In each video, Routman provides insightful voice-over observations and analysis" (Routman, 2016). It is neither prescriptive, nor a recipe for practice. It is an opportunity for teachers to explore their personal theories of instruction and student learning by observing classroom lessons being delivered and engaging in personal reflection and collegial discussion.

The three-year project (with a "year" running from April to March) began with a day-long, large group session of 37 school teams each of which comprised of three to eight teachers each, plus the school principal. The teams were from the "hub" and "satellite" schools of the three nominated school divisions plus 25 self-directed school teams. A hub school was determined to be the school that would host a week-long residency by Routman or a member of her expert facilitator team. A satellite school was determined to be a staff that would observe the residency from the sidelines in the classrooms while the hub school participated. Routman was the featured speaker for the day and introduced the project in 2009. The following day, school leaders were invited to a half-day session that dealt with issues surrounding the role of the principal in leading such an endeavor. School teams then moved into their own local professional learning communities for the next year, using the *Read-Write Connection* (Routman, 2008a) as

the focal piece. An April starting point provided time for foundational discussions to occur prior to the end of the school year so that in September, teams were ready to take the first substantial steps into their Professional Learning Community. At the conclusion of the first year (2010), an expert facilitator conducted a weeklong residency in each of the "hub" schools with school teams from the "satellite" schools observing. A residency was an in-school professional learning event where the expert facilitator coached teachers as they worked with their own students, with a preparatory discussion before school and a debriefing after the class. The expert facilitator also coached the principal as classroom visits were made, and provided after school professional development sessions.

A similar process followed in the same schools for each of the two subsequent years. Such a model was unique in several respects. First, Routman (RRiR)'s team of facilitators had not functioned with two levels of involvement of schools simultaneously nor had they worked with three different schools, let alone three different school divisions working as an ensemble. Second, none of the schools or school divisions had ever experienced repeated weeklong, in-school residencies such as that delivered by the RRiR team. Third, a multi-year, intensive professional development model had not been used in any of the three school divisions involved for whole-school involvement with an emphasis on classroom teachers. Fourth, an inter-divisional initiative that required teaming and co-operation for planning and delivery had not been common practice in Manitoba. Finally, systematic, multi-year data collection on student writing has not been practiced by a consortium of school divisions in Manitoba.

School teams were involved in the project with three distinct degrees of engagement.

First were a group of hub schools that attended the first large-group session, utilized the video-module kit, and were the hosts and participants in three annual in-school residencies facilitated by an expert facilitator. The residency included the following four key components:

(1) facilitators engaged in preplanning the emphasis of the residencies with the teachers involved to be involved in demonstration lessons;

(2) four days of co-teaching in two classrooms with students and teacher observed by colleagues;

(3) daily debriefing with all staff regarding their observations and building an after-school PLC meeting based on staff needs, and;

(4) four afternoons spent with the school principal to support instructional walks (classroom visits) and methods of effective feedback to teachers.

Second was a group of satellite schools that attended the first large-group session. These schools established PLCs that employed the video module kit, observed the in-school residency with expert facilitators working in the hub schools, and had a principal who participated in the principals' afternoons. The major difference between a hub and satellite school was the substitution of an observation for the live, participatory experience with the facilitators for the satellite school. Satellite teachers and principals observed the experience that was lived by their divisional colleagues, but did not participate in co-teaching with an expert, nor did they participate in the pre-planning. That does not preclude that they may have experienced co-teaching and planning within their own schools with the school staff.

Finally, was a group of self-directed schools, a school staff with the principal who attended the first large group session and then, in their own PLC's, employed the video-module

kit. The principal and teachers from this final group had the option to contact either the hub or satellite schools at any time during the year for support.

Since the multiple documents, writing samples, evaluations, questionnaires, and field notes from focus groups were gathered over the course of the study, this study involved a post treatment quantitative and qualitative analysis of these documents to determine answers to the three research questions presented at the beginning of this proposal. To reiterate, they are:

1. Which blend of professional development created the greatest change in principals' perceptions of the functionality of their school literacy team?
2. Which process created the greatest change in kindergarten to Grade 3 teachers' sense of efficacy in classroom writing instruction?
3. Which process led to the greatest change in kindergarten to Grade 3 students' writing competency?

Significance of Study

Many professional development opportunities are available to education professionals and with the current priorities on literacy competency of students, the variety of teacher learning offerings can be overwhelming to teachers and administrators who must decide how to best allocate time and funding. The area of writing instruction is inextricably related to reading instruction and links across all curricular areas from the students' first year at school and beyond.

A multitude of studies on professional development and adult education theory have been carried out. The ex-post facto design of this study serves to explore the effects of differences in models of professional development. It also serves to establish which model results in significant changes in teacher practice that in turn improved student outcomes. It illustrates the importance of high-quality opportunities for teachers and the benefits for a school system when student

outcomes are used as a measure of success. This work provides new perspectives with which to design professional learning opportunities and to employ student outcomes as a measure of benefit analysis. The key principles of effective professional development that are revealed here can inform future locally developed professional development projects regarding features to include and those features to avoid. However, an implementation of a multi-year emphasis, where short term and long-term outcomes are monitored closely and where there is high expectations for teachers and principals would require a paradigmatic shift in the way professional learning opportunities for educators are designed and funded.

Scope and Limitations of this Study

This study was centered on the outcomes of a professional development project in writing instruction as part of the *Manitoba English Language Arts Curriculum: A Foundation for Implementation* (1996). The project had been conducted within schools that provided instruction for kindergarten to Grade 3. All teachers and principals were employed in schools that volunteered to participate in an endeavor to strengthen writing instruction. The schools all functioned within high-needs communities in three urban Manitoba school divisions where senior administration had agreed to make a financial and professional multi-year commitment to improving learning outcomes in writing.

The multi-year nature of the project required that school staffs, including the principal, commit for at least a three-year period, thus the longitudinal nature of the project may have excluded some participants due to their inability to commit that amount of time or funding. It may also have excluded schools where either the staff or the principal did not see the need for a multi-year improvement project. Results may apply to other schools, grade levels, aspects of the English Language Arts curriculum, or to other curricula, but only professional development in

writing instruction in the first four years of school is examined here. This examination concerns the first three years of the project which, now in its eighth year of implementation, has expanded to include other hub and satellite schools and students up to Grade Eight.

Four limitations may have had an effect on data analysis. First, as the program evaluation process was established prior to commencement of the project and prior to the proposal for this thesis, there are several limitations as a result of the ex-post facto design. Available data excludes other types of analysis. Since data was anonymized for classroom, school, and school divisions and identified only by school condition and grade level, individual student writing samples could not be tracked from year to year to be used as case studies of writing development, nor could individual principal or teacher responses. Supplementary questions that might have revealed further insights into teacher and principal perceptions could not be gathered to reveal greater insights into changes over the course of the project.

Second, as the researcher, limitations in this study include my position as a provincial consultant for the province in which the research took place. My role was that of a critical advisor. This circumstance may have resulted in bias and may have influenced the level of teaching participation or willingness to share detailed events or information on questionnaires and evaluations.

Third, this study was the small sample of three hub schools that met the criteria about population profiles set out for selection by senior administrators and three satellite schools that were also identified. As a result, the outcome of this research may not be generalized broadly. The conclusions drawn from this study aim to provide insight into the characteristics of professional development opportunities that represent key features that result in significant change in effective teaching practice in writing.

Fourth, the very fact that writing instruction was receiving attention in the schools may have had a halo effect and outcomes could possibly have been the result of that attention alone. The model of professional development may not have been the factor that resulted in changes, but rather time on task alone may be the independent variable that had the greatest effect.

Chapter 2

Literature Review

The purpose of this chapter is to examine the various theoretical perspectives and research that underpin this study. The literature review is comprised of six major sections. In the first section, I will provide an overview of the theory of *social constructivism* and models, such as Routman's (2003) which is built on this theory. In the second section, I will summarize theories of *early writing development and teaching*. In the third section, I will survey literature on *professional development models* in order to establish optimal components and the rationales for their inclusion in a professional learning model. In the fourth section, I will review the literature *teacher expertise and its relationship to student achievement.* The fifth section will deal with research on *teachers as adult learners* in order to establish the optimal components and the rationales for their inclusion in a professional learning model. Finally, the sixth section will explore the literature to present what is known about the *relationship between adult learners and digital technologies*, as an option for teacher learning experiences.

Social Constructivism

Routman's approach to embedded professional development is based on an overarching principle that she has called the Optimal Learning Model: "I do it, We do it. You do it" (Routman, 2008a). This is based on Pearson and Gallagher's (1983) model of the Gradual Release of Responsibility, of which there have been multiple reiterations of the model since (Johnson, 2006; Fountas & Pinnell, 2003; Miller, 2002; Dorn & Soffos, 2001; Whilhelm et al., 2001) as illustrated in Table 1. The Optimal Learning Model (OLM) is supported by Bruner's (1985) theory of constructivism that states that learning takes place when an active learner integrates new knowledge with existing knowledge. "...The tenets of Piaget's constructivism is

that the world was not found, but made of structural rules that are imposed on the flow of experience" (p. 6). The model that Routman professes is built on this model of constructivism, and has included a social perspective.

Table 1

Explicit modeling and gradual release of responsibility adapted from (Johnston, 2006, p. 9)

Pearson & Gallagher (1983)	defining skills	modeling the application of skills	providing ample guided practice experiences with supportive teacher feedback	allowing opportunities for students to independently apply skills	comprehension of skills
Dorn and Soffos (2001)	Modeling	Coaching	Scaffolding	Fading	
Fountas and Pinnell (2001)	Show	Support	Prompt	Reinforce	Observe
Wilhelm et al. (2001)	I do, you watch	I do, you help	You do, I help	You do, I watch	
Miller (2002)	Modeling	Guided practice	Independent practice	Application	
Routman (2003)	Demonstration	Shared Demonstration	Guided practice	Independent	
Johnson (2006)	Modeling	Scaffolding	Prompting	Backing off	Reinforcing

Social constructivism suggests learning as knowledge built upon existing knowledge by engaging a more expert 'other' through language and actions to support the novice. Vygotskian theory (1978) aligns with this point of view and asserts that the role of social interactions and internal thought are both important in a teaching-learning setting. Learners begin to develop more processing systems that begin to extend themselves, becoming more complex the more they are used (Clay, 1991). Vygotsky has used this idea to further his theory of the zone of proximal development (ZPD), which is the space within which new learning becomes actual learning for the individual. It is the cusp of new knowledge linking to previous knowledge with the support of others through social interaction. Wood (2003) states,

> It is about keeping the [learners] at that point at which they can just start to recognize things they can't yet quite manage. Then [learners] become critical players in the learning process because they can judge the results of their own efforts (p. 22).

The communication that is established between the expert and the learner build a relationship that moves between them and empowers learners to shift in what they know how to do. Through communication with teachers, Routman helps them to build their own expertise and through communication with the students, teachers afford them the same opportunity.

The notion of support that shifts as learning occurs has been described as *scaffolding* (Wood, Bruner, & Ross, 1976). The nature and amount of scaffolding changes over time but ensures that the learner always succeeds with as much independence as possible. An expert's degree of support must be determined by the previous response of the novice to the help provided. It is contingent on the novice's learning. Wood (2003) suggests that there are several areas of expertise required in order to truly be considered an expert working on the cutting edge of the learner's ZPD: (1) knowledge of the task, (2) relating knowledge to performance, (3) perspective taking, (4) self-inhibition: from doing, to guiding, to fading, (5) communicative competence, and (6) timing.

Knowledge of the task and of the learner requires the expert to understand the appropriate level of task complexity suitable for the learner. A task that is neither too complex nor too simple will be within the instructional zone. This knowledge alone is not sufficient for appropriate scaffolding.

For the expert, beyond knowledge of the task, that knowledge must be held up against the novice's performance of that task. Wood suggests, "you've also got to know how to interpret and react to the various difficulties or sequences that learners are likely to go through as they

themselves develop that knowledge and master those skills" (p. 8). The expert must also be able to see the problem from the learner's point of view. Then, from that point of view offer help that is contingent upon that perspective. (p. 8).

Self-inhibition is another challenge for the expert. That is, leaving enough space for the learner to demonstrate whether he or she is able to carry out the task. Wood admonishes experts to leave the learner enough space to try, but not too much space so that the learner flounders. Self-inhibition relates strongly to communicative competency. The expert cannot talk too much, going on and on and leaving the learner bored or confused. On the other hand, the expert cannot withhold important information from the learner. Communication to the learner must be clear, precise, and timely (p. 11).

The timing of the support is critical. Related strongly to communicative competency and self-inhibition, the pace of teaching must match, not lag or race ahead of the learning. Wood refers to this as temporal contingency (p. 16).

The model is applied as a pedagogical principle by Routman to both students and teachers (as learners). As she states, "this learning model is really a coaching model that gradually releases responsibility to the learner so that the learner eventually self-directs, self-evaluates, and sets worthwhile goals" (2008b, session 2, p. 12). It is the aim of the model to increase teachers' pedagogical knowledge and improve practice while at the same time guiding the students to a greater knowledge about writing or reading. Rogoff (1990) suggested that this teaching is "guided participation", a notion which has a great deal in common with the OLM. Both models recognize the need to support learners and the vital need of the learner to be actively participating. Both acknowledge the reciprocal nature of the expert and learner who are both actively learning throughout the interaction.

Routman's OLM (2003) aims to have students' competencies to self-direct their learning increase. The teacher's role is provide high-quality instructional support so that individual students are able to acquire and apply new learning in highly motivating activities. Learners are supported not only through interactions with the teacher as expert, but also with each other where peer support is an acceptable and expected situation in which to learn more. Teachers are encouraged to "think out loud" when demonstrating new skills and children will also be heard "thinking out loud" with peers. The students are learning not only more about writing, they are also increasing their expertise at scaffolding the learning of their peer group. It is the teacher's role to ensure the readiness of an individual to skillfully release responsibility to the learner. Thus, through feedback and reinforcement, the teacher aims to build meta-cognitive competency in the students in order to allow them to self-regulate their thinking, self-monitor their process, and evaluate their own application of skills. Routman encourages teacher-to-student and student-to-student communication at all times, setting the classroom as a context where social constructivism is valued. According to Vygotsky (1978), "Language arises initially as a means of communication between the child and the people in his environment. Only subsequently, upon conversion to internal speech, does it come to organize the child's thought, that is, become an internal mental function" (p. 89). In other words, the classroom must be the context in which both of these things can and do occur.

In a similar approach, teachers as a staff participate in regular whole-group meetings and through weekly small-group meetings which may be grade level specific or a vertical (kindergarten to grade 3 teachers meeting together) team. Routman's model fosters the same kind of process of expertise building for teachers. First, through social interactions, and then later inside themselves. When teachers have the time to dialogue with their peers about common

experiences taking place in students and in classrooms, their pedagogical knowledge is strengthened. It is the same OLM model, once applied with students and then again with teachers. The RRiR project was designed to promote high social engagement to enhance learning.

At times, when teachers and principals meet to engage in focused and intense discussions the process once again is recreated. The sense of creating a larger divisional and inter-divisional cultural group seems daring, however, careful, slow, and systematic apprenticeship into the culture of professional learning communities, has proven to be an exercise in building collaborative expertise. Through Routman's strong encouragement for professionals to co-teach, co-lead, mentor, and coach each other, active problem solving takes place in real classrooms with true day-to-day challenges, successes, and joy.

Writing Development and Instruction

> "Writing today is not a frill for the few, but an essential skill for the many."
>
> (National Commission on Writing, 2003, p. 11)

Clay (2001) defined writing as a "message-sending, problem-solving activity that increases in power and flexibility the more it is practiced" (p.1). Her literacy processing theory of the assembly of complex perceptual and cognitive working systems states that the working systems increase as a student reads and writes, (Doyle, 2015, p. 648) and becomes more flexible as time is spent on-task. While these working systems begin to take shape well before a child enters school (Clay, 1975), they ultimately become a neural network of complex working systems that learn to extend themselves in service of problem-solving the unknown (Clay, 2001, p. 129). The working systems continually grow as the level of task difficulty increases, but at

around age 9 they make the first major shift of becoming silent because the learner has internalized the learning. (Clay, 1991).

It was from this theory that Clay determined that by studying competent readers and writers, it is possible to find out what struggling students at the same age need to learn to do. Thus a systematic and meticulous observation of emergent literacy learners, a term coined by Clay (Sulzby & Teale, 2003; Clay, 1966), at work in their classrooms was carried out (Clay 1966). She stated that in order to develop a theory of an individual student's writing process, it would be necessary to "go beyond the analysis of their writing samples. There is a need to observe them in the process of writing" (Clay, 1983, p. 259). In her view, learning to write is first of all, learning to compose a message and second, finding a way to record that message.

There would be little to record if there were no composing. The youngest of children, before entry to school, have learned to tell their own stories and convey messages orally and before their first year in school will begin to attend closely to the features of letters and words. They will construct words letter by letter, while attending to spatial features like the orientation of letters and the spaces between words, all the while paying attention to the word and sentence level, and they will engage in their own form of segmenting sounds (phonological awareness) in order to write them down. These foundations will be extended as the child engages in opportunities to write and write more as the child constructs a literacy processing system and develop their own theory of writing. (Clay, 1975, 1991, 2001).

Clay's tenets are echoed in research of others interested in the developing writer in school between the kindergarten and grade 3. The National Commission on Writing (2003) held that students who develop strong writing skills at an early age acquire a valuable tool for learning,

communication, and self-expression. Such skills can be developed through effective writing instructional practices that provide adequate time for students to write.

The Institute of Educational Sciences (IES) (2012), described the writing process as a "process through which people communicate thoughts and ideas [by composing text]. It is a highly complex, cognitive, self-directed activity, driven by the goals writers set for what they want to do and say and the audience(s) for whom they are writing" (p.7). The IES also stated that "writing is not a linear process, . . . It is flexible; writers should learn to move easily back and forth between components of the writing process, often altering their plans and revising their text along the way" (p.7). This echoes Clay's definition noted above.

Instructional components that research has indicated are important for writing instruction emphasize the need for adequate time for students to be involved in writing as possibly the most crucial (National Commission on Writing, 2003). A student cannot increase competency on a task they do not have the opportunity in which to participate. That being said, surveys of elementary teachers indicate that students spend little time writing during the school day (Cutler & Graham, 2008; Graham et al, 2003). Students need dedicated instructional time to learn the skills and strategies necessary to become effective writers, as well as time to practice what they learn. (Berninger et al., 2006). Time for participation in writing can help students gain confidence in their writing abilities. As teachers observe the way students write, they can identify difficulties and assist students with learning and applying the writing process. In fact, Berninger et al., (2006) concluded as a result of their study that students who were given extra instructional time in writing in the classroom had improved writing quality relative to students who did not receive extra instructional time.

The Institute for Educational Sciences recommended that beginning in grade 1, students should have 60 minutes daily devoted to writing (2012). That is not to say 60 minutes in English Language Arts, but 60 minutes of writing throughout the day, that crosses into content areas of the curriculum. They recommend 30 minutes daily for kindergarten students should be devoted to developing writing skills regardless of the curricular emphasis in the classroom (p. 11).Having said this, merely providing time for writing is insufficient. The time for writing must include instruction. (IES, 2012, p. 10).

One aspect that is noted in multiple studies (Lane et al., 2008; Lienemann, et al.,2006; Gambrell & Chasen, 1991; Graham & Harris, 1989; Gordon & Braun, 1986) is that students need to be taught to use the writing process for a variety of purposes. A variety of purposes is best, whether it is conveying information, making an argument, providing a means for self-reflection, sharing an experience, enhancing understanding of reading, or providing entertainment. A variety of genres helps to serve those purposes. This is noted as a learning outcome in Manitoba's (1996) ELA Framework document for Grades 5 to 8 (Stagg Peterson 2012, p, 277), it is also part of the K to 4 Framework. Teachers should begin by teaching students the different purposes for writing and how specific genres, or forms of writing defined by specific features, can help students achieve their writing goals (Jerram, Glynn, & Tuck, 1988)

Routman (2003) advocates that students also must learn to adjust their writing for audience. This ability, which can be taught even in kindergarten, guides the final written message to be most effective for their intended readers (Glaser & Brunstein, 2007; Berninger et al., 2006). This is not a process to learn and instruction must be carefully planned. Students need to develop a sense of the process by instruction in specific strategies to achieve control of the process. Hearkening back to the social constructivist notions and the gradual release of responsibility, it is through guided instruction and application that students are able to self-regulate their participation in the

process (Glaser & Brunstien, 2007; Lane et al., 2008; Graham, Harris, & Mason, 2005). This aspect of writing is also taught through teaching children to critically read or listen to stories, superbly selected by their teachers for this purpose. By considering the author's intended audience and the language choices that support the message-sending, children can move from acts to awareness (Clay, 1998) about their own written productions.

Students need to build fluency with whatever it is that they know how to do in writing. When basic recording skills such as letter formation and handwriting become relatively effortless for students, they can focus less on these basic skills and more on developing and communicating their ideas (Berninger et al., 1997; Clay,199; Bereiter & Scardemalia,1987). Fluent production allows the writer, to use less cognitive capacity for recording the message allowing room for attention at the message level. However, younger writers must typically devote considerable attention to acquiring and polishing these skills before they become proficient (Clay, 2005).

At the word level of writing production, students need to know how to listen to the phonemes in their spoken and then unspoken words and represent those phonemes with graphemes, even if they are not precisely correct in conventional English spelling (Clay, 2005b, 2001, 1991; Read, 1975). Using phonemic information to guide writing evolves from simple words with sounds that are easy to hear, to learn to do this from left to right (first to last) within a word, to learn to use letter clusters or spelling knowledge to write new words. Children need to know that often this works but sometimes it does not, given the quirky nature of the English language (Clay, 2001, p. 23).

Knowledge of writing some foundational words, about 44 different words (Clay, 1991, p.244), that contain exemplars of most of the spelling patterns students will need to be able to

use to write most words also speeds the production. Knowledge of spelling patterns can affect the words students choose because they may be less likely to use words they cannot spell (Graham, 1999).

Students also need to be able to generate strong, interesting messages that vary in length and complexity in order to convey their intended meaning and engage readers. When children have many words that they know how to write, they can use this known body of knowledge to work with something new, and when they are able to have fluency putting their thoughts into words, the volume and speed of writing will increase (Clay, 1987, p. 59).

Writing strategies should be taught explicitly and directly through a gradual release of responsibility from teacher to student. (Glaser & Brunstein, 2007; Duke & Pearson, 2002; Troia & Graham, 2002). Smith (1982) suggested "The teaching of writing should be an incidental matter . . . teachers showing children what writing can do and helping them to do it themselves p. 211).

Students need both the skill and the will to develop as writers (Gambrell, Malloy, & Mazzoni, 2007). If one considers the notion of knowledge being socially constructed and that thought is mediated with language (Vygotsky, 1978), then the value of a community of writers working together in a conversational way in an environment which fosters collaboration and interaction cannot be questioned. The supportive classroom should foster a community of writers who are motivated to write well. In a supportive writing environment, teachers participate as writers, not simply instructors, to demonstrate the importance of writing. By taking part in writing lessons and activities, teachers convey the message that writing is important, valued, and rewarding (Routman, 2003).

Motivation to write is another critical aspect. According to Hayes and Flower (1986), teachers should include opportunities for students to choose their own topics and/or modify teacher-selected prompts related to the purposes and genres being taught. When students choose their own topics, they may become more engaged and motivated to write. Such engagement and motivation could potentially lead students to write more frequently and become more involved in the writing process and the writing community, minimizing the Matthew effects (Stanovich, 1986). Teachers who can take the time to ask themselves whether or not their teaching is facilitating growth in student's literacy processing, whether or not they are providing sufficient opportunities to write, whether they offer students choice in the messages they write, and encourage them to write as part of a community of learners will be able to document growth.

Professional Development

Research has shown high-quality professional development is a crucial factor impacting teacher expertise in all aspects of curriculum delivery (Darling-Hammond, 1999; Rowe, 2003) and teacher change (Fullan, 2006; Sharratt & Fullan, 2009). There is a paucity of research that connects professional learning platforms, effective teaching, and writing development.

The American National Staff Development Council, in cooperation with the National Association of Elementary School Principals (1995), issued standards for staff development in elementary schools. The very first standard reads, "Effective elementary school staff development requires and fosters the norm of continuous improvement" (p. 5).The supporting rationale emphasizes the need for educators to refine skills and construct "craft knowledge" (p.5) while working with peers. This is strong support for ongoing Professional Learning

Communities (PLCs) and a challenge to those in leadership roles to set the highest expectations for expanding the quality of PLCs.

Effective professional development includes teacher reflection (Bos & Anders, 1994), conversation among colleagues (Combs, 1994), support, monitoring, and sustained coaching (Anders & Evans, 1994; Costa & Garmston, 1994; Moore, 1997; Neufeld & Roper, 2003). In-depth, relevant, and ongoing professional learning accompanied by mentoring and collaborative activities has also been associated with positive student outcomes in a number of studies (Ashton & Crocker, 1987; Darling-Hammond 1999; Gorman, 2005; Grossman & Thompson, 2004; Lewis et al., 1999). Relatively few studies have specifically examined whether the professional learning opportunities result in changes in instructional practice that influence student change and even fewer have examined change in student writing performance. Not every form of professional development, even that with the greatest evidence of positive impact, is relevant to all teachers. Therefore, a constant need exists to study, experiment, discuss, and reflect upon school-wide professional development. The interactive and interpersonal connections among teachers, influences of socio-economic history and traditions, the educational needs of students, the expectations of education systems, teachers' working conditions and opportunities to learn that are available – all influence teachers and the impact ongoing professional support makes in their daily practice.

The plethora of offerings available to all teachers can present difficulties in terms of selecting the best learning opportunities. Choices include large-scale conferences offered in a variety of locations both local and exotic or intimate gatherings of a circle of colleagues to engage in book study, internet video seminars, video conferencing, webinars, or digital videos. These learning platforms reflect the rapid technological change of the 21st century, but, whether

they are taken individually or in combination, they are not all equal nor are the needs of every teacher met. Teachers who work with challenging populations or who require a greater amount of support to achieve deep change require differentiation in support.

Institutional changes that are both sweeping and positive are not created, do not endure, nor succeed by chance. In education, lasting fundamental change is influenced and sustained by a compelling vision of school leaders. If the vision of the leaders is gripping enough, it will inspire people to commit themselves to work for its realization – to begin and sustain the arduous processes of change in pursuit of the goals that the vision holds (Sharatt & Fullan, 2009). Changing the culture of the institution to foster enduring changes in teachers has been studied (Fullan, 2006; Hargreaves, 1994; Fullan & Hargreaves, 1996) and institutional characteristics that support change have been delineated.

