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Design-Based Professional Learning: A Promising Approach to Continuous Professional Learning

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Abstract

Collaborative professionalism engages teachers and other educators in the processes of documenting and presenting evidence arising from their practice, engaging in deep and demanding dialogue with colleagues, seeking and receiving constructive and productive feedback, and engaging in continuous collaborative inquiry. A design orientation that engages educators in such a process is design-based professional learning. While the overall design of the professional learning is consistent across contexts, three key features are unique to each design—situativity, the cyclical nature of learning and change, and agency. These three features are used to describe two cases of design-based professional learning in two different contexts. Based on 715 teachers, and school and district leaders' learning engaged in design-based professional learning, we conclude that design-based professional learning provides a promising approach to professional learning.

Keywords: professional learning, design-based professional learning, collaborative professionalism

Introduction

The best professional learning and development opportunities are rooted in a system of collaborative professionalism that cultivates individual and collective learning and is the heart of an effective and continuously growing teaching profession (Fullan & Hargreaves, 2016). Hargreaves and O'Connor (2018a) contend collaborative professionalism "is about how teachers and other educators transform teaching and learning together to work with all students to develop fulfilling lives of meaning, purpose, and success" (p. 6). It is evidence-informed, not data-driven, and involves deep and demanding dialogue, constructive and productive feedback, and continuing collaborative inquiry.

Design-based professional learning (DBPL) is an approach to professional learning rooted in collaborative professionalism. Embedded in the principles of design, DBPL is an intentional approach to professional learning engaging teachers and administrators in forms of collaboration in ways that achieve impact within their practices. A principle of idea improvement (Scardamalia & Bereiter, 2006) is required within DBPL. Gathering, weighing, giving and receiving feedback, and reflecting on evidence in the company of their peers to ensure that explanations cohere with the available evidence is a signature practice within DBPL. This signature practice is present in each iteration guided by protocols to ensure the interactions build deep and meaningful discourse in which teachers and administrators take responsibility for the overall advancement of their own and their colleagues' practices. The documents generated within each iteration then feed forward, informing the design and planning of the next iteration cycle.

In taking the work of improvement seriously, Laurillard (2018) acknowledges the importance of a design orientation:

> Our education systems could be seen as massive uncoordinated experiments, where every day, every teacher has the opportunity to try out and test new techniques and learn from their students what works and what does not. The idea behind "teaching as a design science" [quotations in original] is to acknowledge this: to formalize and celebrate an approach to teaching that enables teachers to innovate, test, and share their teaching knowledge. If teachers were to share, test, and build on each other's learning designs, teaching would be a design science— "improving its practice, in a principled way, building on the work of others" [quotations the original] (p. 557).

Recently, the learning sciences, as well as the wider educational research community, have turned their attention to the role of design (e.g., Brown et al., 2020, 2021; Chu et al., 2020; Fishman

et al., 2013; Friesen & Jacobsen, 2015; Laurillard, 2012, 2018; Paniagua & Istance, 2018; Voogt et al., 2015). In particular, the importance of sustaining collective, collaborative, iterative design cycles between researchers and teachers and administrators for advancing teaching and leadership practices in principled, practical ways (Bereiter, 2014; Laurillard, 2018).

The work of improving the practice of teaching and leading is open, complex, and dynamic (Dorst, 2015, 2019). Dorst (2015) argues that traditionally, design and design thinking focused "on the designer's abilities in generating solutions rather than on the key ability of expert designers to create new approaches to problem situations" (p. 2). As designers of learning, educators are particularly adept as expert designers in creating new approaches to problem situations. Learning how to do that in ways that collectively improves practice in principled practical ways to create a culture of collaborative professionalism has remained an open and "wicked" (Buchanan, 1992) problem for educational leaders. The following research question was used to analyze the two case studies presented in this paper. In what ways are situativity, the cyclical nature of learning and change, and agency evident in design-based professional learning for educational leaders?

Theoretical Underpinnings

Design

Design principles and focused actions provide a theoretical foundation for design-based professional learning. The potential of design in improving instructional, as well as leadership practices, has been advanced by a growing number of scholars and educational leaders (Brown et al., 2020, 2021; Chu et al., 2020; Friesen, 2009; Friesen & Jacobsen, 2015; Laurillard, 2012, 2018; Trebell, 2009; Tsai, 2018). We draw upon Timperley (2011) and Katz and Dack (2013) for definitions of design orientations to professional learning where professional learning involves cycles of knowledge creation/knowledge building and continuous collaborative inquiry for

purposes of transformation. We further draw upon Bereiter and Scardamalia (2014) for the definition of knowledge creation/knowledge-building, as individuals taking collective responsibility for the "the production and continual improvement of ideas" (p. 36). Timperley (2008) argued, "Teachers need multiple opportunities to absorb new information and translate it into practice. Learning is cyclical rather than linear, so teachers need to be able to revisit partially understood ideas as they try them out in their everyday contexts" (p. 15). DBPL requires a longitudinal commitment to design with partners (Brandon et al., 2014; Brandon et al., 2020; Friesen & Jacobsen, 2015; Jacobsen, 2006; Paniagua & Istance, 2018).

