

Project 307

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Creating Community and Social Connection to Support Deep Understanding in Asynchronous Distance Learning

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Abstract

This study reinforces and advances three key concepts: a) the necessity for student-teacher partnerships for creating meaningful learning opportunities: b) persistence with supporting online skills *during* the course is integral as schools and teachers should expect that distance learning students will not have the necessary skills and/or buy-in necessary for participating in online learning communities, and c) more understanding is necessary from all people in the learning ecosystem, including senior administrative staff, to support collaborative online communities.

Social constructivist teaching practices are understood to foster deep learning through socio-cultural interactions, asserting that individual learning is limited in comparison to what can be learned as a community. Social constructivist processes are embedded within Saskatchewan curricula with little mention of how they might be achieved in asynchronous distance learning. The lack of direct connections places a burden on distance learning teachers, policymakers, and course designers to discover how to actualize social constructivist education practices within an asynchronous learning environment. This mixed methods study used an online survey and semi-structured interviews to understand teachers' experiences with social constructivist practices in secondary asynchronous distance learning within Saskatchewan. The findings support the integral role of student-teacher partnerships to support learning and suggest that under the right conditions, the intent and stance of the Saskatchewan curricula can be achieved in asynchronous distance learning environments provided there is an alignment in purpose, pedagogy, and person. However, the research findings did not support a strong student desire for social constructivist practices.

Introduction

This research paper is part of a larger Ph.D. study completed through the University of Saskatchewan. For the full thesis please view the publication through the University of Saskatchewan's Research Archive (harvest.usask.ca).

This study purpose was to explore how social constructivist learning processes can be actualized in *asynchronous distance learning* (DL) contexts in Saskatchewan. Although Saskatchewan (SK) curricula promote the use of socially constructed learning processes (e.g., social engagement, collective achievement, collaboration), rarely is a direct connection made to *asynchronous distance learning* where there is limited, if any, real-time communication. In my view, the absence of reference to DL suggests (intentional or not) that distance learning is a "lesser" education, not worthy of equitable teaching and learning focus. Through this research I aimed to illuminate secondary asynchronous distance learning processes to support deep learning through surveys and interviews with high school asynchronous DL teachers in Saskatchewan.

This research was led by the following purpose:

- To explore how social constructivist practices can be actualized through high school asynchronous distance learning environments.

The research was driven by the following research question:

- How do teachers actualize socially constructed learning in high school asynchronous distance learning?

Sub-questions included:

- What processes/strategies do high school asynchronous distance learning teachers identify as best practices for deep learning?
- Why do high school asynchronous distance learning teachers make the instructional choices they do?
- How might the current system be strengthened to support social constructivist learning?

Social Constructivism

Social constructivist (SC) theorists assert that for deep learning to occur, students need to be socially engaged in the learning process and learning cannot be separated from social and cultural contexts (Vygotsky, 1978). Beck and Kosnik (2006) claim that this social dimension to learning “is not just a frill added to make learning more enjoyable; it is fundamental to deep understanding.” (p. 22). Table 1 briefly summarizes resurgent themes in social constructivism as an educational theory.

Table 1: Social Constructivism

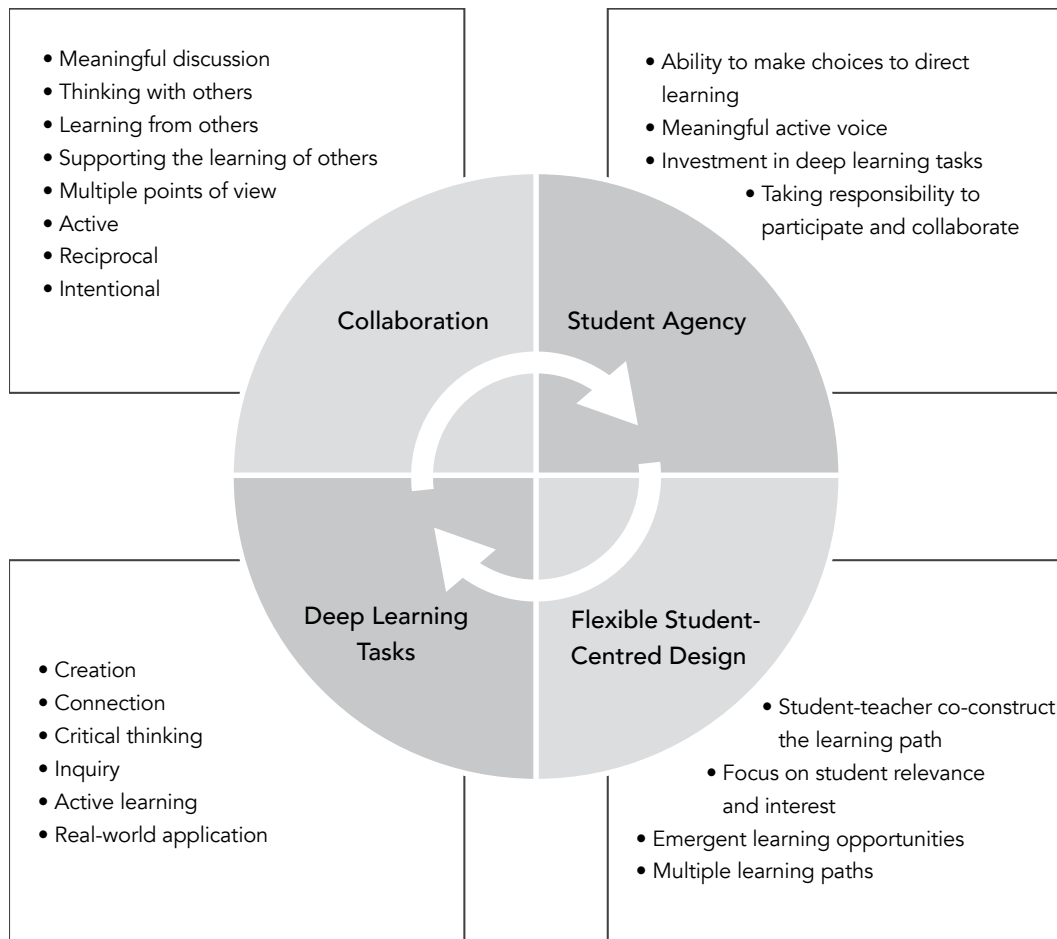
Definition
“An established educational theory based on the principle that learners and teachers co-construct knowledge through social processes.” (Salmons, 2009, p. 280).
Assertions
“Designing, planning and teaching with collaborative e-learning activities based on principles of e-social constructivism will measurably improve learning outcomes as well as learner engagement and satisfaction.” (Salmons, 2009, p. 292).
Assumptions
Students will learn more through interaction with others than they will individually. Social constructivist practices lead to deep versus surface level learning. Learning processes cannot be separated from learning content. Learning is about giving meaning to concepts.