Characteristics of institutions that foster improved student achievement have been outlined by specific descriptors (Sharatt & Fullan, 2012; Rowe, 1991). The school environment is characterized by stability, routine, and orderliness. Schools with teachers who were reflective and collaborative achieved consistent gains in student achievement. Also common were teachers with high expectations of their students, who do not necessarily use the latest methods but were willing to try new ideas and adapt. As well, teachers who demonstrated a well-developed knowledge of theory and practices of language learning usually acquired this knowledge through professional development programs.

The teacher accounts for differences in student achievement to varying degrees. The importance of this cannot be minimized since the greatest responsibility “lies in the person who gently closes the classroom door and performs the teaching act – the person who puts in place the end-effect of so many policies, who interprets these policies, and who is alone with students

during their 15,000 hours of schooling (Hattie, 2003, p. 3). Students rely on the leadership and facilitative skill of teachers to varying degrees, yet the impact must be recognized.

There are many differences among schools. In contrast to suburban schools, inner urban schools are challenged to close the student achievement gap with fewer resources, have a significantly higher percentage of inexperienced and less qualified teachers, and frequent staff turnover. Inevitably, scarce resources are directed toward standardized core curricula and high-stakes testing with less expenditure for teacher development (Darling-Hammond, 1999). A study of class size found that teacher effects were greater than either school effects or class-size reduction effects, and teacher effects were strongest in high poverty schools with the greatest variability in teacher effectiveness, while teacher effects were not as great in low poverty schools (Nye, Konstantopoulos, & Hedges 2004). A New Zealand study of schools with high percentages of low socio-economic status (SES) students found that sustained school-based professional development resulted in positive changes in teachers' attitudes toward their students even though teachers represented a range of professional background and skill. Teachers began to value their students' oral language abilities and home literacies, resulting in significant improvements in students' literary achievement (Philips, McNaughton & MacDonald, 2004; Timperley & Phillips, 2003).

Making smart decisions are critical in times of economic challenge. When costs within education systems are scrutinized to trim excess, professional development is in stiff competition with other budgetary considerations. Media and taxpayers critique education budgets to ensure there is value for their dollars to facilitate opportunities for students to be competitive in a global economy. The need for highly skilled and well-trained graduates with strong literacy skills place additional pressures on the education system. Whether a system should invest in better-equipped

schools, greater choice of learning platforms in a technological world, or continue to invest in the traditional student-teacher paradigm is the subject of considerable debate. On one hand, tossing a scrap of professional development indiscriminately at a relatively random group of teachers without accountability to demonstrate how students have been supported is an irresponsible use of precious funds. On the other hand, highly structured, systematic professional development where specific teachers are required to publically demonstrate an immediate effect for every student in order to justify the dollars spent, neglects the concept of change over time in teacher practice. Somewhere in between these extremes is a student- and cost-effective model that reflects both the need for accountability and the time for teachers to enact meaningful shifts in practice in order to influence student growth.

Complex problems will require complex solutions that take time if teacher quality is to be improved. Although research validates the link between teacher quality, professional development, and student achievement, Knight and Wiseman (2005) discuss the complexity involved in evaluating the effectiveness of professional development. They recommend further research to determine how teacher factors interact within programs and curricula in complex models of professional development and the relationship to student achievement in reading.

Teacher Expertise and Student Achievement

At a macro-level, school and system success is not merely raising the level of achievement, but closing the gap between the lowest and highest achieving students (Slavin, 1998). Taking into consideration those students with the greatest learning needs -- the students who need the most support from the teacher -- helps strengthen all aspects of instruction for all students. The effects of teachers have been demonstrated to account for 40 to 60% of student achievement. Building teacher capacity is key to successful school improvement (Biddulph,

Biddulph, & Biddulph, 2003; Darling-Hammond, 1999; Fullan & Hargreaves, 1996; Hattie, 2003; Rowe, 2003; Togneri & Anderson, 2009; Sharratt & Fullan, 2009).

What is important to children who face challenges in life, who depend on their teachers most, is a school that is effective at meeting their needs. Effective schools have strong links to parents, collaboration between parents and school staff, systems for regular assessment of students, and instructional grouping practices based on assessment results and student needs. Teaching staff in effective schools embrace a shared responsibility for students, with coaching, mentoring, and collaboration among classroom teachers, reading specialists, and English Language Teachers (Taylor, Pearson, Peterson, & Rodriguez, 2003).

In a five year study of 44 middle- and high-school English teachers, Langer (2000) identified six characteristics of the professional lives of teachers that fostered positive student achievement. "The effective schools and districts nurtured a climate that 1) orchestrated coordinated efforts to improve student achievement, 2) fostered teacher participation in a variety of professional communities, 3) created structured improvement activities in ways that offered teachers a strong sense of agency, 4) valued commitment to the profession of teaching, 5) engendered a caring attitude to colleagues and students, and 6) fostered a deep respect for lifelong learning" (p. 397). Langer cautioned that the exact models in these schools could not be replicated because populations of teachers and students are diverse. However, she suggested that the culture that fosters these characteristics could be emulated.

Understanding practices of schools with strong academic outcomes for students can serve as a guide to schools where improvement is needed. Effective schools are characterized by strong administrative leadership and ongoing sustained professional development for teachers (Taylor, et al., 2003) and a shared commitment to the process of continued improvement through

professional learning communities (Fullan, 2002; Newmann, 2002; Rowe, 2003).

Rowe elaborates on this by suggesting "what matters most is not the 'pimple' of student compositional characteristics such as gender, socio-economic difference, nor school structural arrangements of interest to 'school effectiveness' researchers, but the 'pumpkin' of quality teaching and learning provision, supported by strategic teaching standards and ongoing teacher professional development" (2003, p. 20). The competence of teachers becomes critical when considering the learning of children in poverty. Research shows that students from lower socio-economic backgrounds are languishing with achievement levels far below those of middle and higher income groups (Brownell et al., 2012). Quick fixes can be tempting and are often fuelled by special interest groups, political interests, and publishing companies desperate to divert education funding. The challenges to meet the needs of students are complex, and the solutions not simple. It follows that the students with the greatest need must have teachers with the greatest competence. Those teachers, and subsequently their students, will benefit from the most powerful professional investment, not the "flavor of the week" frequently offered by the local publishing companies.

Administrators need to recognize that student outcomes are linked to data trends, theoretical perspectives, and organizational features. Day-to-day reality for individual teachers revolves around classrooms in schools, and all that matters to an individual student is what happens in his or her own classroom at school. The school's educational leader, the classroom teacher, and the student must work as an ensemble within the local school community. Each member of the community influences the others, which makes it impossible to isolate a single variable in school success. Fullan and Hargreaves (1996) suggest that student achievement is reciprocally related to teacher development and "when a school has one or two good teachers, it

is usually a matter of individual initiative. But when a school has many good teachers, it is a result of leadership" (p. 112). It cannot be disputed that leadership by the principal in literacy instruction plays a critical role in overall school improvement.

Measures of successful student outcomes that are long-term, rather than short-term, are critical. School trustees elected for four-year terms are challenged to establish annual budgets that reflect short-term commitment even though what matters most to students are long-term outcomes. Clearly, solutions will require reflection, forethought, and a coordinated, multi-dimensional approach. Complex problems have complex solutions. Research indicates that when teacher thinking improves, teacher performance and student achievement improve as well (Glickman, 1983; Sprinthall & Theis-Sprinthall, 1983). Solutions are most likely if teachers are engaged in activities that foster thinking about children (Ashdown, 1996).

Effective teaching practice is not an absolute set of skills. Studies of teacher effectiveness vary with context of setting, community, and subject area (Hattie, 2012). Thus, the context of any research on teacher effectiveness must be considered when searching for models of excellence. As well, student outcomes are the most important measure of teacher effectiveness. However, it is somewhat challenging to examine effective practice in writing instruction for children in the early years. In the early stages of development, instruction provided to foster the establishment of the writing process has been somewhat elusive for researchers since student outcomes in writing are not measured as easily as those in a later stage. Despite this, when Parr and Limbrick (2009), set out to study the characteristics of effective teachers of writing, they were able to find characteristics that these teachers had in common. The study was carried out in a region of New Zealand with a high proportion of aboriginal students who tended to be "over-represented in the tail of the achievement distribution" (p. 584). The teachers were somewhat

isolated in rural areas, spanning the grade levels for 5 year olds to 18 year olds, and relying on their own teacher and principal team for support. However, all had a strong commitment to formative assessment and created classroom environments that were supportive of student literacy. While these teachers worked in schools in an area that had typically underperformed, they were able to support students to higher achievement because they had a sense of purpose and meaningfulness in writing instruction. As a staff, they worked coherently, consistently, and systematically.

Two characteristics of expert teachers (Lyons, 2003; Routman, 2008a) that are key factors in student achievement are 1) their positive mind-set and belief in their own ability to teach, and 2) high expectations for the students with whom they work. Hinnant, O'Brien, and Ghazarian (2009) demonstrated the longitudinal relationship of teacher expectations to achievement in the early years of school. In a study of 1,000 children in Grade 1,2, and 3 and their families, in relation to reading and mathematics, the authors found that teacher expectations were consistent predictors in reading achievement. They found some evidence that student outcomes remained durable over time, in particular, in math achievement. Teacher expectations were more strongly related to later achievement for groups of children who were considered to be at-risk.

While parenting beliefs, parent practice, and socio-economic factors are also among factors that influence student achievement, these factors are not within the control of the education system. What is within the purview of the education system is the demand to provide expert teachers. This need is urgent since teachers are considered to be the major conduit, the largest single source of influence, through which academic development is facilitated. (Alton-

Lee, 2003; Duffy & Hoffman, 2002; Hamre & Pianta, 2005; Hattie, 2003; Nye, Konstantopoulous, & Hedges, 2004; Rowan, Correnti, & Millar, 2002).

Teacher understanding of students, curriculum, and pedagogy are the pillars that support school programs; it is the connection of these broad concepts that actually represents what makes a difference for student learning. Professional learning connects these three pillars and supports teachers' knowledge base, achieves knowledge integration and knowledge application. However, as adult learners, teachers benefit more from some learning opportunities than from others. This begs the question: what conditions are required to ensure that teacher beliefs and practices are shaped to foster improved outcomes for students?

The Role of Professional Development to Increase Teacher Expertise

Resolving dissonance.

Being motivated to construct a new understanding comes from disequilibrium or from the decision making process in order to problem-solve (Mezirow, 2009). These interpretations of learning rely on the individual having a personal belief that acknowledges conflict between existing knowledge and new knowledge. A significant feature of school culture is that the common beliefs are often unspoken and cultural practices are so embedded and widely shared that they are nearly invisible to the members within the community. Teachers do not stop and think about their practice and assumptions in a deep way unless they differ significantly from the cultural norms, as might occur when visiting a different country (Hiebert & Stigler, 2000). So, in the residency experience, classroom teachers might be faced with a new piece of information or might observe a practice that is contrary to what they have believed or done previously within the cultural norms of the school.

Festinger's theory of cognitive dissonance (Festinger, 1957) is based on three assumptions. First, that human beings are sensitive to inconsistencies between actions and beliefs at some level. Second, that recognition of this inconsistency will cause dissonance, and will motivate an individual to resolve the dissonance in some way. Third, that dissonance will be resolved in one of three ways: 1) beliefs will be changed, or 2) actions will be changed, or 3) there will be a change in the perception of an action, either in the way it is viewed, remembered, or perceived. In other words it will be "rationalized" in some way.

Sometimes, new information can be ignored or denied, but that only works for a little while. Another choice would be to accept the new information and take it as confirmation of something we thought we knew already. The third choice is the most powerful as it requires engagement in round of tussling with new information and critical reflection to resolve discomfort and to create new learning (Ince, 2010). Festinger and Carlsmith (1959) argued the uncomfortable feelings created by cognitive dissonance lead us to try and reduce the dissonance, and new understandings develop as a result of assimilation and accommodation (Piaget, 1967). These interpretations of learning rely on the individuals.

Wheatley (2002) suggested that dissonance between personal expectations and sense of efficacy may open up the possibility for teacher learning to occur—self-doubt may cause reflection and may motivate teachers to learn. Cobb, Wood, and Yackel (1990) discussed the importance of cognitive conflict in teachers' thinking. They suggest that this cognitive conflict—or challenges to teachers' approaches and thinking—could be a motivator for change. Previously, Ball (1988) had argued that dissonance in teacher thinking is often required for teachers to unlearn much of what they believe, know, and know how to do in order to learn and adopt new practices. The dissonance that disrupts teachers' equilibrium was referred to by Ens, Matczuk,

and Nickerson (2009) as a “pebble in the shoe”. They stated that some discomfort is necessary for teachers to “reflect on the gaps between personally held beliefs and proposed ones presented with research and professional learning experiences” (p. 20). They continued to say, “Teachers are less likely to have consistent and effective practice if they are unaware of their beliefs, or if they base their beliefs on their experience alone” (p.20). It is important for teachers to be able to articulate their beliefs, interact with others about them, and evaluate whether their beliefs actually fit with evidence or whether there is some dissonance that will require new learning in order to establish a resolution.

There are limits and cautions with regard to upsetting the equilibrium of teachers’ belief systems. A study of 56 teachers’ professional development processes by Smylie (1988) showed that their orientations to teaching and learning are not easily altered. Teachers are more likely to embrace evidence that supports their current orientation than evidence that contradicts it (Chinn & Brewer, 1993; Tillema, 2000). Changes that are reported because of short-term professional development are more likely to be changes in the surface features of instruction than the result of changes in fundamental beliefs (Richardson, 2003).

MacKeracher (1998) describes the basic learning process as cyclical. She suggested the adult learner participates in experiences and activities that result in the intake of information that matches those the adult learner has in memory. They also take in new information from internal and external sources that the learner will need to use to create new understandings or use to modify existing knowledge as part of a learning process. The learner tries to make sense of experience by giving it meaning and value through using pattern-recognition and meaning-making cognitive processes and affective processes. Those meanings are used in problem solving, decision making, and other cognitive processes to make choices and decisions and to

develop plans for acting to achieve choices. The learner next acts within (or observes) a situation which involves other persons or non-human resources and finally, action plans are implemented and choices tested. New or revised activities provide feedback and "new" information for the learner.

Feedback that has long-term results is important, but change is slow, and all learners need to be able to see some sign of progress and results for efforts as soon as possible. Routman (2014) refers to "quick wins" as a "way to promote confidence that incremental progress is important and that long-term change is possible" (p. 5). School principals recognize the power of a quick win and as principal, Kim Ball, (2013 in Routman, 2014) noted, "...[quick wins]buy you a lot of money in the bank. The staff knows you're on their side. As a principal, quick wins are really important for moving the school forward" (p. 5). Whether a principal is neglectful, interfering, or partnering, teachers report that the principal and the principal's feedback plays a huge role in literacy improvement (Ippolito, 2009). When feedback and reinforcement for the teacher are immediate, their value to the learner is enhanced. Immediate feedback can be seen by the learner as part of the learning cycle while delayed feedback is often seen as unassociated with the learning cycle (MacKeracher, 1998, p. 13). The quick wins in student response and shifts in student learners are necessary to motivate the persistence of the individuals in a consistent approach to change (Routman, 2014).

Professional learning communities.

Learning in a group setting proceeds more effectively if learners articulate their thinking, either in writing or orally. Adults learn to distrust non-verbal, non-representational, and subconscious learning because it is difficult to verbalize and is often perceived by others as illogical or irrational. The process of articulating the cognitive process is sometimes described as

"cognitive apprenticeship" (LeGrand, Brandt, Farmer, & Buckmaster, 1993, p. 169). "The professional learning community model flows from the assumption that the core mission of formal education is not simply to ensure that students are taught but to ensure that they learn" (DuFour, 2004, p. 6). This statement is true for both the children in the classroom and their teachers who are also learning more about their craft. This simple shift – from a focus on teaching to a focus on learning—has profound implications for school faculties.

When individual teachers view it as a pledge to ensure the success of each student, to view student diversity as an opportunity to provide learning opportunities with scope with room for instruction to be differentiated so that students succeed, teachers are problem solving as individuals. (Piaget,1967). However, when a school begins to function as a professional learning community, teachers can become aware of the incongruity between their commitment to ensure learning for *all* students in *all* aspects of curriculum and their lack of a coordinated strategy to respond when some students do not learn. The power of a common goal within a social culture that values a problem solving approach cannot be undervalued.

In addition to being systematic and school wide, the professional learning community's response to students who experience difficulty must be timely, based on a theory of intervention rather than remediation, and directive. A school ought to quickly identify students who need additional time and support before the gaps between the student who needs support and the rest of the class creates an ever-growing wedge of need. When the instructional plan provides students with help as soon as they experience difficulty rather than relying on retention and remediation, student self esteem and achievement are strengthened. Finally, when teachers take the initiative to require students to receive the assistance they need and have them devote some extra time to aspects of learning that are lagging, the responsibility for the initiation begins with

teacher actions to arrange for effective and direct teaching to take place (Allington, 2012; Clay, 1991; Johnston, 2012, Routman, 2014). Collaborative teacher conversations must quickly move beyond "What are we expected to teach?" to "How will we know when each student has learned?"

The culture of collaboration.

Researchers have directed increasing attention to the role of collaboration in planning and professional study. Many of the educational ideas come from the field of the scientific and business communities where such practices have long been valued (Routman, 2014). Educators, both teachers and school administrators, who are working within the sociocultural construct of a PLC recognize that they must work together to achieve their collective purpose described in the mission statement; that is, of learning for all. They can create structures to promote a collaborative culture and can work in teams to engage in an ongoing cycle of questions that promote deep team learning. This process, in turn, can lead to higher levels of student achievement.

A sociocultural perspective was articulated by Vygotsky (1978) who understood the psychology of the individual within a social setting through interaction with others and by Rogoff (1998) who suggested that it was not useful to consider cognition or behaviour distinct from the social contexts in which they occur. Vygotsky's theories about learning remind us that higher mental functions originate in relationships among individuals and shift to independent thought. So, knowledge development in Vygotsky's theory applies twice—first at the social level and later within the individual. This is a useful theory for thinking about professional learning communities but also useful for valuing the social context of the school PLC for experienced teachers.

In reviewing research focused on the impact of collaborative professional development on teacher practice and student achievement, Cordingley, Bell, Ruddell, and Frith (2003) concluded that collaborative professional development produced changes in teacher practice, attitudes, beliefs, and students' achievement. They also highlighted that few researchers of individual professional development have measured the impact of the activity on these outcomes. The relationship between collaboration and changes in teacher behaviour emerges as a correlational one in the research that focuses on professional development activities.

Coaching.

While literacy coaching is not a new practice, the widespread recognition of its impact is (Hattie, 2012). Students, teachers, and administrators benefit when a school adopts a coaching model and creates an environment of collegiality. Real expertise does not happen accidentally; it occurs because excellence is evoked and supported *in others by others*. An abundance of new research focuses on the role of coaching in the school-change process. In fact, standards for coaching have been jointly prepared by professional organizations to inform best practice (Frost & Bean, 2006, p. 2). Coaching provides the additional support needed for teachers to implement various programs or practices (Nowak, 2003). Poglinco, et al. (2003) conducted an evaluation study of a coaching model that provides a good summary of what coaching does: "Coaching provides ongoing consistent support for the implementation and instruction components. It is nonthreatening and supportive—not evaluative. It gives a sense of how good professional development is. It also affords the opportunity to see it work with students" (p. 42).

Collaboration and coaching are not without challenges. Sipe (1995) quotes Tharp and Gallimore (1988) on this issue: "The first obstacle [to collaborative and collegial interaction] is not time but structure. Nothing about the way schools are typically structured, from their isolated

classrooms to their modular, clock-driven work day is conducive to colleague consultation" (p. 2). Teachers very rarely see each other teach. The rarity of having a colleague come to visit may lead to the fear of it. Teachers can adopt a fortress-like mentality about the classrooms and about their teaching. The only time another adult is in the room is usually when there is some type of evaluation – not by a colleague, but by a senior administrator or the principal.

Teacher learning must be conceptualized as a complex system of change through social interaction rather than as simple system that will be revised through a one-time event (Clarke & Collins, 2007; Collins & Clarke, 2008; Curtis & Stoller, 2002; Davis & Sumara, 2006; Hoban, 2002; Weaver, 1948). The complex concept is that the school itself should be a learning organization 'in which pupil learning is inseparable from professional learning and the culture is one in which learning flows across boundaries of role and status' (MacBeath & Dempster 2009, p. 7). This places the PLC very much within the democratic discourse of professionalism posited in opposition to managerial or directed type of professionalism (Day & Sachs 2004). While the idea of a PLC is theoretically supported by social learning theory (Lave & Wenger 1991, Wenger 1998), it differs in the sense that communities of practice are seen to develop spontaneously and informally, whereas PLCs may be consciously fostered by school leaders. This is a more complex system of professional learning that acknowledges various dynamics at work in a social group and the social interactions of the individuals within the group that combine in different ways such that even the simplest decisions can have multiple outcomes.

It is difficult to determine any single factor for effectiveness of professional development due to the complexity of internal and external factors. "Relationships between elements in the system vary in scale and intensity, come together in different combinations depending on the

situation, are often reciprocal, and are always nested"(Mitchell, 2001, p. 379). However, there may be characteristics that promote positive effects in multiple systems.

The notion of "nested systems" suggests systems within systems where teachers, as independent professionals, work within grade level and subject groups; where schools within school divisions work in specific contexts within neighborhoods, and school divisions function within sociopolitical environments of provincial settings. All interact reciprocally and interdependently. In addition, the knowledge of teachers prior to the adoption of a PLC emphasis, the problems posed when working with students in situated communities, the routines, and aspirations for the group are shaped by existing practices and beliefs of the individuals. The methodology involved in picking apart factors most effective in bringing about improved practice would in itself be complex. It is almost easier to explain what does not work than what does.

There is nothing quick about changing complex systems. Carpenter, Fennema, Peterson, Chiang, and Loef (1989) studied the features of professional development associated with improved student learning. They conducted a randomized experiment and found that teachers who participated in an extensive 80-hour program of cognitively guided instruction had students who outperformed the students of teachers who had participated in a brief 4-hour professional development program. Eighty hours may not seem to be an onerous amount of time if considered as a single block of two 40-hour weeks. However, the capacity of the individual to appropriate a change in practice in an intensive block is limited. It is most effective for the 80-hour program to take place over an extended time with multiple, two to two-and-a-half hour sessions provided every one to two weeks. (Clay, 2009; Zull, 2002).

Desimone (2009) stated that researchers have concluded that teachers need time to develop, absorb, discuss, and practice new knowledge. She has concluded that activities that effectively support teachers' professional learning need to be sustained and intensive rather than brief and sporadic. Professional development that involves significant numbers of contact hours over a long period is typically associated with effectiveness (Guskey, 2000). Boyle, Lamprianou, and Boyle (2005) noted that long-term professional learning was also rare in their extensive survey in England. Fewer than five percent of teachers were involved in long-term professional learning (more than two days). Among teachers in England who did engage long-term observation of colleagues was the most common practice; coaching and action-research were reported as most effective but were relatively rare. "Without sufficient time to achieve some sense of mastery over new instructional moves or skills, teachers were unlikely to develop a sense of efficacy and are less likely to adopt new practices" (Ross & Gray, 2006).

Pedagogical features of professional development have also been examined. Researchers have considered the types of materials teachers use while learning, the coherence of the learning activity to their daily work, and the pedagogical processes those teachers engage in while learning effectively (Birman, Desimone, Porter, & Garet, 2000; Desimone, Porter, Garet, Yoon, & Birman 2002; Garet, Porter, Birman, & Yoon, 2001). Teachers learn most effectively when activities require them to engage with materials of practice (Borko & Putnam, 1997; Greeno, 1991; Hawley & Valli, 1999; Putnam and Borko, 2000). They learn most effectively when the activity is school based and integrated into the daily work of teachers (Greeno, 1994; Hawley & Valli, 1999; Leinhardt, 1988; Wideen, Mayer-Smith, & Moon, 1998). Teachers also learn most effectively when the pedagogy of professional development is active and requires teachers to learn in ways that reflect how they should teach pupils (Darling-Hammond & McLaughin, 1999;

Putnam & Borko, 1997). The link between theory and practice is important for educators and the immediacy of connecting theory to the daily interactions between students and teachers provides powerful feedback and personal adjustments to understanding of that theory.

Professional development has been shown to be more effective in affecting teacher learning and teacher practice if teachers from the same school, department, or year level participate collectively (Birman et al., 2000; Desimone et al., 2002; Garet et al., 2001). Other research on collaboration has shown that collaboration can be a double-edged sword (Little, 1982; Nuthall & Alton-Lee, 1993). That is, that teachers engaging in too much collaboration can emphasize conformity to group norms at the expense of inventiveness and initiative. This suggests as well that too much emphasis on collegiality may not lead to improvements. The intensity of collaboration becomes an important factor—too much collaboration and learning is stifled; too little collaboration and teacher isolation can inhibit growth. What is needed is just the right amount of collaboration and teacher change results due to the stimulation and a "just right" level of support and challenge from colleagues within the group.

Well designed professional development is less common than a one-day, one-time event with a high profile, charismatic presenter. The planning necessary for an effective professional growth takes time and is complex. Lawless and Pellegrino (2007) concluded that "although professional development opportunities have increased for teachers, our understanding of the features and content of quality professional development has not increased proportionately" (p.576).Wayne et al. (2008) have also concluded that the "evidence is weak and fails to address practical questions that would help in the design of effective learning activities" (p. 469).

Further discouraging results were found by Clarke and Hollingsworth (2002) and Clarke and Peter (1993). This research showed that correlational research on features of teacher

professional development activity and change has been disappointing. They found that change that occurred in one area of influence did not necessarily lead to change in another. Teachers may change in their beliefs but not their practices, may change their practices but not their beliefs, and may change practice but not the learning outcomes of the students.

Opfer and Pedder (2011) pointed out that, first, in order to explain teachers learning and pedagogical change, the assumptions about causality of the features of professional development would have to be expanded to acknowledge that the features work together collectively in different ways under different circumstances in different contexts. Second, they pointed out the role of variation in intensity of the features is an important factor. Third, they suggested any search for causal relationships might need to be abandoned in order to consider the reciprocal relationship between the system of activities in which teachers engage and the systems of influences that mediate and moderate activities that promote teacher learning and teacher change. While it may be challenging, the proposed study will attempt to establish a causal relationship between teacher professional development and student outcomes. Opfer and Pedder concluded that "effective teacher learning requires multiple and cyclic movements between the systems of influence in teachers' worlds" (p. 386).

Digital Responsiveness

Delivery of professional development through digital means is evolving quickly and continuously. The potential for providing opportunities to teachers in remote communities or to teachers who have busy schedules and prefer learning opportunities on an unusual schedule is great, and there are opportunities to save not only time and travel but also cost. Briefly, two types of delivery are of concern in this review: 1) Asynchronous, since the project utilized online

discussion groups located at http://www.regieroutman.org/ plus email communication and 2) digital texts, since the project included digital video modules and online articles.

Asynchronous learning.

