

Article

# Supporting New Teachers as Designers of Learning

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**Abstract:** The aim of this study was to examine a professional learning intervention designed to support new teachers with implementing professional practice competencies. Partners from a school authority joined researcher-practitioners from a university to engage in designing a professional learning series for new teachers. A design-based research approach using quantitative (pre- and post-surveys) and qualitative data (artifacts of learning, field notes, classroom observations) were analyzed over one year. There were over 450 participants involved in the professional learning series. The findings indicated the professional learning intervention positioned new teachers as designers of learning engaging in continuous cycles of design–enactment–reflection and strengthened their pedagogical capacity to interconnect professional practice competencies with support from a community of learners. The findings from this study have implications for supporting new teachers during a period of induction and demonstrate one way to provide new teachers with the foundation for continual growth throughout their career.

**Keywords:** pre-service teachers; professional learning; professional development; teacher induction; beginning teacher

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## 1. Introduction

The effective support of teachers who are beginning their career remains a complex problem of practice in education. In Canada, researchers have estimated that as many as 40–50% of teachers leave in their first five years of the profession [1–3]. However, leaving is not the only detrimental outcome of challenging induction experiences. Many of the induction programs that are now proliferating in Canada, and the research projects that document and support them [4], are motivated by the knowledge that beginning teachers are in need of support not just so they will stay in the K-12 classroom, but so that they can be set on a trajectory of positive professional growth [5–7].

In Alberta, the western Canadian province that is the context for this study, guidelines for professional competencies are set out in the Teaching Quality Standard [8]. These competencies, that all teachers in the province strive to develop, include: fostering effective relationships, engaging in career-long learning, demonstrating a professional body of knowledge, establishing inclusive learning environments, applying foundational knowledge about First Nations, Métis, and Inuit for the benefit of all students, and adhering to legal frameworks and policy. Hence, the aim of this study was to document the impact of a professional learning intervention designed for new teachers, as they developed this set of competencies in their induction years.

Using a proven design-based professional learning (DBPL) intervention [9–11], the partners in this research project organized a design-based professional learning (DBPL) series for new teachers as a place and space to come together to connect and collaborate to strengthen four competency areas articulated in the Teaching Quality Standard [8]: Competency 2: Engaging in career-long learning, Competency 3: Demonstrating a professional body of knowledge, Competency 4: Establishing inclusive

learning environments, and Competency 5: Applying foundational knowledge about First Nations, Métis, and Inuit for the benefit of all students. Design-based approaches to professional learning have, at their core, a focus on the enactment of professional knowledge in practice [12,13], and have been shown to be effective in supporting the professional learning of more veteran teachers. At the time of this study, we were unable to find literature that demonstrated how DBPL might support teachers in their induction years. Therefore, as the team of researcher-practitioners worked together, the following question guided the design-based inquiry: in what ways does a design-based approach to professional learning enhance the abilities of new teachers to implement professional practice standards? After reviewing the literature related to teacher induction and professional learning, we share the findings of this study that present the ways in which a design-based professional learning approach is an effective support for beginning teachers as they develop professional competencies.

## 2. Literature Review

Throughout our iterative research process, we continuously sought out literature related to both initial and emerging topics. Below, we present current literature related to teacher induction, teacher professional learning, and the features and benefits of design-based approaches to professional learning in education.

### 2.1. Teacher Induction

In order to explore the lasting impacts of a teacher's induction years, it is first important to understand "induction" not as synonymous with "program," but instead understand that induction is a critical time period in a teacher's career [14,15]. We can look to Dewey's theories on experiences to further understand that when experiences are mis-educative instead of educative, this can perpetuate the status quo and limit growth [16]. As several researchers have pointed out, when a beginning teacher has negative experiences in their beginning years, their future professional growth can be limited [17,18], whereas teachers who are engaged early in effective professional learning tend to continue that process of change and growth throughout their career [5]. In today's context, the ability to maintain a continuously evolving and self-directed practice is increasingly vital [19,20]. Failing to support early career teachers is detrimental to the profession not just because some of those with the strongest potential among them may leave [21], but also because those who stay can be hindered in their goal of becoming the teachers that students deserve.

