Effective School Literacy Culture and Learning Outcomes: The Multifaceted Leadership Role of the Principal

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The purpose of this study was to explore the multifaceted leadership role an effective principal assumed in the deployment of evidence-based literacy practices in her school. We conducted a mixed methods case study integrating the lived experiences of 11 school staff (principal, learning support teacher, and classroom teachers) with the reading scores of 122 Grade 1 to 3 students in Alberta (Canada). A merged mixed analysis strategy revealed four interdependent influences pointing to key contributions of the principal in igniting awareness, developing expertise, creating momentum, and leveraging data in relation to literacy school practices. Our findings shed light on the complexity inherent in the roles of principals and their interactions with others in developing evidence-based literacy school cultures that improve students' performance.

L'objectif de cette étude était d'explorer le rôle de leadeurship à multiples facettes qu'une directrice d'école efficace a assumé dans le déploiement de pratiques de littératie fondées sur des données probantes dans son école. Nous avons mené une étude de cas à méthodes mixtes intégrant les expériences vécues de 11 membres du personnel de l'école (directrice, enseignant de soutien à l'apprentissage et enseignants) et les résultats en lecture de 122 élèves de la première à la troisième année de l'Alberta (Canada). Une stratégie d'analyse mixte fusionnée a révélé quatre influences interdépendantes soulignant les contributions clés de la directrice d'école à la sensibilisation, au développement de l'expertise, à la création d'une dynamique et à l'exploitation des données en relation avec les pratiques scolaires en matière d'alphabétisation. Nos résultats mettent en lumière la complexité inhérente aux rôles des directions d'école et à leurs interactions avec d'autres personnes dans le développement de cultures scolaires fondées sur des données probantes qui améliorent le rendement des élèves.

A considerable body of research has examined the literacy practices of classroom teachers and interventionists (e.g., Bos et al., 2001; Piasta et al., 2009), however, much less is known about the role of principals in the deployment of effective literacy practices in their schools (see Hallinger et al., 1996; Plaatjies, 2019, for a few exceptions). Considering the importance of a principal in all aspects of a school's life, investigations into their multifaceted role in deploying effective literacy practices are crucial. Thus, this mixed methods case study aimed to examine how a school principal has created the necessary conditions that allowed the deployment of evidence-based practices in her school. This work is timely because educational systems and society face

unprecedented solidarity in the need for practical solutions to address students' literacy needs, particularly these days as we navigate through the challenges posed by the Covid-19 pandemic.

The Role of Principals in School Literacy

According to Bronfenbrenner's (1979) ecological systems theory, school is an important component of the microsystem that plays a critical role in children's development and principals are an integral component of each school. Principals are responsible for establishing a school environment where students feel safe to learn and for setting high expectations for learning. They influence the composition of the teaching staff through hiring and retention, and they create conditions in the school that allow teachers to be successful. Successful teachers are more likely to have a positive impact on their students than teachers who feel unsuccessful. Although several studies have examined how teachers and their instructional practices influence students' reading performance (see e.g., Nurmi, 2012, for a meta-analysis), little is known about the multifaceted nature of the role of principals. Since the focus here is students' reading performance, principals' instructional leadership in the area of literacy would be an obvious factor. Specific and focused practices in which principals engage to intentionally support the development of effective teaching and learning of reading in their school is investigated in this study. Effective principals should also be knowledgeable enough about literacy content and pedagogy to be credible with staff in their leadership role. When teachers have questions about the literacy practices they implement in their classroom or about specific skills they are asked to teach, they often go to their principal for help. A principal with enough knowledge about literacy will either provide an adequate response or direct the teacher to the right place/person to get answers. Unfortunately, the few studies on this topic have provided rather gloomy results (Plaatjies, 2019; Routman, 2014). Plaatjies (2019), for example, found that most elementary school principals lacked a basic understanding of how literacy develops and how we can best teach it. Further, principals failed to demonstrate informed data-based decision-making and to support effective professional development for their teachers.

A dearth of school-based literacy knowledge is not surprising considering that research on early literacy subject-matter knowledge of practicing teachers indicates a considerable lack of knowledge (e.g., Binks-Cantrell et al., 2012; Carlisle et al., 2009; Parrila et al., 2023; Spear-Swerling & Buckner, 2003). Bos et al. (2001), for example, reported that half of the practicing teachers in their sample had deficient knowledge specific to the essential concepts of literacy acquisition, which, in turn, significantly impaired effective literacy instruction, especially for students most-at-risk of reading failure. Parrila et al. (2023) also showed that teachers' knowledge of language and literacy skills was related to their ability to differentiate instruction, which was then predictive of students' reading performance. Understanding that many practicing teachers lack literacy knowledge and pedagogy content increases the instructional leadership requirements of principals to fill this void in their schools.

There are, of course, principals who possess in their practice the capabilities that align with good literacy instructional leadership. In these cases, there are promising student results. Goldwyn (2008), for example, noted that principals with highly developed reading instruction content knowledge had schools that demonstrated higher gains in student literacy scores than principals reporting less knowledge. Taylor (2004) also found that principals who developed capabilities in literacy leadership improved teacher instruction and student literacy learning. Finally, Kindall et al. (2018) showed that new teachers entering the profession are more likely to

develop their literacy content and pedagogical knowledge that aligns with research under the leadership of a principal with good literacy instructional leadership skills.

A second factor related to principals might be the culture they create within their schools that facilitates teachers' and students' growth in literacy (e.g., Bevel & Mitchell, 2012; Denton et al., 2003; Georgiou et al., 2020; Handford & Leithwood, 2013; Kierstead, 2020). This may entail continuous learning for both principals and teachers in a space that is safe to ask questions and be challenged. To borrow the words of a principal in Georgiou et al.'s (2020) study, "One of the strongest aspects of the culture of our school is our belief that for continuous improvement to be realized, the teachers must be the most prolific learners in the building" (p. 351). The use of data to inform practice is also part of the school culture. According to Kindall et al. (2018), effective principals use multiple data sources to guide resource deployment and to identify instructional deficits that need attention. Relying on data to inform decisions about literacy has also been identified as a key element of school's success in Marks and Printy's (2016) study.