E-learning presumes individuals are assumed to learn better when they discover things by themselves and are able to independently pace their learning. Embedding a constructivist learning theory into an on-line social structure further presumes that through socially mediated interactions, the development of knowledge within the individual will be supported by the different knowledge of others. The individual is able to test new ideas and then make a decision as to whether or not to appropriate or revise conceptual knowledge through a reorganization of existing cognitive processes.

Asynchronous learning is an adult learner-centered teaching method that uses online learning resources to facilitate information sharing without constraints of time and place among a network of people (Hrastinski, 2008). The cognitive model of media choice proposed by Robert and Dennis (2005) theorizes that asynchronous communication increases a person's ability to process information. The receiver has more time to comprehend messages and formulate his or her response because an immediate response is not expected. Kock (2005) estimated that an exchange of about 600 words about a complex topic would take about six minutes in a face-to-face encounter, but may take up to one hour in an email response since there is time for thoughtfulness and rationalization on the part of the sender. Hrastinski determined that almost every electronic utterance (98%) in an asynchronous exchange concerns lesson content, but in a synchronous or even face-to-face exchange only 58% of the exchange related to content (p. 53) since there is greater need for friendly social interactions. Zhang, Zhou, Briggs, and Nunamaker (2006) cite the benefits of e-learning in that "it provides time and location flexibility; results in

cost and time savings for educational institutions; allows learners to be self-directed and self-paced; creates a collaborative learning environment of experts and peers; allows unlimited access to electronic learning matter; and allows updates to content in a timely and efficient manner" (p. 17). However, those social interactions that cut into time on content ought not to be underestimated. "The importance of the human factor that comes with physical presence cannot be denied even though it is largely intangible" (Morrison, 2011, p. 272).

Digital text.

The use of video recordings is not a new technology. Quality of the recording has improved steadily since the 1980s but the basic "text" is unchanged. Access to published recordings is more limited than one might expect. Due to the vulnerability of the subjects in the video, namely young children in the early years of school, permissions granted by parents may preclude the video being shared widely through websites. Viewing may be restricted to local users that have purchased the entire professional resource. Teachers have the option to video themselves or colleagues for professional development purposes provided they have parental permission of students or create a recording where viewing children's faces will be blocked (Hauptmann, 2005).

There are advantages to the use of video recordings for teacher learning. Teachers are able to view realistic scenes, to observe sequences in motion and in discourse, and to listen to narration. (Zhang, Zhou, Briggs, & Nunamaker, 2006). It is difficult to fully capture the complexity and swift social interactions of the classroom in a video format let alone evidence that can fully define teaching moves. Teaching has been called "elusive classroom practice" (Borko et al., 2008; Santagata, 2009) since the moment to moment decisions made by the teacher, as a response to student reaction, are fast, sometimes unconscious, and complex.

Research by Hatch and Grossman (2009) demonstrated that teachers learned about effective practice by observing published videos. This makes sense since a publisher must invest in production costs and their credibility might be called into question if a weak or problematic lesson were used. While there is no such thing as a perfect lesson, a video recording of a strong lesson with a skilled teacher must be valued. One of the benefits to using a published video is that productive analysis and discussion is easier to achieve with a third party than it is when a teacher's own lesson is viewed since the experience is far more personal. An individual teacher might be overly self-critical of his or her own lesson or might be guarded when viewing a lesson delivered by a colleague in order to maintain a positive social equilibrium.

Participants in Zhang, Lundeberg, Koehler, and Eberhardt's (2011) study demonstrated concern and restraint when participants were commenting on the experience of viewing anything other than the published videos. When viewing the recordings of their colleagues' experiences, they did not want to hurt anyone's feelings with a negative comment or have a misunderstanding of intent (p. 461). As well, they felt that their own video recordings could not "capture the teaching environment and worried that not all of the teaching was caught on tape" (p. 459), (for example, the children's responses and facial expressions). This finding led the researchers to recommend that when using published videos, since there is no opportunity to ask questions of the individual in the video, "rich contextual information should be provided, including the teacher's instructional goals, students' characteristics, lesson plans, samples of students' work, what happens before and after the videotaped lessons and the teacher's thinking behind significant events in the video" (p. 462).

Video analysis benefits teachers' ability to weigh up teaching decisions. In a study on the video lesson analysis methodology, Alsasai and Alghazo (2010) found that viewing video

recordings of lessons with interactions, whether synchronous or face-to-face, remarkably improved teachers' ability to analyze teaching when compared to a group that did not participate in video lesson analysis. The participants in their study had viewed published videos of themselves teaching. Similar to other studies, their participants led them to have unanswered questions when they were unable to interact with the teacher in the video. Although many published videos provided a lack of contextual understanding, enhancements would need to be created if there is no opportunity to ask questions of the individual in the video.

Blended learning.

Blended learning provides an alternate solution to these questions. When online or digital events and face-to-face instruction come together, the result is referred to as a "blended" method. This type of learning might vary in format but has been defined by Allen and Seaman (2007) as having an online component of 30% to 79%. In a blended learning situation, elements can be adapted by an individual instructor or group to meet the needs of their clientele. In a meta-analysis, Graham (2013) synthesized the research on online learning, citing Star and Grisemer, (1989) who defend this vague definition as "plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites . . . weakly structured in common use . . . strongly structured in individual site-use" (Graham, p. 6).

While there is flexibility in delivery methods, there is consistency of language and focus in a blended learning PLC (p. 11). Graham concluded that in terms of learning effectiveness, learner satisfaction, faculty satisfaction, access and flexibility, and cost effectiveness, blended learning provides a viable solution. He recommends further research into why blended learning is effective and research to determine whether positive learning outcomes are sacrificed for the

sake of cost and flexibility of access. Graham's focus was the effectiveness of a distance education when it was blended with face-to-face practice. This research involves situated practice that emphasizes face-to-face experiences with a blending of supplementary support through video-modules compared to the use of video modules alone. None of the conditions completely recreates the distance learning situation studied by Graham.

The matrix of student learning, teacher expertise, professional growth, time, and the methods available to facilitate that growth is complex and fluid. Although expertise and learning are unique to the individual, opportunities for increased professional acumen that result in improved outcomes for students can be organized to provide optimal conditions. The research proposed here is an attempt to connect student learning with optimal learning conditions for teachers. The learning domain of the emergent and early writer is the context within which the research will be situated and the student subjects of the research, although from different school division cultures, have life challenges that put them at-risk for literacy failure. Changing that outcome is important, meaningful, and rewarding for teachers.

Chapter 3

Method

This study is a mixed-methods, *ex post facto,* quasi-experimental design as outlined in Cresswell (2014). According to Cresswell, a mixed methods approach is appropriate when "the researcher bases the inquiry on the assumption that collecting diverse types of data best provides a more complete understanding of a research problem than either quantitative or qualitative data alone." (p. 19). Additionally he describes the quasi-experimental design as appropriate when "individuals are not randomly assigned" (p. 168). In fact, it would be very difficult to randomly assign samples because naturally formed groups of classrooms and schools participating in a socially constructed learning situation do not lend themselves to this design.

Given this is a secondary analysis of data, the study was limited by the types and method of data collection carried out in the first three years of operation. Glass (1976) stated that a secondary analysis of old data is appropriate where results had not been previously published (p. 3). The data gathered for the RRiR project had been used for internal purposes only and results had not been published. Routman and the leadership team determined what needed to be gathered to suit the purposes of assessing principal, teacher, and student needs and change. It is an analysis of the data gathered during first three years of an on-going professional development experience that has continued beyond three years, and has concluded a seventh year in March, 2016. Schools included in the project from 2010 to 2012 have continued to be involved, in a supportive on-going way. New schools have become involved in the project since 2012. There are currently 54 schools in the project.

The longitudinal aspect of the analysis must also be addressed. While it might have been possible to use a cross-sectional sample of data, it was unwieldy to sample various grade levels

at one point in time and arrive at any conclusions regarding the three-year process of change and differences among grade levels. Using the conditions outlined by Ployhart and Vandenberg (2010) where they define "*longitudinal research* as research emphasizing the study of change and containing at minimum three repeated observations . . . on at least one of the substantive constructs of interest" (p. 97). The condition of sampling at four points in time met this condition and the development of teacher expertise was a constructed substantive interest.

The model of *hub* and *satellite* schools has continued, based on the model established in the first three years. This design was conceived in order to satisfy school division administration that the maximum number of teachers was being reached for the dollars spent (Caetano-Gomes, 2009). It would not have been the preferred structure for Routman, but was necessary in order to satisfy all stakeholders in the project. The collection of artifacts of student writing and teacher evaluation of residency experiences has continued although the frequency of this data collection has been reduced.

At two points in time, project participants were asked to complete a questionnaire that consisted of eight questions using a Likert (1936) scale and one question that asked for an open-ended response. The Likert scale used fixed choice response formats and since this methodology is designed to measure attitudes or opinions (Bowling, 1997; Burns, & Grove, 1997), this appears to have been appropriate. The choices were linear in terms of strength of self-confidence and ranged from "very confident" to "not confident at all". However, Likert scales typically have 5 or 7 points of choice and the questionnaire in this case utilized a 4-point scale. McLeod (2008) suggests the best method for analyzing the responses is to determine the mode of the responses and these are reported in Chapter 4.

Open-ended responses gathered in the questionnaires and in the post-residency evaluations were analyzed using a constant comparative analysis. This methodology was originally developed for use in grounded theory by Glaser and Strauss (1967), however, this methodology has since been stretched to be included in other forms of qualitative research. (Thorne, 2000). When each new narrative is compared with another, until all narratives have been compared with each other, common patterns or themes emerge. Reporting or summarizing such themes allows researchers to tell the story of their data (Dickenson, 2010). One type of reporting is Word Clouds, which are a visual representation used in a summative way (Ramlo, 2011). NVivo, a computer software analysis program of QSR International Pty Ltd™, (2016) analyzes qualitative data and provides a frequency table of themes and a Word Cloud display. This software employs a constant comparison analysis and was used to analyze themes in questionnaires and evaluations.

For data gathered on the evaluation of student writing samples, scores were generated from the British Columbia Ministry of Educations Writing Rating Scales (2009). Data analysis was a 4 x 2 analysis of variance. ANOVA analysis shows a main effects, in this case a main effect for condition, a main effect for year, and an interaction effect between condition and year. Because significance was shown and since this was a pairwise comparison, a post-hoc analysis was followed by a TUKEY HSD analysis. Tukey does not give F-scores as the ANOVA does, but probes the differences among and between the levels of the significant effects found in the ANOVA analysis. Tukey provides an analysis of the mean differences between levels of the variables. Since this was a pair-wise comparison, a post-hoc analysis using Tukey HSD when significance was found with an additional comparison for year to year change. Thus, three follow-up Tukey analyzes were conducted: one for condition, one for year, and one for the

interaction between condition and year. This assumes independence of the observations being tested, as well as equal variation across observations. In each case of this analysis, $p < .05$.

Schools initially involved in each of four conditions were not randomly assigned and sample sizes differed in terms of principals and teachers. Samples of writing were of equal size for grade and condition (n= 10). Multiple artifacts with respondent and individual school identities were anonymized and collected by the school divisions and by Routman in a pre-test condition and then over the three years of the project. These multiple data sources were analyzed through both quantitative and qualitative methodologies. The following research questions guided the analysis:

1. Which blend of professional development created the greatest change in principals' perceptions of the functionality of their school literacy team?
2. Which process created the greatest change in kindergarten to Grade 3 teachers' sense of efficacy in classroom writing instruction?
3. Which process led to the greatest change in kindergarten to Grade 3 students' writing competency?

Timeline for Regie Routman in Residence Project

May, 2008:

A review of Observation Survey data and long term monitoring results of students that had been included in early literacy intervention in Grade 1 revealed positive outcomes and the maintenance of gains in reading, but neutral or negative gains in writing. I sent a lengthy proposal to Heinemann Publishing to investigate the possibility of a residency experience in Manitoba. This was the only possible route to investigate the possibility of working with the author. A telephone interview with the publisher's

professional development consultant followed to evaluate the context for the residency. This was followed by several telephone conversations with Routman who made the final determination to work with the Manitoba teams and to set the parameters of the experience in order to ensure the best opportunities were offered to the teachers. The negotiation of conditions under which Routman's involvement could be assured, became the framework for the project (i.e. hub, satellite, self-directed schools) and a listing of the types of data that would be gathered. The ultimate design followed a quasi-experimental program evaluation methodology (Mark, 1992).

April, 2009:

Project commenced in April with a one-day overview for 37 school teams which included Routman, senior administration and teams of principals, and all early years staff from hub schools, satellite schools, and self-directed schools, but not control schools. Not all 37 schools would continue beyond this point, however, as participation was voluntary.

May, 2009:

Schools began in-school PLC's by collecting base-line writing samples and using the Routman video module that directs teams to explore common beliefs about writing instruction. An initial writing sample was collected from students in kindergarten to Grade 3.

Spring, 2010:

Schools continued with in-school PLC's over the year. The first week-long, in-school residencies with expert facilitators were held in three hub schools. An end of year "on-demand" writing sample was collected from students, as well as evaluations by teachers and principals.

Spring, 2011:

Schools continued with in-school PLC's over the year. The second week-long, in-school residencies with expert facilitators were held in the same three hub schools. An end of year "on-demand" writing sample was collected from students, as well as evaluations by teachers and principals.

Spring 2012:

Schools continued with in-school PLC's over the year. The third week-long, in-school residencies with expert facilitators were held in the same three hub schools. This was the conclusion of the three-year cycle for hub and satellite schools. End of year "on-demand" writing samples were collected from students, as well as evaluations by teachers and principals. Senior administration, Routman, and I worked in consultation to plan next steps.

This study utilized data from four school conditions, at four points in the process, for four grade levels of students. These were compared to discover common traits, differences, and trends in perceptions of participants and in student output. By examining the data, we can infer whether or not change has occurred for principal-led school team, for teachers, and for students. We will know where it has occurred, will be able to describe the change, and establish the strengths and challenges of each degree of support. Ultimately, it was my aim to determine which of the complex teacher professional development models results in the best outcomes for students.

The first independent variable is the type of professional development in which school staff participated. There were three conditions under which the teachers and principals participated and a control group included as a fourth comparison group:

1. *Hub* schools where a live, interactive residency with an expert is coupled with some individual coaching, collaborative teaching, expert-led PLC, support through personal email correspondence with experts, use of DVD and on-line videos, extra reading, and an in-school PLC led by the school literacy leadership team;
2. *Satellite* schools where teachers observed the live residency and some of the coaching in the hub schools but did not participate in the expert-led PLC or the personal email interaction with the expert. Teachers did use the DVDs, on-line videos and participated in the extra reading and in-school PLCs led by the school's literacy leadership team (which included the principal).
3. *Self-directed* school teams that were not part of the live residencies whatsoever but utilized the PLC model, and the DVDs, had the option to contact staff at the satellite schools and to access on-line videos and extra reading;
4. A *control* group of schools that did not participate in the project. These schools were identified from the listing of Manitoba schools that each had at least one Kindergarten to Grade 3 classroom and had Reading Recovery as the early literacy intervention being implemented (Matczuk & Tolentino, 2014). On-demand writing samples were collected by Reading Recovery teachers following the methodology prescribed. These samples were labeled with grade level, submitted to the Reading Recovery teacher leaders, who in turn submitted the anonymous samples to me.

Table 2
PLC activity for four school conditions

	Hub Schools	Satellite Schools	Self-Directed Schools	Control Schools
One day orientation for teachers (kick-off)	x	x	x	
Two day orientation for principals	x	x		
Use of the video module	x	x	x	
Week long residency	host	observe		
Expert coaching for teachers	participate	observe		
Expert coaching for principals	participate	observe		
Access to on-line resources	x	x	x	
Encouragement to contact other schools in project	x	x	x	

The second independent variable is the grade level of the students. The initial implementation of this project was intended for students in the early years of school, that is, kindergarten to Grade 3. Some, but not all, schools made the decision to include students in grades four to six as well. Since the common grade levels for all school conditions are the four first (kindergarten to Grade 3) years of school, this study examined data as they pertained to the early years.

Data Sources

Prior to the first day of the Routman in Residence (RRiR) project and throughout the years it has been underway, data have been collected from superintendents, principals, teachers, Reading Recovery teachers, and students. School principals met several times in focus groups, responded to questionnaires, and completed post-session evaluations. The field notes of these

focus groups, completed questionnaires, written evaluations, and on-demand writing samples have been saved by the school division senior administration and by Routman and her team. This had been done at various points in time since 2009. Initially, it was collected at the beginning of the project and then again after one year, two years, and three years. While writing samples were not available from the kindergarten students prior to their very first year in school, they are available from students in Grade 1, 2, and 3. Seven data sources were sampled in different ways in order to determine trends in responses to the questions that had been laid out.

First, post residency written evaluations for the years 2009 to 2012 completed by school principals in the hub and satellite schools were examined to determine dominant trends in responses. Due to the small number of principals involved in two of the experimental conditions, it was not possible to sample the written responses, however, confidentiality was maintained by not including the name of the school or the principals' identity (*see Appendix A*). Second, field notes from a focus group of principals and superintendents also served as a source of data. Trends were found in the information from administrators and teachers of the three school divisions.

Third and fourth data sources were from teachers. A sample of ten randomly selected teacher questionnaires and evaluations were taken from the Hub Schools and Satellite Schools. Teachers in the project had all completed and anonymously submitted questionnaires prior to the commencement of the project and at the end of years one, two, and three regarding their self-perceptions of writing instruction in their own classrooms (*see Appendix B*). These questionnaires, which included a Likert scale as well as comments, were analyzed for trends. In addition, teachers also completed post-residency evaluations of the process and submitted them anonymously. An additional data source was teacher assessments of students writing. By

examining shifts in assessment, insights were gained into their understanding of students' learning. In addition, teachers in the hub and satellite schools completed post-residency evaluations that were randomly sampled in order to examine ten evaluations .

Fifth, students had been involved in an "on demand" writing process for assessment purposes. On-demand writing samples were gathered following a process established by Routman and Valencia, (2012) for the purpose of monitoring change in this project (see *Appendix C*). The samples were assessed by grade level groups of teachers who were involved in the project in an effort to describe the students' development in writing. In addition to this, I used the British Columbia Ministry of Education's Performance Standards in Writing (Province of British Columbia, 2009) (see *Appendix D*). This assessment was employed for primarily two reasons. First, British Columbia and Manitoba curricula have both been developed as a result of Manitoba's involvement with the Western and Northern Canadian Protocol for Collaboration in Basic Education (WNCP) . . . Under the WCP, educators from Manitoba, Saskatchewan, Alberta, British Columbia, Yukon Territory, Northwest Territories, and Nunavut collaborate to identify learning outcomes for Kindergarten to Grade 12 (Senior 4) in . . . language arts. (Manitoba Education and Training, retrieved May, 2016) One result of this collaboration is ***The Common Curriculum Framework for English Language Arts, Kindergarten to Grade 12, 1998***. (Manitoba Education and Training, 2016) another is the *BC Performance Standards in Writing* (British Columbia Ministry of Education, 2009). Manitoba does not publish performance standards for student achievement in writing. These two western Canadian documents were the two that linked most closely in terms of expected writing achievement for kindergarten to Grade 3 students.

Two groups of external education professionals, trained in the use of the Performance Standards, each evaluated the writing samples in order to determine the salient characteristics evident in the samples and matched them against a standard measure. The group of eight external evaluators reviewed the anonymous, random sample of 30 written samples from each condition, each grade level, for each year of the project. Their process was to have one evaluator read the sample aloud in a manner that was as phrased as possible to adequately represent the voice of the writer as the rest group listened. Then the group listened again to a reading, but this time they also looked at the sample. Group discussion followed using the characteristics in the BC Writing Rating Scales to structure the evaluation. Samples were evaluated twice, once by a team of four and then again by a different team of four.

A timeline of sampling periods is outlined in Table 4. The sampling design for this population was single stage random sample of 10 writing exemplars for each grade and each school condition for a total of 160 writing exemplars. Kindergarten students, all new students, had only one opportunity to participate in the year-end on-demand writing sample, however, beyond the first year of the project, Grade 1 students who began school in any of the project schools had a second opportunity at the end of the Grade 1 year. Similarly, over time, Grade 2 students had three opportunities and Grade 3 students had four years by the final year of the project.

Table 3
Timeline of opportunities to participate in year-end, on-demand writing samples

	2009	**2010**	**2011**	**2012**
Kindergarten	1st experience providing on-demand sample			

	for K students			
Grade 1	1st experience providing on-demand sample for Grade 1 students	2nd year-end on-demand sample for most Grade 1 students		
Grade 2	1st experience providing on-demand sample for Grade 2 students	2nd experience providing year-end on-demand sample for most Grade 2 students	3rd experience providing year-end on-demand sample for most Grade 2 students	
Grade 3	1st experience providing on-demand sample for Grade 3 students	2nd experience providing year-end on-demand sample for most Grade 3 students	3rd experience providing ear-end on-demand sample for most Grade 3 students	4th experience providing year-end on-demand sample for most Grade 3 students

The sixth data source is the evaluation of student writing that each school team of teachers carried out at the end of 2010, 2011, and 2012. Each school staff examined writing samples to determine what student capabilities were evident. As a team, they created a summary of student strengths in chart form. By examining the trends in their comments, which did not use a rubric nor a predetermined set of characteristics, teacher perceptions of student capabilities and teacher perceptions of what characteristics are of importance were tracked over a three-year period.

Finally, since every school that was included in the project offered Reading Recovery as the early literacy intervention, systematic data collection in Grade 1 had taken place for many years including the years in the project. A consistent assessment tool has been used, *An*

Observation Survey of Early Literacy Achievement (Clay, 2005, 2013). One of the tasks of the survey is the Writing Vocabulary Task (Clay, 2013, p.101). This task requires a student to write as many words as they are able in ten minutes. Task administrators are allowed to prompt types of words and to provide gentle encouragement. The results of the task can be tallied quantitatively and compared to Canadian norms (Huggins, Matczuk, Kniskern, & Tolentino in Clay, 2013, pp.180-182) and assessed qualitatively for the complexity of the words, the confidence and fluency with which it was produced, and whether or not it was produced as a result of prompting. When used at the beginning of Grade 1, it is reflective of learning and writing opportunities over the kindergarten year, but when used at the end of Grade 1, it is reflective of learning and writing opportunities in the Grade 1 year. The task has no ceiling score, and thus it was used to monitor the progress of students in writing until the end of Grade 3 (Matczuk & Tolentino, 2013). This data source was the impetus for the study and was used to affirm that schools included in the project were those with Observation Survey scores that were questionable.

Table 4 outlines the artifacts and data available in each of the four types of schools being studied. The hub schools had seven data sources, the satellite schools had six, self-directed schools had three, and control schools had two.

Table 4
Data sources available from schools in each of four conditions

	years	Hub	Satellite	Self-Directed	Control
Principal's Evaluations of Residency	2010 2011 2012	x			
Principal and Superintendent's Focus Group	2010	x	x		
Teachers' Evaluations of Residency	2010 2011 2012	x	x		
Teachers Questionnaire	2009 2010 2011 21012	x	x	x	
Teacher Evaluations of Student Writing	2009 2012	x	x		
Student Writing Samples	2009 2010 2011 2012	x	x	x	x
Observation Survey of Early Literacy Achievement (Clay,2013) scores on writing vocabulary task.	2009 2010 2011 2012	x	x	x	x

Written permission to examine questionnaires, residency evaluations, field notes, student writing samples, and Observation Survey Scores for Grade 1 students was sought from

Superintendents, principals, and Routman. In order to ensure maximum anonymity, samples were labeled by professional development condition and numbered so that no individual school division, school, superintendent, principal, teacher, or student were known. In addition, student samples had grade level and date indicated. Due to the small sample size of hub schools, one from each school division (n=3), it was difficult for principals to remain completely anonymous, however, this was made clear in the request for their participation. No new data were collected before or during this analysis.

Results of this study will provide important information to school divisions planning professional development opportunities for teachers when the intent is to improve student outcomes. Although writing was the focus in this experience, teacher expertise in all curricular areas is implicated as school divisions strive to make informed decisions about the quality of professional development provided.

The purpose of this study was to determine which blend of professional development opportunities for kindergarten to Grade 3 school literacy teams achieved the greatest change in principals' perceptions of their school team's functionality, which created the greatest change in the teachers' sense of efficacy in writing instruction, and resulted in improved student competency in writing through a secondary analysis of data. Over a four-year period, the goal of the project was to improve classroom writing instruction for kindergarten to Grade 3 students by increasing the instructional expertise of classroom teachers in the area of writing instruction. External facilitators with expertise in literacy and coaching teachers, video modules, and online resources were available to each of the three *hub school* staffs while *satellite school* staffs were able to observe the external instructional experts, video modules, and online resources. *Self-directed* school staffs had video modules and online resources available to them. A group of

control schools submitted samples of student writing samples and were not part of the project. An ex post facto, mixed methods analysis was carried out on artifacts that had been gathered at four points in time. The first data collection was carried out prior to the commencement of the project in 2009 and is noted as “pre-test” and “pre-kick off” in the data. The subsequent time markers, having been completed at the end of the school year in each the three years of the project from 2010 to 2012 are noted as “end of year 1” for 2010, “end of year two” for 2011, and “end of year three” for 2012.

Chapter 4

Results

The results of this study are divided into three sections directly related to principals' perceptions, teachers' feelings of efficacy, and changes in student writing. The first two sections use data that is primarily qualitative in nature. The results of self-evaluations, questionnaires, field notes of principals' discussion groups, and teacher assessments of student writing were analyzed for primary and secondary thematic trends. The third section deals with assessments of the students' writing which are reported both qualitatively and quantitatively in order to reflect the emphases in hub and satellite teacher assessments of the writing and curricular outcomes as expressed in British Columbia Ministry of Education's writing Rating Scales.

Writing samples from each of the three project conditions (sample size of 30 per condition) were compared to a sample set of 30 outcomes for students in control schools that were not involved in the project.

Four conditions were compared:

1. "*Hub*" schools which were schools where the student population faced many challenges and could be considered at-risk for many reasons including those associated with low socio-economic conditions, recent immigration, or gaps in early learning experiences. These school staffs were committed to at least three years of intensive work utilizing all resources available and, as a result, agreed to becoming a school that would be committed to having other literacy teams visit to learn about the staff development process.

2. "*Satellite*" schools were schools with a great deal of commitment, but either did not meet the conditions laid out for the population profile of the school or not able to meet all conditions of commitment.
3. "*Self-directed*" schools were schools that after an initial introduction to the video module, took it upon themselves to follow the professional learning sessions and access resources available on-line.
4. "*Control*" schools were schools that were not involved in the project and carried out instructional programs in writing, as they usually would have done.