SC Teaching/ Education Characteristics:	Teaching processes:	Student Action:	SC Teaching Strategies:
Student ownership of learning/ student-led learning.	Active teacher presence.	Posing inquiry questions.	Inquiry based learning.
Collaborative learning.	Scaffolding content and learning processes. Teacher as learning coach.	Showing interest in going beyond surface level learning.	Project Based Learning. “Hands on” experiences. Extending learning beyond the classroom.
Flexible learning.	Co-creating learning with students.	Application of concepts in unfamiliar situations.	Group work, problem solving, reflective thought through writing.
Reciprocity.	Support a risk-taking culture.	Showing social responsibility for community knowledge.	
Critical and creative thinking.	Attending to cultural context, student experience, and prior knowledge.		
Discussion.			
Creation.			
Exploration.			
Reflection.	Building trusting and safe learning communities.		
Communitarian thinking.	Strengthening community networks.		

Amoah et al., 2018; Borup et al., 2014; Borup et al., 2020; Dewey, 1933; Hirtle, 1996; Moreillon, 2015; Moore, 1989; Moore, 1997; Salmons, 2009; Saskatchewan Ministry of Education, 2010; Ravitz et al., 2000; Siemens, 2007.

For clarity, I have broken social constructivism down into four main constructs: collaborative learning, flexible student-centred course design, student agency, and incorporation of deep learning tasks.

Figure 1: Four Aspects of Social Constructivism



Collaborative Learning

Collaborative learning is not a catch-all phrase for group work, where, arguably, students can work independently on separate sections of a common task. Rather, collaborative learning is an intentionally designed strategy for students to actively engage in learning with and from others (Barkley et al., 2014).

Student Agency

Rodriguez and Berryman (2002) use the term student “agency” to refer to students having a more active voice in their learning. When students have agency in their learning, they can choose relevant assessments and learning activities to go beyond surface level learning (Borup et al., 2014). Student agency is often used interchangeably with student ownership. Driscoll (2005) described student ownership as the student taking responsibility for their learning, including participation and contribution to collaborative learning.

Student-Centred Flexible Learning Path

The term “student-centred” references putting the interests of the student at the forefront of learning experiences (Crumly et al., 2014). Student-centred course design focuses on meeting the outcomes in a way that is relevant to the student. Since what is relevant differs depending on the student, student-centred learning necessitates a flexible learning path where the student has some choice in deciding what is important for them.

Deep Learning Tasks

Fullan and Langworthy (2014) describe deep learning tasks as those that “engage students in practicing the process of deep learning through discovering and mastering existing knowledge and then creating and using new knowledge in the world.” (p. 21). Deep learning tasks are not a predetermined end product; rather, they are intertwined with critical thinking skills required to make meaning of experiences (Barkley et al., 2014; Fullan & Langworthy, 2014).

Summary of Social Constructivism

Although each aspect could exist independently, I regard the combination of each aspect to be where deep learning meets the overarching goals of education. The student can lead their own learning, but without deep learning tasks or collaboration learning could be shallow. Collaboration without deep learning tasks may lead to enjoyment but not deep learning. Finally, without a flexible course design, there will be limited opportunity for student agency and emergent learning (O’Neill & McMahon, 2005).

In this research, I situate social constructivism within a “learning ecosystem” conceptual framework where relationships in the environment support its growth and thriving. A DL ecosystem, likewise, depends on, and is supported by, a network of “connections” (e.g., policymakers, peers, parents, teachers, internet connectivity). Within a learning ecology, the focus is not on tools or technologies, but on the interactions between people and elements within the learning environment (Nardi & O’Day, 1999).

Methodology

I used a mixed methods sequential design in two distinct phases: quantitative data collection (online survey taking approximately fifteen minutes) followed by qualitative data collection (semi-structured interviews lasting approximately one hour). I used the quantitative online survey to gain a contextual descriptive analysis of SK high school asynchronous DL teachers and to recruit participants for the semi-structured interviews.

The survey analysis used descriptive statistics to describe SK teachers' context, practices, beliefs, and identify factors that affect social constructivist practices. Where appropriate, the survey responses were used as question prompts during the semi-structured interview to gain a more in-depth understanding. The open-ended responses from the survey were analyzed with the interview data using thematic analysis (Braun & Clarke, 2020).

During the second qualitative phase, I completed semi-structured interviews with participants who self-selected from the online survey in Phase 1. The recorded interviews (n=18) were transcribed and a "clean" version (e.g., free from pauses, grammatical errors, and "umms") was sent to the participants to ensure the written transcripts accurately reflected their intent. Thematic analysis was used to analyze the transcripts exploring patterns through the lens of social constructivism. I followed Braun and Clarke's (2020) six-phase analysis of the data: "1) data familiarisation and writing familiarisation notes; 2) systematic data coding; 3) generating initial themes from coded and collated data; 4) developing and reviewing themes; 5) refining, defining and naming themes; and 6) writing the report." (p. 331).

Although I used both quantitative and qualitative methods, the core theoretical drive was qualitative (Morgan, 2014; Morse & Niehaus, 2016).

Participant Selection

Participation in the online surveys was sought from all high school asynchronous DL teachers within publicly funded divisions across SK, where school divisions had given consent to contact teachers in the division. Thirty-five teachers from eight different divisions across SK participated in the online survey. Eighteen teachers, representing all eight divisions, volunteered to participate in a follow-up interview.

Trustworthiness

Lincoln and Guba (2000, as cited in Merriam, 2009) address trustworthiness in qualitative research through asking whether the findings are “sufficiently authentic ... that I may trust myself in acting on their implications ... would I feel sufficiently secure about these findings to construct social policy or legislation based on them?” (p. 210). I used the following processes to address trustworthiness in the research:

1. Two separate member checks to ensure the results reflect the participants’ voice (one after the interview transcription and another after the construction of initial themes).
2. Adequate engagement in data collection through reflexive journaling (Halldorsdottir, 2000; Lincoln & Guba, 1985) and continual reference to the data on a daily, or as needed basis, to reflect on the decisions regarding methodology choices, internal conflict, preconceptions, values, and interests.
3. Being clear and consistent with how I gathered and analysed the data.
4. Seeking my University of Saskatchewan research committee feedback.

Descriptive Survey Analysis

Below I present the descriptive survey analysis from each section of the survey.

Survey Section One

The first section of the online survey included participant demographics (e.g., years of experience, roles within school, gender). There were 35 survey participants from eight different divisions across SK, with one participant that did not answer. Survey responses included nineteen males (n=19), fifteen females (n=15), and one other participant (n=1). Participants' years of experience teaching distance learning ranged from less than two years to 16-plus years. All core subject areas (i.e., English, mathematics, science, social science) as well as practical and applied arts, visual arts, physical education, and English as an additional language were represented within the participants' teaching experiences.

Survey Section Two

The second section of the survey gathered information about the participant DL context regarding student start times, course pacing, and asynchronous/synchronous communication.

Table 2: Time Schedule: Primarily Asynchronous or Synchronous

Synchronous (the students have a regularly scheduled online class, similar to a face-to-face class schedule.)	9%
Half-asynchronous and half-synchronous (there are mandatory weekly scheduled class times as well as independent learning.)	20%
Asynchronous (Students have flexibility in their day to work on the course. The students and teacher are not scheduled together in the same time slot each day.)	71%
Students start at various times throughout the year.	29%
Most students start together at the same time each year. Typically, at the beginning of each semester or school year.	41%
I teach courses that have both types of start times.	30%

Of the 29 percent who teach DL courses focusing primarily on synchronous delivery or a blend of synchronous and asynchronous delivery, 90 percent were from online schools that have existed for five years or less. This suggests a trend with newer schools moving away from independent DL practices, typical of previous paper correspondence courses.