The Present Study

The purpose of the present study was to explore the multifaceted role of an effective principal in improving their students' reading performance. Based on the findings of previous studies (e.g., Bevel & Mitchell, 2012; Denton et al., 2003; Georgiou et al., 2020; Kierstead, 2020), we anticipated that principals would assume influential roles as instructional leaders and as creators of conditions for effective deployment of evidence-based literacy practices.

The findings of this mixed methods case study are expected to make at least three important contributions to the literature. First, little is known about the role of principals in improving their schools' literacy performance. Here, we used purposeful sampling in our selection of an effective principal and intrinsic school case with demonstrated school literacy improvement even during the Covid-19 pandemic. Second, our integration of qualitative and quantitative data guided by a complexity lens has seldom been used to explore how the principal contributes to the performance of their school overall. Finally, we sought not only the principal's perspectives, but also those of the teaching staff, which allows us to draw a more comprehensive picture of the school culture and make visible some of the often-hidden aspects of the principal's day-to-day influences on their complex work and interactions with others.

Method

The Study Design

A case study approach drawing upon both qualitative and quantitative data sources was suitable to generate an in-depth description of the experiences and learning outcomes of those involved in a school demonstrating effective deployment of evidence-based literacy practices. We used a complex mixed methods case study (Creswell & Plano Clark, 2018) to guide the convergence of qualitative themes representing the lived experiences of school staff with the quantitative students' literacy gains (see Figure 1, for the procedural diagram for the complex case). The research study was reviewed by the institutional ethics review board and also received approval from the school district.

Figure 1

Procedural Diagram for the Complex Case Description
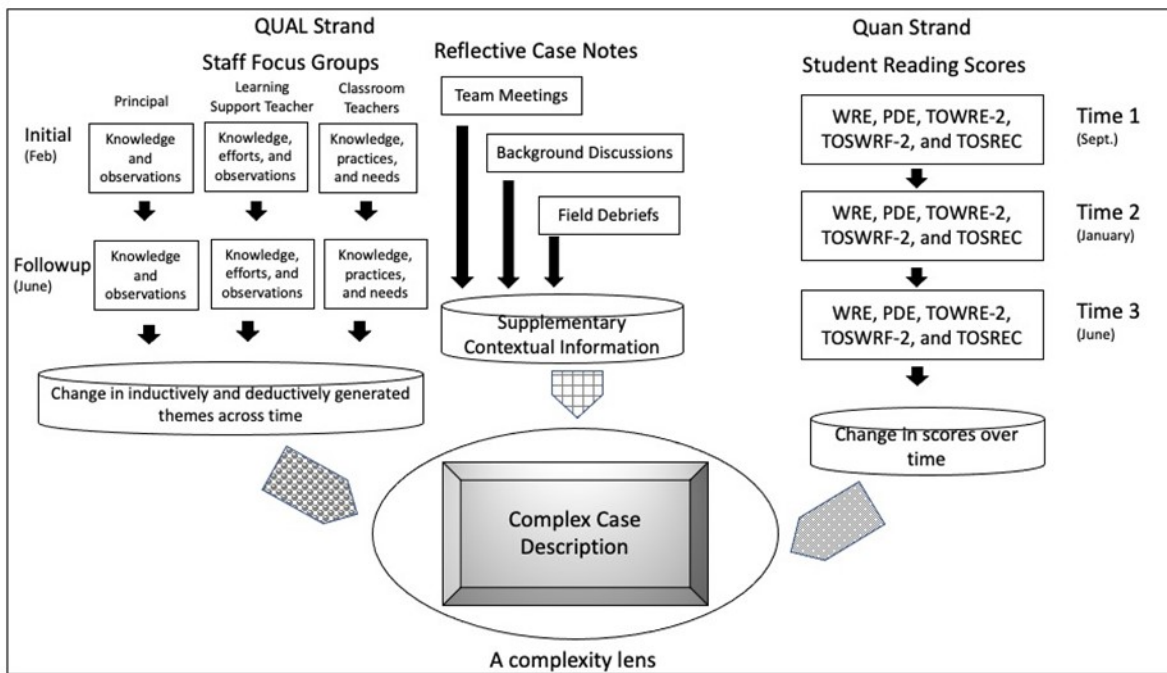
The Intrinsic Case Studied: Andover Public School Staff and Students

Andover Public School (APS, a pseudonym) is a K–6 school with a student population of approximately 550 students, of which 122 Grade 1 to 3 students participated in this case study. It is situated in a suburban community bordering a large urban city and Harper (pseudonym) has been the principal of APS for 6 years following more than a decade as a practicing teacher within the school district. The school has 24 teachers, of which 9 participated in the case study, and one Learning Support Teacher (LST). Chris (pseudonym), the LST, had been supporting classroom teachers for 6 years as well as serving as the assistant principal. This school was identified of interest to study because of the principal's sustained interest and commitment to evidence-based literacy instruction and practices and the documented improvement of students' reading performance. Our early grade level focus (Grades 1 to 3) facilitated the active participation of nine teachers in the focus groups and was motivated by recent literature (e.g., Georgiou, 2021; Panagouli et al., 2021) showing that Covid-19 exerted its greatest impact on early grades.