Principals' Perceptions

Four data sources employed for the answer to the research question, "Which blend of professional development created the greatest change in principals' perceptions of the functionality of their school literacy team?". These were (1) initial pre-project Questionnaire (2009) ; (2) Principal's Evaluations of the initial "kick off" large group sessions; (3) Principal's Evaluations of Residency weeks (2010, 2011, 2012); and, (4) field notes recorded during the Principal and Superintendent's Focus Groups (2009-2012). Questionnaire and evaluation comments and field notes from the focus groups were analyzed for themes relevant to the research question in this study (Ball, 2011, Chesler, 1987).

At the initial kick-off in 2009, 220 participants attended, representing 37 school teams. School teams were required to be comprised of the principal, vice-principal, all classroom teachers from kindergarten to Grade 3, the resource teacher, and the Reading Recovery teacher. Teams came from 16 different school divisions, not all of which would continue in the project, but the three project divisions were included. All groups had high expectations of the session and

were clear that unconditional involvement of all staff would be paramount to the implementation of the video modules.

Schools from the project divisions were identified prior to this session as *hub, satellite, or self-directed* by school division leaders, who served in a supervisory capacity for the three school divisions. It included two assistant superintendents and one student service administrator. School principals and teachers were not aware of their designation as hub or satellite schools at this point in the process. Further information about the schools involved came from the three school division leaders. In each of the three school divisions, school principals were required to apply in writing for a position as a hub school. In the written applications (see *Appendix A)*, principals provided rationales for their school team to be considered to host a residency. Only one school per school division could be selected due to cost factors, however, those schools that had applied and were not selected to be a hub school were then designated as satellite schools, able to visit and observe, but not to host or receive direct coaching. Those applications were not included the data sources in this study. The school division leaders reported that, not all administrators were entirely familiar with Routman's work or her place in literacy education, although the teachers' were enthusiastic to hear her speak. Additionally, the principals' initial responses reflected confidence in teachers' delivery of writing instruction within their schools, but no responses included any specific details about teachers' understanding or efforts to engage in professional development about writing instruction nor did they describe teachers' classroom practice. Principals were passionate in their description of student needs in their schools and of the teachers' desire to help the students as a team. Principals did not specifically describe what their role in the project would be (Drysdale, 2016).

In personal communication with school division leaders (Caetano-Gomes, 2009), it was clear that principals saw their role as submitting a convincing application on behalf of students and staff. In schools identified as hub schools, all three principals had teaching backgrounds that included literacy instruction, although not specifically in the kindergarten to Grade 3 setting. Two months prior to the first residency experience held in March, 2010, the three external expert facilitators were matched with hub schools by myself and Routman, based on the facilitators' background experiences with similar populations.

Pre-project (2009) Questionnaires.

Questionnaires (see *Appendix C*) completed by all 37 school principals and by all teachers on their school teams were gathered prior to the initial kick-off day in 2009, but the sheets were not coded according to school condition (i.e., hub, satellite, self-directed). Thus, data could not be disaggregated by school condition for the purposes of this study.

The first question asked for the number of years teaching experience the principal or teacher completing the questionnaire had. While this question seemed to be interesting at the outset of the project, staff movement, promotions, retirements, and maternity leaves confounded analysis and had to be abandoned.

The second question consisted of eight phrases (numbered a to h) and asked for the principal's personal sense of confidence in response to the phrase. A one to four point Likert scale was employed where a score of 1 indicated "confident", 2 indicated "somewhat confident", 3 indicated "lack confidence" and 4 indicated "not confident at all". Responses to this portion is shown in Table 5.

Table 5

Responses to questionnaire item 2 a to h by principals (n=37)

criteria	Statement to be considered	1 Confident	2 Somewhat confident	3 Lack confidence	4 Not confident at all
instructional practice	Planning effective writing instruction	-	mode (n=21)	-	-
instructional practice	Delivering effective writing instruction	-	mode (n=21)	-	-
instructional practice	Assessing student writing	mode (n=25)	-	-	-
instructional practice	Classroom management of a writing program	mode (n=35)	-	-	-
instructional practice	Scheduling writing instruction	mode (n = 37)	-	-	-
student support	Helping struggling students in writing	-	-	mode (n = 20)	-
student support	Differentiating instruction in writing	-	mode (n = 17)	-	-
reporting	Reporting on student progress in writing to parents	mode (n = 37)	-	-	-

In four areas concerning instructional practice and reporting, the mode indicates principals were mainly "confident" (92 of 148 responses). In four areas that concerned instructional practice and differentiating for individual students, principals were less confident with a mere 12 of 74 with 32 of 74 responses were "somewhat confident", however, all 37 principals were confident in reporting to parents about student progress. See *Appendix B* for Manitoba reporting tool.

The final question on the sheet was open-ended and asked what the individual hoped to get out of the session. Most of the responses (21 of 37 responses) to number 3 in the questionnaire, "What do you hope to get out of the session with Routman?" reflected surface level comments such as "Can't wait" and "This is something we need" but gave no indication about the background to that comment. The remaining responses (16 of 37 responses) reflected principals' confidence in their own school staff but also some concern about the disengaged or

struggling students within the student population. Such statements were similar to the response of one principal, "I have a fantastic staff and I know they will love this opportunity. They are dedicated to our students but these kids have so many problems. There are days which exhaust everyone."

Student learning was mentioned in the open-ended question on 12 of the 37 questionnaires as an area of concern but only in terms of students who demonstrated low levels of engagement. In 8 of 37 responses, principals included a comment on the challenging nature of the student population attending the school. It was not unusual or unexpected for principals to describe the student population in this way since every school included had been identified by its own school division administration as meeting the pre-requisite condition: having an at-risk population with many social and economic challenges.

Although principals had been anxious to attend the session in order to hear the keynote speaker, Routman, no comments reflected an awareness of how their own involvement in this project would help teachers or students.

Post Session Evaluations

Post kick-off (2009) evaluations.

All participants completed an evaluation form at the end of the initial kick-off session, however, these were not coded to indicate the school name or school condition. This written evaluation (*Appendix D*) consisted an open-ended question that allowed the participants to identify that which was most valuable for them, the questions or concerns they still had, what steps they would take next to help them move forward, and "additional comments".

Relatively few principals (9 of 30) submitted forms and few of these evaluations were written in any detail or included anything other than bulleted points. Comments ranged from "a

great energizer", "a kick in the pants", or "this was affirming" to more detailed responses that were all positive in nature, such as the following example, typical of the nine detailed answers:

> I am going home thinking more about the Optimal Learning Model . . . and about doing little bits of writing instead of long writing projects . . . I wish that I was a classroom teacher again so that I could try some of these strategies on my own students and help our at-risk population. (School Principal)

In 2 of 30 submitted forms with a written question. In both cases the concern centered on finding time for teachers to meet. Neither response expanded on this in any detail.

Many forms,15 of 30, had responses and that concerned logistics of conducting a PLC. All comments fell into one of four themes:

1. Organize a meeting with staff within the next few days in order to maintain momentum. (7 of 15 responses)
2. Get started using the DVD Module at the next staff meeting. (4 of 15 responses)
3. Everyone needed to get started writing more. (2 of 15 responses)
4. Look at the timetable for a way to have teachers meet in teams. (2 of 15 responses)

Post residency (2010-2011) evaluations.

During the week long in-school residencies in the hub schools, the principals and teachers of satellite schools also attended and observed the morning of the residency unfold in real time. Everyone participated in the morning meeting that preceded the work in the classroom and in the debriefing session after the shared experience. The same observers from satellite schools attended each day from Tuesday to Friday, and were welcome to ask questions beyond those asked by the teachers in the hub school. This was a practice that the expert facilitators found

taxing, since there were so many observers present and all had questions. In one of the hub schools the students reported 48 people observing in their classroom.

Afternoons of the residencies were reserved for the principal in the hub school, although the principals from the satellite schools also stayed to observe. This experience was aimed at supporting principals in their role as literacy leaders to engage in instructional walks among the classrooms of their own schools -- providing feedback to staff, summarizing observations, creating an in-school leadership team, and examining pro-active leadership practices. While principals completed the same evaluation form as the teachers, their experiences included not only the work with teachers and students in the classroom but also specific support for them in their role as instructional leaders in their schools.

After each in-school weeklong school residency, all participants – principals and teachers from both hub and satellite schools -- wrote open-ended evaluations of the week (see *Appendix D*). This occurred in March of 2010, 2011, and 2012. Participants were asked to:

> Write down your thoughts on this week's writing residency. Please include insights, strengths, anything you took away from demonstrations, shared writing, conferences, coaching, conversations things that you tried on your own, lingering questions, or anything that seems important to you.

All responses were positive, and it was evident that participants were trying to incorporate what they had learned about what good writers do in their own narratives. For each year of the project, there was an emphasis for the residency established by the team of expert facilitators in each of the three hub schools (see Table 6). Since the team of three expert facilitators planned sessions together and met each evening to discuss adjustments that needed to

be made to the plan for the next day, all three school divisions were experiencing something similar within the residency in their own schools.

Table 6

Emphases for annual residency weeks

year	Pedagogy emphasis	Writing instruction emphasis	Leadership
2010	· Optimal learning model · Front loading information · Examining beliefs · Raising expectations	· Writing for audience and purpose	· Beliefs · Observation and feedback during instructional walks · Raising expectations
2011	· Providing feedback to students · Teaching with a sense of urgency · Formative assessment on a day to day basis to support student learning	· Revising writing	· Leadership teams · Setting priorities for the school · Supporting teachers
2012	· Following student interests · Summative assessment based on student strengths	· Writing across the curriculum	· Instructional walks · Sustaining gains and not losing momentum · Supporting new staff members and those requiring extra support.

Evaluation themes collected after the residency experience demonstrate an awareness of writing as a curricular concern. This emerges as a primary theme in their responses. Secondary concerns were of the school as a whole and the sense that what has been learned has been not only practical, but also positive. Almost as important was the notion that teaching and instruction mattered and that support was necessary. Both Table 7 and *Figure 1* illustrate these observations.

Table 7

NVivo results for constant comparative analysis of themes in post residency questionnaires: Top five words for administrators in open ended response

Word	Weighted Percentage (%)	Similar Words included in Count
writing	6.91	writing
school	4.69	educators, school, schooling, schools
practice	4.61	good, practical, practice, practices, skill, skills, use, useful
instruction	4.36	educators, information, instruction, learn, learning, teaching
support	3.78	assist, back, encouragement, support, supporting

Figure1. Word Cloud representation of themes in principals' evaluations

To reiterate, the Word Cloud demonstrates the elements that dominated principals' thinking as they evaluated the residencies. While quite understandably 'writing' is first and foremost, it is noteworthy that principals are thinking about 'school instruction' and the words provided show that pedagogical interests dominate their thinking as they consider ways in which staff must take on new learning as a result of the residencies.

Principals' Perceptions of Emphases for Annual Residencies

In 2010, the first year of the project, the pedagogical emphasis was on establishing the optimal learning model (Routman, 2008a). The emphasis for content was on writing for audience and purpose, and the emphasis for leadership was on exploring the common beliefs about writing instruction held by staff; providing feedback to staff, and setting up expectations for next instructional steps in the classroom and in the school. These emphases were evident in the themes that emerged from the written evaluations by the school principals.

All written responses began with exuberant comments about the experiences such as, "this was an amazing experience" and "I am exhilarated and exhausted." In most cases, principals acknowledged the relief they felt knowing that they could slow down the staff development process in order to go more deeply into some aspects and revisit their initial belief statements as frequently as they saw necessary. The importance of taking time to allow the school staff to talk with each other was evident. The principals also saw value in talking with other principals about their leadership practices. Seeking out colleagues and engaging in conversation about significant aspects of teaching rather than dealing with trivialities that really had no bearing on student achievement was a common thread. The final dominant theme was the value of positive, timely, specific feedback for students and staff.

Two of the principals wrote about their own goals for the next months. Their commentary reflected aspects of their leadership role they found challenging. One principal commented, "[I] find it difficult to go into a classroom and interrupt the class just to say something positive. I'm not sure exactly how to interrupt or what to say." One observation that was remarkable was that there were absolutely no comments about students not being engaged, struggling, or requiring modified expectations.

In 2011, the second year of the residencies, principals commented that they had been looking forward to the residencies. They had many questions to ask and were able to identify much more about the practices in the school about which they had concerns. The emphases for the residencies in this year was much more about writing across the curriculum and providing feedback to students, planning forward based on observations and setting high expectations to see a year's growth in student writing over that period of time. This final point seemed obvious, but all principals remarked in some manner that they had never thought about progress this way. Afternoon sessions continued to emphasize observation of principals during the instructional walks, building and using a school leadership team, and developing protocol for visitors to their school building.

It should be noted that principals all referred to the project as "the Regie Routman in Residence" project, or called their schools "Regie schools." This suggests that perhaps they did not see the transformation in teaching as something that they were capable of initiating or sustaining. It seemed there was a heavy reliance on the expert facilitators to map out next steps or provide the impetus for change. Additionally, while all were positive about the changes evident in both students and teachers, there were five principals who commented that they would be excited for the expert facilitators to return next year and they hoped to be able to show them how much they had improved.

There were not significant differences in the themes evident in hub and satellite school principals' evaluations. The difference was more in language use and tone. Hub school principals were positive and discussion delved into planning and understanding school needs. "I can see where we have gaps in our staff understanding how to set expectations for students. I will need to work with the leadership team to mentor them further," (Hub school principal). Satellite school

principals had more of an excited tension and giddiness about progress in their schools. "I can hardly wait to get back into my building and get the staff on board with these new ideas," (Satellite school principal). All but two principals still expressed anxiety about interrupting the class to provide feedback during the instructional walks, although alternative ways of achieving this were mentioned through the use of e-mail and post-it notes.

The third year of the project, 2012, marked the final year of what was meant to be a three year initiative. For one hub schools, this would be the final year of the residency. For the second school, the residency would continue to a fourth year with a writing emphasis. The third school would also carry on with a shift in emphasis to reading. In addition, there had been an expansion to include students up to grade eight in the schools. In the final evaluations, there was a notable sense of ownership of the project for their own school community. Principals did not mention the expert facilitator, but commented on their leadership team's next steps and the work the school staff intended next.

Superintendent and Principal Discussion Group.

Once a year, assistant superintendents from the three school divisions and principals of the hub and satellite schools met to share successes, discuss progress, and problem solve challenges. These two-hour, inter-divisional meetings were initially uncomfortable for the principals since they did not know each other, whereas the assistant superintendents were much more at ease since they knew each other from planning sessions and from other organizations that brought them together.

The first meeting was held in the smallest of the three school divisions. Initial introductions at the meeting in 2010, the 11 principals were asked to share a success story about a teacher, a student, or the school community. This broke the ice and once everyone had shared their stories, some of which were very touching, the group was ready to move into a dynamic

conversation. Most stories were about students, although two principals talked about a staff member who had surprised them with a positive shift in their teaching practice. One principal talked about the way in which writing had changed a student's response to a mandatory trip to his office.

> One of our students had a problem controlling his anger in the classroom. The teacher sent him down to my office and he brought his math notebook to finish some work at her insistence. I was busy with another student at the time so he was told to sit down at the table and do some of his work. While he sat there he wrote down what had happened and his side of the story. By the time I got to him, he had his emotions under control and had solved his own problem. Now this is how he manages himself. He comes to the office and writes it down before he talks with me. (satellite school principal)

In another story, a newcomer to Canada found a comfortable way to express herself through poetry. The Grade 2 child had understood the teacher's modeling of writing a poem and had participated orally with the class as they wrote a poem with the teacher, but when it was time to write a poem for herself she felt uncomfortable recording the poem in English. Instead, she wrote in Mandarin. The principal's story ended there since she did not have a translator available, but she was pleased with the child's engagement. One of the principals from another school division was a Mandarin speaker and offered to read the poem aloud and to translate. The poem demonstrated that the student had clearly understood what she was expected to do. This collaborative effort had deepened the insights into student achievement and had allowed principals from three school divisions to share some of their own divisional culture. The three

assistant superintendents and the principals all commented that this cross-divisional sharing was uncommon.

The 2010 principals' discussion group did not result in deep discussions about school improvement, but they did emphasize the small successes that provided motivation for the school staffs and gave the principals the motivation they needed to carry on with their involvement in the project. One of the major common themes that emerged was that once they confessed that even though they were moving slowly through the purchased Video Module, they decided they all wanted to start over with the module and go back to a clearer articulation of beliefs about writing instruction. The meeting ended with strong encouragement from the three assistant superintendents to the principals to visit each other's schools in order to promote sharing of progress and problem solving.

In 2011, the second year of the project, there was a change in venue as well as a shift in emphasis from sharing stories to the learning environment. Principals were thinking about their role in achieving a positive physical learning environment and in their leadership in the school. When asked to share a success all 11 principals shared stories at a school level. While most concerned the teachers on staff, it was clear that the principals had taken on a leadership role in the change process.

> We have two brand new teachers on staff this year. I was worried about how I was going to get them up to speed with the project. When they were hired they were made aware that this was our schools way of working and they agreed to do whatever they had to do. When I took it to the staff, two experienced teachers who had experienced the residency in their classrooms offered to be mentors for

the new teachers. I never expected it and was blown away with their enthusiasm to get these two on board. (hub school principal)

Discussion of the school environment also dominated the meeting. Routman had alerted Principals to the fact that they should take an objective walk around their buildings, photograph the hallways and school entrance, and decide what message would be conveyed to visitors. They had become aware that there were many purchased posters on the walls, announcements, and staff-created bulletin boards that reflected little original student work and accomplishments. The group concluded that if they wanted to be viewed as "writing schools", the environment would need to reflect the fact. There was a discussion and offering of ideas that principals could take back to teachers to achieve change.

The administrative group also wanted to talk about instructional walks and were willing to share some of their apprehensions with the rest of the group. Some principals were having success with the walk and not only talked about the ways in which they had overcome their personal obstacles but also invited others to visit them in their schools. It seemed that the encouragement to visit one another had resulted in a few visits, but no visits to out-of-division schools. The invitations this time were cross-divisional in nature and gave impetus to modifying the school environment as well as supporting colleagues in improved practice.

The 2012 meeting was comfortable and collegial. By this time not all principals had visited outside of their own school division but many had. It was evident in the multiple conversations as the group assembled that the group had coalesced and taken collaborative efforts as the way of doing business. They expressed that they preferred to work collaboratively with school teams and with each other.

Discussion at this meeting revolved around two main themes: in-school leadership teams and assessment of student writing. Conversation did not need to be initiated formally and was highly interactive in nature, requiring very little of the group leader. Everyone articulated their perspectives and interacted naturally with their colleagues. The role of the assistant superintendents was much more "traffic controller" to maintain one conversation than "facilitator" to get everyone involved in the discussion.

School leadership teams had been discussed during the residencies, and there was variety in the ways principals established and involved the team. The intent of the school literacy leadership team was to distribute leadership decisions and responsibility amongst the staff. Some principals had initiated an application process for the team, while others had allowed the staff to elect representatives, and one principal had appointed the team. Functionality of the team was not discussed at length, but it was clear the early adopters of the team concepts were focused on helping those who had yet to establish a team leadership approach. They did this by articulating purpose and suggesting methods of engagement in the team process.

The greater part of the meeting was devoted to establishing a process to evaluate the changes in student writing achievement. The assistant superintendents worked to guide the group to see value in creating an inter-divisional endeavor. The project had been developed to achieve this type of professional exchange and thus, while each principal might repeat the process within the school, a method of gathering and examining writing samples was determined. The process would be similar to the annual year-end sample collection, a process outlined by Routman and Valencia (2012). The difference would be that schools would gather samples from each grade and come together to examine the writing. A date and place was set at this meeting, and principals left with a sense of purpose. Teachers would participate in the process along with

principals and assistant superintendents. Results of this assessment process created a data source that would be used in the next section of this study to answer the question pertaining to teacher effectiveness.

Teachers' Sense of Efficacy

In order to determine which process created the greatest change in kindergarten to Grade 3 teachers' sense of efficacy in classroom writing instruction, the following data sources used: Teachers Questionnaire (2009, 2010), Teachers' Evaluations of Residency (2010, 2011, 2012), and Teacher Evaluations of Student Writing.

Questionnaires

Questionnaires (see *Appendix C*) completed by all 134 teachers were gathered prior to the initial kick-off day in 2009, however, they were not coded according to school condition (i.e. hub, satellite, self-directed). Thus, data could not be disaggregated by school condition for the purposes of this study. A total of 134 questionnaires were completed prior to the kick-off event although only 107 were submitted after the end of the first year.

As discussed on page 86 of this paper, the same questionnaire was used for principals and teachers. The first question was discarded due to its lack of relevance.

The second question consisted of eight phrases (numbered a to h) and asked for the individual's personal sense of confidence in response to the phrase utilizing a four point Likert scale. The greatest number of teachers responded to being "somewhat confident" to every aspect of teaching prior to the kick-off event.

Table 8

Responses to questionnaire #2 a to h by teachers (n=134) prior to 2009 kick-off (n=130) and 2010 after one year (n = 107)

Criteria	Statement to be considered	Time	1 Confident	2 Somewhat confident	3 Lack confidence	4 Not confident at all
instructional practice	Planning effective writing instruction	pre kick-off (2009)	-	mode (n=90)	-	-
instructional practice	Delivering effective writing instruction	pre kick-off (2009)	-	mode (n=76)	-	-
instructional practice	Assessing student writing	pre kick-off (2009)	-	mode (n=86)	-	-
instructional practice	Classroom management of a writing program	pre kick-off (2009)	-	mode (n = 73)	-	-
instructional practice	Scheduling writing instruction	pre kick-off (2009)	-	mode (n=68)	-	-
student support	Helping struggling students in writing	pre kick-off (2009)	-	mode (n = 67)	-	-
student support	Differentiating instruction in writing	pre kick-off (2009)	-	mode (n = 69)	-	-
reporting	Reporting	pre kick-off (2009)	-	mode (n=78)	-	-

Response to the third question required a written response to the question, “What do you hope to get out of the session with Regie Routman?” (Routman Questionnaire). An analysis of themes evident in responses at two different points in time revealed a shift that was not evident in the previous question.

The pre-kick off responses were short and revealed primarily that teachers wanted a few ideas to help their teaching and some suggestions they could use right away. Most teachers wanted help to differentiate instruction and support disengaged or struggling students. This

concern was raised in 96 of the 130 of the responses. Teachers wanted to be able to fit writing into their existing schedules and gain confidence in planning interesting and engaging lessons. The theme of "time" was recurrent in 82 of the 130 responses There was not enough time in the day to fit writing into a busy schedule, enough time to help every student, or time to plan for writing. The sample below was typical of the responses.

> To gain tools, strategies, to add to what I know. Classroom management (students who refuse to work independently) and scheduling. Scaffolding for students who are writing below grade level. Ideas on how to co-plan, implement, and follow-up (classroom teacher).

One response was negative about the experience that reflected the same concern about the time available in a busy day, but this project was not viewed as a solution to the challenge. "This was not a choice. We were delegated for this huge task adding yet another job to our already full plates, so what I 'hope' is not the correct question" (classroom teacher, 2009).

After one year in the project, responses from 107 teachers had shifted in terms of major themes and reflected the residency emphases (see Table 6 and Figure 2). Responses were more specific, and a tone of joyful teaching could not be ignored. Celebration of student accomplishments, connecting reading to writing, and scaffolding student learning so that they are successful were key themes. There were no comments about the stress of finding time or finding a way to engage struggling students. A typical sample of the teachers' evaluations follows:

> [I have learned] a lot about myself and the way I teach has grown in a positive way. The 'we do' part and gradual release of responsibility are huge and I am still working on these. The opportunity to work school wide on the project and over the year you can see the growth and change that has taken place school wide. The proof is in

> the high interest, eager writers, more quality writing children see/learn the process and it carries on from grade to grade. It takes time and taking the necessary time is worth it when you see the growth/results. I have learned not to get so "hung up" on time and demands that may have a negative impact on writing. Front loading is so important as is modeling and sharing our personal writing as teachers.

Within a year the teachers' initial concerns had been addressed and their comments reflected a shift in perspective. Their awareness of pedagogy, writing process, and the importance of the school team were evident. Now that there had been some measure of change in student engagement it was becoming evident that the change was the result of their instructional practice.

Illustrated in Table 9 and *Figure 2* are themes of teacher responses. Of primary importance was the notion of publishing students' written work. Learning, hearing, seeing, talking, purposeful instruction dominated secondary comments. Students then came about as an emphasis, followed by joyful learning and purposeful application. Finally, a framework for modeling and teaching frameworks were also of concern.

Table 9

NVivo results for constant comparative analysis of themes in post residency questionnaires: Top five words for teachers in open-ended response

Word	Weighted Percentage (%)	Similar Words Included in Count
writing	8.84	publish, published, publishing, spelling, write, writing
learned	4.74	hear, hearing, instructing, instruction, know, knowledge, knows, learn, learned, learning, letter, letters, read, reading, see, seeing, studies, study, take, takes, taking, teach, teaching, watch, watching
students	3.93	student, students, students'
use	2.21	applied, applies, apply, applying, employing, enjoy, enjoyable, enjoyed, habits, practical, practice, practices, purpose, purposeful, purposes, role, use, used, using
modeling	1.75	examples, framework, model, modeled, modeling, models

Figure 2. Word Cloud representation of themes generated by teachers using NVivo.

Post residency evaluations.

At the end of each residency week, all staff members completed and evaluation of the week. As with principals' evaluations, there was one open-ended question that allowed the teachers to express insights, strengths, questions, and anything they felt they wanted to mention. Evaluations were completed in 2010, 2011, and 2012. The number of evaluations by hub and satellite schools submitted varied from year to year, from 82 submitted in 2010, 88 in 2011, and 86 in 2012.

A random sample of ten evaluations was taken for each year of the project. The evaluations were assessed for common themes did not employ the computer software program however, an online program was used to conduct an analysis of the most frequently used words using an on-line high frequency word counter (http://www.textfixer.com/tools/online-word-counter.php) revealed the five most frequently used words in the samples each year.

Table 10

Five most commonly used words in post-residency evaluations

year	first	second	third	fourth	fifth
2010	celebration	strengths	growth	energy	love
2011	energized	exhaustion	strengths	excitement	connections
2012	excitement	expectations	celebration	interests	reading

Over the three years, it was evident that the teachers had positive responses to the project and that the residencies provided a boost to their energy and enjoyment of teaching. Teachers responded by writing one to two pages about their experiences. The first year's residencies resulted in an expression of surprise, joy, enthusiasm, and engagement in the process. The teachers saw that not only were the expert facilitators actively involved with the students, but they engaged the teachers in every way possible. Responses had shifted by the end of the first year from a focus on students to a reflective stance on teaching writing.

End of year one (2010).

Ten themes were consistently evident in the constant comparison of evaluations of the first year's residencies: (1) Writing for audience and purpose; (2) Front loading [content]; (3) Slow down; (4) Label your actions aloud; (5) High expectations; (6) Shorter pieces;(7) Write every day; (8) Joy ;(9) Share your own life; and (10) Build relationships with students.

