Enriching adolescent self-study by increasing help-seeking pathways through the employment of online social learning networks

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We acknowledge and respect the Lək̓ʷəŋən (Songhees and Xʷsepsəm/Esquimalt) Peoples on whose territory the university stands, and the Lək̓ʷəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.

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Abstract

Adaptive help-seeking is a self-regulatory learning strategy that can influence academic success and improve self-study in adolescent learners. Online learning environments can be designed intentionally to mediate help-seeking behaviour between peers and foster a community that enriches in-person learning. The aim of this study is to identify design elements and actions necessary to transform online learning environments into spaces that facilitate help seeking among adolescent students. In this study, I have reviewed 47 articles and books published in the last seven years that have explored academic help-seeking and online learning environments. Current literature shows that three factors significantly affect the frequency and quality of help seeking behaviour in online environments: teacher presence, positive and supportive class community, and diverse sources of help. With these findings in hand, a website was created to pilot the project and show educators how to design online learning environments that foster a community of help-seeking for adolescents.

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Chapter 1: Introduction

Personal Framework

A few years ago, my Dad's dryer broke down and he was faced with a difficult decision: buy a new one or get it repaired. In my father's mind, there were two factors affecting his decision - cost and pride. A new dryer can cost upwards of $1,200 (Trail Appliances, 2025) but no number can describe the pride he would lose by having to replace a mostly functional dryer. So, what did he do? He sought help. First, he called a repairman that described the nature of the fault and provided him with an outlandish quote. Second, he pulled up his favourite online resource YouTube and searched for instructions on how to fix the problem himself. Finally, he petitioned his only son for his technical understanding of electronics. In the end, he was able to fix his dryer in less than a week, for under $50, pride rightfully intact.

In life, we all have our problems to solve. In time, we eventually need help. The kind of help we seek is dependent not only on the nature of the problem but also on our goal in relation to solving it. Would I like my problem to simply go away, or would I like to learn how to solve similar problems in the future? In the case of the defunct dryer above, was my dad trying to kickstart a new career in appliance repair or did he just want dry clothes? When I need to solve a social problem, I go to my friends and family so that I can learn something about myself. When I have to understand a complex concept related to math or physics, I open a textbook or ask a question on an online forum like Reddit or Stack Exchange. When I have a problem, I seek help from a variety of sources and use them in such a way to achieve a particular goal. When I have the desire to understand a concept, I look for help that will enable me to learn. When I need to get something done with limited resources, I find someone that can solve it for me.

When I reflect on the nature of my own academic help-seeking behaviours, I find it difficult to describe the process since it has changed radically over time. In high school I was a

disinterested student who rarely sought help. This was because I could achieve the grades I needed to graduate and had no desire to achieve more than that. In university, I realized that this approach would not be sufficient as the challenge increased and my motivation to learn expanded. Unfortunately, as a mature student at UVic, I did not experience a sense of community amongst my much younger peers while studying physics. Thankfully, the internet (and its many forums) provided me with the technical help I needed to achieve the results I was looking for as well as instant access to a vast network of knowledge. I was happy in my technological comfort zone until the unthinkable happened: my studies of physics took me from the general to the frustratingly particular.

At the beginning of my post-secondary career, my courses in physics and math started out with simple and over-explained topics such as kinematics and calculus. As my degree wore on, the courses became both more nebulous and frustratingly niche. In some cases, the courses I was taking were so specialized that only a handful of people were considered experts in the field. This presented a new challenge: the concepts I had to understand were not explained or even mentioned online and, thus, no help could be found there. In any case, good students are nothing but resourceful and adaptive; I needed to change my approach if I was going to experience success at the end of my degree. Who was I to turn to? The only group that could commiserate with me: professors and peers.

As I reflect on my help-seeking behaviours, I realize that the sources of help I lobbied evolved over time and depended on the nature of my challenge. The degree to which we are willing to adapt our methods when faced with challenging and unfamiliar circumstances separate good students from the not-so-good students.

Professional Framework

After three very illuminating years as a teacher, I’ve grown weary of the over categorization of student achievement. One example of this is the 100-point scale for grading that the BC

education system cannot seem to shake. In my experience, there are only two meaningful categories for academic achievement: (1) on track and approaching mastery and (2) off track and struggling to learn. Students in category one (trending upwards) represent a fun project for a teacher where small nudges produce ripples and growth in interesting and unexpected directions. Students in category two (trending elsewhere) represent something else entirely: a frustrating puzzle that cannot easily be solved.

When we evoke the image of our profoundly struggling learners, we inevitably ask ourselves one of, or both, of these questions: “what is wrong with this student?” or “what is wrong with me as a teacher?” These questions are the products of frustration and don’t frame the situation particularly well. There is nothing wrong with the *student* but rather something missing from their learning processes. Additionally, there is nothing wrong with *us* (citation needed); we may just be lacking a particular approach or pedagogical understanding. The real question here is “why is my student not seeking help?” This question roots itself in the teaching-learning relationship since it targets the student and the teacher. Perhaps our students are not asking for help because doing so in the past has not yielded positive outcomes. Maybe our students are uncomfortable when asking for help in class because we have failed to build a safe environment for them to do so. It may be the case that our students are seeking help but with the intention of making problems go away rather than understanding a concept or process.

In the following work, it is my intention to better understand the nature of student help-seeking behaviour and find ways to improve it. A learner alone learns little.

Project Overview

As learners at the high school level realize the necessity of self-study outside of instructional time, they struggle to balance the tensions that arise between their internally defined goals and those placed upon them by institutions and society. High school learners and undergraduate students experience a growing desire to learn as autonomy is gradually handed

over to them which affords them the gift of choice. In contrast, learners are expected to achieve according to narrowly defined parameters so they can move on to the next stage of education. In high school, this would be college, university, or the job market. In undergraduate studies, this could be graduate school, professional programs, or a career. Unfortunately, the desire to learn and the utility of a high GPA are not often well-aligned.

Whether a student is understanding-oriented or grades-oriented, there exist strategies to improve self-efficacy and success that are common to both groups. In particular, the ability to seek help from others has been a strategy used by humans to improve understanding and achieve certain outcomes for as long as we've been able to communicate. For the 21st century learner, seeking help from other learners is not the only avenue available anymore. Online forums act to connect the novice to the expert. Artificial intelligence crafts explanations from millions of sources in a fraction of a second. Open educational resources provide numerous explanations of niche concepts. But what about resilience and persistence? We value in our students the ability to solve problems, at first, without help. In mathematics, this looks like practice either during class or at home. Practice that our "on track" learners seem to be able to complete but evades our "off track" students. This begs the question "why are our off-track students struggling to study independently?"