During the case study, Harper, along with two other district principals, met as a group with Matthew Kierstead (Author 1) four times as part of a school-based intervention within the district. The topics of discussion during these principal meetings centered on early literacy, such as the five pillars of literacy instruction (see National Reading Panel, 2000) through the lens of a school principal, adult learning theory and practice, data-informed decision-making within classrooms, and the school and principal self-efficacy to impact change in their school. Similarly, Chris met with two other LSTs from other jurisdictions to form a group led by a reading specialist who met four times. The topics of discussion during these LST meetings centered on how the role of LST

in each school might assist with literacy instruction, support, and interventions. The reading specialist chaired the meetings and facilitated conversations and provided guidance. Finally, the classroom teachers met twice with research assistants at the beginning and end of the case study for approximately one hour each to discuss evidence-based literacy practices.

Data Sources, Collection, Analysis, and Integration

The study involved the integration of themes from two primary data sources: staff focus groups and student reading scores complemented by reflective case notes. At the district level, we conducted two staff focus groups with principals and two focus groups with LSTs and teachers. Each focus group lasted between one and two hours and occurred twice (February and June, 2021). The focus groups were led by a research assistant and were guided by semi-structured protocols. Although the focus group questions covered similar topics, the questions were tailored to each group (see Table 1, for sample questions). The focus groups were recorded and transcribed with participants having the opportunity to verify the accuracy of the transcriptions.

Whereas the initial focus group focused on the desired outcomes of the project, their understanding of evidence-based literacy practices, and the impact of Covid-19 on teaching and school literacy, the second focus group focused on their perceived experiences and outcomes from the project, the roles they played as principal and LST, changes they observed in their teachers' understanding of and implementation of classroom literacy practices, and possible next steps for their school. For the current case analysis, we only drew upon the data provided by Harper (the principal), Chris (the LST), and nine classroom teachers. Given the theoretical grounding of complexity theory, the diverse backgrounds, and various interactions among school staff, we can assume that the knowledge, skills, and practices of teachers about literacy were dynamic, and both influenced by and influenced others.

Table 1

Example of Focus Group Questions Across the Two Times and Staff Roles

Topic/Aim	Example of Initial Focus Group Question with Teachers	Example of Follow-up Focus Group Question with Teachers	Example of how Questions to LST and Principal
To assess change in knowledge of and capacity (and needs) to carry out evidenced-based literacy practices	What does evidence based practice mean to you?	What additional information/training do you need to carry out evidence-based literacy practices?	Asked about their knowledge of evidenced-based literacy practices as well as their efforts to enhance the knowledge of their staff
To assess change in classroom literacy practices	What practices are you currently using in terms of reading interventions within your school?	How have you adjusted your teaching practice to better support students' reading?	Asked about their observations of classroom literacy practices in their schools
To assess change in contextual influences	What was it like to be working in these schools during the pandemic?	In what ways have your classrooms been impacted during the pandemic?	Asked about their observations of how Covid 19 and other external factors was influencing the school and learning context

Each focus group was analyzed separately using rapid thematic analysis. Emily Mack and Cheryl Poth (Authors 3 and 4) independently read each focus group's transcript and generated codes based on the main themes from the participants. The initial code list generated by each researcher was compared and a final code list was generated. The final code list was used to code a transcript independently and differences in their application were discussed. Emily and Cheryl then completed the coding of the transcripts and met to discuss their emerging understandings. Codes were compared and contrasted between the pre- and post-intervention focus groups. Findings from each of the separate groups were compared to a holistic understanding of the complex school system's response to the intervention.

An equally important data source was the students' reading scores. Teachers in this school assess their students three times a year (September, January, and May) on three norm-referenced assessments (Test of Word Reading Efficiency-2 [TOWRE-2], Torgesen et al., 2012; Test of Silent Word Reading Fluency-2 [TOSWRF-2], Mather et al., 2014; and Test of Silent Reading Efficiency and Comprehension [TOSREC], Wagner et al., 2010). Because this study focused on early grades, we only used the anonymized data of 122 Grade 1 to 3 children (65 males, 57 females; 43 from Grade 1, 42 from Grade 2, and 37 from Grade 3) who had data at all measurement points. Ninety-five percent of children were White, three percent East Asian, and two percent Indigenous.

To examine change in reading performance during the case time period, we performed three sets of mixed repeated measures ANOVA (one for each outcome measure) with time as the within-subjects factor and grade as the between-subjects factor. Because we did not have data at Time 1 from the Grade 1 children (norms are available for age 6 and above and many of the Grade 1 children in our sample were not 6 years old in September), first we ran our analyses with all grade levels at Times 2 and 3. Then we ran our analyses with data from all three time points for just the Grade 2 and 3 children. The descriptive statistics and univariate statistics with these measures are reported in Table 2.

Table 2

Means (and Standard Deviations) in the Three Reading Outcomes Separately for Each Grade Level and Change Across Time (n = 122)

Reading Outcomes	Time 1	Time 2	Time 3	Change Trends within Measures
TOSREC				
Grade 1		79.97(12.18)	86.18(15.41)	Similar magnitude of moderate gains for grades 1 and 2 with slightly greater for grade 3
Grade 2	74.04(14.43)	83.57(17.41)	89.76(18.01)	
Grade 3	89.61(19.55)	91.21(18.88)	98.54(23.25)	
TOSWRF				
Grade 1		87.81(9.39)	94.88(14.70)	Similar magnitude of high gains for grades 2 and 3 with slightly smaller gains for grade 1
Grade 2	85.75(13.90)	92.57(16.58)	102.28(16.68)	
Grade 3	89.50(14.20)	92.27(14.50)	102.05(15.34)	
TOWRE				
Grade 1		86.23(12.48)	94.09(15.48)	Greatest change for grade 1 and similar magnitude of small gains for grade 2 and 3
Grade 2	87.10(20.10)	91.40(19.16)	94.78(19.58)	
Grade 3	88.68(18.95)	92.48(20.01)	95.10(21.35)	

Note. The scores reported in Table 2 are standard scores. TOWRE = Test of Word Reading Efficiency; TOSWRF= Test of Silent Word Reading Fluency; TOSREC = Test of Silent Reading Efficiency and Comprehension.