Survey Section Three

The third section of the survey included questions about participants' DL stance regarding socially constructed learning practices.

In the paired comparison questions, three pairs of comparison questions were presented.

Figure 2: Paired Comparisons Measuring Contrasting Teacher Beliefs

Social Constructivist Perspective		Traditional Perspective
Learning is enhanced when students are given the choice to direct their learning (e.g., choosing content, processes, assessments, etc.). Students tend to be more interested and make more learning connections when provided opportunity to direct their learning.	Versus	Many students struggle with directing their learning. Often students choose the option perceived as the "easiest." I feel student learning is enhanced if I choose most of the content, processes, assessments, etc. for the student.
Student interest and ability to make personal connections to concepts is necessary for deep understanding. Concepts should be adjusted to ensure students are intrinsically motivated to learn.	Versus	While student interest and personal connections are certainly useful, adjusting concepts simply for intrinsic motivation is not necessary for deeper understanding.
Deep learning and critical thinking skills are the most important goals. It is better to go deeper on fewer concepts, even if students are exposed to a narrower body of knowledge.	Versus	Having students engage with a wide variety of concepts in the curriculum is the most important goal. We may not be able to go deep on everything but at least the students will be exposed to a wider body of knowledge.

Table 3: Teachers' Agreement with Contrasting Statements of Distance Learning Approaches

Social Constructivist Practices	Favoured the More Social Constructivist Statement	Unsure	Favoured the More Traditional Position
STUDENT DIRECTED VERSUS TEACHER DIRECTED	49%	15%	36%
STUDENT INTEREST VERSUS CURRICULUM CONTENT	52%	9%	39%
DEEP LEARNING VERSUS CONTENT COVERAGE	26%	21%	53%

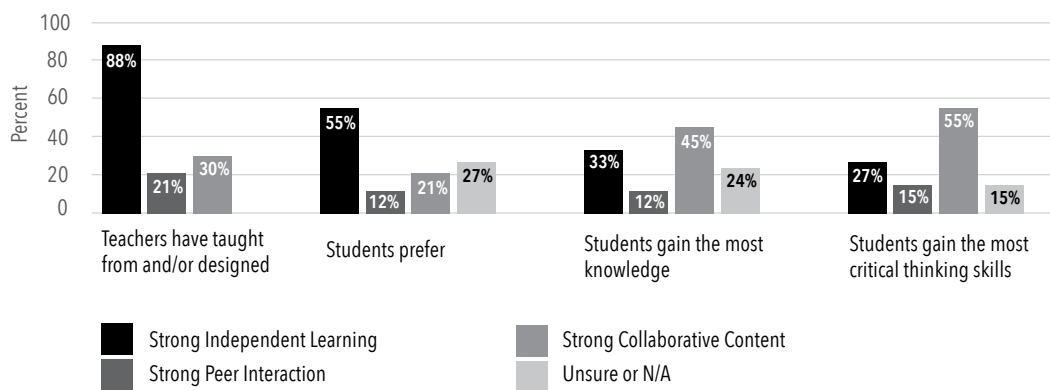
In summary, teachers' comfort level aligned with:

- A social constructivist approach regarding:
 - Student directed learning (i.e., providing student choice and adjusting course design for student interest).
 - Ensuring the content was centred on student interest.
- A traditional approach regarding content coverage/exposure over deep learning.

Survey Section Four

The fourth section questioned teachers' experience and beliefs about interaction.

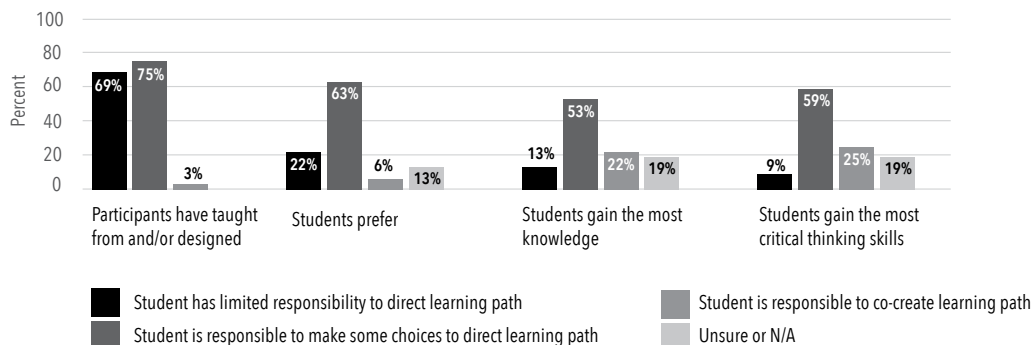
Figure 3: Interaction Assessment



In summary:

- Most teachers (88 percent) have taught and/or designed courses with strong independent learning and perceived that most students prefer this approach (55 percent).
- Many teachers indicated that a strong collaborative component allows the students to gain the most knowledge (45 percent) and critical thinking skills (55 percent).
- Teachers found value in collaborative learning while still choosing independent learning approaches for DL.

Figure 4: Learning Approach Assessment



- Most teachers (75 percent) have taught and/or designed courses where the student is responsible to make some choices to direct their learning path. This approach aligns with teachers’ beliefs about the best approach for student preference (63 percent), increased knowledge (53 percent), and gaining critical thinking skills (59 percent).
- Sixty-nine percent of teachers have designed and taught courses where students have a limited ability to direct their learning path. However, not only was this approach indicated as a low preference for students (22 percent), but they also rated this approach as the lowest for gaining knowledge and critical thinking skills.

Table 4: Teacher Beliefs about Collaborative Learning

	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree
Online high school students need to collaborate with others to gain deep understanding.	15%	39%	30%	3%	12%
Collaborative online instructional strategies increase deep understanding compared to independent online learning.	21%	3%	27%	9%	36%
High school students have the necessary skills to successfully collaborate with others online.	6%	24%	21%	36%	12%
Heavily relying on collaborative learning in asynchronous online courses is a realistic goal.	0%	12%	15%	30%	42%
Most students are capable of being successful in DL when primarily working from home.	15%	45%	21%	12%	6%

In summary, even though 55 percent of teachers indicated that online high school students need to collaborate with others to gain deep understanding, 73 percent of teachers indicated it is not realistic to heavily rely on collaborative learning in asynchronous DL. Additionally:

- Fifty-eight percent of teachers indicated that collaborative online instructional strategies increase deep understanding compared to independent online learning.
- However, 48 percent of teachers indicated that high school students do not have the necessary skills to successfully collaborate with others online.

Survey Section Five

The next survey section included a matrix question asking about teachers' experience with specific tools. Figures 5 to 8 summarize the responses.