Problem

Unfortunately, the students most in need of self-study find themselves unable to do so due to a lack of strategic resources required to access course material and peer support (Rutherford et al., 2018). This inability to effectively practice can be attributed to many reasons but the two most common in my experience have been low self-efficacy and high math anxiety which is supported by current research (Usher et al., 2019; Barroso et al., 2021). This leads to a devastating barrier to learning: students feel unproductive, frustrated, and isolated while self-studying due to a lack of independent and effective learning strategies. Further, students with

little belief in their ability tend to feel helpless because their past efforts have not resulted in academic achievement which leads them to give up prematurely or isolate themselves academically (Suldo et al., 2018).

Purpose

The purpose of this research is to discover, evaluate, and select methods to improve learning strategies to enrich self-study in high school and undergraduate learners. A well understood collection of learning strategies is self-regulated learning (SRL) which is multi-faceted and largely related to executive functioning. To narrow the scope of this study, one aspect of SRL will be selected based on how likely it is to positively impact self-study and academic success. Next, the efficacy of the selected SRL strategy will be explored in relation to its use in online learning environments. Finally, the design and moderation of these learning environments will be evaluated and summarized so that an implementation guide can be made for educators on current best practices.

Questions

Currently, the UVic EdTech cohort uses the instant messaging service Mattermost which successfully builds peer-to-peer connections and allows for the mobilization of knowledge. In this study, the aim will be to determine if it is possible to develop SRL strategies on similar platforms and if such strategies lead to enriched self-study.

- How does improving SRL affect self-study?
- What SRL strategies can lead to improved self-study?
- What online environment(s) can be used to facilitate academic help-seeking?

Search Methodology

For the following literature review, the University of Victoria (UVic) Summons search engine was used to find relevant and current articles and books aimed at answering the questions identified in the previous section. Results were restricted to articles published in reputable academic journals and books featuring key authors in their respective fields. The timeframe for each search was from 2018 to 2025. Boolean language was frequently used to ensure searches were robust and specific. For example, when looking for research on high school mathematics, inconsistent language was used for the ages of the subjects which necessitated Boolean language like high school OR adolescent OR youth OR student.

The first stage of research was to explore self-regulated learning and how it related to self-efficacy, academic achievement, and overall student wellbeing. This began with a Boolean search (self-regulated learning OR self-regulated learning) which was refined using (self-regulated learning OR self-regulated learning) AND (math OR mathematics). From this research, help-seeking emerged as a well-studied and effective aspect of SRL. The second stage of research was focused on investigating help-seeking both in general and in relation to online learning. A Boolean search (help-seeking OR help seeking) AND (online OR social media OR social network). The final stage of research was to explore how technology is used to facilitate the transfer of SRL skills between students. A cumbersome yet effective Boolean search was used: (collaborative math learning OR self-regulated learning OR self-regulated learning) AND (instant messaging OR social media OR online).

After extensive research, the methodology above uncovered an appropriate SRL strategy, help-seeking, that could be linked to improvements in self-study via increased connections between peers online. Other emerging themes were help-avoidance, connectivism, and teacher involvement.

Definition of Terms

Academic success. For this study, academic success will include grades, appraisals of self-efficacy, low incidence of subject related anxiety, and low rates of educational burnout. Since this study is aimed at adolescents, a holistic approach to defining success is most appropriate rather than relying solely on test scores or GPA.

Self-regulated learning. Self-regulated learning is learning that takes place without explicit teacher guidance and is the target for inquiry-based learning. Self-regulated learning strategies include goal setting, help-seeking, and reflection on strategies and processes (Schunk & Greene, 2018).

Help-seeking. For this study, help-seeking is a behaviour that a learner uses to gain knowledge, context, or experience from an active or passive source. Sources range from watching a YouTube video to reaching out to a peer or expert in person. Help-seeking can be categorized as either adaptive or expedient. Adaptive help-seeking is focused on mastery and understanding while expedient help-seeking is concerned with the avoidance of work (Gall, 1985).

Social media. For this study, social media is any online environment that connects people with the intention of increasing social interaction. Typically, social media is dominated by platforms like TikTok and Instagram with little educational value. In our context, social media is any platform that is suitable for academic help-seeking and is currently embodied by online discussion forums and focused instant messaging groups.

Adolescent: In general, an adolescent is between the ages of 10 and 19. This age range is appropriate for this study since current research is focused on high school aged learners and undergraduate students. While the educational context changes drastically from high school to post-secondary, the results can be generalized for older high school students and young undergraduate students since social and psychological factors are similar.

Chapter 2: Theoretical Frameworks and Literature Review

The singular and inescapable truth of education is the age-old adage “practice makes perfect.” While this classic idiom has gone out of style in recent years due to its problematic ties with perfectionism, the meaning persists; students who effectively self-study are generally more successful than those who do not (M.-H. Cho & Heron, 2015; Xu, 2023). Success, in the context of this research, is defined in two domains: (a) mental health (high life satisfaction and low incidence of school burnout) and (b) academic achievement. Students who enjoy significant success in their academics can exert more effort during self-study leading to positive homework behavior and an overall improvement in achievement (Xu, 2023). These successful students can keep themselves engaged for hours because they anticipate positive results related to increased performance and improved understanding (Schunk & Greene, 2018). For these students, self-study is functioning exactly as expected.

Alternatively, less successful students with a long history of failure are often incapable of practicing the skills required to effectively self-study and require powerful educational interventions (Boekaerts, 1999). While factors that affect student success are elusive and inseparable, two factors negatively correlated with success are self-efficacy (E. L. Usher et al., 2019) and math anxiety (Barroso et al., 2021). Students with low self-efficacy, despite their best efforts, have yet to find methods to improve their academic achievement and resort to avoidant behaviors such as giving up, taking shortcuts, and skipping school (Suldo et al., 2018). When these students feel they are not in control of creating more favorable circumstances for themselves, they do little to improve their learning strategies (Schunk & Greene, 2018). Additionally, students with high math anxiety are characterized by worry and fear related to math stimuli and situations. Across all ability levels, students with high academic anxiety generally experience lower achievement than their counterparts irrespective of content or concept complexity (Barroso et al., 2021). Thankfully, improving self-regulated learning (SRL)

strategies have been shown to improve self-efficacy (DiBenedetto, 2018) and reduce academic anxiety (Fajri & Amir, 2022).