To complement the two primary data sources, throughout the case, each member of the research team contributed their perspectives and emerging understandings during field interactions and team meetings among the four authors. Matthew's perspective relied on 25 years in the principalship and brought forward in discussion nuances of the principalship. George Georgiou (Author 2)'s perspectives were grounded on his work as a university professor with a focus on early literacy development and interventions. Emily is a doctoral student in a counseling graduate program. Finally, Cheryl is also a university professor with expertise in mixed methods research methodology. The perspectives from each of the authors allowed for a deeper analysis of the process of the case study, also allowing for critical analysis of this process to ensure study rigor. The reflective case notes were narratively collected, shared within the team, and used to provide important contextual information to supplement the primary data sources of staff focus groups and student reading scores. There were three ways in which data were collected that became sources for the reflective case notes. Team meeting notes were generated during interactions among the authors and were integral to documenting, informing the next steps of the study, and ultimately supporting the development of the case description. Background discussions with authors were also important to establish the different perspectives and purviews which each of the authors were operating under and the existing relationships that became key to the case. For example, in discussions between Matthew and Cheryl, Matthew shared important experiences with Andover School and Harper, which gave Cheryl more subjective information to inform their own discussions with staff during the focus groups. Finally, field debriefs following data collection were useful to share and collaboratively interpret the emerging data themes and trends. These discussions took place at several points in time, for example, after the first focus groups, each of the quantitative testing points, and then again after the second round of focus groups.

The analysis of the reflective case notes was undertaken using a rapid thematic analysis procedure. This included capturing key topics and themes from each of the data sources that were present across time and across sources. The requisite integration of the findings from the qualitative staff focus groups and quantitative student reading scores was guided by a pragmatic approach (Tashakkori et al., 2021). Following the separate data analyses, the quantitative results were merged with qualitative themes guided by a mixed analysis strategy (Guetterman et al., 2015). Our integration generated four mixed insights representing the dynamic influences of the principal.

Case Results

Our results are organized by the four distinct yet interdependent influences of the principal revealed by our case integration. Within each of the four influences, we weave together the experiences and outcomes of those involved in the school case community.

Igniting Awareness

Harper described a specific interaction with a parent during the 2019-2020 school year as the impetus for her future steps in developing a school literacy culture. During the interaction, the parent criticized the school's approach to literacy teaching she had experienced through her children who were enrolled in the school. She referenced her own work as chair of a provincial literacy association. She also named local experts who advocated for a more evidence-based

approach to literacy instruction that was garnering attention. Harper described being unsettled by the interaction and motivated to learn more about effective literacy practices.

Following Harper's interaction with the concerned parent, she began having informal discussions with teachers. In these discussions, it became apparent to Harper that there was a lack of useful information given to parents about how they could best support their children in reading. Harper realized that she wanted to help the kids with their literacy struggles in a more structured way. In particular, the lack of information to provide a concrete way forward to improve students' literacy was expressed by Harper,

> … And we just felt like we were having these conversations with parents like well, maybe it will stick next time like we will do more Leveled Literacy Instruction, and nothing was changing and so, we kind of felt like we weren't really sure why it wasn't working. We didn't know what was going wrong.

Harper described that she figured out that she was not alone in her quest to find better ways to support students' literacy.

A common sentiment expressed by teachers and the LST before beginning the professional development focused on literacy was their openness to learning about new ways to help develop students' literacy skills. Teachers specifically expressed feelings of being discouraged even though they were working hard to be creative in their classroom practices. Teachers also communicated a desire for better communication with parents on their child's progress in reading. The teachers wanted to provide information about specific areas where caregivers could support their child's literacy development. This desire was also expressed by Chris, who said that they

> … also look forward to our teachers feeling confident and empowered to be able to speak to parents about where kids are at in an honest way, but also with specific strategies that parents can do to help support from home.

In so doing the staff demonstrated the shared desire and hope for the school community to improve the student literacy program for the kids as well as for caregivers.

At the time of the case start, the Covid-19 pandemic had been going on for 10 months. When asked about the impact of the Covid-19 pandemic on students' literacy in January 2021, Harper and the teachers attributed the delays in their students' reading achievement to multiple influences surrounding the pandemic including some school disruptions during the prior school year. Harper stated, "I can tell you, our scores [this year] are definitely lower …, especially in our youngest grades … our grade ones came in not knowing any sounds at all." Harper's intuition was well justified. When we looked at the historical data on each of the reading assessments since 2019, there was a 3 to 7 standard points decrease during the pandemic in each reading task (particularly in TOWRE in Grade 1).

Teachers referred to the need for improved literacy practices for their students because they saw the exacerbated impacts of the Covid-19 pandemic. Teachers also identified difficulties with teaching reading to their students through Covid-19 conditions because of an overall lack of consistency in instructional delivery and attendance. Teachers spoke about students having to isolate and being away from school, parents being inconsistent with supporting students who were at home, and the challenge of having to move between teaching online and in person. One teacher also identified struggles because of kids not being able to access specialized support such as speech/language pathologists.

Developing Expertise

To build a good understanding of evidence-based literacy practices, Harper reached out to George who was one of the local experts the caregiver had mentioned in that early interaction. Harper described allocating time and resources to bringing in George to work with her school staff to deepen their collective understanding of their knowledge gaps and how to fill them. George also recognized these efforts made by Harper and describes her commitment:

> Their principal is contacting me on a regular basis, asking questions like "What does this mean", "How should I do this", "Is this a good resource to use". She is very engaged and very passionate about improving her school's performance.