Figure 5: Teachers Use of and Interpretations of Effectiveness

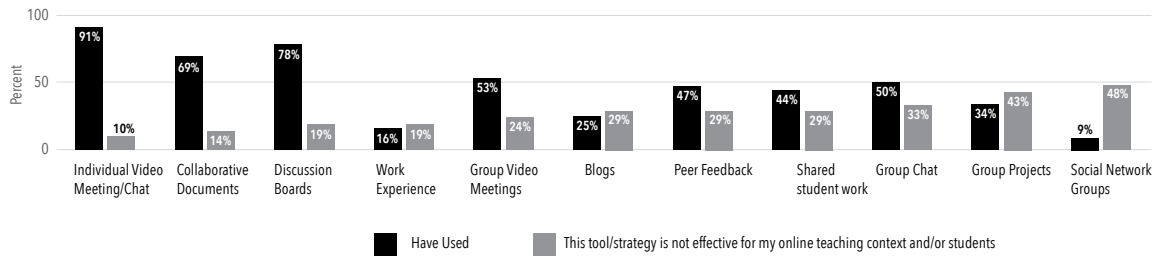


Figure 6: Tools and Critical Thinking Skills

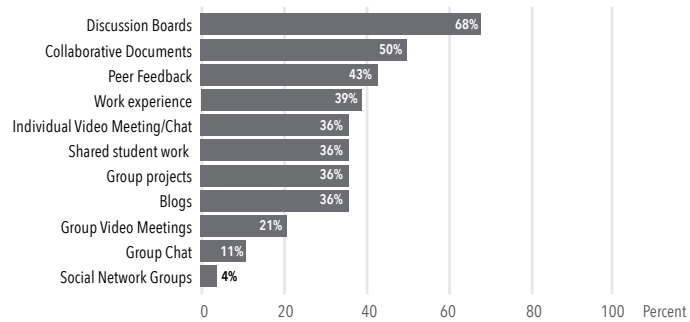


Figure 7: Tools and Building Community

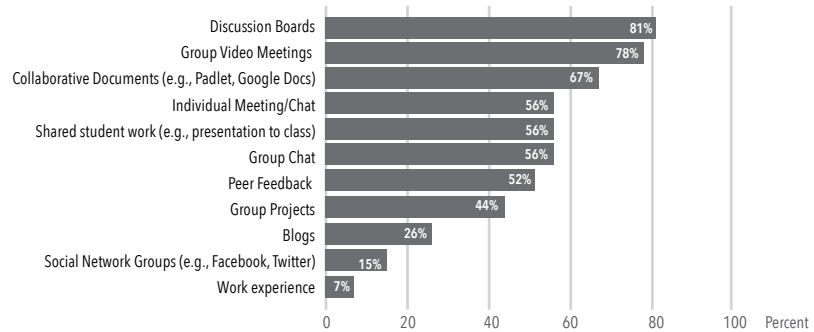
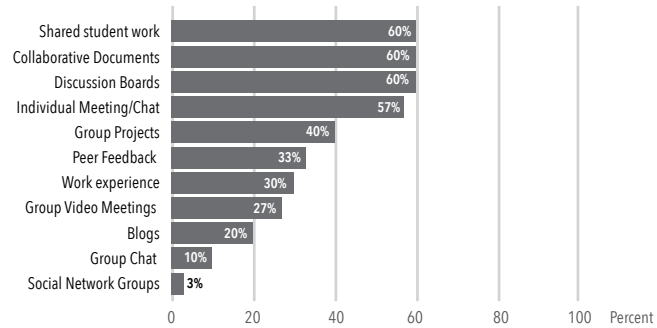


Figure 8: Tools and Effectiveness Supporting Student Ownership of Learning



In summary, discussion boards, collaborative documents, and peer feedback were ranked as the top three tools for supporting critical thinking skills. Teachers ranked social networking and group projects as the least effective for their teaching context. Most teachers used individual video meetings, discussion boards, and collaborative documents. Discussion boards were ranked the highest in terms of developing critical thinking skills, building a learning community, student ownership of learning (the latter was tied with collaborative documents and shared student work).

Survey Section Six

The last section of the survey asked participants about factors affecting implementation of social constructivist practices.

Figure 9: Teacher Barriers to Collaborative Learning

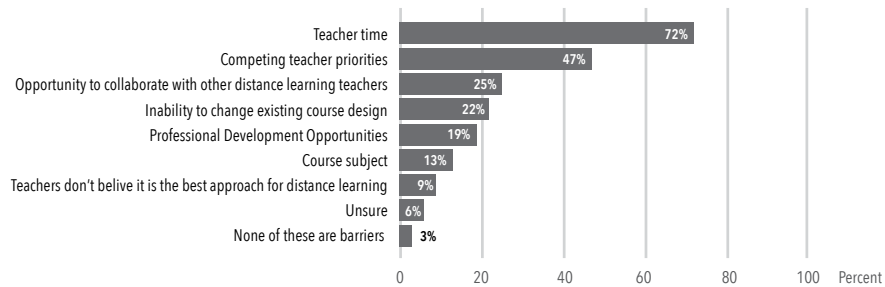


Figure 10: Student Barriers to Collaborative Learning

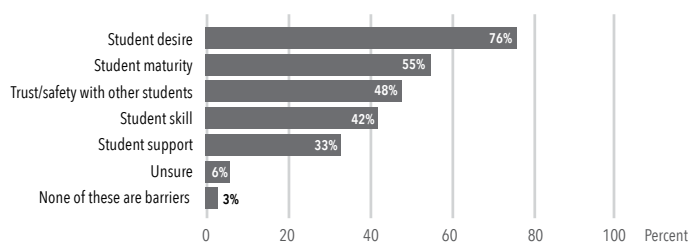
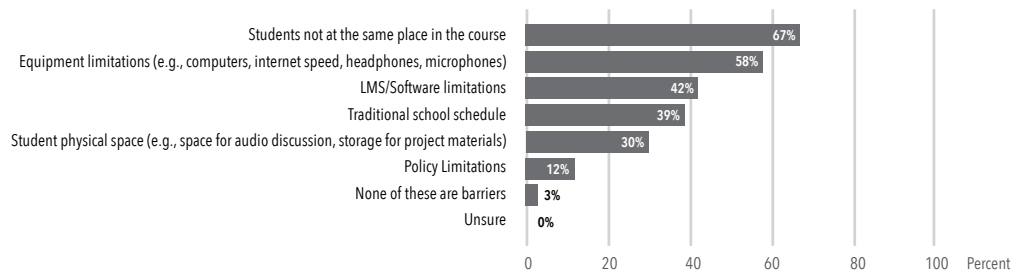


Figure 11: Environment/Context Barriers to Collaborative Learning



In summary, most teachers cited:

- Teacher time (72 percent) and competing teaching priorities (47 percent) as barriers to collaborative learning.
- Student desire (76 percent), student maturity (55 percent) and trust and safety with other students (48 percent) as student barriers to collaborative learning.
- Students not being at the same place in the course (67 percent), equipment limitations (58 percent), and LMS/software limitations (42 percent) as the top context barriers to collaborative learning.