Theoretical Frameworks

This study relies on two theoretical frameworks popular in education today: self-regulated learning and connectivism. Self-regulated learning (SRL) consists of a number of interconnected and interrelated strategies that students use to learn in the absence of explicit teacher guidance. In a more abstract sense, connectivism is a network theory that suggests that learning is most powerful when nodes of information are connected. In our context, nodes are sources of knowledge (teachers, students, etc.) that can be connected using online platforms such as help forums or instant messaging groups.

Self-Regulated Learning

Students who lack the ability to learn successfully in the absence of explicit teacher guidance are characterized as having deficient SRL strategies. Fortunately, students can be trained to use SRL skills in particular contexts that can later be transferred to other contexts (K. Cho & Cho, 2013). Improving SRL strategies can help combat helplessness and isolation in self-study since students with robust SRL strategies demonstrate higher self-efficacy and better control of negative emotions when learning (M.-H. Cho & Heron, 2015). Student self-regulation is also linked to improved motivation, learning, and achievement both in general (Schunk & Greene, 2018) and in online learning environments (M.-H. Cho & Heron, 2015).

Self-regulated learning is a nebulous and ever-evolving learning theory that concerns itself with how learners regulate their thoughts, behaviours, and emotions to achieve their academic goals. The model of SRL used in this paper is the social cognitive view theorized by Albert Bandura and Barry Zimmerman which was later recontextualized by Dale Schunk and

Jeffrey Greene in their 2018 *Handbook of self-regulation of learning and performance*. Using this model, SRL is presented in three phases: (a) forethought, (b) performance, and (c) reflection (Schunk & Greene, 2018). In the first phase, students set goals in anticipation or reception of a task. While educational professionals might have a bias for mastery-related goals, social cognitive theory suggests that goals selected by the student are more powerful than externally imposed goals and rewards (E. Usher & Schunk, 2018). For this reason, it is important to allow students agency when selecting goals with some coaching towards mastery goals.

In the second phase - performance - students generally self-monitor their thoughts, actions, and feelings while making adaptations when necessary. They compare their performance with others and use that important data to refine their tactics and approaches (Usher & Schunk, 2018). A key aspect of self-regulated learning is the ability to determine when and from whom to ask for help when cognitive load pushes students out of their zone of proximal development. For this reason, any learning environment designed to use SRL as a theoretical framework should reduce barriers between peers during asynchronous study. Working in social groups can help low SRL learners improve their strategies through co-regulation of effort (Usher & Schunk, 2018).

In the third phase, learners set out to reflect on their performance and implement adaptations that they envision as pathways to better learning. A powerful method of reflection is comparing our strategies to those of our peers which not only add to our repertoire but forces us to analyze our own thinking (DiBenedetto, 2018). In the past, opportunities for students to compare attitudes of and approaches towards learning were limited to the physical classroom. Today, students have access to robust social networks, both in person and online, that can be co-opted for the learning process and used as powerful environments for reflection.

Connectivism

As a supporting framework, connectivism views learning as a network phenomenon influenced by technology and socialization. Within this framework, learning and knowledge rest in a diversity of opinions and is facilitated through the connection of information sources commonly referred to as nodes (Goldie, 2016). In the context of present education research, nodes consist of students with varying SRL skills and topic knowledge bases. Fortunately, educational technology has made it possible for students to connect outside of the classroom and exercise freedom within online learning environments (Kanakana-Katumba & Maladzhi, 2019). When technology is used to augment and extend learning environments, the number of possible connections between nodes increases but, unfortunately, this does not necessarily lead to more collaboration. Liu et al. (2024) found that students who were required to participate in curricular social networks used one-way communication more frequently than two-way communication. This necessitates the creation of a social learning network that not only allows for connection between students but encourages two or many-way interaction.

Unfortunately, asynchronous online courses do not reliably foster collaboration between peers merely because access is increased via the internet. Reese (2015) asserts that learning environments only flourish when each individual voice is acknowledged and heard. They suggest that this is even more important in online environments where individuals often feel isolated from their peers unless explicit steps are taken by the designer to foster community. When the designer and the teacher are the same person, interesting and empowering features can be added to the online environment such as discussion forums and collaborative tasks. One way to drive engagement in these spaces is to have teachers comment in discussion forums both with regards to content and the quality of collaboration present (Zhu et al., 2020). While it is important for online learning environment designers to provide pathways between students, it is

equally important that those designers do so with intention; a group of individuals does not bond until they are given a common goal and the tools to achieve it.