The themes are similar to the practices advocated in research for writing instruction explored in Chapter 2. Two of the most common themes were that of 'writing for audience and purpose' and 'joy'. This had been cited as a key to motivation and engagement in the recommended practices for writing instruction. Belief that students should be 'allowed to write

shorter pieces' and, at the same time, 'write every day', demonstrates an understanding of the value of time on task. Providing students with content before they write, 'slowing down to allow students time to learn and 'labeling actions aloud' are examples of an increasing awareness of social constructivism also explored in Chapter 2. Building a community of writers who are learning more is exemplified in the themes of 'sharing your own life' and 'build relationships with students'. One theme that had not been previously examined was that of 'high expectations'. It is possible this came about as a result of the successes the students were achieving and the unexpectedly skilled writing that was being produced. This speculation is the result of the writing assessments that follow in the next section of this Chapter.

End of year two (2011).

In a constant comparison of the evaluations, the end of the second year of the project in 2011 revealed responses that were more thoughtful. The initial surprise at the success of the teaching was generally expected, and teachers were more specific about their own insights from the residencies. The teachers also shifted to a more reflective stance of their own teaching practices. The primary themes of the response were: (1) Modeling and encouragement; (2) Using [mentor] reading text for writing ideas; (3) Voice; (4) Talking and thinking; (5) Expectations; and (6) Effectiveness. Two samples of classroom teacher responses are provided below.

Classroom teacher sample one:

> Now I understand the importance of content first and conventions later. Have tried this and seen less resistance to writing because they are not hung up on the small details of editing first. The importance of celebrations and honoring the reader was very evident. I learned how the writing we did and the way it should be taught affects the community of our class in a big way. They know now that sharing ideas

> is a wonderful thing and not something we should get angry over or be reluctant about. I realized how much potential my kids really have when given the right instructional tools.
>
> Classroom Teacher sample 2:
>
> Unlike many workshops that are recipe books for how to do something, this residency was an opportunity to watch, have some interaction from the expert facilitator to the teachers and then we were able to immediately try it in our classes, meet and discuss, and reflect daily, and do it for several days. A great way to [apply] our learning immediately. I've tried the persuasive writing this week, and we have been working on book and film reviews. I've been able to include ideas I've seen the expert facilitator use, into my lessons on film reviews as well . . . but I've seen the importance of pacing and time allotment for certain parts Front loading can never be too long . . . I hope we can keep the momentum and teamwork going. I also see more opportunities for writing about so many curriculum areas.

As teachers experienced success in their classrooms and saw the impact of student writing across the curriculum, their resolve to increase time on task, to work as part of a team, and to reflect on their own teaching became more evident. These successes led them to the realization there was more to understand about the pedagogy of writing instruction and student progress. The themes from this year represent a slightly more reflective stance on the part of the teachers. The shift in their responses moved from a student centered to a teacher centered reflection.

End of year three (2012).

The third year of the project, 2012, where the emphasis was on non-fiction writing, consolidated the notion of writing in all curricular areas. The teachers demonstrated an understanding of front-loading information, that is, reading, talking, sharing experiences with the students and there was a shift in teacher language.

Most of those themes are evident in the two samples below.

Classroom teacher sample 3:

> What a fantastic week of coming together, sharing, and learning! It was great to see the children responding so well to your teaching and gaining confidence each day. I valued the way you slowed the process down and made it more manageable for the students and teachers. Your message of process being as important as final product was something I will continue to work on with my children. In my [Nursery/Kindergarten] world I will have to adapt due to my class size, behaviours, and high needs. Smaller groups for writing and full class celebration/sharing are better for us.

Classroom teacher sample 4:

> I continue to be overwhelmed (in a good way) by the co-teaching/partnership model. I really see the value in collaborating for personal and professional growth in areas where I get "stuck". The power of elevating confidence and stretching thinking about practice is impressive. I really liken it to the powerful peer learning (from one another) that we set up for our students. I'd like to continue to explore options at school level PLC's for this type of peer observation. I do see the power of celebration as meaningful ways to revisit set criteria, labeling writing tools for others to use, etc. I struggle with the length of sessions at times as I find I "lost" specific kids (namely, the ones who might benefit crucially). Perhaps finding ways to assess who

stays on and off task is a personal goal to explore. Question: How to possibly integrate our schools PLC's "desire" to integrate the Daily 5/Cafe "program". How does this all fit together with the writers workshop model I see so much value in (as shared this week).

One topic that was recurring over the three years was reference to "Daily 5" and "CAFÉ", even though not a dominant theme. This is a reference to a classroom management program explained in two volumes (Bushy & Moser, 2006, 2009). Teachers had implemented this resource in their classrooms, possibly as a result of concerns about scheduling and time management prior to the RRiR project. It was frequently confused as a program of instruction and is separate to the project being analyzed here. Teachers continuing comment suggest that they are trying to integrate their new learning with previous practice.

Teacher Evaluation of Writing

The way in which teachers were able to assess student writing demonstrated shifts in their own understanding of the writing process and student potential. This is a different perspective of assessment of student products. As part of the overall project, teachers were asked to work together to identify student writing that was "typical" and "exemplary" for Kindergarten and each of Grade 1,2, and 3. This request was made prior to the commencement of the project and at the end of year three. Once these samples were identified, teachers were asked to collaboratively assess the student work. This was accomplished by having all teachers in individual schools work together to examine the writing for each grade level. One teacher on the team first read the writing samples aloud. Next, the team looked at the samples to determine what the writers had in common and to determine what samples were '*typical*' and which were '*exemplary*'. They were not asked to identify problematic samples as the emphasis on strength identification would have

been challenging. Following the assessment, the teachers were then asked to identify next steps in teaching. These assessments served as a final data source to examine teachers' sense of efficacy.

Initially, student writing samples were limited and teachers needed frequent reminders to identify strengths rather than weaknesses. It was very difficult for Kindergarten teachers to identify strengths other than to comment on the letters the students knew how to write and the few high frequency words that had been written correctly. The comments for Grade 1 to Grade 3 varied very little, were short, concerned primarily the mechanics of recording the message. All comments are included in *Appendix F*.

At the end of the third year, teachers demonstrated a greater facility at expressing their knowledge of the writing process and were able to identify strengths in detail, with more conventional aspects of the writing process noted. Here it is possible to sort comments for each of the grade levels. Comments have been grouped together by three trends: first, commentary on messages written which includes message quality and voice; second, commentary on readability and writing conventions; and third, commentary on students' self-perceptions as writers. These comments can be viewed in two ways. They are illustrative of the knowledge of teachers in the instructional domain of writing and they demonstrate the students' ability as writers.

The ability of teachers to assess children's writing demonstrated attention to the strengths in the written stories, increased knowledge of the writing process, and attention to details in the composition of the work. With these teacher assessment skills, it is logical to examine the effects on student writing achievement next.

Student Writing

To reiterate Carroll (1994), "Nothing, absolutely nothing, has happened in education until it happens to a student" (p. 89). The research question guiding this aspect of the analysis was, "Which process led to the greatest change in kindergarten to Grade 3 students' writing competency?" This is perhaps the most important measure of the effectiveness of the professional development models. The data source used to provide an answer to this were Student Writing Samples and their evaluation by two sets of independent evaluators.

Kindergarten

Using 17 points of the British Columbia Writing Rating Scales to assess kindergarten writing samples, a total score was determined after points relating to outcomes that could not be observed were eliminated (see *Appendix H).* Results for pre-test conditions (2009) for Kindergarten demonstrate that prior to the implementation of the professional development model scores for students in the self-directed schools were greatest. Teachers' impact on end-of-year student writing was minimal for teachers in hub schools, satellite schools, and control schools. By the end of one year in the project there was significant positive impact, evident in results in students' writing for hub, satellite, and self-directed schools, while scores of students' writing in control schools showed a slight decrease.

Students' mean writing scores in the hub schools were nearing the maximum score of 17, and this achievement was maintained for the subsequent two years. These scores reflect teacher's effectiveness with four different groups of students since the children shifted to the next grade level at the end of each school year. Similarly, students' writing achievement increased for satellite schools over the four year period, although not at as great a rate as in hub schools. Self-directed schools results diminished slightly from 2009 to 2012.

Table 11

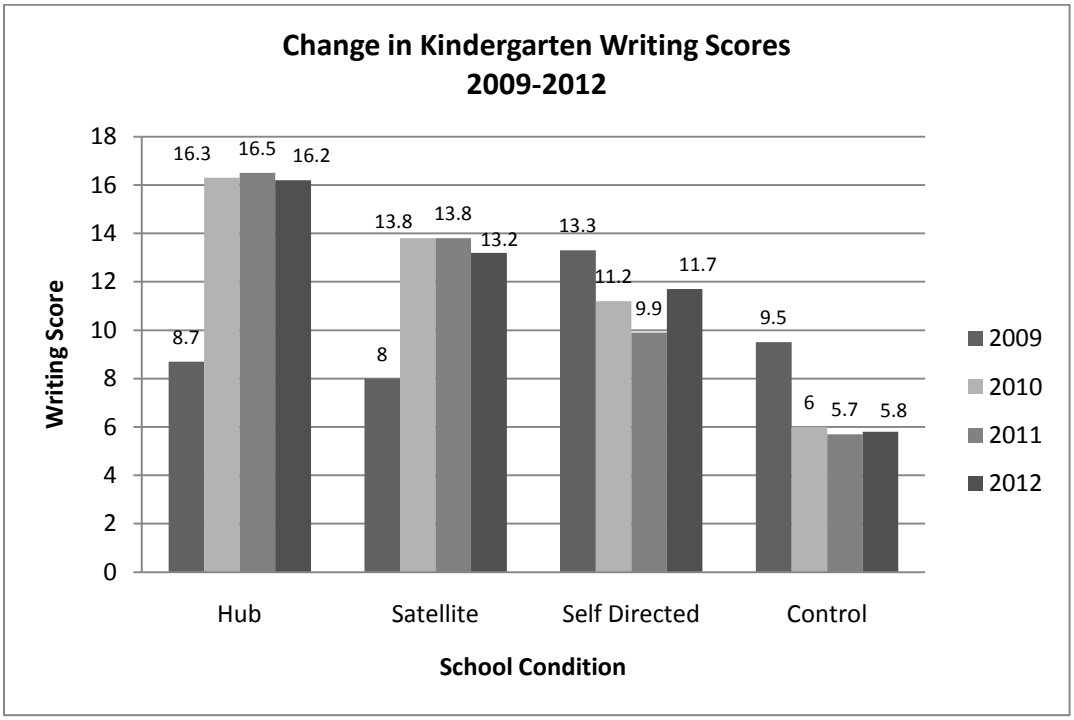
Means and Standard Deviations for Kindergarten Writing

Dependent Variable: Kindergarten Total Score (ceiling = 17)				
Year	**School Condition**	**Mean**	**Std. Deviation**	**N**
pre-project assessment (2009)	hub	8.7000	4.47338	10
	satellite	8.0000	4.10961	10
	self-directed	13.3000	2.54078	10
	control	9.5000	4.71993	10
	Total	9.8750	4.40971	40
After one year (2010)	hub	16.3000	.82327	10
	satellite	13.8000	1.47573	10
	self-directed	11.2000	2.65832	10
	control	6.0000	3.59011	10
	Total	11.8250	4.49437	40
After two years (2011)	hub	16.5000	1.08012	10
	satellite	13.8000	2.61619	10
	self-directed	9.9000	2.84605	10
	control	5.7000	4.16467	10
	Total	11.4750	4.97681	40
After three years (2012)	hub	16.2000	1.13529	10
	satellite	13.2000	3.04777	10
	self-directed	11.7000	3.02030	10
	control	5.8000	4.36654	10
	Total	11.7250	4.86214	40
Total	hub	14.4250	4.06919	40
	satellite	12.2000	3.77033	40
	self-directed	11.5250	2.93509	40
	control	6.7500	4.37211	40
	Total	11.2250	4.71442	160

Initially, mean writing scores were higher than either hub or satellite schools, however, by the end of the first year and in the subsequent two years, means were lower in 2011 and 2102 than either the hub or satellite schools. When mean scores are examined with regard to net change, the trend shows that the hub schools made greatest gains (+7) at the end of year one and

reached the maximum score of 17 out of 17 at the end of year two. Satellite schools also made the greatest gains at the end of year one (+6) and this was the maximum with 14 out of a possible score of 17. Self directed schools did made slight gains after a drop of -2 at the end of the first year. Self-directed schools' maximum scores over time were achieved in the pre-test condition. Control schools shifted by -4 at the end of year one and maintained the same score for the duration of the three year project.

Figure 3. Change over time in Kindergarten total scores in four conditions from 2009 to 2012.



Control schools' pre-project assessment scores showed a mean score of 9.5 which was higher than either the hub or the satellite schools, but by the end of 2010, 2011, and 2012 mean scores had dropped.

An analysis of variance (ANOVA) was carried out on the mean scores of each of the four school conditions for the pre-project year (2009) and each of the three years of the project. This

is described in Table 10. Using a 95% confidence interval it was possible to determine whether or not the differences were significant. While there was not a significant difference between hub and satellite schools, there were significant differences between hub and both self-directed and control schools. The differences were also significant between satellite and both self-directed and control schools (see Table 12). Both self-directed and hub school differed significantly from all other conditions.

Table 12

ANOVA Total Writing Score by School Condition for kindergarten where $p \leq .0005$

ANOVA					
Total Writing Score by School Condition for kindergarten					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	84.117	17	4.948	6.063	.000*
Within Groups	115.883	142	.816		
Total	200.000	159			

The difference between school conditions was statistically significant ($F = 6.063$, $p < .0005$). Since each of the number of samples are equal and independent of each other both within and among groups, and since we must assume a normal distribution for each of the groups with the standard deviations showing a similar variance of the mean, Tukey's HSD test was used to probe further and compare the means of each of the school conditions. Tukey's test for homogeneity indicated this as a valid measure.

Table 13

Multiple comparisons of aggregated total scores for Kindergarten writing using Tukey HSD for school condition

(A) School Condition	(B) School Condition	Mean Difference (A - B)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Hub	Satellite	.78	.400	.213	-.26	1.81
	Self-Directed	1.90*	.400	.000*	.87	2.93
	Control	5.38*	.400	.000*	4.35	6.41

Satellite	Hub	-.78	.400	.213	-1.81	.26
	Self-Directed	1.13*	.400	.026*	.09	2.16
	Control	4.61*	.400	.000*	3.58	5.64
Self-Directed	Hub	-1.90*	.400	.000*	-2.93	-.87
	Satellite	-1.13*	.400	.026*	-2.16	-.09
	Control	3.48*	.400	.000*	2.45	4.51
Control	Hub	-5.38*	.400	.000*	-6.41	-4.35
	Satellite	-4.61*	.400	.000*	-5.64	-3.58
	Self-Directed	-3.48*	.400	.000*	-4.51	-2.45

Based on observed means.
The error term is Mean Square(Error) = 9.590.
*. The mean difference is significant at the .05 level.

This demonstrates significant differences in scores between *hub* schools and self-directed and control schools as well as between *satellite* schools and the self-directed and control schools.

Similarly, ANOVA and Tukey's HSD were employed to determine where there were significant differences between years. Using a 95% confidence interval, it can be seen (see Table 14) that the difference between the pre-project assessment in 2009 and after each of the three years of the project, the difference was significant.

Table 14

ANOVA for total writing score by year for kindergarten where $p \leq .075$

ANOVA					
Total Writing Score by Year for kindergarten					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	32.448	17	1.909	1.618	.067
Within Groups	167.552	142	1.180		
Total	200.000	159			

The difference between school conditions was statistically significant ($F = 1.618$, $p < .0075$). Since each of the number of samples are equal and independent of each other both within and among groups, and since we must once again assume a normal distribution for each of the groups with the standard deviations showing a similar variance of the mean, Tukey's HSD test was used

to probe further and compare the means of each of the school conditions. Tukey's test for homogeneity indicated this as a valid measure.

Table 15

Multiple comparisons of total scores for year in project for Kindergarten writing using Tukey HSD

Dependent variable: Kindergarten writing scores						
(A) Year	**(B) Year**	**Mean Difference (A-B)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Pre-project assessment (2009)	After One Year	-3.03*	.400	.000*	-4.06	-2.00
	After Two Years	-3.35*	.400	.000*	-4.38	-2.32
	After Three Years	-3.33*	.400	.000*	-4.36	-2.29
After One Year (2010)	Pre-project assessment	3.03*	.400	.000*	2.00	4.06
	After Two Years	-.32	.400	.858	-1.35	.71
	After Three Years	-.29	.400	.885	-1.32	.74
After Two Years (2011)	Pre-project assessment	3.35*	.400	.000*	2.32	4.38
	After One Year	.32	.400	.858	-.71	1.35
	After Three Years	.03	.400	1.000	-1.01	1.06
After Three Years (2012)	Pre-project assessment	3.33*	.400	.000*	2.29	4.36
	After One Year	.29	.400	.885	-.74	1.32
	After Two Years	-.03	.400	1.000	-1.06	1.01

Based on observed means.
The error term is Mean Square (Error) = 9.590.
*. The mean difference is significant at the .05 level.

This shows significance between pre-test and all years one, two and three, results then level out and there is not a significant difference between years one and two, one and three, two and three. One further analysis to be done is to examine whether or not the change in writings scores are significant for year and condition using both ANOVA and Tukey's HSD as delineated in Tables 16 and 17.

Table 16

ANOVA analysis of kindergarten writing scores by year and school condition $p \leq .05$

ANOVA						
Total Writing Score by Year and School Condition for kindergarten						
		Sum of Squares	df	Mean Square	F	Sig.
School Condition	Between Groups	84.117	17	4.948	6.063	.000*
	Within Groups	115.883	142	.816		
	Total	200.000	159			
Year	Between Groups	32.448	17	1.909	1.618	.067
	Within Groups	167.552	142	1.180		
	Total	200.000	159			

The difference between year and school conditions was statistically significant ($F = 6.063$, $p < .0005$). Thus, once again Tukey's HSD was employed to probe significance further.

Table 17

Tukey's HSD for between subjects effects for year and school condition

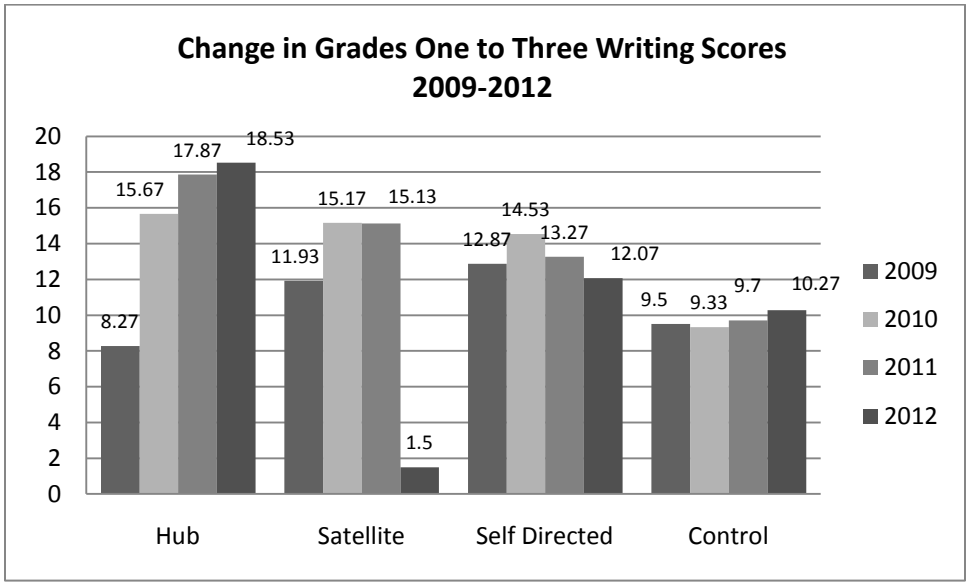
Tests of Between-Subjects Effects						
Source	**Dependent Variable**	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	Year	32.448[a]	17	1.909	1.618	.067*
	School Condition	84.117[b]	17	4.948	6.063	.000*
	Interaction of Year and School Condition	477.770[c]	17	28.104	1.366	.162
Intercept	Year	564.930	1	564.930	478.777	.000
	School Condition	733.452	1	733.452	898.756	.000
	Interaction of Year and School Condition	7123.570	1	7123.570	346.156	.000
Total Score	Year	32.448	17	1.909	1.618	.067
	School Condition	84.117	17	4.948	6.063	.000*
	Interaction of Year and School Condition	477.770	17	28.104	1.366	.162
a. R Squared = .162 (Adjusted R Squared = .062)						
b. R Squared = .421 (Adjusted R Squared = .351)						
c. R Squared = .141 (Adjusted R Squared = .038)						

Grade One, Two and Three

Children's on demand writing samples in Grades 1 to 3 in the four school conditions over four years of time were assessed utilizing the same methods as were employed for kindergarten writing. First, the writing for all three grades was assessed by two independent groups of markers using the British Columbia Writing Assessment Rating Scales for Grade 1, 2, and 3 as appropriate (see *Appendix H*) were applied by two independent groups of three markers. The total score possible for each of these grade levels was 20. Next, the scores of the two groups were compared and the mean scores determined if there were two different scores assigned to one paper. Then mean scores were determined for each of the four groups in each of the four data periods: pre-project assessment, end of year one, end of year two, and end of Grade 3. Finally, means were compared and statistical analysis was done to determine significant differences.

Student experiences in classrooms where a writing emphasis may have changed their capability as writers changed over time. The first year of the project (2010) was a first for both teachers and children. The second year of the project (2011) was a second year of experience for all teachers and for Grade 1, Two and Three students. The third year of the project (2012) was a third year of experience for all teachers but the second year of experience for the Grade 1 students, and a third year of experience for Grade 2 and Three students, provided they had remained in a project school. Given the characteristics of the hub school populations, this was not a certainty.

Figure 4. Change over time in grade 1 to 3 aggregated writing scores



The initial analysis of student achievement scores reflects a composite of Grade 1, 2, and 3 since a 20-point rating scale is available for each of those grade levels. Thus the sample size for each condition is increased to 30 students each year.

Table 18

ANOVA for Grades One to Three aggregated writing scores by year where $p \leq .075$

ANOVA					
Grade One to Three Writing Score by Year					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	32.448	17	1.909	1.618	.067
Within Groups	167.552	142	1.180		
Total	200.000	159			

The difference between school conditions was statistically significant ($F = 1.618$, $p < .0075$). Since each of the number of samples are equal and independent of each other both within and among groups, and since we must once again assume a normal distribution for each of the groups with the standard deviations showing a similar variance of the mean, Tukey's HSD test was used

to probe further and compare the means of each of the school conditions. Tukey's test for homogeneity indicated this as a valid measure for this group.

Table 19

Multiple comparisons of Grade 1 to Three writing scores using Tukey HSD for time in project

Tukey HSD Grade 1 to 3 Writing Score by Year Multiple Comparisons						
Total Score Grades 1 to 3 Writing Score by Year Tukey HSD						
		Mean			95% Confidence Interval	
(I) Year	(J) Year	Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Pretest	After One Year	-3.03*	.400	.000*	-4.06	-2.00
	After Two Years	-3.35*	.400	.000*	-4.38	-2.32
	After Three Years	-3.33*	.400	.000*	-4.36	-2.29
After One Year	Pretest	3.03*	.400	.000*	2.00	4.06
	After Two Years	-.32	.400	.858	-1.35	.71
	After Three Years	-.29	.400	.885	-1.32	.74
After Two Years	Pretest	3.35*	.400	.000*	2.32	4.38
	After One Year	.32	.400	.858	-.71	1.35
	After Three Years	.03	.400	1.000	-1.01	1.06
After Three Years	Pretest	3.33*	.400	.000*	2.29	4.36
	After One Year	.29	.400	.885	-.74	1.32
	After Two Years	-.03	.400	1.000	-1.06	1.01
Based on observed means. The error term is Mean Square(Error) = 9.590.						
*. The mean difference is significant at the .05 level.						

Table 20

ANOVA Grade 1 to 3 writing scores by school condition

ANOVA					
Grade One to Three Writing Score by School Condition					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	84.117	17	4.948	6.063	.000
Within Groups	115.883	142	.816		
Total	200.000	159			

Table 21

Tukey HSD Grade 1 to 3 Writing Total Score by School Condition Multiple Comparisons

Tukey HSD Grade 1 to 3 Writing Total Score by School Condition Multiple Comparisons						
					95% Confidence Interval	
(I) School Condition	(J) School Condition	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Hub	Satellite	.78	.400	.213	-.26	1.81
	Self-Directed	1.90*	.400	.000*	.87	2.93
	Control	5.38*	.400	.000*	4.35	6.41
Satellite	Hub	-.78	.400	.213	-1.81	.26
	Self-Directed	1.13*	.400	.026	.09	2.16
	Control	4.61*	.400	.000*	3.58	5.64
Self-Directed	Hub	-1.90*	.400	.000*	-2.93	-.87
	Satellite	-1.13*	.400	.026*	-2.16	-.09
	Control	3.48*	.400	.000*	2.45	4.51
Control	Hub	-5.38*	.400	.000*	-6.41	-4.35
	Satellite	-4.61*	.400	.000*	-5.64	-3.58
	Self-Directed	-3.48*	.400	.000*	-4.51	-2.45
Based on observed means. The error term is Mean Square(Error) = 9.590.						
*. The mean difference is significant at the .05 level.						

Table 22

ANOVA Grade 1 to 3 Writing Score by Year and School Condition

ANOVA Grade One to Three Writing Score by Year and School Condition						
		Sum of Squares	df	Mean Square	F	Sig.
Year	Between Groups	32.448	17	1.909	1.618	.067
	Within Groups	167.552	142	1.180		
	Total	200.000	159			
School Condition	Between Groups	84.117	17	4.948	6.063	.000
	Within Groups	115.883	142	.816		
	Total	200.000	159			

Table 23

Time in project descriptive by condition statistics of aggregated total scores for Grade 1,2, and 3.

Year	School Condition	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
pre-project assessment (2009)	hub	8.700	1.002	6.719	10.681
	satellite	8.000	1.002	6.019	9.981
	self-directed	13.300	1.002	11.319	15.281
	control	9.500	1.002	7.519	11.481
After one year (2010)	hub	16.300	1.002	14.319	18.281
	satellite	13.800	1.002	11.819	15.781
	self-directed	11.200	1.002	9.219	13.181
	control	6.000	1.002	4.019	7.981
After two years (2011)	hub	16.500	1.002	14.519	18.481
	satellite	13.800	1.002	11.819	15.781
	self-directed	9.900	1.002	7.919	11.881
	control	5.700	1.002	3.719	7.681
After three years (2012)	hub	16.200	1.002	14.219	18.181
	satellite	13.200	1.002	11.219	15.181
	self-directed	11.700	1.002	9.719	13.681
	control	5.800	1.002	3.819	7.781

Results for pre-test conditions for the aggregated Grade 1 to 3 students, where a maximum score of 20 was possible, demonstrate that in the prior to the implementation of the professional development model, the students in self-directed schools were greatest. Teacher's impact on end-of-year student writing was less for teachers in hub schools, satellite schools, and control schools.