In addition, Harper and Chris also described having completed personal research through peer-reviewed literature, books, and podcasts on literacy to improve their understanding of how students learn to read and how to best facilitate that process in their own school's practices. This was described as helping Harper build awareness of her gaps in understanding of and practices for evidenced-based learning. Harper's commitment to her own professional learning is evidenced by this statement:

> I had to accept that I was misinformed and that my understanding about teaching reading was faulty. I had to be open-minded that there were better ways to get there and that it was not a personal flaw that I didn't know until now. Now I know better so I can do better.

Over time as Harper developed her own understanding of the practices involved in evidence-based literacy practices, she became its champion. An early indicator was when Harper volunteered her school to be one of the first three schools in the school division to participate in a multi-site professional development opportunity. As part of the research, George collected data from students in her school while continuing to collaborate on practices that they could use in her school. Harper took on this opportunity with enthusiasm and encouraged her staff to do the same, through group discussions and the provision of resources. The teachers in the school saw Harper as the leader of the process, one staff member mentioning that "[she is] kind of the one who brought this to us".

The teachers also saw Harper as a key resource for them while they were learning the teaching skills that George presented. One teacher noted, "we're kind of along the way, and just working on the information she gives us and implementing [the skills] in the classroom and they've been really good about giving us resources as well to help assist this." George also noted at the time that the school went beyond expectations in their implementation of the resources and practices provided by the team of experts.

A change in the way Harper and her staff talked about literacy became apparent with increased use of technical literacy jargon. Literacy education has many technical terms that cover both pedagogical and subject matter and it became evident that Harper's consistent use of technical terms influenced teachers to do the same. For instance, at the beginning of the project, teachers were mixing up terms such as phonological awareness and phonics. Mixing up these two terms indicates that teachers do not have a fine understanding of the differences between key constructs of literacy that are expected to teach to their students. The correct and more frequent use of the literacy terms in the final interviews signaled participant literacy knowledge growth.

Creating Momentum

From staff descriptions, it seems Harper facilitated classroom practice shifts through resourcing materials, supporting teacher interactions and risk-taking, and providing staff with sustained and on-demand access to literacy experts. Harper ensured that teachers had access to literacy resources that were helpful and relevant to the classroom practices that they were trying to implement throughout the study. One teacher described the efforts of Harper in providing helpful and relevant resources to support their work:

> Well, our principal … had made this amazing resource, where she has every pillar on a Google Doc and then listed resources under every pillar to target certain things. It's just been really great to be able to look at the results and say okay, I need to work on comprehension with these kids and then you can literally go to this resource and just pick through them.

Teachers described the access to resources as allowing them to focus on their implementation of classroom literacy practices that were informed by sound theory. By modeling the creation and sharing of their own self-developed resources, Harper inspired teachers to see themselves as able to create their own resources, which they then shared with one another.

Harper's efforts in encouraging a culture shift around literacy were based both on hope for what they might be able to achieve as a school as well as a sense of ethical responsibility to provide the best literacy education they can. Harper describes their hopes for the future:

> I have this dream that our school will have everybody reading at grade level. Like 85% to 90% of our kids reading at grade level and only that little 5% to 10% that have other complications that impede those are the ones that won't be at grade level. That our data will consistently show the whole population is where they need to be K to 6.

Leveraging Data

Through various types of meetings with teachers, Harper was seen as encouraging her staff to learn about evidence-based practices and leveraging data for accountability, as the meetings were also used to review the implementation progress of new practices. Harper and Chris directed teachers to look at their own students' reading scores and then met with the staff in each grade group to discuss the findings. Harper describes this meeting process by saying:

> They [teachers] would come together as a grade level team and look at the whole grade level, and so we had some protocols in place, we had some questions that we would ask them: Did any results surprise you? Are there things that you anticipated or the things that you were happy or not good surprises? Did any class perform better than another? Why do you think that might be? Where do you think [the new practices] had the biggest effect on your results?

Harper also described how each teacher would submit an intervention plan based on their student results using a template that was created by Harper and Chris. They both sought follow-up meetings with teachers individually to talk about their intervention plan and what resources they still needed to succeed in their goals for student literacy. Harper also saw her role as encouraging her staff to feel fully supported in their efforts explaining, "I guess I see my role as

the cheerleader or champion ... I want you [the teacher] to care about this, I want you [the teacher] to see why this [evidenced-based literacy practice] matters." Harper also encouraged this practice of risk-taking which is evidenced in the following quote "... I really feel like my role is to create a culture that people will take risks that they will be brave in their practice that they will read research and that they will fail proudly when they have to ...".

As the student reading score gains became available, the teachers reported their unfettered use to guide their practice, saying "The data drove a lot of our conversations. I found the data helpful to depersonalize things." Indeed, data from Grade 1 to 3 children at APS shows that there were consistent gains across measures. Specifically, the results showed a significant effect of time for all three reading tasks, TOSREC, $F(1, 119) = 63.15$, $p < .001$, TOSWRF, $F(1, 119) = 152.46$, $p < .001$, and TOWRE, $F(1, 119) = 73.63$. The results for TOWRE also revealed a significant grade by time interaction, $F(2, 199) = 9.40$, $p < .001$. Grade 1 scores improved significantly more than the scores in the other two grades, which speaks to the emphasis put on decoding in Grade 1 at APS. Thus, together our scores and qualitative descriptions from teachers generate evidence of change in students' literacy performance during our case.

Harper worked to implement student-centered activities within classrooms, to develop a shared vision across the school, and to become an advocate for evidence-based practice in her school district. On several occasions, Harper reached out to George and other literacy experts on the research team to maximize their school's understanding of their reading data and the processes involved in endorsing evidence-based literacy practices. This occurred after having established a relationship with George during the earlier professional development sessions covering the theory and practice behind early literacy instruction. The sustained efforts were seen as helpful to motivate the staff to continue their learning about reading assessments, understanding their classroom data, and trying new classroom strategies. One teacher described the benefits of having access to a local expert: "I think having George on call whenever we need him was super helpful." The teacher went on to describe conversations with colleagues where they would have a question, email George, and receive a helpful and timely response. That George would come to the school on a regular basis was seen as providing easy access to an essential resource.