The Design Council (2020) developed a design framework for innovation which they call the Double Diamond. The Double Diamond is based on four principles: i) People-centered, ii) communication, iii) Collaboration and co-creation, and iv) Iteration; and four focused actions: i) discover, ii) define, iii) develop, and iv) deliver (Design Council, 2020). Drawing upon the Double Diamond principles and focused actions, DBPL begins with the work of collaborating with teachers and administrators in school districts to find new approaches to the problem situation or what is known as the work of framing within design (Dorst, 2015). Design is an essential part of DBPL sessions using the elements of the design situation identified by Dorst (2019). Within DBPL, teachers and administrators are provided with a design-based approach to professional learning that supports their work as designers of learning and leading. Laurillard (2012, 2018) argues that such an approach to professional learning is required to support teachers and leaders with design work (Laurillard, 2018).

Professional Learning

Several researchers have identified characteristics (Archibald et al., 2011; Boylan et al., 2018; Darling-Hammond et al., 2017; Desimone, 2009; Labone & Long, 2016) and effective

conditions for high-quality professional learning (Avalos, 2011; Campbell et al., 2016; Cordingley et al., 2015). However, the research has also shown that few teachers or school administrators experience high-quality professional learning (Darling-Hammond et al., 2009, 2017; Guskey, 2014; Timperley & Alton-Lee, 2008); rather, many encounter single-event, linear transmission models of professional development. Approaches to professional learning that support the development of collaborative professionalism requires a learning model that is embedded in the work of teachers and administrators and involves gathering, weighing, giving and receiving feedback, and reflecting on evidence in the company of their peers to ensure that explanations cohere with the available evidence.

The literature on leadership in school settings generally and the principalship specifically is extensive (Hallinger & Murphy, 2013; Harris et al., 2007; Leithwood et al., 2020; Leithwood & Seashore Louis, 2012; Robinson, 2011); however, research involving continuous professional learning (Timperley, 2015) for principals is limited. As the importance of school leadership became a priority in global education policy (Moushed et al., 2010; Pont et al., 2008), the provision for professional learning for school leaders became vital. The literature acknowledges the importance of professional learning for aspiring principals (Hess & Kelly, 2007; Orr et al., 2006) and principal induction (Wildly & Clarke, 2008). However, the literature is sparse about professional learning for experienced and established school administrators.

A few programs for established principals have been studied (Cardno & Youngs, 2013; Dempster et al., 2009; Marks, 2012; O'Neill & Glasson, 2018). While Cardno and Youngs (2013) contend that designing professional learning for principals poses significant challenges; the literature is agreed that professional development is required for established principals to maintain or reinvigorate their enthusiasm, thereby leveraging their professional capital. Cardno and Youngs

(2013) reported several requirements for the design of successful professional development programs. They must be highly relevant, requiring a responsive design; they require a duration of time, spread over months, with learning that is reflective, applied, and sustained; and thirdly they need to act as a "conduit for extending development to others" (p. 267). Within professional teacher learning, non-linear models, such as collaborative professionalism and approaches that require continuous collaborative inquiry, have been shown to improve teaching quality and improve student learning (Donohoo & Velasco, 2016; Hargreaves & O'Connor, 2018a, 2018b; Robinson, 2011; Timperley et al., 2009).