Help Seeking

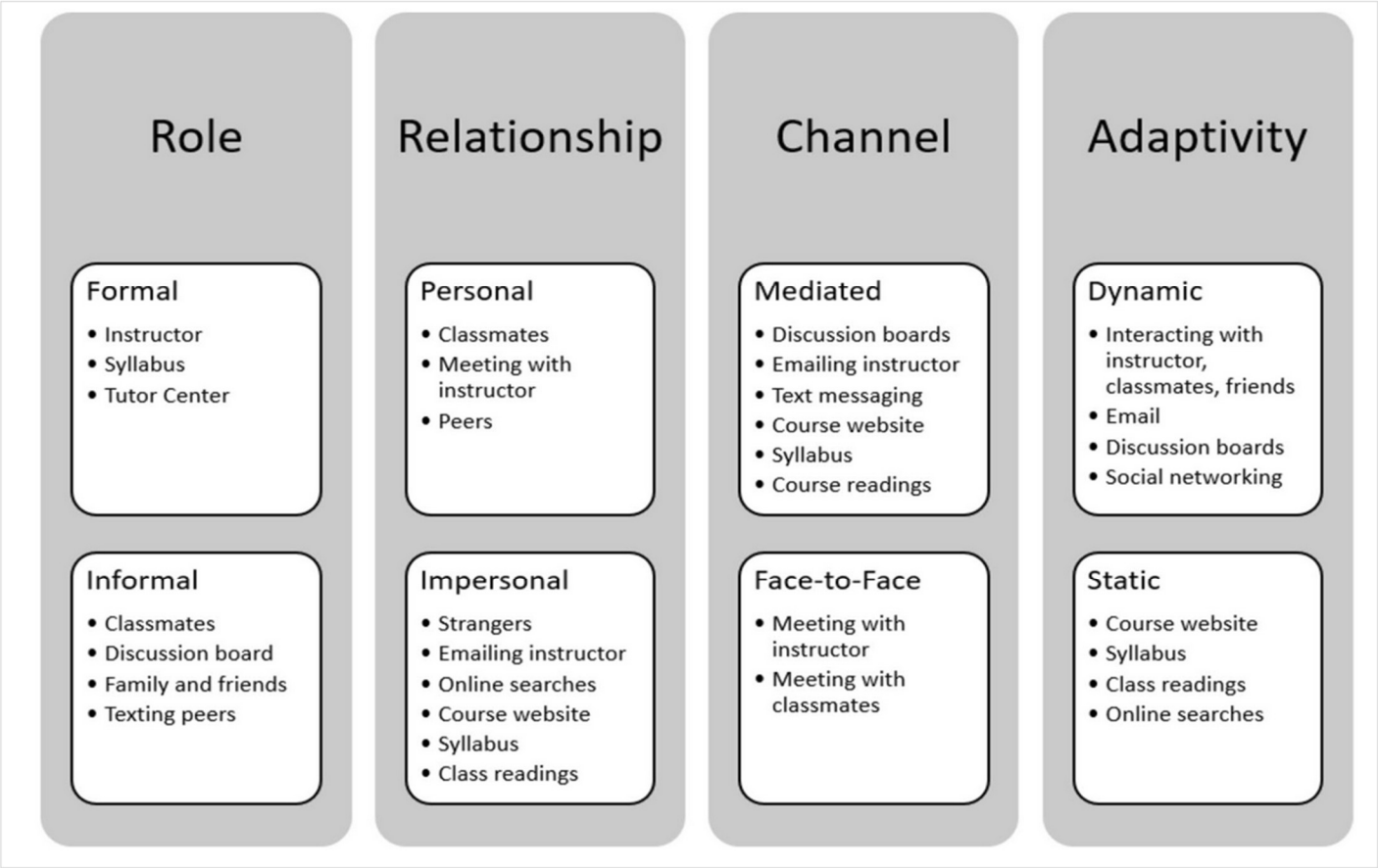
In all three phases of self-regulated learning, two core themes emerge: autonomy and connectedness. The inquiry approach to teaching and learning has long supported the notion that student choice - autonomy - leads to improved academic success, greater personal engagement, and the development of independent learning strategies (MacKenzie, 2016). The second theme, connectedness, is indirectly explored in the following literature review with an explicit focus on improving help-seeking via online social interaction.

The nature of help-seeking behaviours in adolescents is complex in comparison to other SRL strategies because of the inherent social nature of asking others for help (Fong et al., 2023). Current research indicates that academic outcomes are positively related to adaptive help seeking and SRL (Martín-Arbós et al., 2021). Learners who seek adaptive help with a positive impression of help-seeking develop higher levels of self-efficacy and enjoy more academic success (Miles & Vela, 2022). This supports the claim that help-seeking is linked to success, which includes academic outcomes and belief about oneself, but are all requests for help equivalent? Do they all lead to success?

Yang et al. (2024) define a help-seeking categorization framework (Figure 1) that relies on four factors: role, relationship, channel, and adaptivity. These factors play a crucial role in shaping the dynamics of seeking assistance. These categories represent external factors that can be measured and generalized towards internal characteristics of the help seeker. The key finding here is that learners take advantage of diverse sources in a variety of ways.

Figure 1

Dimensions of Help-seeking

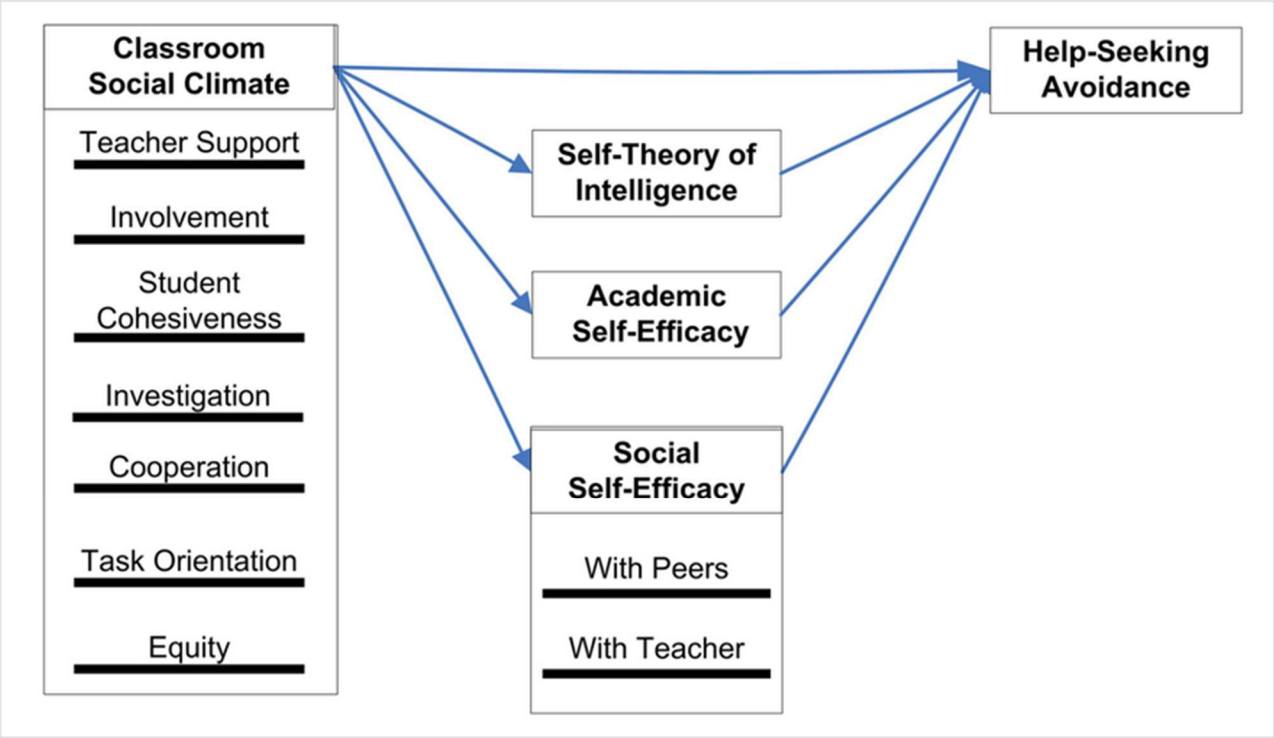


Note. From An Exploration of How Students Prioritize Help-Seeking Sources in Online Learning Environments by F. Yang et al., 2024, *TechTrends, 68(3),* 456-468.