In Alberta, expectations for professional practice standards are defined in the competencies outlined in the Teaching Quality Standard [8]. While these six competency areas are the focus of teacher preparation programs in Alberta, it is well known that a significant amount of growth and development happens at the beginning of a teacher's career [22–24]. Once in the field, teachers become fully responsible for the learning environment and begin the work of becoming integrated into their particular school context [25]. If not properly supported in this latter task, then those tasks are not necessarily part of "teaching," but rather part of the micropolitical environment in which teachers must integrate, and can draw the bulk of a beginning teacher's focus and energy [26]. While support for these immediate and urgent learning tasks is an important part of teacher induction support [27], focusing there alone is also detrimental to teacher growth.

To achieve the goals of pedagogical growth and success, beginning teachers need effective and growth-oriented support. In this, they are not alone. Some researchers argue that professional learning needs to remain consistent throughout a teacher's career [25,28]. We can, therefore, look to the literature on effective professional learning for teachers as a whole to discern features of effective professional learning for beginning teachers.

### 2.2. Professional Learning

Traditional ways of supporting teacher "development," such as delivering one-off, workshop-style interventions, have been criticized for failing to effect any changes in classroom practice [10,29].

These models of professional development have historically seen an outside expert coming in to provide educators with knowledge, and then leaving the work of implementing that knowledge up to the educators. However, models of professional learning that position the teachers themselves as experts, and provide a framework for inquiry and learning that teachers can use to guide their own growth, have been shown to be more effective in supporting ongoing teacher growth [9]. In addition, these models of professional learning have also shown how collaborative inquiry and reflection can support educational reform [30–32].

Content-based collaborative inquiry, for example, is a model used for teacher learning and fostering a collaborative community of inquiry [32]. Timperly [30] conceptualized a knowledge-building cycle for teacher learning that has, as both its starting and end point, student learning. Inquiry-based professional learning has been shown to improve teaching quality as well as student learning [33,34]. In a similar way, action research [35] defines teacher learning as an evidence-informed cycle, where teachers begin a process of growth by reflecting on their own practice in relation to student outcomes. After identifying a student learning outcome to improve, the literature indicates that effective professional learning should be rich in information and evidence [36], so that teachers may draw upon their professional body of knowledge to inform practice.

Powerful professional learning is often described as collaborative [29,30,37,38]. As educators work together to improve student learning, they naturally enrich “the culture of the school or district” as they “work on what matters, and help one another make changes” [13] (p. 757). Working collectively within a school or district also means that the changes to practice that arise out of professional learning will be context specific [19,20]. Given that contexts for education differ so dramatically from one school or district to the next, this is a significant feature of meaningful professional learning. Effective professional learning is also characterized as continuous, and continuously supported [10,13,20,29,30,36,39].

### 2.3. Design-Based Professional Learning

Design-based professional learning picks up these threads and adds a design lens to present a deepened articulation of the teacher learning process, and to provide opportunities to expand the professional learning process. Teaching is approached as a design science [38]. As noted by [9], design-based professional learning involves continuous cycles of teachers designing learning tasks and analyzing evidence-based work with peers during and between sessions. At the same time, a team of researcher-practitioners facilitates the cycles and continually gather and analyze data to keep informing the ongoing design of the professional learning. Design-based approaches to professional learning seek to create spaces where collaborative, dynamic, and iterative learning cycles can unfold in content-rich environments, and teachers can engage critically with both their colleagues and experts in the field to design solutions to the complex problems of teaching unfolding in their own unique contexts [40]. The underlying idea is that learning is cyclical, iterative, and collaborative [41,42].