By the end of one year (2010) in the project there is significant positive impact, evident in results in students' writing for hub, satellite, and self-directed schools, while scores of students' writing in control schools shows a slight decrease. Students' mean writing scores in the

hub schools were nearing the maximum score of 20 by the end of the first year, and this achievement increased slightly for the subsequent two years. Students' writing achievement increased for satellite schools over the four year period, although not at as great a rate as in hub schools.

Self-directed schools results diminished slightly from 2009 to 2012. Initially, mean writing scores were higher than either hub or satellite schools, however, by the end of the first year and in the subsequent two years, means were lower than both the hub and satellite schools. Over the three-year period, the change in scores for the self-directed schools was negative.

Control schools' pre-project assessment (2009) scores showed a mean score of 9.5 which was higher than hub schools, and data demonstrate that by the end of 2010, 2011, and 2012 mean scores had remained relatively constant with minimal changes from year to year.

Table 24

Time in project descriptive statistics of aggregated total scores for Grade 1,2, and 3 (ceiling = 20)

Year	School Condition	Mean	Std. Deviation	N
pre-project assessment (2009)	hub	8.27	2.690	30
	satellite	15.67	3.427	30
	self-directed	17.87	1.814	30
	control	18.53	1.548	30
	Total	15.08	4.771	120
After one year (2010)	hub	11.93	2.690	30
	satellite	15.17	2.653	30
	self-directed	15.13	2.543	30
	control	15.00	3.424	30
	Total	14.31	3.132	120
After two years (2011)	hub	12.87	3.884	30
	satellite	14.53	2.874	30
	self-directed	13.27	2.677	30
	control	12.07	2.815	30
	Total	13.18	3.189	120
After three years (2012)	hub	9.50	3.646	30
	satellite	9.33	3.854	30

	self-directed	9.70	3.905	30
	control	10.27	3.805	30
	Total	9.70	3.772	120
Total	hub	10.64	3.723	30
	satellite	13.68	4.088	30
	self-directed	13.99	4.090	30
	control	13.97	4.335	30
	Total	13.07	4.290	480

Using a 95% confidence interval it is possible to determine whether or not the differences in total scores based on school condition were significant. While there was not a significant difference between hub and satellite schools, there were significant differences between hub and both self-directed and control schools. The differences were also significant between satellite and both self-directed and control schools (see Table 20). Both self-directed and hub school differed significantly from all other conditions.

Disaggregation of Grade 1, 2, and 3 Data

When student writing data was disaggregated for Grades 1, 2 and 3, a slightly more detailed and different trend is evident for Grade 1, 2, and 3 students in Hub schools. For Grade 1 students, teachers were able to achieve change in student writing showed greatest shift after year one of the project and reached the maximum score of 19 out of a possible 20 points in year two, which was maintained with a different group of students in year 3. For Grade 2 students, the greatest shift occurred after year one in the project and teachers achieved the maximum score of 18 out of a possible 20 points occurred in year two with their students. This was maintained the following year. Finally, for Grade 3 students, change in student writing showed the greatest shift in year two of the project and reached the maximum of 18 of a possible 20 points at the end of year three.

The change in outcomes is similar for each of the three grades in the satellite schools in that the greatest shift occurred at the end of the first year. However, that year was also the year

that they achieved maximum scores. Grade 1 satellite schools reached a maximum score at the end of year one. Grade 2 satellite schools reached a maximum score at the pre-project assessment and made no change at the end of year one dropping slightly by the end of year three. Grade 3 teachers in satellite schools made the greatest shift after year one and did not reach the maximum of 17 until the third year of the project.

Table 25

Grade 1 Mean Writing Scores (n = 40) with year by year change in parentheses

school condition	Pre-Project Assessment (2009)	Grade 1 One Year in Project (2010)	Grade 1 Two Years in Project (2011)	Grade 1 Three Years in Project (2012)	net change
Hub	9	18 (+9)	19 (+1)	19 (+1)	+10
Satellite	13	17 (+4)	17 (no change)	16 (-1)	+3
Self-directed	16	15 (-1)	14 (-1)	13 (-1)	-3
Control	10	10 (no change)	11 (+1)	10 (-1)	no change

Table 26

Grade 2 Mean Writing Scores (n = 40) with year to year change in parentheses(ceiling score of 20)

School Condition	Pre-Project Assessment (2009)	Grade 2 One Year in Project (2010)	Grade 2 Two Years in Project (2011)	Grade 2 Three Years in Project (2012)	net change
Hub	9	16 (+7)	18 (+2)	18 (no change)	+9
Satellite	13	13 (no change)	13 (no change)	12 (-1)	-1
Self-directed	9	14 (+5)	13 (-1)	11 (-2)	+2
Control	11	11	11	13	+2

Grade 3

Table 27
Grade 3 Mean Writing Scores (n = 40) with year to year change in parentheses

School Condition	Pre-Project Assessment (2009)	Grade 3 One Year in Project (2010)	Grade 3 Two Years in Project (2011)	Grade 3 Three Years in Project (2012)	net change
Hub	7	12 (+5)	17 (+10)	18 (+1)	+11
Satellite	10	16 (+6)	16 (no change)	17 (+1)	+7
Self-directed	14	15 (+1)	13 (-2)	12 (-1)	-2
Control	8	7 (-1)	8 (+1)	8 (no change)	no change

Chapter 5

Discussion and Recommendations

In this chapter, I will complete the documentation of this study by revisiting its original purpose and by reviewing the methods and design of the research. I will respond to the research questions initially posed, and present conclusions regarding the impact of effective planning for transforming teaching, and school improvement in writing. I will describe how the findings of this study have informed and confirmed a framework for effective professional growth, which should be functional for school divisions, and large-scale planning for improvement student achievement. I will conclude the chapter with recommendations and areas for further exploration and study pertaining to staff development.

Purpose and design of study

The purpose of this study was to determine which delivery method of a multi-year professional development opportunity created the greatest positive change for principals, increased teachers' sense of efficacy, and, most importantly, resulted in improved outcomes for Kindergarten to Grade 3 students in writing. The study was a quasi-experimental, ex post facto, mixed methods study and analyzed data sources collected over a four year period from 2009 to 2012.

Four school conditions were compared: *hub schools* where the professional learning was the most intensive since teachers and the principal received supplementary, personal support from expert facilitators; *satellite schools* where teachers and the principal were able to observe the expert facilitator coach the staff over the four day residency period; *self-directed schools* that utilized a prepared video module that replicated the residency experience as well as possible; and

control schools that continued to offer writing instruction according to their usual practice. In order to examine the data, the following three research questions were posed:

1. Which blend of professional development created the greatest change in principals' perceptions of the functionality of their school literacy team?
2. Which process created the greatest change in Kindergarten to Grade 3 teachers' sense of efficacy in classroom writing instruction?
3. Which process led to the greatest change in kindergarten to Grade 3 students' writing competency?

Eight data sources in total were employed to answer these research questions. Four of these were used to determine changes in principals' perceptions: (1) pre-project questionnaires, (2) post kick-off evaluations (2009), (3) post-residency evaluations (2010, 2011, 2012), and (4) field notes of principals' discussion groups. Effects on teachers' sense of efficacy were determined by three data sources: 1) pre-project questionnaires which were repeated with teachers at the end of 2010; 2) post kick-off evaluations and, (3) post-residency evaluations (2009, 2010, 2011, 2102); and 4) teachers' assessments of student writing (2009, 2012) gathered as an on-demand writing assessment (Routman & Valencia, 2012). Change in student writing achievement was determined using the eighth and final data source, a random sample of student writing from each of the four conditions and each of the four grade levels was assessed by two groups of independent markers, using the British Columbia Ministry of Education Writing Rating Scales (British Columbia, 2009).

Interpretation of results

Change in principals' perceptions of functionality of school staff

School principals are critical to the process of school improvement in writing instruction. Their importance as education leaders in their buildings cannot be underestimated. Data from questionnaires, evaluations, and the themes in discussion groups with peers demonstrate the high regard principals hold for the teachers and as questionnaires revealed, may even over-estimate the staff's feelings of competency.

Principals' expectations, encouragement, celebration of effort, and process created and sustained the momentum and engagement of teachers. Without this, collaboration and growth was left to individual teachers' initiative. Once principals became involved in the process, as seen in the evaluations after the first year's residencies and in the discussion groups, they were engaged in student outcomes and staff collaboration. Although teachers' did not overtly demonstrate recognition of the principals' efforts, their appreciation could be inferred in responses that acknowledged meeting and co-teaching opportunities. In order to maintain an overview of the progress of the school staff as a whole, school principals needed to commit to the multi-year model. Commitment over an extended time period allowed teachers to make changes, consolidate new learning, and receive support or redirection when needed. This allowed principals, as their own knowledge base expanded, to determine more specifically what type of support needed to be negotiated with individuals and with teachers as a group within their own learning context.

Two school conditions in this project ensured the involvement of the principal, namely hub and satellite school models. The school principals had submitted an application to assistant superintendents to become involved in the project. They participated in the kick-off day, in-

school professional learning communities that used the video modules, residencies, instructional walks, and supplementary professional development with the school team. They completed questionnaires and residency evaluations and took part in discussion groups with their peers. There was privilege assigned to schools involved in hub and satellite conditions, but also responsibility. Principals agreed to share experiences and become the voice of whole school improvement in writing not only to the local community, but also to external groups interested in the project.

Principals in hub and satellite schools recognized that they and the staff were energized and excited about the students' work. They found it compelling that so many curricula could be addressed and integrated through writing and reading. The one condition that led to this change was the live residency provided by an expert facilitator, whether it was a lived or an observe experience.

Self-directed schools principals had attended the initial kick-off and participated in several professional development events, but the guarantee of a high level of participation and leadership on their part could not be monitored or guaranteed. The video modules, carefully developed and tested (Routman, 2008a), still left the implementation of a multi-year commitment to the principal. This does not minimize the effect of the project on individual school teams in the self-directed school, since student writing results show that growth occurred. However, the consistent, persistent, and insistent stance that is required to allow *at least* three years of high involvement was best achieved when principals are highly accountable to senior administration and to their peers.

It is easy to lose sight of the goal, particularly when other educational priorities bubble to the surface. It is also easy to lose sight when student progress is not always as evident or rapid as

it was initially. This is the normal trajectory of learning (Chen, Siegler & Daehler, 2000). Adults and children both need time to consolidate new learning and to incorporate new learning into established knowledge. "Quick wins" (Routman, 2014) are important to keep engagement high and motivation in place, but extended practice is also important. Additionally, when outcomes are not pre-determined and the guiding question for instruction is, "What is possible for writer?", it may be possible to underestimate what can actually be achieved. Teachers and principals were constantly amazed and delighted by the ways in which students participated and understood writing techniques and concepts. Principals were proud of the teachers in their schools as professional development took on new meaning. It was not clear whether or not schools

The answer to the research question, "Which blend of professional development created the greatest change in principals' perceptions of the functionality of their school literacy team?" is clearly that the hub and satellite school experience fostered change in principals' perceptions. This occurred not only due to the overt, observable changes in the school literacy teams but also due to the attention paid to the school administrators in the entire process.

Teacher efficacy

From the outset, teachers were eager to be involved in the project. They were aware of Routman's work and aware of their own apprehensions about writing instruction. The initial questionnaire demonstrated both of these factors. Teachers' sense of efficacy shifted within the first year of the project. Using video modules, professional learning communities, the residency experience, and collegial support that was specific to their clientele and their level of experience led to high engagement in the process. The post-residency evaluations from hub and satellite teachers revealed previously dormant enthusiasm and sense of purpose in writing instruction. Specific guidance about pedagogy and the writing process was transformational to the teachers

and, as clearly demonstrated in the student writing analysis, was confirming for teachers and led to increased student engagement and achievement.

Teachers initially sought a concise "how to organize" guide to writing instruction and a way to get all students engaged. By the end of the first year in the project, student engagement was not mentioned in post-residency evaluations. Student enthusiasm and energy reflected their teachers' disposition, as this post-residency evaluation from a Grade 1 teacher in a hub school (2012) exemplifies:

> . . . We are completely in the routine of daily writing for a minimum of 20 minutes . . . I actually look forward to writing time now, and I am much less overwhelmed. . . The kids have written loads of books and have each published at least two or three pieces. I have found that I am also using the writing to lead the reading during my [instructional] times with my group. . . Overall, the most surprising things for me from the whole process have been: 1) How quickly the kids transitioned to seeing themselves as writers. 2) How they have taken responsibility [to choose their own] topics and [are able] initiate writing, 3). . . more stamina in relation to work at a story over many days. I'm seeing quality and stamina that I haven't seen before. . . struggling writers are completely engaged.

Time on task increased, expressed as "stamina", student achievement as many post-residency evaluations have indicated. Use of writing in other subject areas achieved other curricular goals. Writing instruction became a two-for-one bargain. Teachers did not need a prescription to manage classroom time. The time was managed by the interest and engagement in the subject matter. Engagement was not an issue, because it was the meaning and structure of the messages being created that engaged the heart and mind of the students.

Which process created the greatest change in Kindergarten to Grade 3 teachers' sense of efficacy in classroom writing instruction? The greatest change was evident in the responses by teachers from hub schools. The personal coaching and side-by-side teaching experienced with the expert facilitators provided a depth of experience that allowed teachers to support students in the most effective ways possible. It must be mentioned that prior to each residency experience, the teacher and expert facilitator communicated for approximately one month in order to pre-plan the topic and the type of reading and experiences that would most support the students. Teachers from satellite schools experienced the next greatest increase in their sense of efficacy. They observed the process of teacher and student change with live classroom demonstrations. Teachers from self-directed schools initially experienced change but did not maintain the rate of change over time as a group. Individuals or individual school teams undoubtedly experienced positive results, but there was considerable variation in the questionnaires and student writing outcomes from this group.

Student Writing

A Grade 1 child was sitting at a table on his own, when a classroom visitor wandered over and asked the six year old what he was working on. The child pointed to an asterisk he had put on the page at the beginning of a letter he was composing. When asked what that meant, the child responded that he thought he needed a better "hook." The visitor inquired what he meant by a "hook", the child explained that he needed something to make readers want to read his work because it sounded so interesting right from the start. The visitor then asked who would be reading the letter and the child said, "my mom and dad, it's a letter to them. See, it says "Dear Mom and Dad". I want them to care about what we're asking. We need to save the polar bears!" (Nickerson, 2012).

This story demonstrates in a qualitative way, the depth of understanding for some of the youngest writers. It is important to remember that this six year old student is in a hub school. That is, a school that was eligible to be part of the project because it was identified as a school of at-risk learners in a high-needs community. Increased student achievement was significant in the hub and satellite schools as seen in the evaluation of student writing samples. This was quickly achieved in Kindergarten and Grade 1 and was maintained over the three years of the project. It took two years for the improvement to be observed in Grade 2 and Three. Self-directed school students also showed an initial improvement, but it was not significant, nor was it maintained over time. When compared to the random sample from control schools, the difference was evident.

Some parts of writing improvement may have come about as the result of a highly structured approach: spelling, capitalization, punctuation, and neatness, the aspects of writing initially valued by teachers. However, there was no implicit indication of this in any of the evaluations. Since there are surface elements of the writing process, they may have improved without a highly structured approach since, without a compelling message to convey, these are merely disjointed exercises with little to engage students. If this was a large component of writing instruction prior to the project, it is understandable that lack of student engagement would dominate the thinking of teachers. In the context of writing with purpose and for a visitor, it might appear as instruction without really instructing. Yet all indications in the assessment of student writing are that the students improved in this aspect of writing, particularly in hub and satellite schools.

Much more notable was that even in Kindergarten, students were able to demonstrate voice, structure, sense of audience, and a meaningful message. These aspects of writing do not

appear in the Rating Scales, nor in the Manitoba English Language Arts Curriculum (1998). However, when teachers are aware of these facets of writing they easily convey their use to the youngest of students. Thus approaching maximum scores on a rubric that ignores these aspects of the composing process seems less remarkable. The students were exceeding curriculum and assessment expectations

The response to the question, "Which process led to the greatest change in kindergarten to Grade 3 students' writing competency?" must be answered by thinking about Kindergarten student writing and then considering the writing for Grade 1 to 3 students. The student results reported were not the same students from year to year, although the teachers providing instruction were.

For Kindergarten students the response was clearly the hub school experience. Positive results differed significantly from self-directed and control schools from the first year and were maintained for the next two years of the project. Kindergarten student in the satellite schools also improve significantly in the first year, although not to such a great degree. They too maintained the gains.

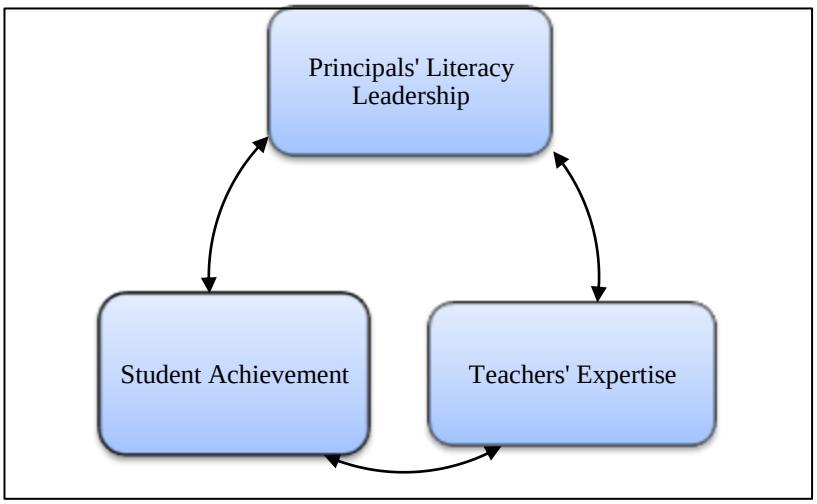
Students in Grade 1, 2, and 3 were considered separately because the ceiling score of the rubric was 20, rather than 17 as was the case for Kindergarten students. The combined group of Grade 1, 2, and 3 all had improved results after the first year of the project, except for the students in the control group. At the end of the second year, hub school students continued to improve for the next two years, satellite school students achievement stayed the same, and self-directed school student achievement declined. A slight improvement was evident for the control group students although it was not to the same degree as the hub school students. The hub school experience resulted in the greatest change.

Satellite schools were able to benefit from the model of the hub schools and the existence of the satellite situation relied on the existence of the hub school. While not as directly involved, teachers were able to experience visits, planning, and participate in reflection about the lessons. Staffs from the satellite schools could ask questions and participate in discussions with the hub school and with the expert facilitators, but the spotlight of expectation was not on them during the residency experience. Thus, their successes or shortcomings, became an internal community matter. That is not to say that these educators were not persistent and consistent in their quest for professional change. Far from it, the teachers and principals were able to take the learning as far as they were able. What was missing was the first-hand coaching and the explicit expectations articulated for their own context.

Discussion

Several aspects of this multi-year project, which teachers have referred to as the "Regie Project", bring to light three critical observations. First, real-time, live experiences have a dramatic effect on teacher learning. Second, students in the first four years at school are capable of much more sophistication in writing that is generally expected by teachers or reflected in curriculum. Third, principals' involvement as educational leaders is critical to staff development and student improvement. As illustrated in Figure 5, these three factors are inter-related. Principals taking a leadership role create a culture of improvement and change for the school staff. Increased expertise of school staff results in improved student outcomes. Improved outcomes for students are motivational for students, teachers, principals, giving honest cause for celebration with parents and other school stakeholders.

Figure 5. *Model of conditions leading to school change.*



The results also confirm the work of Gallimore and Ermeling (2012) on enduring and durable changes in teacher practice. That is, that in order for there to be a durable change in teacher practice, there must be a change of the culture in which the teacher works. This is evident in the daily routines in the classrooms where lessons unfold, colleagues meet, and beliefs are articulated. If part of the culture is an emphasis on teacher improvement, as was the case in this project, improvement will be evident in the outcomes for students. This is particularly the case if teachers resist using students' lives as excuses and they feel there is safety and opportunity to improve practice.

Ermeling (2010) identified four basic features of a collaborative and continuous improvements teaching cycle that does support continuous improvement of teaching. Each of these features is a characteristic of the professional development model found in hub schools.

The first feature is the identification and definition of important and recursive instructional problems specific to the local context (p. 198).Teachers in the hub school identified writing as the curricular area that was challenging to teach. The collective identification of this

aspect of student learning need formed the central purpose of the teachers' professional learning communities. This one aspect of curriculum was inextricably linked to all other aspects of curriculum, most obviously reading, but also social studies, science, and mathematics. An aspect with such scope presented an opportunity that would not wither over the three-year period of the project.

The second feature is the preparation and implementation of detailed instructional plans (p. 200). The teachers in the hub school spent time in two aspects of planning. In the months prior to each residency, the principal and teachers who would be involved in the demonstration lessons, spent many hours discussing and detailing the plan for the residency with the expert facilitator and with each other. Plans were discussed over several phone calls and through emails prior to the residency taking place. The goal was to plan for a powerful experience and the school staffs wanted to be able to demonstrate their preparation in ways that would meet the expectations of the facilitators. As well, in the months after the residency, the staff continued to created detailed and thoughtful instructional plans that were articulated, shaped, and committed to writing instruction. The persistence of the staff and the consistency of the planning practice resulted in classroom lessons that could be critiqued and celebrated during the principals' instructional walks.

The third feature is the utilization of evidence to drive reflection, analysis, and next steps (p. 202).Teachers involved in hub schools were able to use student writing guide the reflection of the effectiveness of the plan. A key to the assessment of writing was reading the written messages aloud. Without a doubt, this practice put both students and teachers into a mode where they were listening to the message of the written text. The suggestions for revision stemmed from effective delivery of the message not capitalization, punctuation, spelling, or neatness. Not

that these factors were unimportant, in fact, they served to facilitate the reading. They were viewed as aspects that could easily be edited once the student's voice was heard. As the teachers gained more experience with the optimal learning model and the reading-writing connection, they also learned to select evidence from student writing that was most instructive for a particular lesson context and targeted student outcome.

The fourth feature in Ermeling's model is persistence in working toward detectable improvement, specific cause-effect finding about teaching and learning (p. 202). Teachers in the project needed time, encouragement, and expectations on the part of a knowledgeable leader in order to be persistent. The fact that schools committed to at least three years in this project and that provided the opportunity for persistence. It is difficult for teachers to change or to become expert in any aspect of teaching if the focus shifts from month to month or even year to year.

Recommendations for Practice and Research

Implications for effective professional development and increased student success in a time when our future is in a constant and rapid state of change must be weighed up carefully. As noted in Chapter 2 of this paper, the teacher is the factor that matters most to student learning. Although technology will change the tools and access to knowledge, the foundational skills of communication will not change. In the present climate of economic restraint, to examine what will create the greatest change for the education of our children can be used as a measure. Because of this study, some implications have become known leading to seven recommendations for current practice and three recommendations for future research.

Recommendations for practice

Whether planning a new school improvement project or extending this project to bring

about school change, lessons learned from this study should be taken into consideration. There are seven recommended.

The first is to allow professional development experiences to have a multi-year window of opportunity. This multi-year project has demonstrated that adequate gains may not be achieved in the first year of any innovation and that gains made in the first year may not be sustained over time unless teachers and principals have adequate time and opportunity to incorporate new understandings into their current knowledge.

Second is to support teacher development through observations of live classroom experiences. While video recording and transmission has improved dramatically, it will never replace live experiences. Two factors lead to this conclusion. First, there is always some suspicion on the part of the viewer about the veracity of the experience. Regardless of assurances, there is a lingering doubt that what is being observed "won't work that way with my students." Also, when observing a video recording one has the sense that it can be re-watched. Viewers may not pay close attention, complain they cannot hear, or their perception differed from everyone else's. Viewers pay much closer attention when they know there is no replay available and see for themselves that the children are just like any others. Finally, when a teacher, or even a school , participate in a video module without external support, it cannot be assumed that the module has been used or understood as it was intended, thus there is no assurance of quality control.

Third, is to engage a critical friend who can keep the plan on course. It is easy to become too closely engaged in the implementation of a long-term plan. An external, knowledgeable observer can help to assess whether alterations to the course of action are moving school teams away from their goal or whether modifications are necessary.

Fourth, is to consider the qualifications of an Expert Facilitator. Routman and her team have been referenced throughout the description of this project as the "Expert Facilitators". However, at no time were the skills and knowledge of the facilitators part of the information explored in order determine what made them "experts". Routman's reputation as an effective teacher, with knowledge about reading and writing, and teaching and learning , were accepted by everyone involved. This formed the basis of trust in the interactions with individual teachers, principals, and school teams.

If this model of professional development is to be replicated or expanded, it will not always be possible to have Routman or her team available to a school staff. Sustainability and replication will be important if the outcomes are recognized as successful. A key factor will be to establish ways in which other expert facilitators can be brought on board and to be explicit about the skills and knowledge required. Caution should be exercised regarding self-proclaimed "experts". The International Literacy Association is currently in the process of developing *Standards for Preparing Literacy Specialists – 2017* (International Literacy Association, 2017), whereby qualifications can be clearly articulated for specialists. In the role of facilitator, it is clear that knowledge of the teaching domain is important, but so is pedagogical expertise, knowledge of working with adults, knowledge of working collaboratively with groups, expertise in working with school administrators, and knowledge of school systems. Merely being a good teacher is not sufficient nor is a short-term plan for implementation. It will also be essential to establish a multi-year plan for implementation in order to adequately identify the key stakeholders and participants and plan for their success.

Fifth, enable expert-novice relationships to flourish over time. It takes time to develop trust between professionals. The intense nature of exposing oneself to a more knowledgeable

other is stressful and not every match is successful. Developing a trusting and positive relationship cannot be rushed and once established can have many positive consequences.

Sixth, cost-benefit analysis should be understood and carried out for professional development events when possible. Guest speakers, one-day sessions, and large-scale events can be costly and ineffective. Prior to a plan for professional development, a program evaluation should be established with a cost-benefit analysis embedded. It is not common in education for systems to look at costs or at student improvement as the outcome that matters most when we invest in teacher in-servicing. Change occurs on a school-by-school basis. Large-scale reform is much more difficult to achieve and observe. Nevertheless, improved outcomes for students for the dollars spent deserve examination. Not only that, the professional experiences needs to be maintained as part of a growth system over a lengthy period of time. In this way, the system of school and teacher improvement can be refined and massaged over a number of implementations.

Finally, is to ensure a high level of involvement on the part of the school principal in the curricular plan. For schools that are self-directed, the addition of a professional learning module specifically for principals with pre-implementation support as well as support throughout may foster the high level of involvement a school administrator must have. Principals are much more than managers and the managerial role can become endless and self-extending. What matters most are the students in the schools, who care little when the bus safety drill will happen, what the newsletter looks like, and where the new basketballs come from. If the staff and students are fully engaged, they will be able to manage many of those things without taking away from learning time.