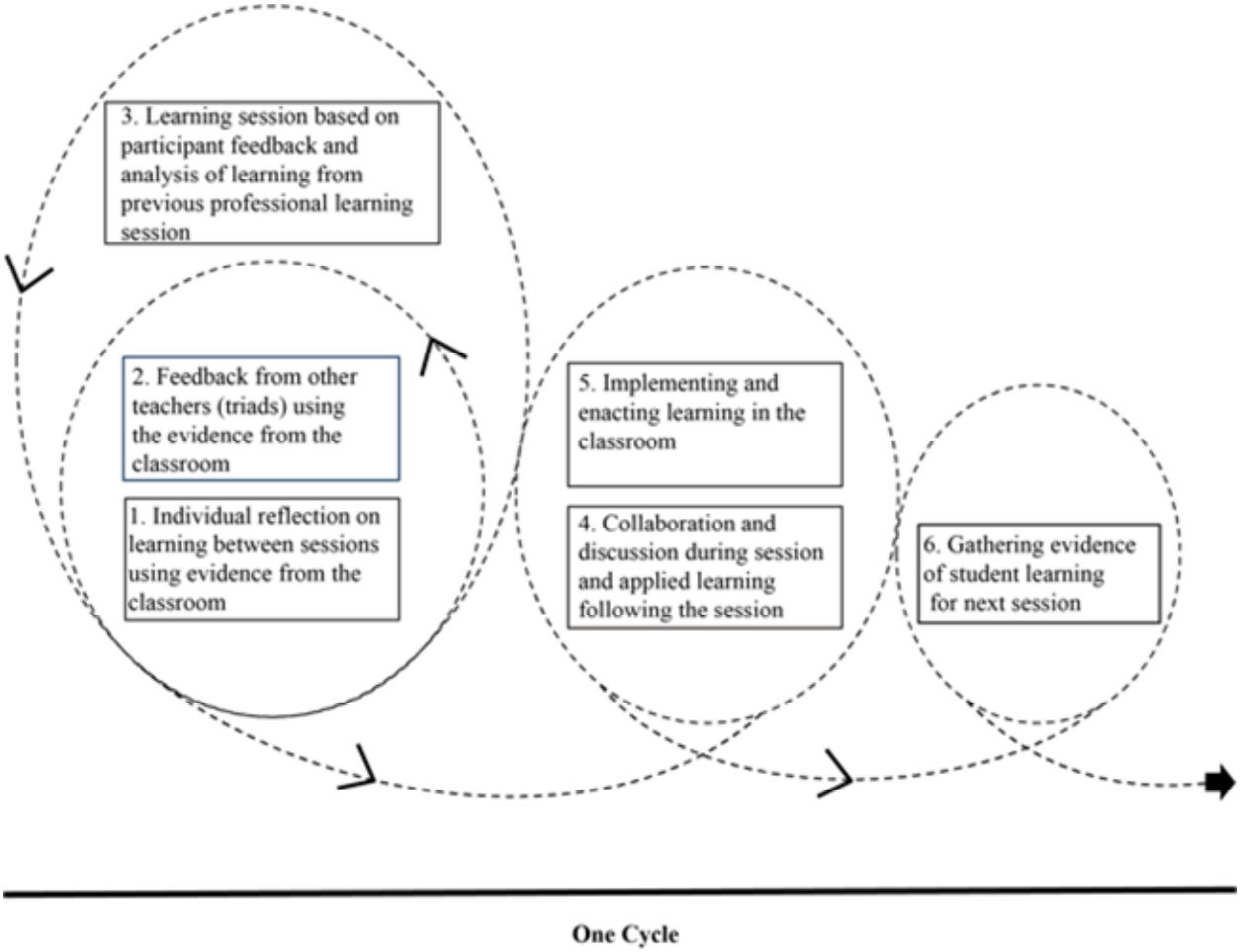
Design-based professional learning: A non-linear form of professional learning DBPL is an approach to professional learning consistent with qualities of high-quality professional learning identified in the literature, such as connecting to specific content and standards; active learning and self-reflection; job-embeddedness; collaboration; university researchers; sustained and continuous, and aligned with school goals, standards and assessments, and other professional activities (Avalos, 2011; Archibald et al., 2011; Campbell et al., 2016; Cordingley et al., 2015; Darling-Hammond et al., 2017; Labone, & Long, 2016); as well as additional features that make this model of advancing teacher learning and leadership unique. DBPL, while situated within the professional learning literature, extends the literature on non-linear forms of professional learning. The description of the situativity (Greeno, 2006), the cyclical and iterative nature of learning, and the location of agency acknowledge that learning with DBPL is not a linear process. The iterative processes of using evidence to guide the process of visiting and revisiting prior assumptions and practices to learn new practices and the ethical and practical know-how and know-why to enact those practices fluently in daily practice is understood by those designing the learning experiences and encounters. The work of designing and leading DBPL cycles takes on a more improvisational

quality, engaging attentively and responsively with the participants in a collective project of learning and improving.

Collaboratively examining student work is an important part of the professional learning experience (Desimone 2009). As shown in Figure 1, the participants continually designed for learning, enacted learning designs and gathered evidence of student learning, analyzed evidence of student learning with their colleagues during the sessions and with colleagues at their schools between sessions, elicited feedback from colleagues and students, engaged in generative dialogue to deepen understanding of the impact on student learning, and refined learning by building on new learning and leading learning in their schools.

Figure 1

Development and Enactment Phases of DBPL



DBPL holds promise as a professional learning approach further extending other high-quality professional learning experiences (Archibald et al., 2011; Avalos, 2011; Cordingley et al., 2015; Campbell et al., 2016; Darling-Hammond et al., 2017; Desimone, 2009; Katz & Dack, 2013; Labone, & Long, 2016). Recent research (Alonso-Yáñez et al., 2018; Brandon & Saar, 2014; Brandon et al., 2014; Brandon et al., 2016a; Brandon et al., 2016b; Brandon et al., 2020; Brown et al., 2020, 2021; Chu et al., 2020) reported promising findings when DBPL was used as the professional learning approach to support, deepen, and enhance teachers and administrators' practices. In two of the studies, researchers reported that teachers participating in design-based

professional learning reported statistically significant growth in teaching practices (Brown et al., 2020; Chu et al., 2020).