In relation to new teacher learning specifically, design-based learning has some distinct advantages. First, since design-based learning begins with, and is shaped by, a teacher’s existing practice, it naturally takes a strengths-based perspective of teacher learning. Instead of attempting to address a deficit in teacher knowledge, and then “filling” that gap with information, design-based learning seeks to empower a teacher towards having agency in their professional growth, and to “make learning choices to achieve their goals” [43] (p. 4). Secondly, design-based professional learning provides timely support from multiple experts in research and practice in order to be responsive to participants’ needs. In innovative educational contexts, educators can often find it difficult to connect current research with everyday practice. A design-based approach to professional learning helps practitioners make research-informed decisions. Finally, by engaging teachers in the kind of learning they value, it is hoped they will be inspired towards improving their practice not because of a “lack” of some kind, but because a *practice* is, by nature, something that can always be improved. Learning, therefore, is something that continues throughout a career.

#### 2.4. Professional Learning for New Teachers

Professional development experts argue that professional learning allows teachers to continuously engage in reflective learning practices that are directly linked to improved student learning [29,30]. Likewise, teacher induction needs to promote teacher development and improve the quality of teaching and learning. This research, and the professional learning support it examined, focused on looking more closely at a professional learning program designed to support exactly this kind of learning.

Although there is much evidence for the fact that support for beginning teachers across Canada is increasing, it remains that some of that support is inconsistently implemented [36,44,45]. Documenting existing induction support in order to improve its effectiveness represents an important part of improving support and its implementation [46,47]. Research on how new teachers are supported in their work towards improving student learning outcomes while strengthening their own teaching capabilities is needed.

### 3. Context

This research–practice partnership involved a school district, university, and professional learning organization situated within a Faculty of Education. Starting in fall 2018, school district leaders, along with a team of researcher-practitioners (faculty and professional learning facilitators), collaboratively designed and implemented a year-long intervention, a design-based professional learning series for teachers new to the district and focused on nurturing effective teaching practices to better meet the competencies in the professional practice standard for teachers in Alberta. Competency in this context is defined as “an interrelated set of knowledge, skills, and attitudes developed over time and drawn upon and applied to a particular teaching context in order to support optimum student learning as required by the Teaching Quality Standard” [8] (p. 3). The partners organized a DBPL series for new teachers as a place and space to come together to connect and collaborate to strengthen competencies as required by professional practice standards.

Using DBPL, teachers engaged in professional learning to collectively design learning in a process that involved:

- ascertaining a problem by identifying what deep understanding their students must build to make learning advances;
- generating ideas through collaborating with colleagues, researchers, and mentors to design worthwhile tasks and assessments;
- receiving feedback through analyzing evidence of student learning to examine how students are building deep understanding; and
- evaluating instructional effectiveness by discerning promising instructional practices through assessing the impact of changed practice on student learning [10] (para. 4).

As part of the DBPL, new teachers worked on designing tasks during each professional learning cycle with other new teachers guided by researcher-practitioners and worked in between cycles with their colleagues at their respective schools. It was an expectation that the teachers bring evidence of practice and collaborative work to the DBPL sessions to receive feedback and support from other teachers, professional learning facilitators, and members of the research team. Teachers had the time to collaboratively design with other new teachers who were in similar learning contexts. The DBPL was designed to require teachers to document and test out designs in their classrooms, document evidence of student learning, and make connections with their colleagues to further develop and advance their instructional designs.

### 4. Methodology

Design-based research is a methodological approach that draws upon a range of approaches with a commitment to carrying out the research activities within a naturalistic setting, with the goal of

impacting practice and advancing theory. A collaborative partner research project, like this one, ensures busy teachers can learn with researcher-practitioners who can connect current theory with practice in an iterative, flexible, and relevant fashion. This study used McKenny and Reeves [48] design-based cycles to frame iterative phases that balance theoretical understanding and practical solutions for professional learning. Within each cycle, there were three phases: analysis and exploration; design and construction; evaluation and reflection. Five cycles of design-based professional learning (DBPL) were scheduled between October 2018 and April 2019 for newly inducted teachers to the district. Participants in the teacher induction DBPL series attended full-day sessions in small cohorts (approximately 50 teachers) for cycles 1, 3, and 5 and attended full-day sessions in large cross-cohort groups (approximately 250) for cycles 2 and 4.