Careful selection of new administrators in a school where the improvement project is underway needs to be carefully considered. A change in principal who either does not have knowledge of the work that has been done or who feels they need to put their own stamp on a process that is working can be disastrous. A strong staff can maintain itself for a year or two, but without appropriate nurturing, guidance, and expectations, all progress can be lost. It will be important that superintendents and assistant superintendents assign administrators that are able to keep up with the staff, or at the very least, show competence at quickly getting on board. Within the experience of this project, one hub school experienced a new principal in the fourth year, and by the fifth, most of the staff had left for other teaching assignments.

A Note on Technology

The use of technology as a tool in writing was not addressed in this project. While individual teachers may have used internet resources to explore subject area content as 'front-loading' took place, the students in this study used pencils and paper in their writing. The age of the students and the variety of software available in the classrooms had to be considered when exploring possibilities. While its use may have become more apparent in the work done in middle years classrooms with older students, neither the Kindergarten to Grade 3 group of children nor their teachers inquired about its use nor did they initiate employing it in a significant way. Classrooms also varied in terms of access to software and hardware.

Writing revision was discussed with the students and demonstrated using a document camera and projector. This facilitated sharing teacher thinking with the class and allowed the students to participate easily. Young children may not be able to see how changes are carried out unless they are done in the manner closest to their own experience in a handwritten form. One of the advantages of having student writing in a handwritten format, is that it allows a teacher to

track the revisions and follow the thinking of an individual student. It can also be used as assessment to determine where supplementary support is needed, whether it is content, structure, word choice, spelling, punctuation, or even letter formation for these very young children.

One of the aspects of professional development delivery that differentiated outcomes for professional change was the viewing of live lessons versus the viewing of video recordings. While the DVDs contained in the purchased module depicted Routman delivering lessons in whole class settings, teachers viewed them with some skepticism. Greater credence was given to the instruction of their own students in their own settings. Senior administration commented that any teachers who were uncertain about the pedagogy or about the possibilities for children were often convinced by the live lesson experiences. No excuses could be offered about why all children needed the opportunity to participate and have expectations of what they could achieve since no students were excluded from the experience and the schools served clientele with many challenges.

Given the rapid changes in technology, it may be possible in the future to view live lessons unfold in a different location, but a degree of separation still will exist. A blended model of delivery may ameliorate the effects, however, the immediacy of debriefing about the experience is not always available in a distance video connection and challenges with connectivity persist at present. This impedes communication, particularly if the staff does not have a personal relationship with the person delivering the "live" lesson at the other end. Currently there are many challenges to high quality video conferencing, such as available bandwidth and sound quality to capture the responses of students that can interfere with the flow of the professional experience.

Currently, the best we can offer for the teachers who need support, is a live experience. As long as a live format can be preserved, the effects will be positive. Providing service to remote schools, where the greatest support is often needed due to the challenging circumstances for both students and teachers, should not be compromised. Whenever and wherever possible live experiences should be provided. The challenge will be to have skilled "expert facilitators" able to travel to a variety of school settings.

Recommendations for further research

During the course of analysis of data from this project, questions arose that lead to considerations for further research. While general aspects might be explored such as student development of a cognitive processing system in writing, or specific teacher actions to enhance student learning, or interactions amongst professionals, only three are listed more specifically here.

First, English Language Arts Curriculum development practices across Canada should be examined to determine how revisions are carried out. In an effort to identify a suitable writing assessment, it became clear to me that new curricula may be re-arranged, re-titled, and written in updated language, but they are similar to old curricula and vary little from province to province. While developing the methodology of this study, I had the opportunity to try to determine the process by which curricula were being developed. The question that arose was, "Are developments in English Language Arts curriculum based on observed student capabilities as well as perceived societal needs or is there a limited perception of students that is redefined and re-enforced each time the curriculum is revised?"

Second, the development of writing expertise in students may be underestimated. When provided with rich and meaningful experiences by knowledgeable teachers, students in this

project exceeded all expectations. These students lived in communities that experienced many challenges. Are expectations of students' abilities in writing too low? How can writing form the basis of the expression of learning across the curriculum?

Third, can a similar model be applied to a pre-service experience for undergraduates? Is it possible to provide the same critical elements when developing pedagogical knowledge of novice teachers? It may be possible to use features of this professional development model to create a list of critical features for planned teacher development experiences.

Conclusion

The three-year model of professional development studied in this research is ongoing and is heading into the eighth year of implementation. It has expanded to include eleven more hub schools and fourteen more satellite schools. It has become important to be able to articulate why success has been achieved if the method is to be sustainable. It has also become critical to identify which elements are critical and which can be negotiated. Putting student learning at the centre of the project has created school communities where teaching and learning are at the forefront of change. Bryk (2015) states, "At base here is the difference between knowledge that something can work and knowledge of how to actually make it work reliably over diverse contexts and populations" (p. 469). The importance of ongoing research to seek better instructional practice can make a difference and realize that there will be variance from school to school in how the differences play out and what the differences looks like. The process is never-ending. In a state of leading and following trends, with educators striving to improve professional practice for the betterment of student achievement, there will always be a need to adapt due to the complexity of human understanding.

> ...The major aim of the common enterprise in which we are engaged ... has to do with the improvement of educational practice so that the lives of those who teach and learn are themselves enhanced...We do research to understand. We try to understand in order to make our schools better places for both the children and the adults who share their lives ... In the end, our work lives its ultimate life in the lives that it enable others to lead. Although we are making headway toward that end, there will continue to be difficulties and uncertainties, frustrations, and obstacles.
>
> (Eisner, 1993, p.10)

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Appendix A: Memorandum to Schools with Explanation of Expectations

SCHOOL DIVISION HEADER (LOGO AND ADDRESS)

MEMORANDUM . . .

TO: xxxxxxxxxx, Reading Clinician

xxxxxxxxxx, Early Years Consultant

xxxxxxxxxx, Early Years Consultant

xxxxxxxxxx, Principal, - - - - - - - - - -

xxxxxxxxxx, Principal, - - - - - - - - - -

xxxxxxxxxx, Principal, - - - - - - - - - -

xxxxxxxxxx, Principal, - - - - - - -- - -

xxxxxxxxxx, Reading Recovery teacher leader

FROM: xxxxxxx, Assistant Superintendent

Email: xxxxxxxxxxxxxx

DATE: February 15, 2011

RE: **Regie Routman Residency – May 24 - 27, 2009**

We have been in communication with the province and it looks like the Regie Routman Residency with Regie and/or associates will go ahead with three school divisions; ours being one.

Dates selected are May 24 - 27, 2011.

For this, we need to determine who our “hub” school is going to be. If your school is interested please reply to this email before February 28, 2011. Please consider this request carefully.

You may choose to discuss this at your upcoming staff meeting. As the criteria below suggests, the residency requires total staff commitment.

Criteria for hosting the Residency:

Commitment
- make the residency the focus of the week
- all teachers on the project to participate

Making practice public
- all teachers open to visitation by divisional and non-divisional staff
- all teachers prepared to co-plan and co-teach
- prepared to have observers beyond this year
- prepared to be videotaped for use within the division

Reflective Practice
- all teachers prepared to reflect and debrief both during and after school hours
- all teachers prepared to act on feedback
- all teachers prepared to use student writing as evidence to inform instruction

Leadership
- prepare a presentation for EYAM describing the impact of the project

See attached brochure for more information.

Thanks for your attention and consideration to this matter.

Weekly Plan for School Residency

The purpose of the residency is to provide the same model for teachers and principals that excellent teachers provide for students, that is, a teaching/learning/assessing model that includes much scaffolding and builds confidence and competence through demonstrations, shared experiences, guided practice, and independent practice--all with challenging and relevant curriculum and content that align with standards. The learning model is a coaching model that gradually releases increasing responsibility to the learner so that the learner eventually self-directs, self-evaluates, and sets worthwhile goals.

Before the residency, the principal or an instructional leader in the school surveys teachers for interests, needs, questions, and concerns regarding the chosen residency focus, usually reading or writing. The principal or instructional leader makes public the goals for each grade level and across grade levels, and together we draft a weekly plan/schedule and determine necessary resources.

The plan usually includes:

- A weekly (3-5 day) teaching plan and focus (for the entire morning) in both a primary classroom and an intermediate classroom that involves a daily, 90 minute to 2 hour flexible block with the same students and teacher, in their respective classrooms
- Demonstration teaching (each day)
- Gradually moving to coaching each of the host teachers in their classrooms—by teaching alongside them (by the end of the week) and by guiding and supporting them as they try out what has been demonstrated
- Daily, voluntary after school professional conversations focused around the morning lessons, whole school beliefs, the school's vision, and effective teaching practices
- One whole staff, interactive literacy workshop (2 hours) on our curriculum focus
- Time on the first day to tour the school, meet teachers and students, and to finalize planning by meeting one-on-one for 15-30 minutes with each host teacher.
- A 2 hour, afternoon, coaching block with the principal, who may be joined by the assistant principal and instructional coach.

For each demonstration lesson in a classroom, teachers at the grade level and adjacent grade levels (and preferably all teachers at the school) are released to observe in the host classroom. (The principal or instructional leader works out a plan, often using roving substitutes to make this observation possible.) Ideally, substitutes are provided for every teacher for the full morning. Having all teachers observe and discuss what they have seen schoolwide speeds up the change process in all ways—shared learning, raising expectations, cohesion across grade levels. Teachers have an opportunity, before and after the lesson, to comment and raise questions. Teachers are encouraged to try out what has been demonstrated.

Each 1 ½ hour to 2-hour literacy block is flexibly structured as follows:

- 15-30 minutes to meet with teachers and the principal to discuss lesson purpose, goals, and content along with what to watch for, to answer any questions, and to clarify thinking

- 60-75 minutes of demonstration teaching, coaching, and working with students and the classroom teacher (with teachers and the principal observing) in the host classroom. As well, observing teachers sometimes are asked to try out with a student in the host classroom what has just been demonstrated.
- 15-30 minutes debriefing (explaining why we did what we did—for example, changing the initial plan to meet students' needs—answering teachers' questions, and asking them "What did you notice?" and discussing next day's plan and the rationale for it.

Devoting the entire afternoon to coaching the principal grew from the crucial realization, after 10 years of doing residencies, that whole school, high achievement, does not occur without strong principal leadership. Much of our afternoon is spent on *instructional walks* in classrooms where we demonstrate and practice what to look for, what to say, and how to coach and support teachers "on the spot" so that teaching and learning move forward in a very positive way.

The above residency model, combining dialogue, demonstrations and coaching, supports the importance of "conversation" which is where the bulk of the learning for teachers and principals occurs.

Regie Routman

Appendix B

Student:

English Language Arts	Teacher:			
	☐ EAL ☐ IEP	Term 1	Term 2	Final
Comprehension	Reading			
	Listening and viewing			
Communication	Writing			
	Speaking and representing			
Critical thinking				
Comments:				

Mathematics	Teacher:			
	☐ EAL ☐ IEP	Term 1	Term 2	Final
	Knowledge and understanding			
	Mental math and estimation			
	Problem solving			
Comments:				

Science	Teacher:			
	☐ EAL ☐ IEP	Term 1	Term 2	Final
	Knowledge and understanding			
	Scientific inquiry process			
	Design process and problem solving			
Comments:				

Appendix C: Teacher Self-Perception Questionnaire

To: **PLEASE RETURN BY FAX BY <u>MARCH 1</u>**

Fax Number:

Re: Regie Routman in Residence Project

Your position at the school: _____

# of years in this position: _____

1. Number of years teaching experience Please check √

_____ 1 year or less _____ 2-5 years _____6-10 years

_____11-20 years _____20-30 years _____30+ years

2. Please consider each of the following statements and circle the number that you feel applies most to you.
1 Confident…..2 Somewhat Confident……3 Lack Confidence…. 4 Not Confident At All

   a. Planning effective writing instruction
   1…….2……..3…….4

   b. Delivering effective writing instruction
   1…….2……..3…….4

   c. Assessing student writing
   1…….2……..3…….4

   d. Classroom management of a writing program
   1…….2……..3…….4

   e. Scheduling writing instruction
   1…….2……..3…….4

   f. Helping struggling students in writing
   1…….2……..3…….4

g. Differentiating instruction in writing
1…….2……..3…….4

h. Reporting on student progress in writing to parents
1…….2……..3…….4

3. What do you hope to get out of the session with Regie Routman? (if you require more space, please use a second page).

Appendix D: Post Event Evaluations

Post-Event Questionnaire

Grade level_____ School_____

What do you feel was the most important thing you learned during this week? In what ways has your thinking changed about your teaching, student learning, and the school literacy team?

Appendix E: Writing Assessment Description

Schoolwide, On-Demand, Writing Assessment

To ensure the assessment is standardized across schools, follow directions exactly.

Directions/Procedures:

- Decide with your grade level team what your writing prompt will be.
- The prompt needs to be pre-written at the top of each student's paper. The teacher should read this prompt aloud to the students before they begin writing each day.
- The type of writing paper needs to be consistent for each grade level.
- Each paper must include the student's name, school, and date(s) of prompt.
- Also, on each student's paper, include at the top, to be filled out by teacher or student:
    - Who was your teacher last year?
    - What was the name of your school?
    - What grade was your first grade at this school
- Students in K and grade 1 should complete their writing in one, twenty-minute, session.
- Students in grades 2-8 should complete their writing in two, thirty-minute sessions. (Sessions can be spread out over two days.)
- Let students know they are to write without assistance and to make any changes by crossing out (no erasures.) You can say:
    - "Do the best you can on your own."
    - "Make changes in your writing by crossing-out, not erasing."
- As a grade level team, select one TYPICAL writing sample for the grade level. (Each grade level will submit only one sample, not one per teacher.)
- As a grade level team, note the typical "strengths" and the typical "needs" from the agreed upon sample. (Write these on a separate sheet with the grade level and prompt at the top; attach sheet to the selected sample.)
- Collect and save ALL students' papers. Code which students were in the school this year and last year and/or when they arrived at present school.
- Do a strategic random sampling from each classroom, that is, pull 3-4 papers from every classroom of those students who have been in the school for the whole year. (Use for assessment by classroom and teacher self-evaluation, to show maximum effect of the writing professional development and instruction.)

- Decide dates for conducting the prompt, analyzing the writing, and for picking random samples.

Regie Routman with Sheila Valencia, Feb. 2009

Appendix F: Teacher comments in evaluation of student writing prior to project

strengths	needs
· neatly written · evidence of voice · introductory sentence · concluding sentence · included details · organized · evidence of revisions · evidence of editing · spacing between words · experiments with punctuation · lists · comma use · double spaced writing · evidence of editing · stays on topic · sequencing	· sentence structure · verb tense · continue to develop revision and editing skills · sentence structure · capitalization of words "I" · editing skills such as carat, crossing out, etc · more descriptive words and details

Appendix G: Teacher assessment of characteristics of typical and exemplary writing 2012

Grade Level	Message Quality (Content, Voice)	Conventions/Readability	Personal Characteristics
Kindergarten	· Sometimes write a title · Understand that print carries a message · Present a clear idea and message · Make connections to: · Life experiences · Illustrations and stories · Prior knowledge of the world around them · Write a message has a logical sequence · Demonstrates Voice · Write 2 or more ideas connected to topic · Use drawings to carry · details of the story · Emerging sense of audience and purpose	· Write 10 to 20 high frequency words and are able to copy other words · Hear and record dominant consonant and some easy to hear vowel sounds · Some appropriate use of periods, capitals, exclamation marks · Control directionality at the message, word, and sometimes at the letter level · Use simple sentence structure mostly present or future tense · Sentence structure is mostly subject, verb, object · Use some connecting words such as 'and', 'because', 'so' · Use both upper and lower case letters often correctly · Write so that others are able to read message	· See themselves as writers show a willingness to write · Initiates writing activities play · Sustain writing for 10-20 minutes by year end

Grade Level	Message Quality (Content, Voice)	Conventions/Readability	Personal Characteristics
1	· Often include a title · Write with an audience in mind · Use many sentences to convey a story (at least 4) · Hook the audience with an interesting opening · Maintain one topic throughout with some added details · Include some emotion and feelings · Close a story with an appropriate ending · Add some supporting details and specific description to expand an idea · Create a picture for the reader	· Write many high frequency words correctly (50 or more) · Hear and records all dominant consonant and most vowel sounds in unknown words · Continues to use classroom resources to copy words · Use capital and punctuation appropriately · Control spacing between words and on the page is under control · Begin to attempt at editing – (self-monitoring leading to some self-correction) · Use conventional spelling patterns · Increasingly use of multi-syllable words · Write with sentence structure that is more complex · Write in past tense · May use print features (bold, underlining,	· Sustain writing for 20-30 minutes or more · See themselves as a writer · See that reading provides ideas, words, and insights from other writers

		word shapes, ellipsis) · Print has become smaller and more controlled use of lines	
	· Begin to revise to improve the clarity of meaning · Vary the vocabulary for interest · Beginning to revise story through additions, deletions and rearrangement of words and sentences		
Grade Level	**Message Quality (Content, Voice)**	**Conventions/Readability**	**Personal Characteristics**
2	· Develop more that on idea in a piece of writing · Try to create pictures in the readers' mind · Show an awareness of audience · Use humour · Use a strong beginning that sets the context for the reader (hooks the reader) · Self-monitor (for sense making) · Add detail to support the message · Clearly use voice in writing · Begin to use "juicy" words · Revise for word choice · Show emotion and a sense of their own feelings in writing · Stay on topic (can sustain writing and topic over time) · Clear, catchy and original beginning, middle, end (organization and sequence) · Write increasingly long pieces · Use ideas and resources in the classroom to support writing · Beginning to use dialogue	· Print legibly and so it is easily read · Consistently size print and space · Risk-taking in spelling with more complex words · Most spelling is correct · High number of words written automatically · Capitalize and punctuate with a great deal of accuracy · Use a variety of punctuation	· Sustain writing activity for 30 minutes or more · Carry a piece of writing over more than one day · Connect writing with reading · Choose writing as an area of interest

	· Sentence structure and use of transition words are becoming more sophisticated and complex		
Grade Level	**Message Quality (Content, Voice)**	**Conventions/Readability**	**Personal Characteristics**
3	· Include a unique title connected to the writing · Write with a clear sense of voice · Provide a solid hook to engage the reader · Wrap up the story with a concluding sentence · Create a message is consistent and flows from start to finish · Write with a logical organization of ideas · Ensure ideas are expanded with details and rationales · Experiment with new words, transitional language, and writing forms · Clearly be aware of audience · Provide specific details and feelings · Relate a personal narrative · Use interesting word choice (ex. Magnificent) · Revise for meaning (self-monitoring message), clarity of message and for word choice	· Almost consistently used capital letters and punctuation · Spell conventionally almost all of the time · Much longer, well- developed sentences · Edit writing for spelling (by underlining the words they don't know) and punctuation. · Use variety of punctuation and font format; questions marks, ellipses, bold · Approximated spelling is more readable · More automaticity of spacing, punctuations, high frequency words · Printing is legible (very little evidence of cursive writing)	· Able to stay with a piece of writing over time and stay with the topic (sustain engagement) · Independently choose to write · Work on one piece of writing over a few days · See writing as a tool to communicate with a wide audience

Appendix H: British Columbia Rating Scales for Writing

Only 17 items were relevant to this project (numbered on form).

STRATEGIES FOR LEARNING TO WRITE AND REPRESENT

Prescribed Learning Outcomes	Suggested Achievement Indicators
	The following set of indicators may be used to assess student achievement for each corresponding Prescribed Learning Outcome.
It is expected that students will:	*Students who have fully met the Prescribed Learning Outcome are able to:*
C4 engage in discussions before writing and representing to generate ideas when responding to text and classroom experiences (e.g., observing, listening, using the other senses, drawing, brainstorming, listing, webbing, partner-talk)	❑ begin to put ideas into words during shared writing, interactive writing, and teacher-led conversations ❑ offer ideas for collaborative writing ❑ engage in short brainstorming sessions (e.g., listing, webbing, making charts) ❑ share experiences and interests with adults or in partner-talk ❑ draw or sketch ideas in response to a prompt from the teacher ❑ use personal experience and environment as stimuli for writing and representing (e.g., trip to the post office or the library, field trips to enjoy nature) ❑ contribute ideas to shared writing activities (e.g., writing a thank-you card in response to a field trip or a visit to the class)
C5 express meaning during writing and representing by using **invented spelling** and copying existing words/representations	❑ begin to create familiar forms of writing and representing (e.g., grocery lists, letters, stories, environmental signs, and greeting cards) ❑ create messages that contain short familiar words, phonetically spelled words or parts of words, and/or words using invented spelling ❑ contribute ideas, words, or images to collaborative efforts, look at letters, words, or visuals around the room (e.g., word walls, lists, environmental print) and copy in own writing/representing ❑ label pictures using invented spelling or by copying words ❑ generate writing by repeating the same beginning patterns, using sample frames or models provided by the teacher (e.g., "I like… ") ❑ during shared writing experiences, make oral contributions that show a developing awareness of stories, poems, and informational writing (e.g., use story language in stories, use pattern in poems, contribute a fact in informational writing or representations) ❑ communicate a complete thought using printing and illustrations
C6 engage in discussions after writing or representing about the experience of writing or representing and share work with others	❑ talk about their writing and representing ❑ "read" back what they have written or represented to clarify meaning ❑ show enjoyment in sharing work with others ❑ choose a favourite piece of writing and representing for their portfolio

ENGLISH LANGUAGE ARTS – KINDERGARTEN

FEATURES OF WRITING AND REPRESENTING

Prescribed Learning Outcomes	Suggested Achievement Indicators
	Students begin Kindergarten with different experiences, and learn in a variety of ways and at different rates. Considering these factors, and the importance of teacher discretion, the following suggested indicators may be used to assess student achievement for each corresponding Prescribed Learning Outcome.
It is expected that students will:	*By the end of Kindergarten, students who have fully met the Prescribed Learning Outcome are able to:*
☐ print most of the letters of the alphabet, own name, and a few simple words, and record a prominent sound in a word 9 10 11 12 13 14 15 16 17	☐ demonstrate motor skills needed to print ☐ print their own name and the names of some family members or friends ☐ usually print from left to right and from top to bottom ☐ distinguish between letters and numbers and between letters and words ☐ orally explain and recognize that words consist of a series of letters separated by a space (printing may show a space between word-like clusters) ☐ print most letters recognizably (e.g., some letters may be poorly formed and/or reversed; may use upper and lowercase letters indiscriminately) ☐ spell some short, familiar words conventionally (e.g., me, you, I) ☐ print using **invented spelling** and orally describe to others what has been written ☐ identify a prominent sound in a word (usually the beginning sound) when the word is segmented by the teacher; record an approximation of the sound (e.g., *k* for *clem*) ☐ show an understanding that the same arrangements of letters always construct the same word

Quick Scale: Grade 1 Writing From Experience

The Quick Scale is a summary of the Rating Scale that follows. Both describe student achievement in March–April of the school year.

Aspect	Not Yet Within Expectations	Meets Expectations (Minimal Level)	Fully Meets Expectations	Exceeds Expectations
SNAPSHOT	*The writing may consist of a string of letters or be dictated for someone else to write down. The student needs a great deal of help.*	*The writing is recognizable as conventional writing and conveys some ideas or information. The student often needs some help.*	*The writing is readable and makes sense. The student is able to write independently with occasional help.*	*The writing communicates ideas or information with some description and detail. The student is able to write independently.*
MEANING • ideas and information • details	• may be able to "read" own writing, but meaning often changes each time	• sentences or ideas may not be related • little development, few details	• sentences or ideas are related • some detail	• some individuality • develops a topic with supporting details
STYLE • clarity and variety of language • description	• simple words • when "reading" or dictating, may be one long sentence or a series of short, stilted sentences	• conversational • repeats simple patterns, favourite words	• conversational, some simple description • repeats simple patterns	• some descriptive language • takes risks to use new words or patterns
FORM • follows models or examples • sequence	• usually a drawing with a string of letters or one or two dictated sentences	• may be very brief • drawing may provide much of the information	• follows form modelled by teacher • writing can stand alone	• logically connected and sequenced • writing can stand alone
CONVENTIONS • capitals and small letters • spelling • use of phonics • punctuation • spacing • legibility	• strings of capital letters • may show correct initial consonant • not yet able to use phonics • no punctuation • may be copied or dictated to another person	• mostly capital letters • some words spelled conventionally • many words spelled phonetically • may experiment with punctuation • parts are legible	• both capitals and small letters • many familiar words spelled conventionally • new or unfamiliar words spelled phonetically • some punctuation • legible	• both capitals and small letters • most familiar words spelled conventionally • phonics and word patterns used to solve spelling problems • generally written in sentences; uses punctuation • legible

Quick Scale: Grade 2 Writing to Communicate Ideas and Information

The Quick Scale is a summary of the Rating Scale that follows. Both describe student achievement in March-April of the school year. Information writing at this level is expected to involve extensive pre-writing and planning and to be checked carefully for conventions (e.g., spelling, periods). However, students at this age are not expected to do extensive revision and rewriting.