Summary of Survey Analysis

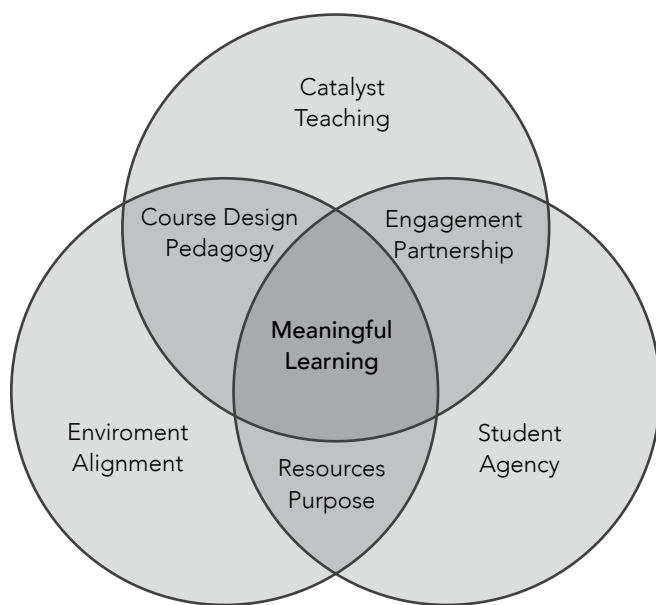
Key findings from the survey results indicate that 55 percent of teachers believe that collaborative learning is needed for deep understanding. Yet, 73 percent of teachers indicated it is not a realistic goal in distance learning. Although teachers suggest that social constructivism is necessary for deep learning, their teaching approach often contradicts this aim.

The semi-structured interviews explored these findings in more detail, examining how social constructivist strategies can be implemented, why teachers make the instructional choices they do, and what challenges exist with implementation.

Thematic Interview Analysis

I constructed three distinct and interconnected themes that represented the teachers' experiences and ability to implement social constructivist practices. The themes are: a) the teacher as catalyst, b) student agency, c) alignment of the school purpose and student need.

Figure 12: Theme Diagram



Theme	Sub-Themes
Catalyst Teacher	<ul style="list-style-type: none"> • Incorporating Collaboration and Deep Learning Tasks • Creating a Flexible Student-Centred Course Design • Building Student-Teacher Relationships <ul style="list-style-type: none"> ○ Supporting Student Engagement <ul style="list-style-type: none"> • Behavioural • Emotional • Intellectual ○ Strengthening the Learning Environment
Student Agency	<ul style="list-style-type: none"> • Student Readiness Skills • Student Buy-In
Alignment with Student Needs	<ul style="list-style-type: none"> • School Purpose • Student Need

Catalyst Teacher

It was clear that teachers had a very active role in the ecosystem, more than that of a “guide on the side” (King, 1993) or of a learning “coach” (Driscoll, 2005). I interpreted the term Catalyst to be more reflective of how social constructivist practices are actualized in high school DL. The theme, catalyst teacher, describes the teacher’s role beyond that of a coach or guide, including strengthening resources, supporting connections, and motivating students to take an agentic role in leading their learning.

The sub-sections *Deep Learning Tasks* and *Creating a Flexible Student-Centred Course Design*, describe *what* strategies teachers use to support social constructivist learning. The sub-sections *Building Student-Teacher Relationships*, *Strengthening the Learning Environment*, and *Supporting Student Engagement* describe how teachers supported such strategies.

Collaboration and Deep Learning Tasks

The deep learning tasks that teachers identified included “hands on” learning, critical thinking tasks, and application to real-world problems. Hands-on learning connections occurred when teachers sent out learning kits such as soil and seed planting, visual art supplies, or pond-dipping supplies. Written critical thinking skills largely occurred through discussion boards with students analysing case with some teachers speaking to peer editing in collaborative online documents. As one teacher commented, “We did a lot of graphic organizing, or we did a lot of writing of drafts, and editing and peer editing, so we would use a lot of Google Drive, shared docs, or a shared slide.” Deep learning tasks also incorporated culminating projects such as portfolios and larger inquiry projects that take place over multiple weeks. Although teachers were describing asynchronous courses, synchronous communication with the teacher and/or community was integral to collaboration and deep learning tasks. For example, application to real-world problems occurred through field trips, work experience and volunteerism where synchronous activities were incorporated into an asynchronous class.

Notably, for the larger deep learning projects, mandatory pause points were crucial to support deep learning. Pause points ensured the student wasn’t racing through the material before receiving and applying feedback. A common strategy teachers used was to hide course material at specific points in the course until the student made an appointment to talk to them. Pause points allowed the student to communicate with their teacher, synchronously or asynchronously (e.g., through a video chat or through text communication). Where pause points were not possible (i.e., when students could submit all course assessments within a short amount of time) teachers noted a disruption in the teaching and learning cycle, often resulting in shallow learning.

Creating a Flexible Student-Centred Course Design

Commonly cited strategies to create a flexible student-centred course design include a) scaffolding challenging tasks (often through incorporating multiple short video clips to guide students), b) creating flexible learning paths (e.g., student choice to go further in-depth with topics of interest to them), c) flexible pacing (e.g., students choose how fast and when they would work through the course) and d) providing multiple ways to engage with the content (e.g., online simulations, videos, text, hands-on kits).

However, teachers noted some barriers for students when choice was presented. For example, students learning English as an additional language, or students with cognitive difficulties who may be overwhelmed by multiple options and the amount of reading it takes to understand the multiple options. Additionally, some teachers identified student choice in pacing as a barrier to deep learning, as many did not have sufficient time management skills and ended up “mass dumping” poor quality work at the end of the term.

Apart from teachers who paced their students as a cohort or those who used synchronous opportunities (e.g., field trips, work experience, or volunteerism) most participants focused on teacher-curated student choice rather than collaborative learning.

Building Student-Teacher Relationships

The teacher is also a catalyst through building student-teacher relationships to support deep learning. Throughout the interviews, teachers described how student-teacher relationships helped them build knowledge about their students, which was then used to support a student-centred course. Student-teacher relationships supported a dialogue where students asked clarifying questions where students gained a deeper understanding of the concepts, as the teacher provided additional information and clarification. Teachers noted that once they built student-teacher relationships, they were able to understand specific student needs and strengthen the learning environment. However, teachers also noted that the quality of the relationships was dependent on their workload, suggesting relying solely on the teacher for learning relationships may be unsustainable.

Strategies for Building Student-Teacher Relationships

The findings highlight strategies to build such relationships through: a) synchronous meetings and site visits, b) online surveys, and c) consistent check-ins.

Synchronous meetings and site visits. Teachers commonly cited using synchronous online meetings to build and maintain student-teacher relationships. Meeting students at events in the community (e.g., volleyball tournaments) combined with supporting synchronous meetings, when possible, was found to increase student engagement and communication with students within the course.

Online surveys. Surveys were also used to gain information needed to create a student-centred course. As one teacher explained, she sent out a survey at the beginning of each semester asking students about what helps them be comfortable with online learning. Questions she asks include: “Why are you taking this class? Is there anything you’re excited or interested about? How best do you learn? ... Is there anything you want to tell me that would help me as your teacher?” She then adjusted her course accordingly. For example, if students indicated they enjoyed having an opportunity to “hang out or discuss” she tried to incorporate “Friday hang out sessions.”