The team of researcher-practitioners also engaged in design and analysis activities in between sessions. An end-of-session survey was administered to help inform the design of subsequent sessions. For example, the survey at the end of the cycle 2 sessions asked participants: “What more do you need to know?” Respondents provided specific examples and data that guided the learning design of cycle 3 sessions. The design team continually referred back to previous sessions and examples to help participants make clear connections between sessions. The focus, topics, and tasks between sessions were influenced by the design approaches used for the research. DBPL is described as a commitment and scholarly activity with a cohort of teachers as a professional learning community to engage in a continuous process of designing learning tasks and analyzing evidence-based work with peers during and between sessions [9]. It is important to continually examine evidence of student learning and design alongside colleagues, as this process can help teachers continually adjust and improve teaching practice [9–11,30]. In other words, the design process begins during the professional learning sessions and continues between each session. Likewise, the team gathered field notes during the sessions, worked alongside the teachers in the sessions, and continually conducted analysis between sessions to inform the learning design of the professional learning sessions. The team also visited three teachers’ classrooms and conducted 1-hour observations in each class following the series.

#### *4.1. Participants*

There were over 450 participants involved in the DBPL series. According to the results from the pre-survey administered during the first DBPL session, 366 teachers agreed to participate in our study (approximately an 80% response rate). The survey included two questions to help match pre- and post-survey responses: last three digits of cell phone number and last three numbers/letters of postal code. As a result, 280 surveys from respondents were matched and used for the pre- and post-survey analysis. Classroom observations involved three teachers (grades 3, 4, and one combined 3–4) who participated in the DBPL series and agreed to a classroom observation.

#### *4.2. Data Sources*

Data were continually gathered and analyzed over a one-year period to inform the ongoing design of the professional learning intervention. A pre- and post-survey incorporated four of the competencies outlined in the professional practice standards that were connected to designing learning and used similar items and question types from a validated DBPL instrument [9]. The survey was administered to new teachers at the beginning of the series and repeated again at the end of the series. Three classroom observations were also conducted by the research team to gather observational data regarding the implementation of designs developed during the DBPL series and to record observations about teaching practice and student learning. Visiting three classrooms at the end of the series provided an opportunity for the research team to document how a small sample of teachers who were involved in the DBPL series enacted learning designs in their classrooms. The study was limited to three classroom observations, even though more teachers invited researchers to observe their classrooms (~30). The research team was unable to conduct more observations due to the time commitment involved in scheduling and conducting each observation at the end of the school year after the

completion of the DBPL series. Hence, the researchers limited the observations to three purposefully selected classrooms of a similar grade and in different locations in the school district.

As part of the design-based approach, questionnaires were also administered at the end of sessions 2, 3, and 4 to help inform the continuous design of the professional learning sessions. The emphasis of this article is on the findings from the overall study using quantitative data gathered from the pre- and post-survey instrument and the qualitative data gathered through open-ended questions in the survey and field notes from three classroom observations.

#### 4.3. Data Analysis

The data were collected and analyzed throughout the research study in order to follow a design-based research process, as described by McKenney and Reeves [48]. The merged dataset of the pre- and post-surveys were analyzed using IBM SPSS Statistics 24. Descriptive statistical analysis was performed to report the frequency, mean, and standard deviation of survey items. Inferential analysis was used to compare between pre- and post-surveys. A two-tailed univariate paired *t*-test was performed. To correct for Type I errors that may be probable as a result of performing multiple inferential analyses, a Bonferroni correction was performed. A *p*-value < 0.0125 was considered statistically significant. To analyze the effect of demographic variables on mean differences, a MANOVA statistical analysis was used for group mean differences and the demographic questions of the pre- and post-surveys.