Key Features of Design-based Professional Learning. While the overall design of DBPL is constant, three key features are collaboratively designed with participants and unique to each new context in which DBPL is enacted: situativity, the iterative and cyclical nature of learning and change, and agency.

Situativity

"Situativity means that knowledge is not just a static mental structure inside the learner's head; instead, knowing is a process that involves the person, the tools, and other people in the environment, and the activities in which that knowledge is applied" (Sawyer, 2006, p. 6). Within a situated perspective, the focus shifts from individual learners to the activity system and how people learn by engaging in activities within the system, such as authentic problems arising from their practice (Diamond & Spillane, 2016; Greeno, 2006; Greeno & Engeström, 2014; Scardamalia, 2002). As new problems and ideas are encountered and acknowledged, different interpretations are negotiated and improved upon, and evidence is weighed, which leads to collective improved practices (Greeno, 2011; Hargreaves & O'Connor, 2018a, 2018b; Scardamalia & Bereiter, 2006; Zang et al., 2009). An important quality of situativity is expansivity. Expansivity suggests that double-loop learning has occurred, which involves a change in the participants' understanding bringing about a radical expansion of the scope or impact of activity (Greeno & Engeström, 2014). A situative approach can be used to discuss changes that occur over time and evidence of learning can be described in three ways: i) individual learning by participating in the activity system, and that individual's learning is explained by properties and processes in the activity system, ii) the activity system as a whole, as the learners' practices evolve over time,

and iii) the activity system as a whole learns, and this learning is explained in terms of properties and processes of the activity system.

The Cyclical and Iterative Nature of Learning and Change

Learning requires attention, active engagement, error feedback, and consolidation (Dehaene, 2020). Bransford et al. (2000) contended the design of learning environments needs to be learner-centered, knowledge-centered, assessment-centered, and community-centered with attention to four components i) the knowledge, skills, attitudes, and beliefs that the participants bring to the sessions; ii) research-informed content and instructional design, iii) opportunities for feedback, revision, and reflection, and iv) continuous collaborative inquiry. The DBPL environment is a design environment that draws upon the principles of learning (Dahaene, 2020) and knowledge building/knowledge creation (Scardamalia & Bereiter, 2006); and the components of the design of learning environments (Bransford et al., 2000). It involves participants engaging beyond one professional learning episode into the continuous and ongoing work that improvement requires and demands. It immerses teachers and administrators in design activity as participants in DBPL; it also engages them in design processes through gathering, weighing, giving and receiving feedback, and reflecting on evidence in the company of their peers to ensure that explanations cohere with the available evidence. Researchers are actively engaged throughout the cycles of professional learning to support and document the work. They collect and analyze documents and participant input gathered during and between DBPL sessions to help shape the design of each subsequent session in the series. The researchers continually share insights from data analyses and scholarship in the field to inform the ongoing professional learning designs.

Agency

Agency is an emergent quality resulting from an agent-structure dialectic involving temporal and structural elements, and how the agent engages with them (Emirbayer & Mische, 1998). The agent (or learner) does not learn in isolation but applies and negotiates their learning in a unique cultural and historical environment involving elements that may serve to both constrain and/or enable learning. The development of agency requires a dialogic process between an agent and their context at a certain point in time. Within DBPL, agency develops through the deep and demanding dialogue that occurs while all participants, including the professional learning facilitators and researchers are weighing, giving and receiving feedback, and reflecting on evidence of learning within each professional learning cycle. Professional agency is practiced when practitioners exert influence, make choices, and take stances in ways that affect their professional identity (Etaläpelto et al., 2013), which includes their commitments, ideals, motivations, goals, and interests at work. For the purpose of our cases, we defined agency as "the capacity of [educators] to act purposefully and constructively to direct their professional growth and contribute to the growth of their colleagues" (Calvert, 2016, p. 4).

The Two Cases

This section provides insight about two cases through three key features of DBPL: situativity, the iterative and cyclical nature of learning, and agency. The two cases are illustrative of DBPL within a large urban and small rural school authority. The first case involved over 700 lead teachers from a large urban school division. The second case involved all five district leaders and ten school leaders from the schools within a rural school division. In the first case, teacher leaders participated in the DBPL for three years, and in the second case, school and school district administrators participated in DBPL continuously for six years.