Harper also wanted to ensure that they were not doing harm through their literacy practices, particularly to children with reading difficulties. Harper identified some practices that the school was previously using that have been shown in recently published studies to be harmful to children with reading difficulties and emphasized their intention to remove and avoid such practices in the future. She commented,

> I know stuff now that I didn't know before and I recognize that some of the things that we have been embracing in the field of education are not just poor practices but are actually harmful to 5%—15% of our kids.

Harper considered her staff to be leading the district by embracing a new way of seeing evidence-based practices at school. They described how they continued to use critical assessment and research to inform their approach to literacy.

> How this is reflected in our school is through our regular reading of current research and comparing the theory and research data to the instructional methods/products that we use in our teaching. For example, we can check the effectiveness of an intervention program through the What Works

Clearinghouse website or actually read the research that a publisher claims as evidence of the efficacy of their product.

Harper described how they believe that all principals need to be more engaged with peer-reviewed research and challenge their current understandings of learning to better their school and their students. "Principals also need to be PR [public relations] people. Selling the literacy dream to staff, students, parents, community members, and the school division is important". Harper also described how they see the practices within their district as insufficient to support students and how they feel responsible to encourage their teachers in their own school's new approach to teaching literacy:

> … so I feel this schism with my own ethical drive and the political world in which I find myself in that I feel helpless to change. That's part of the issue my team is living right now, because they're living in a system that unknowingly is valuing something that isn't effective or, at worst, hurtful and they are trying to be these pioneers and they're trusting me that I'm going to have their back and then I'm going to protect them and I'm going to support them and I'm going to cheer their risk on.

Case Assertions and Discussion

The purpose of this study was to explore the multifaceted role of principals in developing effective literacy practices in their schools. Our results point to four conditions principals engage in to develop an effective school literacy culture and to enhance learning outcomes. First, as a modeler of continuous learning, principals encourage engagement by meeting their staff needs and by promoting a school literacy culture (the first distinct influence of principals revealed in our case integration). In their work, Grissom et al. (2021) identified a similar focus on building a productive climate and labeled it as the second of four domains in which effective principals excel and that also increases principals' impact on school performance. Harper made it a priority to purposefully interact with her staff on the topic of literacy. She challenged them on the rationale behind the use of existing school resources, made room on staff meeting agendas, had individual and small group on-the-spot discussions, and elicited outside input through PD to support staff awareness around literacy practices change. Through these many avenues, Harper was able to have teachers become aware of their professional pedagogical and content knowledge in the area of literacy.

Harper came to realize that moving her school forward required her to first build her own content and pedagogical knowledge in literacy instruction; the second distinct influence of principals revealed in our case integration. She informed her staff that she was going to learn more and bring them along in this journey. This instructional leadership approach embedding self-directed learning seemed to develop trust between teachers and Harper that, in turn, encouraged teachers to expand their own professional knowledge. Harper extended considerable energy developing her own understanding of early learning and brought in experts to support her and her work with her staff. She maintained and consistently voiced a vision of future literacy goals for the school but linked that vision to the work being undertaken to improve instruction. This along with the use of student performance data to demonstrate growth (see Table 2) impacted teacher efficacy in that teachers could see first-hand that their efforts had an impact on student growth.

That Harper enhanced a culture of continuous learning by not setting an endpoint for the learning is also worth noting (see Blase & Blase, 1999, for a similar argument). She recognized that all her staff were at different points along a continuum and there was value in supporting all teachers where they were at. Harper was unabashed to be confronted with questions by staff that she did not know the answers to; however, she would challenge them to seek the answer and, at the same, she would drive to find the answer herself. Harper was developing a network of experts and knowledgeable others outside of the school that she would often rely on as trusted others she could question and bounce ideas off.

In shifting the literacy instruction and learning culture in her school Harper demonstrated that she had a vision for the school and that her time and resources under her control would be leveraged to move the school in that direction. She presented herself to staff as a learner and worked to develop synergistic roles that supported her vision between herself, Chris, and the faculty. Harper continually made staff aware of her new understanding of literacy development and shared this freely, setting up a collegial professional relationship as a learner with staff. Her use of varied leadership styles acknowledged that no one way would reach all her staff.

Thirdly, as a leader of focused activities with teachers, principals promote classroom literacy practices. Instructional leadership is well understood to be an effective principal activity (Grissom et al., 2021; Marks & Printy, 2016). Instructional leadership activities undertaken by Harper added to the momentum of change in the school (the third distinct influence of principals revealed in our case integration). The bulk of her work with teachers centered on frequent observational visits to watch the teacher's practice. These observations were often brief and based on the collegial notion of growth for both the teacher and the principal. Following the observations, Harper would leave a positive note and make a moment later in the day for a quick chat with the teacher. Harper supplemented her observations with external resources into the school to further support the movement toward her vision of literacy instruction and learning. Professional development sessions were also held that presented a specific scope and sequence for Grades 1–2 teachers to follow to improve children's phonological awareness and phonics skills. Harper also selected books about literacy development for staff book study groups and created a file that linked all the resources that were gathered up so that should a teacher want more information on a literacy topic they could go to that file and select specific resources.