The researchers used QSR Nvivo10© software to assist in the qualitative analysis process in order to synthesize the data from all the open-ended online survey questions. Using Saldaña's [49] coding manual as a guide, an initial open coding process created a full set of codes which was reorganized into categories, which were then merged into findings and finally into key themes. The categories represented codes that were used most often when coding the data (75% or more). An additional round of coding was also conducted to review the data related to the professional practice standards. Researcher-practitioners continually checked in with the participants to share emerging findings and to seek validation of the ongoing data analysis. The professional learning session observation field notes, the online survey quantitative data, and classroom observation notes converged to form the findings that were organized into the following main themes: new teachers are positioned as designers of learning, teacher learning requires collaboration and a supportive network, and teacher learning requires reflective practice with colleagues.

## 5. Findings

The Teaching Quality Standard states, "Quality teaching occurs when the teacher's ongoing analysis of the context, and the teacher's decisions about which pedagogical knowledge and abilities to apply, result in optimum learning for all students" [8] (p. 3). The findings from this study focus on the ways a design-based approach to professional learning enhanced new teachers' competency, based on four areas articulated in the Teaching Quality Standard.

### 5.1. New Teachers As Designers of Learning

We found that a DBPL approach to professional learning positioned and supported new teachers to become designers of learning. Designing the professional learning sessions that formalized a design-based approach to teacher learning that required new teachers to innovate, inquire, test, evaluate the evidence of student learning, make improvements, work collaboratively, and open their practice to each other allowed the new teachers to work on improving their practice in a principled way, in which teaching practice itself was positioned as design. The new teachers in this study worked towards improving four of the professional practice competencies articulated in the Teaching Quality Standard [8] by holding these four competencies as an integrated whole, rather than viewing them as four isolated, fragmented, discrete items to be covered. Learning how to design through design-based professional learning advanced new teachers' teaching practices in principled, practical ways [50].

There was a statistical difference between pre- and post-participant responses to the survey questions on the four competencies related to the Teaching Quality Standard [8]. Consistent with the survey results, the open-ended responses and field notes from classroom observations indicated participants benefited from design-based professional learning that required teachers to improve their practice based on evidence of student learning with support from colleagues and researcher-practitioners.

The survey results indicated there was statistically significant growth between the first and final professional learning session in the following four competencies foundational to designing learning: (1) demonstrating a professional body of knowledge; (2) engaging in career-long learning, (3) establishing inclusive learning environments when designing learning, and (4) applying foundational knowledge about First Nations, Métis, and Inuit to instructional design (Table 1).

The following scale was used for coding the data:

1 = Strongly Agree. Describes 75-100% of the time.

2 = Somewhat Agree. Describes 50-75% of the time.

3 = Minimally Agree. Describes less than 50% of the time.

4 = Disagree. Does not describe my current practice.

**Table 1.** Differences between pre- and post-surveys (paired *t*-test + Bonferroni correction)<sup>1</sup>.

	<i>n</i>	Mean Difference	Std. Deviation	Std. Error Mean	<i>t</i>	<i>df</i>	<i>p</i> -Value (2-Tailed)
<b>Professional Body of Knowledge</b>	280	0.238	0.303	0.018	13.154	279	0.000 *
<b>Career-Long Learning</b>	274	0.270	0.406	0.024	11.009	273	0.000 *
<b>Inclusive Learning</b>	271	0.194	0.517	0.031	6.172	270	0.000 *
<b>Foundational Knowledge about First Nations, Métis, and Inuit</b>	270	0.272	0.771	0.047	5.805	269	0.000 *

<sup>1</sup> When multiple hypotheses are tested, the likelihood of Type 1 errors (i.e., the likelihood of incorrectly rejecting a null hypothesis) increases. The Bonferroni correction compensates for this by reducing the alpha level at which we test the critical region. Since we are making four inferential tests here, the new alpha level using the Bonferroni correction was:  $0.05/4 = 0.0125$ . \*: A *p*-value of less than 0.0125 is considered statistically significant.