The two cases are drawn from two different longitudinal studies that used a design-based research methodological approach. “Design-based research is used to study learning in environments which are designed and systematically changed by the researcher” (Barab, 2014, p. 151). Design-based research consists of a range of approaches with a commitment to carry out the research activities in a naturalistic setting, with the goal of improving practice and advancing theory (Barab, 2014). Both research studies involved a significant commitment to collaboration with school district leaders and principals. Both studies used McKenny and Reeves (2019) design-based cycles to frame the iterative phases of the research, balancing the theoretical understanding and practical solutions. The DBPL was the practical design solution that was formulated and enacted in both studies. Data were collected through observations and qualitative documents that resulted from the work conducted during and between DBPL sessions as well as interviews, questionnaires, and surveys. Findings from both studies have been published elsewhere and provide more detail about the methodology and methods used in the two studies (Alonso-Yáñez et al., 2018; Brandon & Saar, 2014; Brandon et al., 2014; Brandon et al., 2016a, 2016b; Brown et al., 2020; Chu et al., 2020; Friesen & Brown, 2020). Design-based research is characterized as evolutionary (McKenny & Reeves, 2019), and as we continue to study design solutions, an important part of our work is to engage in reflection to inform subsequent study. The purpose of this article is to examine our findings and reflect on the ways the three features of the DBPL design solution (situativity, the cyclical nature of learning and change, and agency) are evident in two cases involving teachers and school administrators.

Case 1: Urban School Division: Teachers as Leaders of Learning

Context

In 2016, an urban school division approached the professional learning director of the Galileo Educational Network to explore the possibility of extending a previous professional learning project focused on one area of the school division (Brandon et al., 2016a; Brandon et al., 2014) to now include all newly appointed teacher leaders. The earlier professional learning series in the school division focused on strengthening and improving principals' and assistant principals' instructional leadership practices over a three-year period. As a result of this work, the division added a teacher leader to the instructional leadership team. Adding teacher leaders in schools created a distributed approach (Diamond & Spillane, 2016) to instructional leadership, but it also provided a collaborative, collective, and coordinated structure to support school initiatives designed to improve the quality of teaching practices (e.g., establishing professional learning communities). The school authority used that finding as a basis for creating a similar approach across all schools in the division. Teachers, newly appointed into the role of teacher leader, needed professional learning to support the growth of their own teaching practices and support for how to lead their colleagues to improve their practices. Teacher leaders needed help to guide professional learning communities for small groups of teachers and help to provide in-classroom support to individual teachers in their respective schools. The management of Galileo Educational Network reached out to researchers within the Werklund School of Education at the University of Calgary to join a design team to conduct a design-based research study for this DBPL initiative.

Approximately 700 teacher leaders participated in five to eight sessions yearly for three years. The teacher leaders were divided into two groups—a kindergarten to grade nine group, and a high school group and multiple cohorts within each group (approximately 40-50 participants per cohort). The sessions focused on designing learning environments that sponsored deep, meaningful

learning (Laurillard, 2012, 2018; Fullan et al., 2018) and student-centered leadership practices (Robinson, 2011). This context provided an ideal opportunity to further explore and extend the initial approach to DBPL, which evolved through the previous professional learning initiative in the school division to determine whether a design approach to professional learning could provide sufficient agency among a group of teacher leaders, district leaders from the school division, the professional learning facilitators, and the researchers.

Situativity

The professional learning series were designed to engage teacher leaders in problems arising from their practice, both the teaching practices from their classrooms and their evolving leadership practices. The sessions were divided into two parts. One part focused on problems and evidence teacher leaders brought from the classroom. The second part focused on problems and evidence that arose in their evolving leadership practices. The sessions involved teachers critically reflecting upon the evidence they brought to the session, working with a group of colleagues to examine and interpret the evidence of learning documenting insights and posing questions, getting and giving feedback, and suggesting next steps. Teacher leaders brought a variety of artifacts from their classroom practice to part one of the session, including videos of students engaged in learning or of them teaching, or samples of student work, either digital or paper based. In the second part of the sessions, teacher leaders brought artifacts they had created for their respective professional learning communities, reports of mentoring efforts with colleagues, reports of meeting with the school leadership team, and problems that arose as they learned to be leaders of learning in their respective schools. As problems and ideas were encountered and acknowledged, different interpretations were negotiated and improved upon always working from the principles of idea

improvement and collective responsibility for improvement (Scardamalia & Bereiter, 2006; Zang et al., 2009).

The Cyclical Nature of Learning and Change

DBPL evolved, grew out of, and was refined during the initial professional learning series with a cohort of principals and assistant principals from a cohort of 47 schools within an area of the urban school authority. The professional learning series with the teacher leader group was the first formal iteration of the DBPL approach. As the processes of critically reflecting upon practices individually and collectively; and gathering, weighing, giving and receiving feedback were new to the teacher leaders, the professional learning facilitators guided the teacher leaders through this process. Protocols were established based on feedback from the teacher leaders and informed by the research literature. These protocols helped to ensure that the learning from one session provided the basis for the design of the next session.