Check-ins. As part of student-teacher relationships, teachers indicated the necessity to make more intentional check-ins with students. As one teacher indicated, “Some kids, they sit and struggle ... You have to be much more cognizant of that and you have to do more check-ins.” Check-ins typically occurred weekly and included the use of chat software such as Google Chat or Microsoft Teams chat and communication within collaborative documents (e.g., Google Docs).

Benefits of Student-Teacher Partnerships

Student-teacher partnerships were more than just a way to build connections with the students. These partnerships were necessary to create, not only a student-centred course, but to strengthen the learning environment and support student engagement.

Strengthening the Learning Environment. Teachers frequently spoke of the benefits of building *student-teacher relationships* to understand the student's learning needs. Once teachers understood a student's learning needs, they could strengthen the learning environment (e.g., add additional learning resources) to meet diverse learner needs. The catalyst teacher strengthened the learning environment through:

- Advocating for and incorporating software support such as immersive readers for students experiencing difficulty reading online.
- Advocating for additional human resources such as a student support teacher.
- Strengthening the student's support team by supporting parents. For example, through sending videos with strategies to support their child or setting up an online video meeting with parents and students before the start of the semester.
- Using a pedagogy supportive of student needs, which often meant switching between an individual independent approach and a collaborative approach.

Supporting Student Engagement. Here the teacher is a catalyst by bringing elements in the learning environment together not only in meaningful ways (e.g., emotionally and intellectually engaging), but also in ways that lower the unproductive learning struggle (e.g., clear course navigation) required for behavioural engagement. Teachers used diverse strategies targeting three categories of engagement:

- a) behavioural engagement (e.g., logging in regularly, meeting due dates)
- b) emotional engagement (e.g., course interest), and
- c) intellectual engagement (e.g., critical and creative thinking, decision making).

Table 5 summarizes the purposes and strategies used by teachers to support engagement.

Table 5: Engagement Strategies

Engagement Category	Strategies	Examples
Behavioural Engagement	<p>Support student time management and technological skills.</p> <p>Clear consistent, communication.</p> <p>Model online interaction.</p> <p>Clear course navigation.</p>	<p><i>There is a digital calendar that I show my students every single time we meet live and be like "here's where we're at, and here's what's next - look how much time we have before the final exam, you have to get going!"</i></p>
Emotional Engagement	<p>Incorporate students' interest and prior experiences into concepts.</p> <p>Support student advocacy.</p> <p>Field trips.</p> <p>Encourage collaboration and informal learning communities.</p>	<p><i>[We put] on events for our students and then incorporating that into the curriculum ... We did an outdoor ... winter camping trip</i></p>
Intellectual Engagement	<p>Creating pause points for feedback incorporation and improvement.</p> <p>Support student advocacy</p> <p>Shared digital spaces to learn from others.</p> <p>Scaffolding collaboration.</p> <p>Assessments that include peer feedback, student content creation, and critical self-reflection.</p>	<p><i>They have a final project that's worth twenty-five percent of their grade, so it's locked. They can't just go ahead and do everything. First, they have to submit a proposal and get that approved, and we talk about it ... It makes them think through everything. Then they have to show me checkpoints, so they have to show me progress pictures ... or are you stuck, do you need help? By slowing them down and forcing them to stop, it gives me a chance to see what's going on before they hand in the final thing.</i></p>

The data suggested that engagement strategies, when coupled with strong student-teacher relationships, were a powerful catalyst for deep learning. The reciprocal relationships, integral to a synergetic DL ecosystem, do not just happen. The active teacher role is vital to catalyzing deep learning through incorporating deep learning tasks, building a flexible student-centred course structure, building student-teacher relationships, encouraging student engagement, and strengthening the learning environment.

Student Agency

The theme “Student Agency” aids in an understanding the sub-question, “Why do teachers make the instructional choices they do?” As previously addressed in the literature review, student agency refers to students taking responsibility for and having an active voice in their learning (Driscoll, 2005; Rodriguez & Berryman, 2002). What presented as problematic within this data was that students often advocated for independent learning, which, in turn, strongly influenced teachers’ instructional choices. I further analyzed the data to make meaning of this dichotomy and determined that teachers’ perception of student agency (away from collaboration and toward individual learning) was influenced by their interpretation of student readiness for DL and buy-in to SC practices.

Student Readiness

Teachers cited students required, but did not always have, readiness skills for DL success or online collaboration (e.g., independence skills, technology skills, interpersonal skills, and communication through technology). For example, one teacher indicated:

They’re not ready for that step in independence where we don’t have a classroom teacher continually extending the hand and say this is what you need to do... . A lot of these kids have had that [face-to-face] support yanked from them and now they’re thrown into an environment where, if you’re not independent, there is very little we can do as distance learning teachers to help them.

Indeed, learners who feel that they lack the skills to complete a task may avoid it (Madjar et al., 2011). Noting that independence was identified as integral for DL students, some divisions supported student skill acquisition and mastery *prior* to taking a DL course through offering a short pre-course (approximately three hours). The pre-courses generally included how to navigate the course platform, how to submit documents, and how to email. Where pre-courses were used intermittently, teachers noted students who did not take the pre-course had lower readiness skills such that the teacher spent more time at the beginning of the semester helping those students with technology issues (e.g., how to submit an assignment, where to store their work online).

Student Readiness – Fixed or Flexible. Teachers often spoke of student readiness as a fixed internal characteristic —“it depends on the student” — either the student had it or not. Teachers’ perception of their influence on student readiness was a significant determining factor for instructional decisions. Teachers weighed the investment and continued effort it would take to create a sustainable collaborative ecosystem compared to the potential outcomes (e.g., deeper learning or students dropping the course). Comments such as “most of the time you’re setting yourself up for a real headache” suggest that the teacher’s time and effort would be better spent elsewhere (e.g., scaffolding content, creating short instructional videos). Additionally, many teachers cited student readiness as a fixed characteristic attributed to “strong” students. However, teachers who did not see student readiness as fixed build in time to support students’ comfort in the collaborative learning space. They were persistent, even in the face of student frustration, in supporting students until they were comfortable working collaboratively (e.g., explaining why collaboration was important, providing them tips on

how to ask their peers questions). The survey participant quote below demonstrates this sentiment.

I don't believe that my students have the necessary skills to successfully collaborate with others online YET. However, every day I see them opening up little by little to each other. When there is a text chat option, they seem very comfortable and familiar with this. I'm hoping we continue to improve collaboration as the semester goes on.

Another participant echoed this same sentiment:

Collaborative work can be very intimidating for students. However, I have found that when students get past the initial transition or uncomfortableness of interacting online, they can quickly move forward.

Student Buy-in

Teachers noted that without “buy-in” to the benefits of collaborative learning, students did not fully engage in such practices. Here, “student buy-in” includes a student’s judgment as to whether new activities are valuable, enjoyable, or meaningful (Cavanagh et al., 2016). Teachers described motivation, maturity, perceived value, previous experience, expectations, and trust and safety as factors that influence student buy-in to social constructivist practices. In turn, with lack of student buy-in, teachers were reducing collaborative elements from their courses.