In the open-ended survey questions, participants were asked, “describe how the professional learning with colleagues supports your teaching practices towards optimum learning for all students.” Participants noted that using multiple iterative formative assessment strategies helped improve their students’ learning. During the DBPL sessions, the researcher-practitioners provided examples demonstrating how formative assessment needed to be incorporated in learning designs to ensure feedback loops were established to help students and teachers determine and guide their next steps. Examples of various forms of formative assessment included scaffolding, co-creating criteria, clarifying learning intentions, peer feedback, exemplar/non-exemplars, and being responsive to individual needs. The numerous teacher examples provided in the survey responses related to formative assessment and demonstrated how participants were developing a professional body of knowledge within an inclusive learning environment, how formative assessment was thoughtfully constructed as part of the learning design, and how formative assessment strategies were used to improve student learning and helped guide teaching.

Classroom observations also supported the survey findings for new teacher growth in teaching competencies. During classroom observations, the researchers were able to observe the ways in which the four competencies were foundational and interrelated in teachers’ designs and practice. Field notes from the classroom observations included discussions with teachers. The field notes provided insights into the ways in which teachers wove the multiple teaching competencies into their learning designs. In observing teachers’ practice, it was difficult to separate the four competencies that were

central to the learning design. During the observations, the new teachers reflected on their designs and described ways to improve designs in future iterations.

This process of design–enactment–reflection during the observations in the study seemed to naturally follow the same flow used to guide the DBPL series. For example, during the reflection component of the classroom observation, one teacher described how the unit of study could be strengthened by integrating Indigenous ways of knowing. This type of evidence-based reflection on the learning design demonstrated the value of critically reflecting on one’s practice to improve the learning design. The teacher was beginning to see opportunities to embed foundational knowledge about First Nations, Métis, and Inuit into the learning design and was comfortable discussing ways to weave that competency into the next learning design. In this way, the teacher viewed the learning designs she created and her practice as improvable. In another classroom observation, the field notes described how the competencies were interwoven and reinforced each other in practice. The teacher situated the lesson as one part of a bigger, more extensive series of lessons, tasks, and activities and demonstrated how that particular lesson that was part of the observation connected to a broader project in multiple core subject areas. The teacher also reflected on the ways all students were supported through the learning design to ensure an inclusive environment. The teacher attributed the quality of the unit design with integrated competencies and evidence of student learning shared during the observation directly to the iterative design approach used in the DBPL series. New teachers described their role as designers of learning and modeled how they continually engaged in a process of design–enact–reflect. The observations demonstrated that teachers were (1) interweaving competencies in the design for learning; (2) enacting the learning design and providing ways for students to demonstrate their learning; and (3) critically reflecting on the learning design and evidence of student learning to determine how to strengthen the design and student learning.

### 5.2. Teacher Learning Involved Collaboration and a Supportive Network

Teachers in the DBPL sessions discussed having a supportive network of colleagues who checked in regularly and supported their learning and growth. Teachers described how they were supported in terms of mentoring, collaboration with colleagues, and the sharing of expertise and resources. The teachers described how they integrated the key themes and topics from the DBPL sessions in their classrooms. The teachers also described the opportunity to develop confidence by presenting and gaining feedback about their practice ideas and challenges with fellow colleagues in a safe and supportive learning environment. In the following example, the teacher described a commitment to student learning and examined challenges alongside colleagues during the DBPL sessions and then with colleagues at the school:

*When sharing teaching practices with colleagues I always walk away with some inspiration that I can enact in my own class! I love the feeling of knowing that others are facing the same challenges as me. The opportunity to explore these challenges as a group allows me to ensure that I am addressing the issue in a way that ensures the success of my students and also encourages my own professional growth. [Survey Respondent]*

New teachers also mentioned the importance of connecting and interacting with other teachers who were in their disciplinary specialty area or taught the same subject grade or topic. The following quote, representative of many respondents’ responses, provides an example describing engagement in career-long learning:

*I enjoyed the induction series and wish I could have more time to learn from others, to continue the productive conversations around teaching strategies and experiences and just continue the learning process. I will never stop learning and the induction series helped in this regard. I got useful feedback, ideas and was able to hear about the amazing things other teachers are doing that I can incorporate into my practice. [Survey Respondent]*



Although the survey did not include questions that directly asked respondents to name individuals that supported their learning, respondents generally described a need to access support from other teachers in their school who taught the same grade or disciplinary area, as well as a need to feel validated and supported by a member of the administration team. When teachers did not feel that they had the support from others in their school, the teachers clearly described their appreciation of finding someone who could support them during the DBPL sessions. The professional learning series provided a means for teachers to connect with peers who were able to share their disciplinary expertise. The informal networking and building of professional capital through the sharing of resources and units of study during the professional learning series cultivated an informal network of peers who could support each other throughout the year.