A design team was struck consisting of: teacher leaders, representatives from the school division, professional learning facilitators, and researchers. In this way, problems of practice and issues related to leadership practices became shared and acted upon not only with the network of teacher leaders but also with other leaders in the school division. The problems of practice and the learning arising from the teacher leader sessions were addressed in other professional learning series that the division was sponsoring with principals and assistant principals. While the iterative and cyclical nature of learning was maintained for the teacher leaders, the expansion of the problems of practice beyond the teacher leaders' network enabled deeper conversations in a more expansive network of school leaders, which also created the conditions in which changes at one level of the system informed and influenced other levels within the system.

Agency

Teacher leader agency emerged and grew stronger throughout the three-year professional learning series. As teacher leaders became more comfortable and skillful through the deep and demanding processes of dialogue that occurred while collaboratively weighing, giving, and receiving feedback, and reflecting on evidence in each cycle of the professional learning, they began to report improved student learning based on their instructional improvement efforts. As they led professional learning in their respective schools, the teacher leaders reported improved teaching practices became a collective responsibility of teachers within their school and across the schools.

Key Findings

Perhaps the most important finding from this professional learning initiative is that the DBPL approach was successful. The community of teacher leaders fostered a network that built the collective, collaborative capacity of teacher leaders to improve and strengthen instructional practices in their classrooms and in their colleagues' classrooms. As the sessions progressed, teacher leaders opened their practice in the true spirit of collaborative inquiry. Evidence they brought forward from their own practice grounded the dialogue and conversations. Teacher leaders were able to draw upon the collaborative work with their colleagues in the professional learning sessions to guide their work in the schools. Through engaging in robust dialogue, teacher leaders supported each other in collaboratively taking up and responding to problems of practice. The following quote exemplifies a common reflection reported by teacher leaders in the study, "I found our conversations very valuable today and also quite raw. People were open and vulnerable in sharing their artefact and what they wanted support with. We were asking questions that pushed

each other to look closely at our work and reflect upon what worked, why, and what we would do differently."

The second key finding in this study came about from the analysis of the extensive documentation in the form of evidence teacher leaders presented, dialogue records documented during the dialogue sessions, the feedback they provided to the facilitators and researchers, data analysis at the end of each session, and the purposeful design by the design team for the next session provided a routine for everyone involved in this initiative. Through pre- and post-surveys, teacher leaders reported statistically significant growth in four areas of their work: leading teacher learning, using resources to lead teacher learning (e.g., tools, protocols, structures, strategies, designing templates, accessing existing research), understanding school authority goals and leadership expectations, and expanding their professional network (Brown et al., 2020; Chu et al., 2020). A sentiment that the participants commonly expressed was their growth in teaching and in leading the work in their schools, "I feel I have grown as an instructional leader this year. I feel better prepared to have conversations with colleagues around improving practice and increasing student success." Other participants expanded on this sentiment and provided specific examples of skills they learned to support their leadership development, "It has provided me strategies on how to lead learning and build capacity in other learning leaders. For example, framing questions, task design and PLC progression."

In addition, teacher leaders expressed increased agency in their ability to lead collaboration in the professional learning communities in their schools. Many teacher leaders commented on feeling better prepared and more confident to lead teacher learning in the school. In a post-survey, one teacher leader said, "It has proven that I am capable and able to take on a leadership role in schools" and "I feel that I could lead a PD session on task design or assessment, or I could lead

PLCs with a group now." Developing competencies and confidence in instructional leadership was a common reflection shared by teacher leaders. The teacher leaders were clear that the DBPL sessions assisted them to work collaboratively and productively with each other and also to learn how to create the conditions for collaborative engagement focused on improving teaching practices in their respective schools. Teacher leaders grew in their confidence and ability to lead a learning community, particularly in the areas of creating meaningful, collaborative learning opportunities for teachers and support staff, and collaborating with community service agencies to provide wrap-around supports for all students who may require them, including those with mental health needs.

At the close of our last session of the three years, teacher leaders reflected and reported on their professional growth, "I have deepened my understanding of the importance of actionable feedback within the iterative cycle. I have been given more tools to engage peers and facilitate this work at the classroom level." While acknowledging the growth of their colleagues, teacher leaders also acknowledged growth in their own classroom practice, "This series has been a huge leap forward for me in terms of my own classroom practice, and in terms of my role as a learning leader working with my colleagues. The series has caused me to question, examine and change my practice to design authentic, meaningful work for students."

Case 2: Rural School Division: Overall Instructional Leadership Context

A rural school division comprised of seven schools that serve approximately 2100 students in the Bow Valley area of Alberta, Canada. In 2013, the school division contracted the Galileo Educational Network to provide DBPL to school and district leaders through an initiative they titled *Nurturing Excellence in Instruction and Leadership* (NEIL). This initiative was designed to mobilize evidence-based instructional leadership (Robinson, 2011; Wahlstrom, 2012), teaching

(Friesen, 2009), and professional learning to more fully support student learning. As this initiative was aligned with a leadership focus of the provincial ministry, Alberta Education funded the mixed-methods research study associated with this six-year DBPL professional learning initiative.