Students have expressed a strong dislike for the group projects and collaborative elements, to where many students either dropped the course or asked for alternative assignments. Moving away from group projects has increased enrolment and positive feedback from the students.

These findings contrast literature referencing the positive effects of peer collaboration in learning, such as enjoyment, motivation, and sustained participation (Goulet & Goulet, 2014; Moore, 1989; Salmons, 2009). This contradiction suggests that future research is needed to explore why students in this context resist collaborative learning.

To combat student buy-in and readiness for collaborative learning, many teachers incorporate “low risk” collaborative activities. Low-risk collaborative activities included opportunities for students to learn from each other in a shared class gallery, through shared online spaces (such as discussion boards) where they could read other students’ responses, and incorporating community collaboration where possible (e.g., with parents or external community events).

Summary of Student Agency

The data suggests students’ negative response to peer collaboration influenced the extent that teachers incorporated collaborative work. Students may not gravitate towards, and indeed may have a strong dislike for, collaborative approaches if they have not experienced the value in them, and if they do not have the necessary skills to participate. However, it may be problematic to reduce collaborative learning because of student resistance to an approach they are unfamiliar with rather than to support skills necessary for success. However, as neither teacher nor student has been largely exposed to the community social constructivist approach, it follows that support systems are needed to make this shift

(e.g., teacher professional development, student feedback on skill acquisition, and division clarity on cohort pacing).

It was clear that students cared deeply about their students and they were very interested in diverse ways to approach DL but they lacked training, resources, and time.

Alignment of the School Purpose and Pedagogy with the Student's Needs

The final theme, *Alignment of the School Purpose and Pedagogy with the Students' Needs*, was constructed response to finding shared meaning about why teachers make the instructional choices they do. This theme also aided understanding the benefits and challenges of social constructivist high school asynchronous DL.

Teachers spoke positively about distance learning education experiences when the school purpose and pedagogy used aligned with the students' needs. For example, independent self-paced courses were aligned with student needs if students needed to work on a course at their own pace because of family obligations and limited internet. Similarly, when students were learning from home because of pandemic restrictions, a cohort-paced approach aligned with students' needs to connect with peers and increase learning motivation. Notably, pacing students as a cohort was a viable under-used option to meet student needs through a learning community.

Independent self-paced courses in Saskatchewan were created to meet a very niche population with varied learning schedules that made synchronous learning an access barrier. They are a legacy practice that works to increase educational access. However, teachers identified increasingly diverse student needs including homeschool students, rural students, students who need a credit recovery option, and most recently, to meet the physical distancing requirements from the COVID pandemic. However, the data also suggests that the shift in diverse students taking DL has not always equated to a shift in the legacy pedagogical approach of student-paced independent practices.

Given the diversity of student needs, designing a course focusing on one approach to learning (e.g., self-paced and individual) was often problematic. Where there was not a connection between the DL approach and student needs (e.g., students needing collaboration for motivation but expected to work independently or students expecting an independent course but being required to collaborate) teachers expressed frustration and increased time tracking students. In turn, this disconnect took away the focus on supporting collaborative learning opportunities.

For some divisions distance learning was never designed to be a viable option for every student nor were courses intended for a social constructivist approach. If students were not successful with this approach it was communicated that "DL is not for everybody." This sentiment was expressed by a number of teachers. This stance becomes problematic when it obviates school divisions from supporting students who struggle learning online. The distance learning pedagogy was often part of the socio-cultural norms, values, and customs of a school division where individual student-paced legacy practices often informed current practices. Interestingly, within this study, teachers from the newest cyberschools were largely resisting the legacy self-paced independent cyberschool practices that mimicked

previous correspondence courses.

As one teacher put it:

I think in the midst of all this COVID and technology getting better, we need to be something different ... we don't want to just be a purely asynchronous model. ... We need a different identity than what's been done ... COVID has forced our hand, but why would we do it the same when we know how much has changed? We need to really look at this and make a new way, where I can do group discussions with my students, I can get them to interact with each other and work live with each other in a shared digital space, those are really cool ... it's part of the social connection they need.

The next section describes recommendations to strengthen distance learning ecosystems.

Recommendations to Strengthen Distance Learning Ecosystems

The implications for these findings suggest that social constructivist practices are a viable option within secondary asynchronous distance learning. However, support is needed from everyone in the ecosystem, including the Ministry of Education, the Saskatchewan Teachers' Federation, and senior division staff. Social constructivist practices can be strengthened through a) incorporating DL processes and skill acquisition as a learning outcome, b) ensuring diverse instructional designs for diverse student needs, c) improving student support, d) creating a provincial resource hub, and e) elevating the distance learning profile.

Supporting Skill Acquisition During the DL Course

I suggest it is problematic to view student readiness as fixed. If DL is left to the "strong" students, the education system may reinforce a system where the "rich-get-richer" (Toshalis & Nakkula, 2012); those who are "pre-disposed" to DL will continue to do well and those who are not will continue to struggle. Maintaining this belief has the potential to subvert responsibility from the education system to support the student to build such skills. Similarly, I argue that to say "distance learning is not for everyone" is a disservice to all students. When students struggle in face-to-face one would not simply say, "face-to-face learning is not for everyone." Indeed, there are entire face-to-face student services departments dedicated to students who struggle. This study suggests the same cannot be said for students who struggle in DL.

At this emergent time of DL, the findings suggest that supporting skill acquisition cannot be separated from SC practices that support deep learning. In this regard, I highlight the importance of Rotherham and Willingham's (2010) statement: "If we deem that such skills as collaboration and self-direction are essential, we should launch a concerted effort to study how they can be taught effectively rather than blithely assume that mandating their teaching will result in students learning them." (p. 19). I strongly recommend a focus on explicitly teaching and providing feedback to acquire DL deep learning skills (e.g., interpersonal, technology, and independence) during the DL course to improve DL processes and outcomes.

Diverse Instructional Designs

The lack of clarity regarding the diverse approaches to DL has been problematic. Distance learning is *not* a “one-size-fits-all” approach. Although self-pacing is not synonymous with asynchronous learning, self-pacing seems to be ingrained in high school asynchronous courses. *Some* students need a self-paced option to graduate from high school (e.g., family responsibilities, extracurricular obligations, medical reasons), but *many* students do not. I suggest that without some guidelines for student-led pacing (e.g., set intake times, weekly cohort), an increase in peer-to-peer dialogue is not likely to prevail in DL teaching strategies.

Furthermore, maintaining low peer-to-peer dialogue may have negative effects on students, such as increased dropout rates and feelings of isolation and disconnection from the course (Symeonides & Childs, 2015). McMullen and Rohrbach (2003) have similarly cited such disconnect among Indigenous students across Canada, whom distance learning has not historically served well.

By imposing or expecting too much independence on a group of people who believe in relationships and social learning, the curriculum developer and instructor will restrict the positive influence of the culture, and ultimately the success of the course ... This required social interaction can be achieved by ensuring the instructor and the students have opportunities to build relationships. Through the design of the course, students should also be able to interact and build relationships with other students in their class. (pp.69-70)

It is important to consider who is privileged, marginalized, and omitted based on the addition or absence of collaborative spaces. Not all approaches are equitable for all students.