While Yang's (2024) model boasts measurability of help-seeking behaviours, its categorization is entirely external. If we want to understand the social climate of a learning environment in relation to help-seeking, a model that addresses internal factors is needed. Smalley and Hopkins (2020) propose such a model where help-avoiding behaviours are defined internally and are centered around the learner and their interactions with their learning environment. This suggests that the problems with help-seeking and avoidance are not just logistical in nature but socially defined as well.

Figure 2

Smalley and Hopkins' Model for Help Avoidance



Note: From Social Climate and Help-Seeking Avoidance in Secondary Mathematics Classes by R. Smalley and S. Hopkins, 2020, *The Australian Educational Researcher, 47(3),* 445-476.

Adaptive vs. Expedient Help Seeking

In general, learners tend to seek help in any of three contexts: (a) to better understand a problem or concept, (b) to avoid having to do work, (c) to gain logistic or administrative knowledge. When students seek help with the intention of understanding a concept, this is termed adaptive help-seeking and often supports lifelong intellectual development (Newman, 2008). As for learners who seek help to avoid having to do work, they may ask questions like "what is the answer to the first question?" or "I don't understand question 2?" While the first question is a request for expedient help, the second leaves the type of help up to the helper. A determining factor in how a helper answers ambiguous questions is emotional care; an

empathetic dynamic could develop where emotional relief is perceived as more important than informational support (Kilday & Ryan, 2023). Finally, questions asked by peers that are administrative in nature are often asked to gain clarity on course logistics such as “what’s on the quiz tomorrow?” and “is the homework due on Friday?” Smalley and Hopkins (2020) suggest that teachers should provide explicit guidance about help-seeking strategies so that students can better understand what exactly they are asking for and what is being asked of them.

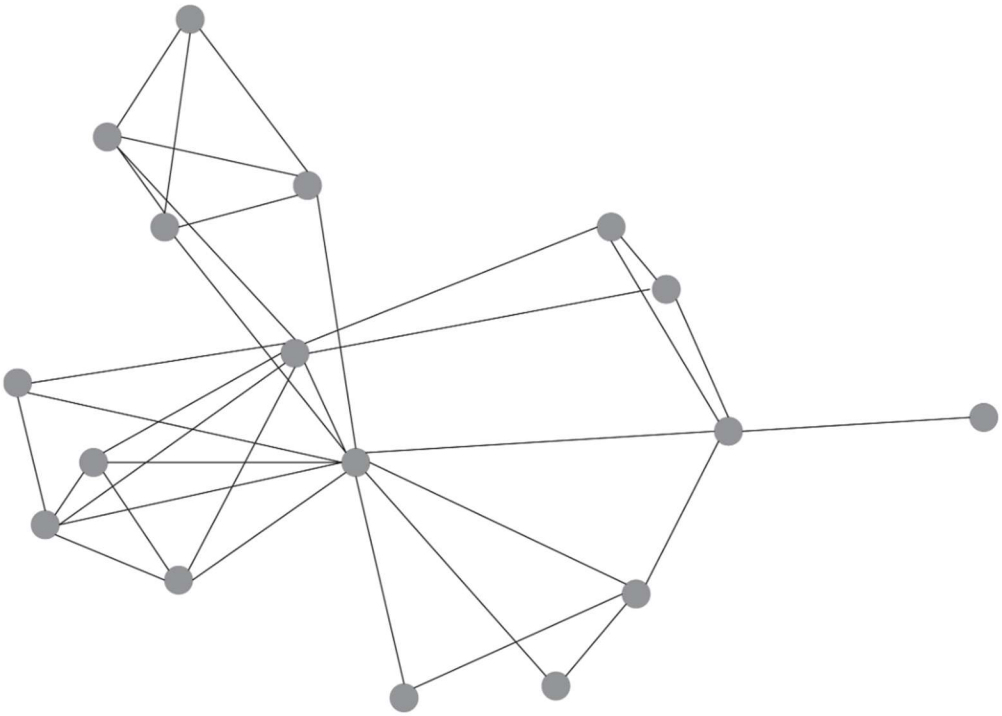
Help Seeking and Success

When a learner reaches out for help, whether adaptive or expedient, this is usually viewed as positive behaviour since it indicates self-advocacy; however, do all requests for help lead to academic success? Fong et al. (2023) found that expedient help-seeking behaviour was counterproductive to mastery while adaptive help seeking was influential in predicting mastery and achievement. This is unsurprising since it suggests that the avoidance of work - expediency - is counter to academic achievement while help seeking with the intention of improving understanding leads to better outcomes. It has also been shown that a student’s inclination towards seeking help not only improves their participation but also leads to better course performance (Huang et al., 2024). Help seeking also provides an avenue for students to avoid academic burnout by gathering support from teachers and peers that they perceive as helpful (Romano et al., 2020).

When exploring how help networks form amongst students, sociograms like the one pictured in Figure 3 can be helpful. In a help network sociogram, the nodes (dots) represent students while the connections (lines) indicate a help-seeking relationship between students.

Figure 3

Sociogram of a Network with High Inequality



Note. From A description of classroom help networks, individual network positions, and their associations with academic achievement by L. Van Rijsewijk et al., 2018, PLOS ONE, 13(12).

In a study by Van Rijsewijk et al. (2018), researchers aimed to explain how the composition of help networks within a classroom correlated with academic achievement. Their findings were that the only significant predictor of achievement was inequality in help seeking networks. The sociogram depicted above (Figure 3) shows a network with high inequality meaning that there is significant variance in the number of connections each node has. This means that some peers have many more connections than others. Groups that had low inequality (each student had roughly the same number of connections) were associated with higher achievement. This leads to the conclusion that it is better to have a roughly equal number of connections between peers as opposed to a few highly connected helpers.

Who To Ask

When adolescents seek help in academic settings, not only do they have to determine what kind of help they are requesting, they also have to determine who to ask. Some learners prefer to seek help from teachers because of their professional expertise and acuity in providing personalized explanations (Yang et al., 2024). Others like to ask peers for help which indicates a desire for social interaction. These students often choose peers who receive high grades or friends within the class (Kilday & Ryan, 2023). Yang et al. (2024) have observed that students who seek help from their friends often do so due to the ease, comfort, and swiftness associated with such interactions. Finally, some students have shown a preference for technological resources like online discussion boards since they foster a feeling of anonymity (Cohen & Zusho, 2023). While students on these platforms tend to be inactive or passive, their limited presence in these online environments still lead to knowledge mobilization and learning (Lee et al., 2021). What is clear from current literature is that there are several effective avenues for help available to students and a mosaic (many sources) approach to help-seeking would be most beneficial since all avenues are efficacious and preferable in different ways.