The core to changing practices and outcomes in a school are the actions of the principal (Meyers & Hambrick, 2017; Supovitz et al., 2010). Efforts for school improvement must primarily be focused on all teachers' practice (Fullan, 2014). In our case, Harper impacted teachers using internal and external methods. Internally, it was her interpretation of instruction supervision that involved frequent brief classroom observation followed by a positive note and/or brief collegial conversation. It is worth noting that Harper placed far more importance on the development of teachers' professional skills than on dropping in a commercial program for instruction. Although there was a program of instruction being supported by the school division, Harper chose to focus on teacher ability, anticipating that this would translate into better support for a wider ability range of students. This aligns well with the findings of Georgiou et al. (2020) who showed that increasing teacher capacity and understanding is far more important in improving children's reading performance than providing teachers with a specific program to follow.

Finally, to promote literacy-based discussions, principals use data to inform instruction (the fourth distinct influence of principals revealed in our case integration). The development of a data-informed culture resonates well with existing research evidence (e.g., Anderson et al., 2010; Georgiou et al., 2020). With access to teacher-awarded marks, the results of Grade 6 provincial

achievement test which had a reading component, and feedback from parents and staff, Harper was well equipped data-wise. However, there was no one source that gave her a school-wide objective understanding of student growth in literacy acquisition. Harper expressed that if she was going to encourage teachers to change practice there would have to be a good reason and that change would have to be linked to student improvement. It all changed as of September 2019 when the school started administering what Harper referred to as the 3Ts (TOSREC, TOWRE, and TOSWRF) in September, January, and June of each school year. The initial screening brought new challenges to Harper mostly in the interpretation of the results. Again, she asked for the help of an expert researcher to help her make sense of the information. The results, which were shared with staff, indicated that in the lower grades there was a significant number of students who were not picking up the early literacy skills necessary to support future reading development. Extrapolating the data, Harper noted that it was likely that the poor performers in the older grades had roots in reading difficulties from earlier in their academic careers.

Harper held a staff meeting to discuss the information from the first screening of the reading performance. Her concern was that the lowest quarter to a third of the students did not perform as well as she was expecting and that low performance early in the grades would most likely result in poor performance in the higher grades. In short, she made a case that the school was not performing in literacy development in a way that supported all learners and that this needed to change in order to not restrict opportunities for children later in life. As an analogy, Harper used the beginning and future screening data as the fuel in the car of literacy instruction change. She used the screening data to set a vision, to inform resource allocation, strengthen intervention supports, as part of a rationale for professional changes in teachers, and to link teacher action and improvement to student growth. This last part about linking teacher action to students was a particularly important aspect in developing teacher efficacy. Teachers want to have the best experiences for students in their care and having them agree that a change in instruction has better outcomes for children is necessary but is insufficient. Evidence of teacher action having an impact on student learning is important to the development of teacher efficacy (Gibson & Dembo, 1984). This is where the collection of low-risk objective data plays a part. Harper understood that data used to help inform practice had to be used as much in the same way as her instructional supervision activities. Harper used data to inform but coached as a collegial undertaking with the staff. The data also supported a collective description of hope that all children could be fluent readers by the time they left the school.

Harper's collection and use of data helped support the need for change in literacy instruction and learning. In addition to the use of data to create a case for change, the measurement of progress and the identification of at-risk students served Harper in her vision of effective literacy instruction and interventions that lead to improved literacy outcomes for all students, particularly those at or near the bottom of abilities. Harper was careful to note that there are limitations to the screening data collected and that they need to be interpreted in conjunction with a myriad of other factors in the school, not the least of which is the teacher's professional assessment of students.

Conclusions

This study is unique in its description of principal-specific influences and its use of a complex mixed methods case study to contribute novel insights previously inaccessible by either qualitative or quantitative approaches alone. Together, the study methods and findings advance new ways to design studies of principals' impacts on their school communities and provide

compelling evidence for principals' active engagement in developing evidence-based literacy school cultures.

The study findings indicate that the principal's sustained engagement in their own development, instructional leadership, and use of data was both important for and influential to creating the conditions for their school's effective deployment of evidence-based literacy practice. Student performance data supports the degree and effectiveness of these conditions displayed by Harper. Addressing such large and multifaceted challenges such as educational literacy cannot be accomplished by one person—involving a school community approach across embedded systems is necessary. School communities and their embedded personnel including (but not limited to) those involved in the current study (i.e., principals, teachers, literacy-focused supports, and students) are well-positioned to work together for the benefit of students and society.

References

Anderson, S., Leithwood, K., & Strauss, T. (2010). Leading data use in schools: Organizational conditions and practices at the school and district levels. *Leadership and Policy in Schools, 9*(3), 292–327. https://doi.org/10.1080/15700761003731492

Bevel, R. K., & Mitchell, R. M. (2012). The effects of academic optimism on elementary reading achievement. *Journal of Educational Administration, 50*(6), 773–787. https://doi.org/10.1108/09578231211264685

Binks-Cantrell, E., & Joshi, R. M., & Washburn, E. K. (2012). Validation of an instrument for assessing teacher knowledge of basic language constructs of literacy. *Annals of Dyslexia, 62*(3), 153–171. https://doi.org/10.1007/s11881-012-0070-8

Blase, J., & Blase, J. (1999). Principals' instructional leadership and teacher development: Teachers' perspectives. *Educational Administration Quarterly, 35*(3), 349–378. https://doi.org/10.1177/0013161X99353003

Bos, C., Mather, N., Dickson, S., Podhajski, B., & Chard, D. (2001). Perceptions and knowledge of teacher candidates and in-service educators about early reading instruction. *Annals of Dyslexia, 51*(1), 97–120. https://doi.org/10.1007/s11881-001-0007-0

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Carlisle, J. F., Correnti, R., Phelps, G., & Zeng. J. (2009). Exploration of the contribution of teachers' knowledge about reading to their students' improvement in reading. *Reading and Writing: An Interdisciplinary Journal, 22*(4), 457–486. https://doi.org/10.1007/s11145-009-9165-y

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage.