The senior leadership of the rural school division wanted all ten school principals and five district leaders involved in professional learning involving two components: monthly professional learning sessions throughout the school year and bi-annual site visits that consisted of instructional rounds (City et al., 2009). This structure continued over the six years. An important feature of the initiative was the steady flow of feedback and insights to develop leadership with participants rather than for them (Brandon & Saar, 2014).

Situativity

The monthly sessions involved immersing leaders in the research literature in both areas, establishing doable actions to guide their leadership practices, and documenting evidence of those actions. Leaders came together monthly to critically reflect upon the evidence they brought to the session, working with a group of colleagues to examine and interpret the evidence of learning documenting insights and posing questions, getting and giving feedback, and suggesting next steps. As with the previous case, protocols were used to help ensure that the learning from one session provided the basis for the design of the next session. As problems and ideas were encountered and acknowledged, different interpretations were negotiated and improved upon, always working from the principles of idea improvement and collective responsibility for improvement. Each session provided a scaffolded approach to learning, providing instruction in an aspect of instructional leadership and improving quality teaching that would deepen and expand the participants' leadership practice.

The bi-annual site visits involved teachers, school leaders, and district leaders. Teachers in each school volunteered to meet with one of the school leaders to discuss an aspect of the teaching practice they were working to improve and strengthen. The school leaders visited the teachers' classroom to gather evidence of that particular practice. A meeting was arranged between the teacher and the school leader to discuss the evidence and determine the next steps. Both the classroom observation and the meeting between the teacher and school leader were conducted in the presence of three to four other school and district leaders who provided feedback to the leader based on criteria that had been collaboratively designed at one of the monthly professional learning sessions. The school leaders and the other leaders engaged in a discussion about the next steps for improving and strengthening instructional leadership practices.

Concluding these observations and meetings, the teachers involved in the initiative met with a district leader to provide confidential feedback about ways leaders could improve their instructional leadership practices, while the school leaders met with district leaders and members of the research team to critically reflect on what they were coming to understand about nurturing the professional capabilities of teachers during their instructional rounds and debriefing conversations with teachers.

The Cyclical Nature of Learning and Change

The design of the professional learning series and the cycles of school visits was challenging for many of the leaders initially. They were familiar with more traditional and familiar forms of professional development based on either workshops or one-day events. They were unfamiliar with professional learning that was embedded in the day-to-day work that required them to do some things differently, try out new things, document the process, and then meet with colleagues to make their leadership practices public. As the processes of critically reflecting upon

practices individually and collectively; and gathering, weighing, giving, and receiving feedback were new to the leaders, the professional learning facilitators guided the leaders through this process. Protocols were established based on feedback from the leaders and informed by the research literature. These protocols helped ensure that the learning from one session provided the basis for the design of the next session.

A design team comprising school principals, district leaders, and facilitators from the Galileo Educational Network met monthly to review the evidence and feedback arising in the session and use this as a basis for designing the next session. Actionable leadership practices were developed collaboratively among the leaders and facilitators through the DBPL sessions. Having both school and district leaders involved in iterative and cyclical learning over an extended period, building trust, which in turn allowed deeper conversations and more impactful actions. It also created the conditions in which changes at the school level informed and influenced those at the division level.

Agency

As the initiative evolved over the six years, leader agency grew stronger. The demanding processes of dialogues in the monthly sessions grew in scope to include not only instructional leadership, but also visionary leadership, leading a learning community, and building leadership capacity while maintaining a focus on quality teaching. Leadership in the division became a collective responsibility of leaders at the school and district levels.

Key Findings

A key finding was the success of DBPL in creating and sustaining transparent, nonthreatening, improvement-oriented focus across the school division. The intense dialogue around leadership practices using evidence from the participant's own practice, developed a

culture of strong relational trust (Bryk & Schneider, 2004) that was foundational to the initiative's success. This was expressed repeatedly by participants, as noted in the following articles (Brandon & Saar, 2014; Brandon et al., 2016a; Brandon et al., 2020).

The second key finding that contributed to the success of this DBPL initiative was the strong relational trust that developed over the six years. Teachers, school leaders, and division leaders reported that the heightened focus on evidence of student, teacher, and leader learning generated excitement, engagement, and efficacy. The participants at three levels within the system, teachers, school leaders, and division leaders, indicated deep appreciation for the ways in which the design team continuously incorporated their feedback and learning from the previous cycle into the next cycle of learning. They reported that this design allowed them to open their practice to colleagues, even colleagues at various levels within the school division. Teachers and school leaders reported that the evidence-informed conversations based on trusting relationships of respect and challenge supported the generation of effective teaching practices (Friesen, 2009) that were becoming more pervasive throughout the school division.