Help Avoidance

It would be logical to assume that a student struggling with a problem or concept would seek help to make progress, yet many do not. Why is this? Smalley and Hopkins (2020) suggest that learners might avoid asking for help because of a desire to feel competent by solving problems by themselves. Students who behave this way do so because of a high degree of resilience stemming from high self-efficacy. These students still reach out for help but prefer to use adaptive help-seeking strategies rather than expedient ones (Won et al., 2021). While persistence in problem solving is often regarded as positive, these high self-efficacy students need to be reminded that help-seeking is a valid approach when facing significant challenges

(Smalley & Hopkins, 2020). For this group, avoiding help-seeking is a source of pride which can lead to even high self-efficacy. But what about students with low self-efficacy?

Learners with low self-efficacy, either due to past performance or negative feedback, limit their help-seeking behaviour due to a complex mix of social factors. Cohen and Zusho (2023) found that some students avoid seeking help because they do not want their teachers or friends to view them as less competent. Even when questioned, these learners tend to lie and say “I get it” to avoid undesirable consequences like standing out from peers for not understanding a concept or problem (Peeters et al., 2020). This creates an uncomfortable tension between the desire to learn and the need to avoid psychological harm. Unfortunately, when students with low self-efficacy or limited knowledge avoid seeking help, they tend to get frustrated which stunts their task progress and further diminishes their already low self-efficacy (Smalley & Hopkins, 2020). When students avoid help, no matter their reasoning, a cultural or pedagogical adjustment is required in the classroom so all students can experience the benefits of help-seeking, either adaptive or expedient. Without proper support in help-seeking, students will practice avoidant behaviours which can lead to further isolation and academic anxiety.

Learning Environments

When a teacher aims to improve, diminish, or otherwise change behaviour, the first place they look is their environment. This can be a physical classroom or an online learning environment like D2L. Changes can be aesthetic such as rearranging desks to increase collaboration or placing discussion forums on the landing page of a course website. Smalley and Hopkins (2020) suggest pedagogical changes to classrooms by implementing cooperative learning approaches. A good example of this is Peter Liljedahl’s (2021) thinking classroom where students work collaboratively to solve problems with limited teacher guidance. This approach encourages students to work within their group before seeking help from other groups

working on similar problems. An added dimension to this approach is the use of random grouping, which forces students to work with different people every day. This leads to better class cohesion and an increased sense of belonging which is positively associated with adaptive help-seeking behaviour (Won et al., 2021). Unfortunately, despite changes in the environment that prioritizes help seeking, some students still avoid seeking help in physical environments like classrooms due to fear of social consequences.

When students avoid seeking help in the classroom, a possible solution is to provide an alternate environment that is better suited to their preferences. Cohen and Zusho (2023) found that low-achieving students who avoid asking for help in classrooms often take advantage of online learning environments to seek help. These students prefer asking for help online partly because of the anonymity that online spaces afford them but also because they tend to have more confidence socializing online. When students have confidence in their ability to contribute in online environments, their adaptive help seeking strategies improve along with their general social presence within those environments (Keshavarzi et al., 2024). By providing learners with more diverse help-seeking environments, we can expect their use of adaptive and expedient help seeking to increase (Yang et al., 2024). Now equipped with diverse help seeking options, learners can more confidently approach self-study without fear of social harm.

Self-Study

When students study outside of assigned teaching hours, their access to peers is often limited by social and logistical factors. They may select peers based on availability such as having a spare at the same time or invite a friend over to study with. Others prefer to interact online and maintain course related instant-messaging groups. Within these networks, students enrich their self-study by asking for verification of their solutions which promotes critical thinking within the group (Lee et al., 2021). Students with high self-efficacy tend to use online

environments to gather feedback on their approaches and gain exposure to competing perspectives. Alternatively, lower performing students often use online environments to access hints for problems and seek general guidance (Cohen & Zusho, 2023). This is encouraging since it shows a desire to seek help when studying regardless of achievement or self-efficacy.

Social Media

Technology can be used to create powerful learning environments that connect students and facilitate help-seeking behaviour. Further, if these technological learning environments are perceived as supportive, learners could withstand challenges that might have otherwise overcome them if they studied in isolation (Schunk & Greene, 2018). By mixing students at different SRL levels together on a single online platform, they can collaboratively control and regulate motivation, emotion, and learning strategies (M.-H. Cho & Heron, 2015). This aligns well with a core component of SRL: exposure to other's perspectives and strategies allows for a point of reflection for learners through exposure, comparison, and adaptation. Thankfully, building a properly scaffolded learning environment is enough to promote SRL skills without the need for further intervention (Al Mamun & Lawrie, 2024).