I suggest that an asynchronous cohort paced model is an overlooked, yet more supportive, model for SC practices. With little to no changes to existing scheduling, cohort pacing is possible for many students. Teachers who paced students as a cohort cited an increase in opportunity for social constructivist practices with peers, more time was spent in critical discussions, and there were fewer inactive students.

Student Support

The responsibility for providing additional student support lies with school divisions to support DL students as equitably as face-to-face students. Where schools had intervention plans for inactive students that did not solely rest on the teacher (e.g., inactivity policies that triggered a meeting with the student and a support team) and automated progress reports sent to parents and students, teacher time was freed to support active students who were struggling and increase dialogue with students in general. Similarly, teachers noted the added benefits of a student support teacher for DL students. Where teachers identified an absence of a student support teacher, they attributed it to a system-wide disconnect with the senior administrative staff who did not understand the time commitment needed to support DL students. This, in turn, led to many teachers who expressed they were overworked and felt underappreciated both of which affect student outcomes (Lowe, 2020). Implementing student support plans for students, has the potential to not only support teachers and students but also mitigate the perception that DL is a “lesser” education by supporting DL student learning needs as equitably as face-to-face students.

Provincial Shared Resource Hub

I place this creation and maintenance of a provincial shared resource hub squarely on the shoulders of the Saskatchewan Ministry of Education. Creating a provincial shared, accessible digital resource hub would provide teachers with a starting place to improve and extend DL practices. Teachers cited that the Ministry of Education has done a poor job in supporting DL resources for teachers, leading to an inefficient use of teachers' time reinventing similar resources across the province.

One teacher noted that if the province had a formal process to build and share resources, teachers could be

guided by some of those exemplary practices, exemplary resources, exemplary projects, and project-based ... So that each teacher isn't spending thousands of dollars in Teachers Pay Teachers buying their own resources, sharing amongst ourselves in a closet, or Google Drive secretly.

Ultimately, strengthening teacher resources will strengthen the students' resources.

Provincial Elevation of the Distance Learning Profile

During the interviews there was at times a discourse that "online learning is inferior" to face-to-face learning, whether from the teachers themselves or from perceptions others had of their role. Furthermore, some teachers carried anxiety about asynchronous distance learning, in part, as a result of uninformed perceptions (e.g., by parents or internal senior administrative staff), that an asynchronous teacher is "slacking off" or does not work hard enough. In truth, for a conscientious teacher it is the opposite. I place responsibility for some of these uninformed perceptions at the feet of the Ministry of Education, senior administration staff at local divisions, and the Saskatchewan Teachers' Federation. Their influence cannot be overlooked. During this research, in 2021, I was pleased to see the Saskatchewan Teachers' Federation its first ever distance learning policy that addresses many concerns cited in this research. However, Saskatchewan is still the only province without a Ministry-level distance learning policy or framework. The absence of a framework and policy is unacceptable and implicates the Ministry in reinforcing the notion that online learning is inferior and not worthy of equitable attention.

I strongly recommend a collaborative effort on the part of each entity above to elevate the public relations profile regarding distance learning at all levels (Ministry, federation, school divisions, local schools, and the general public). There is a need to counter narratives that distance learning as an inferior approach to learning where distance learning is used as a "deficit version of learning" where the student is seen as "being without" (Ivus et al., 2021). Elevating distance learning discourse through highlighting how it strengthens and supports the education system is needed to spur conversations and actions to imagine the possibilities for distance learning beyond trying to mimic face-to-face classrooms or replicating static paper correspondence courses.

Further Research

Below I suggest further research to gain a deeper understanding of distance learning and how to improve teaching and learning practice.

Student Anxiety

Although beyond the scope of this study, many teachers reported a drastic increase in students with anxiety enrolling in distance learning courses. The influx of students with anxiety suggests that face-to-face classroom practices may not be supportive of all students. Further research exploring what challenges students with anxiety are experiencing will benefit both face-to-face and distance learning students.

Peer Tutoring

I suggest that heavily relying on student-teacher relationships for content dialogue and collaboration is unsustainable and limiting given both teacher and student competing time and priorities and diverse schedules. I suggest further exploration in how to leverage the power of peer-tutoring (Fullan et al., 2017) and an on-site support person (Tait, 2014) to strengthen the distance learning ecosystem.

Implementation of Collaborative Work

I suggest future research on *implementation* of collaborative work. The number of teachers citing not only students' previous negative experience with collaborative work but also with their own negative experience with group work, suggests that there are areas for improvement in the implementation stage. Within the social constructivist categories described in the literature review (i.e., collaboration, student agency, flexible student-centred course design, deep learning tasks), collaboration implementation lags behind the other categories.

Gaining the Students' Perspective

This research was about how social constructivist learning is actualized from the teacher's perspective; notably, students' perspectives are needed. Research about students should

include students. I encourage divisions and teachers to engage in action research with students to explore effective DL practices that lead to deep learning. I suggest that student participation in an action research project is worthy of a locally developed course credit where students have an active role in shaping not only their education but are giving back to the learning community where their voices are valued and heard.

Concluding Thoughts/ Statements

Within a province with diverse school divisions (i.e., serving large city centres and sparsely populated rural areas), I expected that the answer to the research question, “How do SADL teachers actualize social constructivism?” would be complex. The themes addressed the complex reciprocal nature of elements of a DL ecosystem; namely, how the teacher, student, and environment are synergetic and evolving. Each element affected the other. For example, the teacher’s approach to DL affected the student’s learning experience. The student’s buy-in to collaborative learning affected the teacher’s approach. Finally, the resources and structure of the environment affected the teaching approaches and students’ learning opportunities. When the teacher as catalyst, student agency, and connection in the environment align, meaningful learning (not necessarily social constructivist learning) is possible.

A foundational aspect of learning ecologies is that they are constantly changing. Distance learning is no exception. If we are to maintain the vision and mission of the DL of yesteryears (i.e., independent correspondence courses) we may miss the opportunity to meet the future needs of students. Students need to be prepared to enter a workforce that increasingly requires self-regulated, digitally literate, critical and creative thinkers who can learn with and from others, even at a distance (Trilling & Fadel, 2009). When schools’ purpose, pedagogy, and student needs align, DL can be an integral part of supporting the larger goals of education (deep learning, interdependence, social responsibility, engaged citizens, critical/creative thinking) (Beck & Kosnik, 2006; Saskatchewan Ministry of Education, 2010). However, without a critical analysis of the larger learning ecosystem (e.g., students, teacher training, resources), the previous status quo of DL independent learning expectations may remain dominant, even in the face of empirical evidence that DL social constructivist pedagogies provide richer outcomes (Barbour & Rich, 2007; Salmons, 2009).

As the strategies teachers have identified within asynchronous distance learning have shown, DL is a viable option to meet SK curricular goals. However, we risk stopping at shallow learning if we do not have an ecosystem that sees value, and supports, socially constructed learning as a realistic possibility.

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