Denton, C. A., Foorman, B. R., & Mathes, P. G. (2003). Perspective: Schools that "beat the odds": Implications for reading instruction. *Remedial and Special Education, 24*(5), 258–261. https://doi.org/10.1177/07419325030240050101

Fullan, M. (2014). *The principal: Three keys to maximizing impact*. Jossey-Bass.

Georgiou, G. (2021). Covid-19's impact on children's reading scores: Data trends and complementary interview. *The Reading League Journal, 2*(2), 34–39. https://www.thereadingleague.org/journal/

Georgiou, G. K., Kushnir, G., & Parrila, R. (2020). Moving the needle on literacy: Lessons learned from a school where literacy rates have improved over time. *Alberta Journal of Educational Research, 66*(3), 347–359. https://doi.org/10.11575/ajer.v66i3.56988

Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology, 76*(4), 569–582. https://doi.org/10.1037/0022-0663.76.4.569

Goldwyn, S. (2008). *Examining educational leaders' knowledge base: Investigating educational leaders'*

domain knowledge of reading [Doctoral dissertation, Florida State University]. DigiNole. http://purl.flvc.org/fsu/fd/FSU_migr_etd-4167

Grissom, J. A., Egalite, A. J., & Lindsay, C. A. (2021). *How principals affect students and schools: A systematic synthesis of two decades of research*. The Wallace Foundation. http://www.wallacefoundation.org/principalsynthesis.

Guetterman, T. C., Fetters, M. D., & Creswell, J. W. (2015). Integrating quantitative and qualitative results in health science mixed methods research through joint displays. *Annals of Family Medicine, 13*(6), 554–561. https://doi.org/10.1370/afm.1865

Hallinger, P., Bickman, L., & Davis, K. (1996). School context, principal leadership, and student achievement. *Elementary School Journal, 96*(5), 498–518. https://doi.org/10.1086/461843

Handford, V., & Leithwood, K. (2013). Why teachers trust school leaders. *Journal of Educational Administration, 51*(2), 194–212. https://doi.org/10.1108/09578231311304706

Kierstead, M. (2020). *Enhancing early literacy subject matter knowledge: Using interval learning pedagogy to develop content understandings*. [Unpublished doctoral dissertation]. University of Oregon.

Kindall, H. D., Crowe, T., & Elsass, A. (2018). The principal's influence on the novice teacher's professional development in literacy instruction. *Professional Development in Education, 44*(2), 307–310. https://doi.org/10.1080/19415257.2017.1299031

Marks, H. M., & Printy, S. M. (2016). Principal leadership and school performance: An integration of transformational and instructional leadership. *Educational Administration Quarterly, 39*(3), 370–397. https://doi.org/10.1177/0013161X03253412

Mather, N., Hammill, D. D., Allen, E. A., & Roberts, R. (2014). *Test of silent word reading fluency* (2nd Ed.). Pro-Ed.

Meyers, C. V., & Hambrick, D. H. (2017). School turnaround principals: What does initial research literature suggest they are doing to be successful? *Journal of Education for Students Placed at Risk, 22*(1), 38–56. https://doi.org/10.1080/10824669.2016.1242070

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). National Institute of Child Health and Human Development. https://www.nichd.nih.gov/sites/default/files/publications/pubs/nrp/Documents/report.pdf

Nurmi, J.-E. (2012). Students' characteristics and teacher-child relationships in instruction: A meta-analysis. *Educational Research Review, 7*(3), 177–197. https://doi.org/10.1016/j.edurev.2012.03.001

Panagouli, E., Stavridou, A., Savvidi, C., Kourti, A., Psaltopoulou, T., Sergentanis, T. N., & Tsitsika, A. (2021). School performance among children and adolescents during COVID-19 pandemic: A systematic review. *Children, 8*(12), Article 1134. https://doi.org/10.3390/children8121134

Parrila, R., Inoue, T., Dunn, K., Savage, R., & Georgiou, G. (2023). Connecting teachers' language knowledge, perceived ability and instructional practices to Grade 1 students' literacy outcomes. *Reading and Writing: An Interdisciplinary Journal*. https://doi.org/10.1007/s11145-023-10432-4

Piasta, S. B., Connor, C. M., Fishman, B. J., & Morrison, F. J. (2009). Teachers' knowledge of literacy concepts, classroom practices, and students reading growth. *Scientific Studies of Reading, 13*(3), 224–248. https://doi.org/10.1080/10888430902851364

Plaatjies, B. O. (2019). Investigating principal capacity in literacy instructional leadership at selected primary schools. *Journal of Social Studies Education Research, 10*(3), 136–160. https://jsser.org/index.php/jsser/index

Routman, R. (2014). *Read, write, lead: Breakthrough strategies for schoolwide literacy success*. ASCD.

Spear-Swerling, L., & Brucker, P. O. (2003). Teachers' acquisition of knowledge about English word structure. *Annals of Dyslexia, 53*(1), 72–103. https://doi.org/10.1007/s11881-003-0005-5

Supovitz, J., Sirinides, P., & May, H. (2010). How principals and peers influence teaching and learning. *Educational Administration Quarterly, 46*(1), 31–56. https://doi.org/10.1177/1094670509353043

Tashakkori, A., Johnson, R. B., & Teddlie, C. (2021). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Sage.

Taylor, R. T. (2004). Using literacy leadership to improve the achievement of struggling students. *Middle School Journal, 36*(1), 26–31. https://doi.org/10.1080/00940771.2004.11461461

Torgesen, J. K., Wagner, R. K., & Rashotte, C. A. (2012). *Test of word reading efficiency* (2nd ed.). Pro-Ed.

Wagner, R. K., Torgesen, J. K., Rashotte, C. A., & Pearson, N. A. (2010). *Test of silent reading efficiency and comprehension*. Pro-Ed.

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