### 5.3. Teacher Learning Involved Reflective Practice with Colleagues

New teachers engaged in reflective practice and demonstrated a willingness to change their unit design. Critical reflection was a part of the DBPL series and time was always allocated for teacher reflection at the beginning of and between DBPL sessions. Comments in the online surveys and discussion during the classroom observations consistently demonstrated the emphasis of reflection and seeking feedback from others as a natural part of professional growth. New teachers perceived this reflective practice as a condition for improving student learning. The ways in which the participants described their professional learning experiences as strengthening their teaching practices were often connected to the ways they were able to share and extend the learning from the professional learning session into their own classrooms and in their school communities. This approach to professional learning continued beyond the sessions and new teachers engaged in design and reflecting on evidence-based practice as they developed professional competencies with support from their colleagues in their schools:

*I learned so much during the teacher induction session, and one thing that I will take away from them is the importance of reflection. I have always been reflective in my teaching practice, but primarily mental reflection rather than writing down and having concrete evidence of my progress and growth. I have been sharing what I've learned with colleagues and doing my best to encourage everyone to reflect as much as possible. [Survey Respondent]*

DBPL was an intervention that provided a consistent iterative model led by researcher-practitioners, encouraging teachers to continuously reflect on their learning with colleagues, and consider what action to take next, how to obtain feedback from others, and how to make changes to support improving student outcomes. The combined analysis using survey results and field notes from classroom observation indicated there was evidence DBPL supported positioning new teachers as designers of learning and interweaving competencies from the professional practice standard for teachers. In this study, DBPL provided new teachers with a professional learning experience during and between sessions to reflect on evidence of student learning and learning designs, and seek support from a community of learners to continue engaging in cycles of design–enactment–reflection as part of their career-long learning journey in teaching and learning.

## 6. Discussion

Canadian research documenting new teacher needs and the best ways to support them is still a developing field [4,46,51,52]. While any kind of support for beginning teachers is better than none [53], continuous reflection on existing support is key to improving its effectiveness [46,47]. What is known is that new teachers require support. This study found that DBPL is a form of professional learning that supported new teachers to improve their practice in four competency areas, as articulated in the Teaching Quality Standard [8]. In this section, we reflect on the key aspects of DBPL that can be considered when implementing professional learning for new teachers. Features of DBPL for new teachers were found to be consistent with the literature, emphasizing the conditions for effective

professional learning, such as involves self-reflection; is job embedded; involves collaboration and coaching; includes professional learning facilitators and university researchers; is sustained and continuous; and is aligned with school goals, standards and assessments, and other professional activities [36,54–58].

The design of the professional learning series for new teachers involved iterative cycles of inquiry and critical analytic thinking and reflection. Through an inquiry stance, new teachers gained experience in uncovering problems of practice and generating improvements. In this way, new teachers learned to engage in critical analytic thinking and reflection and designing thinking [59–61]. New teachers described the importance of learning how to design authentic tasks and the value of engaging in critical reflective practice during the iterative cycles of inquiry. Collaborative inquiry and critical reflection required designated time [30,31,58]. The findings from the study support the use of continuous, iterative cycles where teachers collaborate with each other and researcher-practitioners within a network to design learning, critically examine learning designs and evidence of student learning, build on each other's learning designs, and reflect on practice [9].