Aspect	Not Yet Within Expectations	Meets Expectations (Minimal Level)	Fully Meets Expectations	Exceeds Expectations
SNAPSHOT	*The writing is hard to understand. The student is unable to provide clear written information without intensive, ongoing help.*	*The writing offers some accurate information (usually from class discussion); parts are illogical or inaccurate and may be difficult to follow.*	*The writing is clear, mostly in the student's own words; provides accurate information on simple topics and procedures. Includes some detail.*	*The writing is purposeful; provides accurate information with some specific detail on simple topics and procedures. Shows a sense of control.*
MEANING • ideas and information • use of detail	• little or no accurate information (unless copied) • often very short; omits required parts • little logical detail or description	• some accurate information, usually from discussions and guidance • has some required parts • some details; often irrelevant or repetitious	• accurate basic information, often based on discussions and guidance • generally includes all required parts; these are often very basic • some specific, relevant details	• accurate, logical information; may add parts not discussed in class • includes all required parts; often extra detail • relevant explanations, examples, or details
STYLE • clarity, variety, and impact of language	• language is often unclear; may make errors in word choice • relies on short sentence frames that have been provided	• simple, basic language; often repetitive • tends to rely on short, simple sentences or one or more long, rambling sentences	• conversational language; may include some description (often vague and repetitive) • some variety in sentence length	• simple descriptive language; some attempts to be specific or exact • beginning to show some control and variety in sentences
FORM • required features • beginning • sequence • connecting words • visual features	• does not resemble the intended form • topic often unclear • sequence is illogical • few, if any, connecting words • visual features are omitted, inaccurate, or unrelated to the topic	• includes some required features, but may have difficulty with the form (e.g., recipe may be a paragraph) • begins in the middle • rambles; little sequence • seldom uses connecting words • visual features may be incomplete	• some awareness of form (e.g., instructions look like instructions); may omit key features • title signals the topic • logical sequence; may lapse in places • repeats a few simple connecting words • visual features are relevant, may be unclear	• tries to use basic conventions of form (e.g., instructions look like instructions) • a title signals the topic; usually has a conclusion • logical sequence • variety of connecting words • visual features are clear and relevant
CONVENTIONS • complete sentences • spelling • capitals • punctuation • grammar	• repeated serious errors make the writing difficult to read • not written in sentences • may omit letters and sounds • often omits punctuation and capital letters or uses them inconsistently • frequent errors in pronouns and verbs	• frequent errors may interfere with meaning in places • some complete sentences • frequent spelling errors (but all sounds are represented) • inconsistent use of capitals and punctuation • some errors in pronouns and verbs	• several errors, but these do not obscure meaning • most sentences are complete • most common words are spelled correctly • occasional errors in end punctuation; uses capital letters for names, places, first word in sentence • most pronouns and verb forms are correct	• may include errors (particularly in more complex language); these do not affect meaning • written in complete sentences • most spelling is correct • uses capital letters and end punctuation correctly • uses correct pronouns and verb forms; may make occasional errors

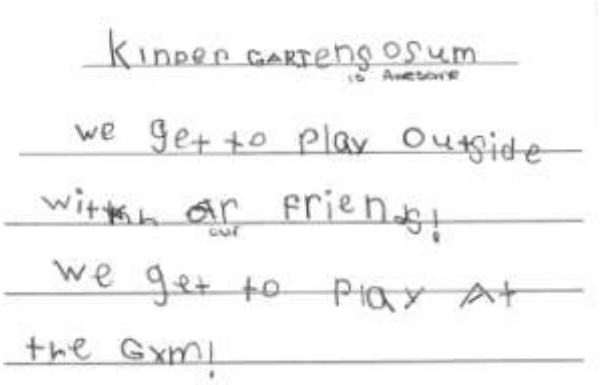
Quick Scale: Grade 3 Writing to Communicate Ideas and Information

The Quick Scale is a summary of the Rating Scale that follows. Both describe student achievement in March–April of the school year. Writing to communicate ideas and information is usually expected to be carefully revised, edited, and proofread.

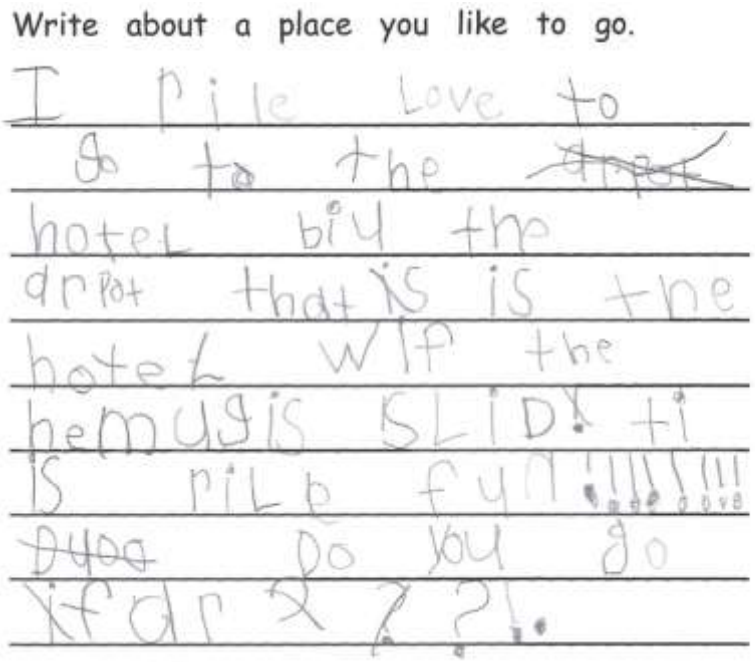
Aspect	Not Yet Within Expectations	Meets Expectations (Minimal Level)	Fully Meets Expectations	Exceeds Expectations
SNAPSHOT	*The writing offers few ideas and little information. It is often disjointed, illogical, and hard to understand. The student needs ongoing support.*	*The writing presents loosely connected ideas or information. It may be vague, hard to follow, or copied in places. May also be flawed by frequent basic errors.*	*The writing is clear and easy to follow, with relevant ideas and information on simple topics and procedures presented in the student's own words.*	*The writing flows smoothly, presenting clear, logical, and detailed information and ideas in the student's own words.*
MEANING • ideas and information • use of detail	• purpose may be unclear • information may be invented or copied • few relevant or accurate details	• purpose often vague • some information may be copied or misinterpreted • some relevant information; little detail or explanation	• clear purpose that is accomplished to some degree • accurate • some explanation, details, or examples	• accomplishes the purpose • accurate; may use several sources • explanations, details, or examples make ideas clear
STYLE • clarity, variety, and impact of language	• basic, simple • sentences often long and rambling or short and stilted; little variety	• simple, familiar; not specific or exact • repeats simple and compound sentences (may run on or be incomplete)	• language is clear; some attempts to be specific or exact • some variety in sentences where appropriate	• language is clear, direct, and specific • flows smoothly, with a variety of sentences where appropriate
FORM • key features • organization and sequence • opening, conclusion • visual features	• intended form is hard to determine • may be disjointed • may be very brief • visual features (e.g., diagrams) omitted or confusing	• tries to follow form; may omit key features • some sequence; may omit ordering or connecting words • writing has a topic sentence but may lose focus • visual features (e.g., diagrams) may be hard to interpret	• uses some key features of the form • logical sequence; uses ordering or connecting words • writing has a topic sentence with some development • visual features (e.g., diagrams) are clear and relevant	• follows key features of the form • carefully sequenced; uses ordering or connecting words effectively • writing develops from topic sentence to logical ending • visual features (e.g., diagrams) clear and helpful
CONVENTIONS • complete sentences • spelling • capitals • end of sentence punctuation • correct pronouns	• frequent, repeated errors in grammar, spelling, punctuation, and sentence structure often make the writing hard to understand • capitals often omitted or misused • may be hard to read	• basic spelling and punctuation is correct; errors do not interfere with meaning, although some parts may be hard to read • may include run-on or incomplete sentences; may overuse pronouns • legible	• basic grammar, spelling, punctuation, and sentence structure are correct; minor errors do not interfere with meaning • may include errors with commas, quotation marks, agreement • legible; clearly presented	• few errors; these are usually caused by taking risks with newly acquired or complex language • may overuse some punctuation marks or make occasional errors in agreement • legible; presentation shows care

Appendix I: Typical and exemplary writing samples Kindergarten to Grade 3, 2012

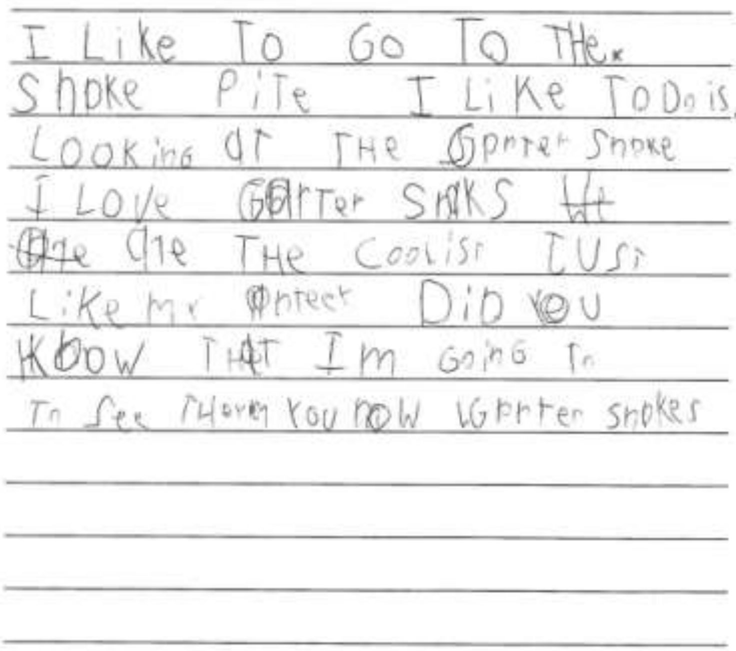
Kindergarten Typical Writing Sample 2012.



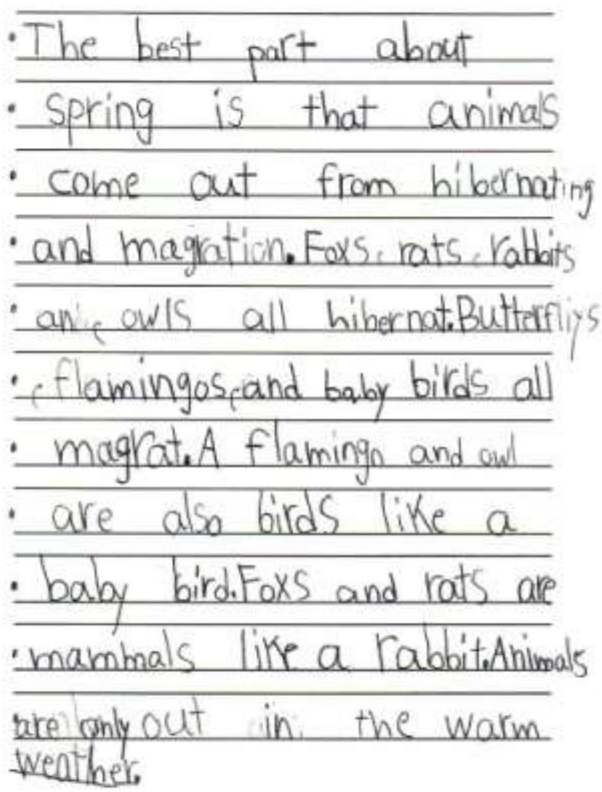
Kindergarten Exemplary Writing Sample 2012.



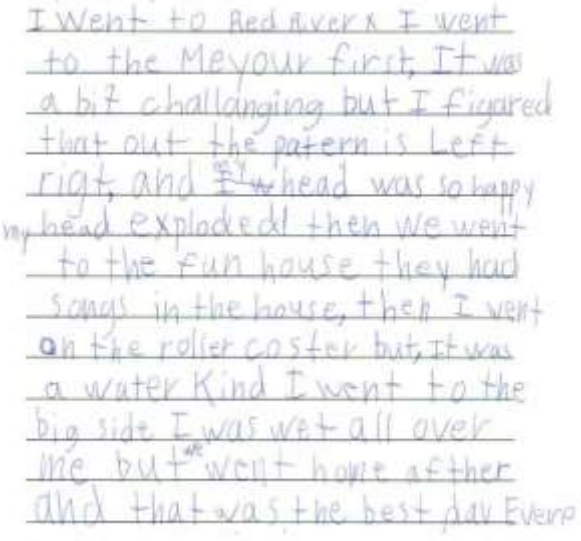
Grade 1 Typical Writing Sample 2012.


I Like To Go To THe
Snoke PiTe I LiKe To Do is,
LOOKing at THe Gnrter Snoke
I Love Garter SnKS THe
are are THe Coolist Just
Like Mr Onteck Did you
Know THaT Im Going To
To See THem you now Garter snokes

Grade 1 Exemplary Writing Sample 2012.

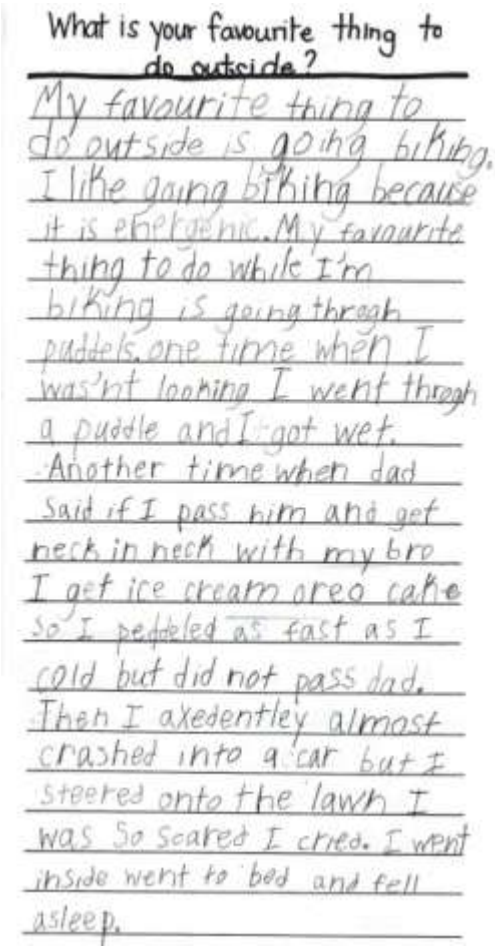

The best part about
spring is that animals
come out from hibernating
and magration. Foxs, rats, rabbits
and owls all hibernat. Butterflys
, flamingos, and baby birds all
magrat. A flamingo and owl
are also birds like a
baby bird. Foxs and rats are
mammals like a rabbit. Animals
are only out in the warm
weather.

Grade 2 Typical Writing Sample 2012.



I Went to Red River x I went to the Meyour first, It was a bit challanging but I figured that out the patern is Left right, and my head was so happy my head exploded! then we went to the fun house they had songs in the house, then I went on the roller coster but, It was a water Kind I went to the big side. I was wet all over me but we went home after and that was the best day Ever

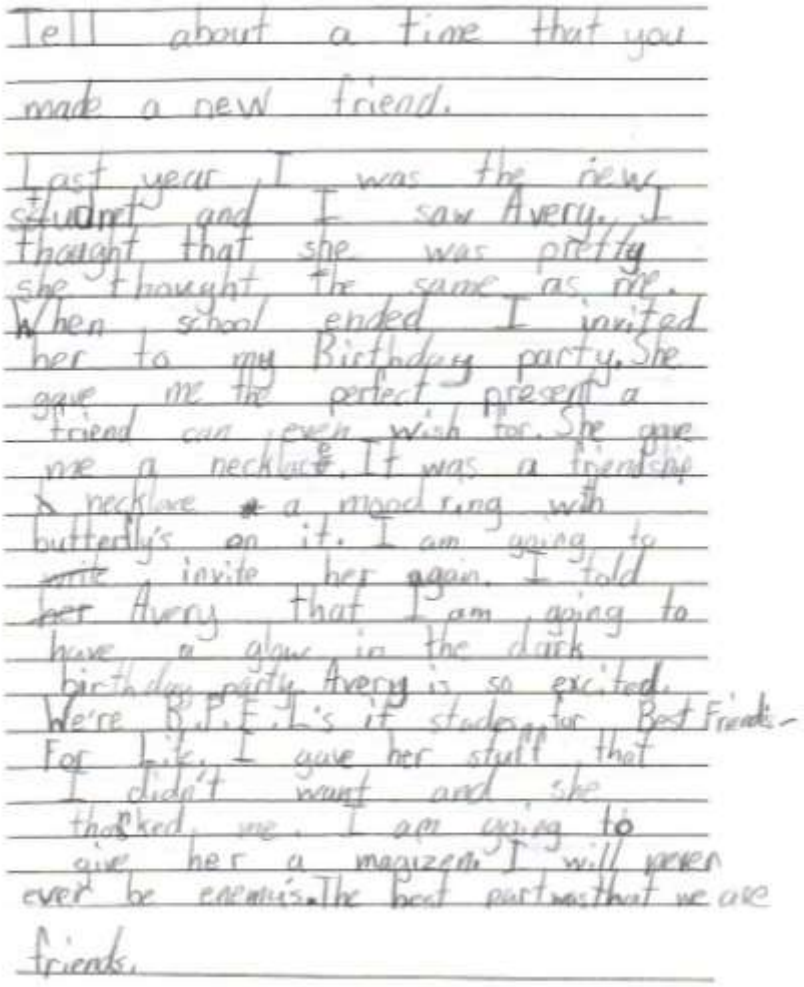
Grade 2 Exemplary Writing Sample 2012.



What is your favourite thing to do outside?

My favourite thing to do outside is going biking. I like going biking because it is ehelgenic. My favourite thing to do while I'm biking is going through puddels. one time when I was'nt looking I went through a puddle and I got wet. Another time when dad said if I pass him and get neck in neck with my bro I get ice cream oreo cake so I peddeled as fast as I cold but did not pass dad. Then I axedentley almost crashed into a car but I steered onto the lawn I was So scared I cried. I went inside went to bed and fell asleep.

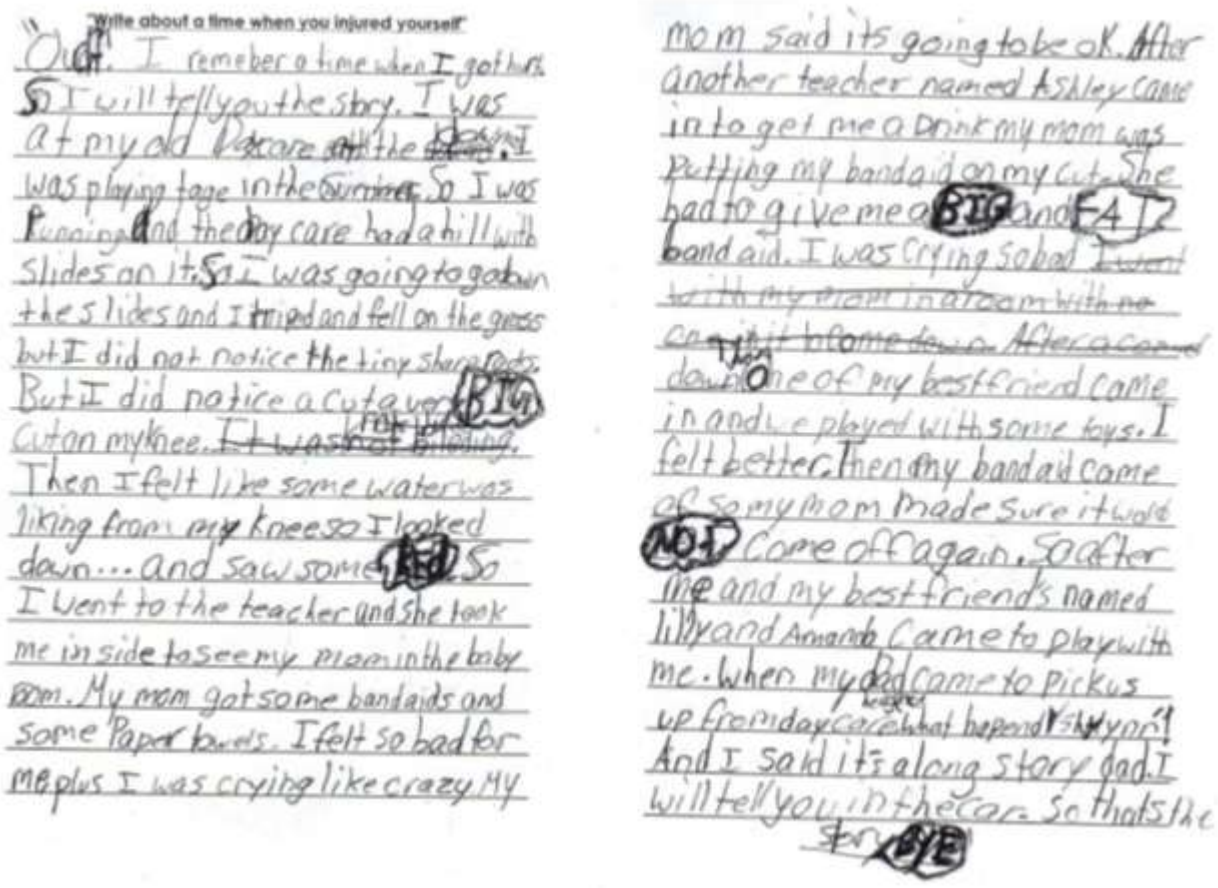
Grade 3 Typical Writing Sample 2012.



Tell about a time that you made a new friend.

Last year I was the new student and I saw Avery. I thought that she was pretty she thought the same as me. When school ended I invited her to my Birthday party. She gave me the perfect present a friend can even wish for. She gave me a necklace. It was a friendship necklace a mood ring with butterfly's on it. I am going to ~~write~~ invite her again. I told ~~her~~ Avery that I am going to have a glow in the dark birthday party. Avery is so excited. We're B.F.F.L.'s it stands for Best Friends For Life. I gave her stuff that I didn't want and she thanked me. I am going to give her a magazine. I will never ever be enemies. The best part was that we are friends.

Grade 3 Exemplary Writing Sample 2012.



"Write about a time when you injured yourself"

"Ouch. I remeber a time when I got hurt. So I will tell you the story. I was at my old Daycare and the [illegible]. I was playing tage in the [illegible]. So I was running and the day care had a hill with slides on it. So I was going to go down the slides and I tripped and fell on the grass but I did not notice the tiny sharp rocks. But I did notice a cute very BIG cut on my knee. It was not bleeding. Then I felt like some water was liking from my knee so I looked down... and saw some RED. So I went to the teacher and she took me inside to see my mom in the baby room. My mom got some bandaids and some Paper towels. I felt so bad for me plus I was crying like crazy. My mom said its going to be ok. After another teacher named Ashley came in to get me a Drink my mom was Putting my bandaid on my cut. She had to give me a BIG and FAT bandaid. I was Crying so bad I went to with my mom in a room with no [illegible]. After a [illegible] down one of my best friend came in and we played with some toys. I felt better. Then my bandaid came off so my mom made sure it would NOT come off again. So after me and my best friend's named lilly and Amanda came to play with me. When my dad came to pick us up from day care what happened Wynn? And I said it's a long story dad. I will tell you in the car. So that's the [illegible] BYE

Appendix J: Ethics Certificate

UNIVERSITY OF MANITOBA | Research Ethics and Compliance
Office of the Vice-President (Research and International)

Human Ethics
208-194 Dafoe Road
Winnipeg, MB
Canada R3T 2N2
Phone +204-474-7122
Fax +204-269-7173

APPROVAL CERTIFICATE

April 14, 2015

TO: **Lynn Allyson Matczuk**
Principal Investigator

FROM: **Judy Inglis, Acting Chair**
Education/Nursing Research Ethics Board (ENREB)

Re: **Protocol #E2015:033**
"Professional Learning Communities' Experiences in Writing Instruction for Kindergarten to Grade Three Children"

Please be advised that your above-referenced protocol has received human ethics approval by the **Education/Nursing Research Ethics Board**, which is organized and operates according to the Tri-Council Policy Statement (2). **This approval is valid for one year only**.

Any significant changes of the protocol and/or informed consent form should be reported to the Human Ethics Secretariat in advance of implementation of such changes.

Please note:

- **If you have funds pending human ethics approval, please mail/e-mail/fax (261-0325) a copy of this Approval (identifying the related UM Project Number) to the Research Grants Officer in ORS in order to initiate fund setup. (How to find your UM Project Number: http://umanitoba.ca/research/ors/mrt-faq.html#pr0)**

- **If you have received multi-year funding for this research, responsibility lies with you to apply for and obtain Renewal Approval at the expiry of the initial one-year approval; otherwise the account will be locked.**

The Research Quality Management Office may request to review research documentation from this project to demonstrate compliance with this approved protocol and the University of Manitoba *Ethics of Research Involving Humans*.

The Research Ethics Board requests a final report for your study (available at: http://umanitoba.ca/research/orec/ethics/human_ethics_REB_forms_guidelines.html) **in order to be in compliance with Tri-Council Guidelines.**

Appendix K: Letter of Consent

UNIVERSITY OF MANITOBA | Faculty of Education

March, 2015

CONSENT FORM

Project title: Professional Learning Communities' Experiences in Writing Instruction for Kindergarten to Grade Three Children

Principal Investigator: Lynn Allyson Matczuk, Ph.D. Student, Education, University of Manitoba,xxxxxxxxxx

Research Supervisor: Dr. Stanley Straw, Professor, Faculty of Education, University of Manitoba, xxxxxxxxx,

This consent form, a copy of which will be left with you for your records and reference, is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

You are being invited to grant permission to the principal investigator (L. Allyson Matczuk) to do a secondary data analysis of principal and teacher questionnaires and surveys, student writing samples, and entry Writing Vocabulary scores (*An Observation Survey of Early Literacy Achievement,* Clay, 2014) for Reading Recovery students gathered during the first three years of the Regie Routman in Residence project carried out in Winnipeg, Manitoba. This research is being conducted by L. Allyson Matczuk in partial fulfillment of her PhD dissertation, under the supervision of advisor, Dr. Stanley Straw at the University of Manitoba. The purpose of the analysis is to provide insight into the effectiveness of the delivery method of professional learning.

The delivery of professional learning opportunities for early years teachers vary in terms of degrees of intensity, commitment, expectations, and effects on student achievement. Professional learning opportunities related to writing instruction are offered infrequently. A unique opportunity has been made available to school staffs in three school divisions and systematic data has been gathered as formative assessment for organizers (Regie Routman, the Leadership Team, and principals).

My study will use evidence of change in emergent and early writing performance of students in kindergarten to grade three in order to evaluate the effectiveness of the delivery method for schools involved in the Regie Routman in Residence Read/Write Connection project. The study will employ quantitative and qualitative analysis to answer the following three questions:

1. Which blend of professional development created the greatest change in principals' perceptions of the functionality of their school literacy team?

2. Which process created the greatest change in kindergarten to grade three teachers' sense of efficacy in classroom writing instruction?

3. Which process led to the greatest change in kindergarten to grade three students' writing competency?

Documents will be used to write a research paper for a Ph.D. program at the university. The data analysis may also be used to write an article for publication in a journal or a book.

The focus of the study is about professional development, thus no school division, school, principal, teacher, or student identity will be included in the analysis of documents. Should any identifiers be evident, school staff will be requested to redact names, school names, or MET numbers. All documents will exclude any identifying features except for the type of learning experience for the school staff (hub school, satellite school, or self-directed school). Documents examined will be held securely in a locked file and will be destroyed within one year of the completion of the research.

Please know that you are under no obligation to agree to participate in this research. However, if you choose to do so, you will be free to raise questions or concerns with me at any time, and you may withdraw without penalty at any time if you choose. I will share with you a final written summary of data analysis, should you wish to receive it.

Thank you for your consideration. Please contact me at xxxxxxxxxx or by phone (xxx xxx xxxx) with any questions you may have.

Sincerely,

Allyson Matczuk

Ph.D. Candidate

University of Manitoba

enclosure

Date: _____

To: Allyson Matczuk
Email: xxxxxxxxxxxxxx or
Fax: xxx xxx xxxx
Mailing Address: xx xxxxxxxxxxxxxxxxxxxx
From : _____

_____

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from providing any information you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation:

This research has been approved by the Education and Nursing Research Ethics Review Committee at the University of Manitoba. If you have any concerns or complaints about this project you may contact the Coordinator of Human Ethics at (204) 474-7122 Margaret.Bowman@ad.umanitoba.ca. A copy of this consent form will be given to you to keep for your records and reference.

I consent to participate in this research project:

_____ _____

(Please print name) Signature

_____ Date

To receive copies of the data and the final paper from this study please provide an e-mail address below.

_____