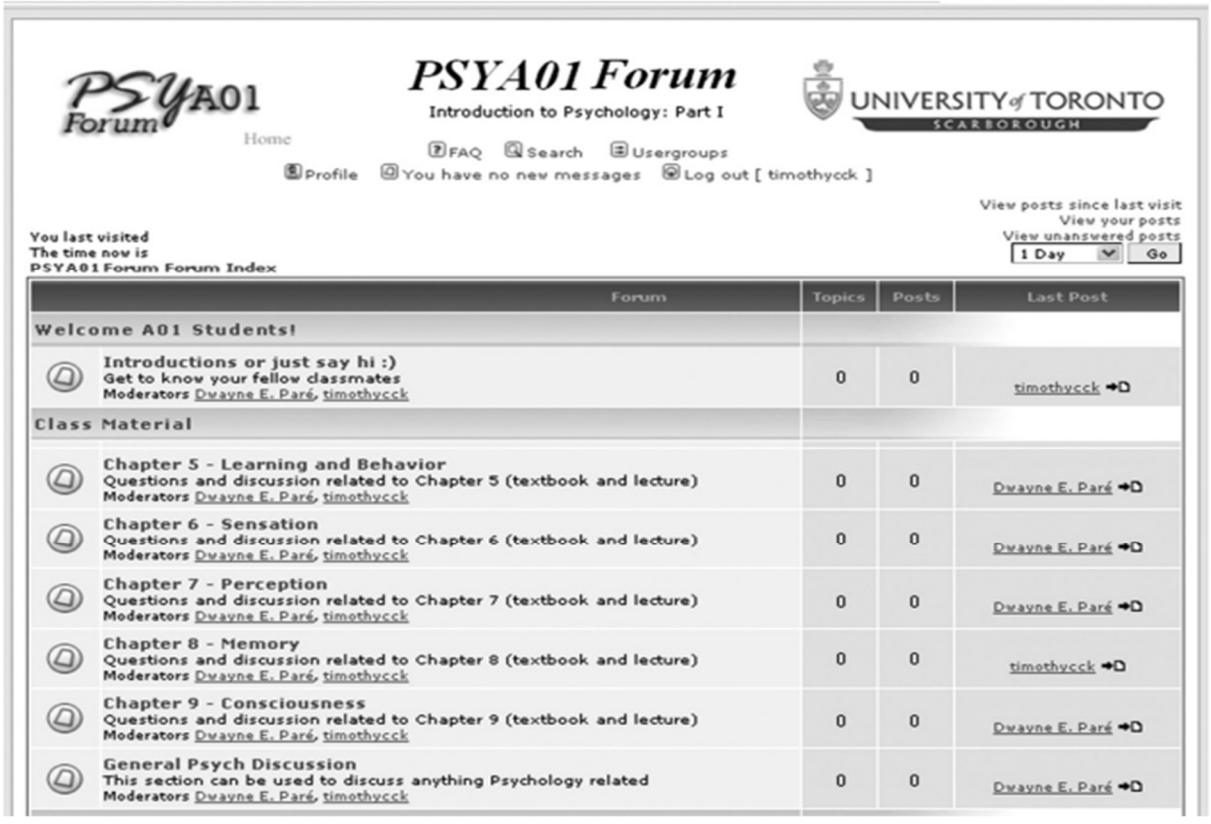
One way to connect students for the purpose of education is to connect them using an application of technology they are already familiar with: social media. The barriers present with most technologies are bypassed since even our most digitally illiterate students know how to use their phone or laptop to access social media applications like Instagram, Facebook, or Tik Tok (Donelle et al., 2021). Success has been found both in mathematics and in general when using social media to connect students while they complete curricular tasks (K. Cho & Cho, 2013; M.-H. Cho & Heron, 2015; (Yen et al., 2022). Typical approaches include live chat rooms with instructors, discussion forums with student-to-student interaction, and Twitter threads of

project progress and sentiment. Each of these approaches have one thing in common: digital tools being used to reduce barriers between students during asynchronous study time.

In Figure 4, Cheng et al. (2011) share an online forum for a university psychology course. This help forum is divided into categories based on content which facilitates focused discussion on specific sections of the curriculum. Online discussion forums often range from general discussions to threads about problems. Popular examples of online discussion forums where users seek help from other users are reddit.com and stackexhange.com. These online help forums are built with the intention of mobilizing knowledge and building community.

Figure 4

Online Discussion Forum



Note. From Assessing the Effectiveness of a Voluntary Online Discussion Forum on Improving Students' Course Performance by C. Cheng et al., 2011, *Computers and Education 56(1)*, 258.

Students with adequate SRL strategies often do not need help seeking help from others since they find ways to connect independently and do so only when they deem appropriate (Lim et al., 2019). For low SRL learners, help-seeking behavior is often replaced with avoidant behaviours since reaching out to peers is perceived as burdensome or ineffective. An equitable solution is to place students of all levels in an online learning environment that is facilitated through social media. When this is done, the new online learning environment helps students improve their self-efficacy through positive social interactions both through student-to-student and student-to-teacher interactions (M.-H. Cho & Heron, 2015). These learning communities, when properly constructed, are often perceived as well-connected and supportive spaces that enable all participants to participate according to their expertise and comfort level (Yen et al., 2022). Further, these spaces enable students to co-create new knowledge which pushes them to deeper learning and understanding (Lim et al., 2019).

In practice, using social media to build learning environments is generally well-received amongst students. In a narrative study conducted by Broadbent and Lodge (2021), many students mentioned that they liked the real-time convenience of live chat rooms both via instant messaging and video conferencing. Online learners enjoyed the freedom and flexibility of live chat to such a degree that the common feedback received was that they make it available more often. A solution to the problem of availability would be to shift the focus from teacher assistance to peer support; an approach that has been shown to improve coping ability and academic achievement (Hoferichter et al., 2022). In addition to live chat, students also provided positive feedback for voluntary discussion boards when other forms of support were not available or the help was not urgently needed (Broadbent & Lodge, 2021). Both applications underscore a common understanding: students enjoy seeking help but often need pathways constructed within learning environments so they can take advantage of collaborative learning strategies.

Teacher Involvement

Whether help-building environments are in person or online, explicit teacher guidance and moderation is key to ensuring students participate in productive help seeking behaviour. When blended approaches are used, consistent teacher presence appears to stimulate help seeking both in person and online (Lee et al., 2021; Yang et al., 2024). Online environments act as a non-threatening space where teacher involvement helps students understand where and when to get help (Miles & Vela, 2022). Lee et al. (2021) found that teacher presence in online environments facilitated higher order thinking in students and increased the occurrence of adaptive help-seeking behaviour. Explicit teacher facilitation of peer-to-peer interactions has been shown to increase help-seeking behavior (Smalley & Hopkins, 2020). While current literature supports the link between teacher presence and help seeking, one question remains for educators: how exactly do we moderate these online environments?

In an online help forum designed by Broadbent and Lodge (2021), teacher presence is communicated using a live chat with a picture of the instructor (Figure 5). While it may be unrealistic to constantly monitor a live chat outside of school hours, it does make students feel as if the teacher is present and active in the online learning environment. Further, teacher presence can be felt when environments are frequently moderated via written feedback on help-seeking requests and responses to those seeking help.

Figure 5

Teacher Presence in Online Environments

Note: From Use of live chat in higher education to support self-regulated help seeking behaviours: A comparison of online and blended learner perspectives by J. Broadbent and J. Lodge, 2021, *International Journal of Educational Technology in Higher Education*, *18*(1), 17.