The third key finding was the extent to which teachers, school leaders, and district leaders indicated their comfort, confidence, and competence in leading evidence-informed dialogue and conversations in professional learning outside of this initiative. Teachers reported that the school and district leaders' "visibility and vulnerability in classroom settings enhanced their credibility in the eyes of participating teachers" (Brandon et al., 2016a, p. 70).

Discussion

While the overall design of DBPL remains constant, the three key features of situativity, the cyclical nature of learning and change, and agency were collaboratively developed in response to the expressed needs of the teachers and school administrators in the two cases.

Situativity

In both cases, the DBPL was situated in the day-to-day work and workplace of the participants. As teachers and school leaders engaged individually in gathering, documenting, and critically reflecting on their practice, new insights emerged about the nature of teaching and leadership practices. Both cases show the importance of individual learning through responsive, authentic, and meaningful contexts. Over time, as participants gained trust in one another, and trust in the process, the learning transitioned from the individual to the collective level. Problems of practice reached deeper into the heart of teaching and leading, turning questions of how to those of why, when, and what. This in turn led participants to consider their practices in new ways, sometimes entertaining entirely new possibilities. Connecting the teaching and leading practices to artifacts of student learning as evidence of teachers' and leaders' learning through cycles of weighing evidence, giving and receiving feedback, and determining next steps led to individually and collectively improved practices that allowed the activity system as a whole to learn over the extended length of the initiative (Greeno, 2011; Hargreaves & O'Connor, 2018a, 2018b; Scardamalia & Bereiter, 2006). While this article draws upon these two cases, one urban and one rural, additional study has been undertaken on DBPL initiatives to show that the same overall design structure with the same three flexible features are scalable to other professional learning initiatives (Brown et al., 2020, 2021; Friesen & Brown, 2020).

The Cyclical Nature of Learning and Change

In both cases, the long-term commitment to sustain the cyclical and iterative nature of DBPL by the school authorities arguably created the conditions for collaborative professionalism (Hargreaves & O'Connor, 2018a, 2018b). The cyclical and iterative nature of learning and change designed on the principles of how people learn (Dehaene, 2020; Bransford et al., 2000) provided

sustainable improvement and growth in teachers (urban division and rural division), school leaders (rural division), and district leaders (rural division). Both cases illustrated design environments that were learner-centered, knowledge-centered, assessment-centered, and community-centered (Bransford et al., 2000). Using a learner-centered approach, the knowledge, skills, attitudes, and beliefs that teachers and leaders brought to the sessions provided the starting place for the first and subsequent sessions. Research-informed content and instructional design provided participants with scaffolding toward the subsequent learning in each session. In this way, the continuous and ongoing improvement work was robust, with a knowledge-centered focus brought to each session based on the analysis of the data from the previous learning session. An assessment-centered focus was maintained by gathering, documenting evidence, collaboratively giving and receiving feedback, revising, and determining the next steps. Engaging in collaborative inquiry provided a community-centered focus to the sessions.

Agency

Agency, in particular, professional agency (Etaläpelto et al., 2013) was realized and practiced by teachers, school leaders, and district leaders throughout these two DBPL initiatives. Engaging in deep and demanding dialogue focused on the individual, collaborative, and collective work of professional growth, change, and improvement created the structure and process whereby participants exerted influence, made choices, and took stances in ways that affected their practices within the workplace. In both cases of DBPL, teachers and leaders acted as both learners and leaders, with the intention of developing their own and their colleagues' professional practice. In both cases, teachers and leaders demonstrated relational trust (Bryk & Schneider, 2004) and opened their practices to each other, looking to each other to assist with improving teaching and leading practices—practices that would make a positive difference to student learning. In this way,

the work of improvement was not an isolated or individual concern, rather the work of improvement was a collective professional concern.

Conclusion

Rooted in a system of collaborative professionalism that cultivates individual and collective learning, DBPL is a design solution that can contribute to a sustainable, effective, and continuous approach to growing the capacity of a teaching and leading profession. The evidence-informed, iterative cycles involved deep and demanding dialogue, constructive and productive feedback, and continuous collaborative inquiry. Rooted in the principles of design, DBPL is an intentional approach to professional learning that engages teachers, and school and district leaders in forms of collaboration in ways that achieve impact within their practices. Continuously gathering, weighing, giving and receiving feedback, and reflecting on evidence in the company of their peers, ensuring that explanations cohere with the available evidence creates a culture of relational trust, engagement, and continuous improvement experienced at the individual and collective levels. Design-based professional learning, rooted in a framework of design and professional learning, provides a promising approach to professional learning for teachers and school administrators.

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