The design of the professional learning model and the relationships among the researcher-practitioners, district leaders, and new teachers and their colleagues are the architectural foundations of this model. Teacher learning is sustained in DBPL in an ongoing way through a supportive network and forum to discuss and improve practice. New teachers discussed their relationships with a supportive network (e.g., colleagues, school administrators, and a researcher-practitioner team) who checked in regularly and supported their learning and growth in an ongoing way during the DBPL sessions and in their schools. Fogleman et al. [62] discussed the value of relationships supported by a district–university partnership. Researchers and professional learning facilitators, who are researcher-practitioners, are important team members within DBPL that may not otherwise be present in other types of professional learning settings. The relationships developed through the support network extended beyond the professional learning sessions. New teachers in the DBPL sessions were also supported by their relationships with other teachers in their schools and school leaders who continued to support their growth outside of the sessions. Likewise, new teachers supported their colleagues in implementing professional practice standards. All teachers, including new teachers, have the capacity to contribute to the learning and growth of their colleagues [43]. We speculate that positioning new teachers as designers of learning and encouraging them to strengthen relationships and share learning with their colleagues in their respective schools could also have contributed to the perceptions of positive professional growth reported by the new teachers in this study while engaging in the DBPL series.

The results from this study offer all those invested in supporting the positive professional growth of beginning teachers insights into how to design a professional learning series that can have an impact on strengthening and improving new teachers' practice and networks of support. A year-long iterative professional learning experience, such as DBPL, with a focus on developing and strengthening four competencies: engaging in career-long learning, demonstrating a professional body of knowledge, establishing inclusive learning environments, and applying foundational knowledge about First Nations, Métis, and Inuit for the benefit of all students can support new teachers to advance and strengthen their practice and position new teachers to take on leadership roles in teaching and learning right from the beginning of their professional career.

## 7. Limitations and Future Research

The study was limited to the focus established by the school jurisdiction. The focus was on supporting new teachers in four competency areas as set out in the Teaching Quality Standard [8] through a professional learning series. The school division also established the days for and frequency of the professional learning sessions. The researchers delimited the study to one school jurisdiction, the design of the professional learning sessions, the focus of the six professional learning cycles, the number of classroom observations, and the forms of data collection.

During the study, it also became evident that new teachers need further support beyond what was provided through a DBPL series [63]. For example, in the open-ended survey responses, participants described a need to stay at their site-school rather than attend the DBPL session. Participants noted they required immediate support with site-based tasks and professional responsibilities (e.g., completing report cards) that were not part of the DBPL sessions. An area worthy of future exploration is the various forms of professional learning required by new teachers, the ways new teachers need to be supported by school leaders and other colleagues at their schools, and the ways DBPL sessions might be integrated into the school-based professional learning communities. Another area for exploration is how new teachers are supported by digital learning design tools as part of their collaborative inquiry [38]. There is also potential for further research which considers the unique needs of beginning teachers and how they are supported in a longitudinal commitment of design processes and reflective practice for improved student learning.

## 8. Conclusions

Teaching in today's school contexts is complex and requires a multi-faceted set of competencies. New teachers are faced with the challenge of designing quality learning experiences for their students and, at the same time, continuing to advance their pedagogical approaches and adapting to changing environments. School–university partnerships offer a promising architecture for developing networks of support as new teachers become designers of learning. Working in partnership with a researcher-practitioner team from the university and members of a leadership team from the school division, engaged in a research–practice partnership, created a sustainable architecture for collaborative design and developing teaching competencies. Design-based professional learning that requires new teachers to innovate, inquire, test, evaluate the evidence of student learning, make improvements, work collaboratively, and open their practice to each other allows new teachers to work on improving their practice in a principled way, in which teaching practice itself is positioned as design. We acknowledge that new teachers have multiple needs that need to be supported through schools, districts, and networks; however, the findings from this study highlight the need to position new teachers as designers of learning environments and this is essential to creating sustainable innovation within a school division. This study confirms that a design-based approach to professional learning offered at a school division level provides new teachers the opportunity to establish an architecture of support with professional learning networks inside and outside of their schools in order to open their practice, seek feedback, and engage in collaborative design processes with colleagues. In this way, new teachers can contribute to a sustainably innovative approach to school improvement from the beginning of their career.

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