Teacher presence in any environment is rarely enough to make change in an educational context. What is required is intentional presence paired with individualized guidance. Miles and Vela (2022) suggest that educators should show students the benefits of help-seeking and provide resources so they can get help in environments that are safe for them. This approach highlights the individual nature of help seeking where one student may want to limit help so they can practice resilience where others may want to reduce the perceived social harm of not knowing something. Interestingly, when teachers are viewed as supportive and act effectively as a resource for help, adaptive help seeking between peers increases (Kilday & Ryan, 2023). It is then up to the teacher to encourage and enable students to connect with each

other online (Keshavarzi et al., 2024). This can be achieved by crafting online environments where students are better connected and where help-seeking behavior is not only possible but encouraged. Further, significant modeling is required on the part of the teacher to develop effective help-seeking behaviours in learners.

Weaknesses and Limitations

While online learning environments can be used to reduce barriers between students during asynchronous study, it is important to draw attention to the issues surrounding their implementation; especially for students in the K-12 system. Current issues with integration of online spaces include digital safety, correctness of non-expert explanations, and distractions caused by social media use.

Digital Safety

While social media can be used to construct learning networks that enable help-seeking behaviours, there are significant administrative and ethical obstacles in the way of a straightforward implementation. The Freedom of Information and Privacy Protection Act of BC (FOIPPA) requires students (or parents if the student is younger than 16 in BC) to provide written consent if a course requires the use of a web-based tool where personal information is collected and stored on servers outside of Canada. Now that student privacy and safety is at risk, educators must act with extreme care by evaluating platforms from legal and ethical standpoints (Aydin, 2024). A possible solution to this issue is to build an online social learning network using a web-based tool either hosted in Canada or on a platform already adopted by a district or school. Another strategy to reduce ethical and legal responsibility is to build online learning environments using digital tools that do not require students to enter personal data or create personalized accounts.

Correctness

Another potential issue with using online social networks to connect students and facilitate the transfer of knowledge is the correctness of peer explanation. Oftentimes, students will provide peers with suboptimal explanations of methods or concepts either through the omission of key details or inclusion of irrelevant information. In short, they make mistakes. Fortunately, correctness does not get in the way of SRL transfer or improvement of conceptual understanding. Al Mamun and Lawrie (2024) found that while the product of student collaboration can be imperfect, there was no negative effect on learning. In other words, learners connecting online may produce imperfect explanations or solutions, but this is unlikely to diminish their learning or mastery of concepts.

Distraction

With cell phone bans being implemented in many schools across Canada, technology and social media is perceived as a significant disruption to learning in physical classrooms (Wong, 2024). Some educators believe that the impact of technology and social media on adolescents is more profound with mental health plummeting as they spend more and more time online (Lao & Boynton, 2022). A study conducted by Al-Furaih and Al-Awidi (2021) found that students become distracted by technology and social media during class for two reasons: (a) the fear of missing something posted in their social circle and (b) boredom with class activities or content. Unfortunately, even when students are aware of the negative effects that disruptive social media use can have on their studies, they often fail to self-regulate due to overconfidence in their ability to do so (Dontre, 2021). This has caused educational institutions to waver when considering integrating social media tools into their learning management systems (Turnbull et al., 2023). Overall, the potential for disruption that social media poses has caused educators to hesitate when integrating it into their practices despite the benefits.

Summary of Findings

Students with low self-efficacy or achievement have difficulty making effective use of self-study, in part, due to limited self-regulatory learning strategies. One SRL strategy in particular, help seeking, has been shown to positively impact academic success. Help-seeking is a complex behaviour that is mediated by several factors such as learning environment, subject-specific self-efficacy, and social aptitude. How and when students seek help is nuanced and depends on individual motivation and preference. Some prefer to approach teachers or adults for help while others rely on their friend groups for support. Even when sources of help are present, learners demonstrate avoidance either due to psychological risks - fear of being perceived as not knowing something - or a desire to solve problems independently - practicing resilience and persistence. To facilitate productive help seeking and limit avoidance, appropriate learning environments need to be constructed.

Independent of modality (in-person, online, or blended), learning environments need to be constructed so that help-seeking is possible and the benefits apparent. This can look like building a culture of help seeking in a physical classroom by adjusting learning activities so help seeking is rewarded. It can also take the form of an online discussion forum where students are encouraged to seek and give help to peers. In any case, teacher presence is necessary to ensure the success of these environments where modeling, prompting, and feedback can be used to support or extend peer-to-peer help seeking.

A supporting learning theory, connectivism, can be leveraged to improve the efficacy of online learning environments where learning emerges from the connection of nodes such as digital resources, experts, and peers. Learning environments constructed using the core principles of connectivism are hotbeds for student collaboration and facilitate adaptive help seeking that can increase academic success and improve the quality of self-study.

Chapter 3: Application of Knowledge

The application of knowledge for this project will be the construction of an online help forum that students can use to reach out for help both from teachers and peers. The primary goal of this help forum is to reduce the feeling of isolation when studying independently and improve student help-seeking behaviour. The process, from problem to product, was documented in a series of blog posts that can be found below.

Blog Post #1 - Why students struggle and how we can help them help themselves.

https://zedblog.opened.ca/2025/06/26/why-students-struggle-and-how-we-can-help/

Blog Post #2 - Building a help forum for adolescent learners.

https://zedblog.opened.ca/2025/06/26/building-a-help-forum-for-adolescent-learners/

Blog Post #3 - Next steps and future research for connecting learners.

https://zedblog.opened.ca/2025/06/26/next-steps-and-future-research-for-online-help-forums/

Website link: https://walkersmai.wordpress.com/general-help/

Blog link: https://zedblog.opened.ca/

Password: SMS2025

A captured PDF of the blog post that chronicles the creation of this website can be found on UVIC's dspace website under the file name:

Walker_Zach_MEdProject_2025_BlogCapture_002.pdf

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Chapter 4: Conclusion

Summary of Learning

Throughout this program, I have learned at least four things. First, I have learned that education is better when it is open. A huge focus during this program has been on making educational resources open, free, and easily accessible. When I went to UVic not long ago to study physics, I had to buy countless textbooks and subscriptions to online services. While financially difficult, the bigger impact was on my sense of knowledge and ownership. For many years, I thought that knowledge came from textbooks or subscriptions and could only be gained if I offered some hard-earned cash. What I've learned studying educational technology with this cohort is that knowledge is contained within experience and it is our responsibility to share it freely with others. Even when we disagree, there is productive conversation when competing perspectives clash – something that is missing when we view knowledge as a commodity found in static resources. The greatest gift we can give our community is our knowledge, experience, and patience. It takes a village to do what we do.

Second, the safety of our students should be our number one concern when designing and using online resources. As a millennial, I grew up with the internet and became technology literate as the tools we used became more powerful. With this perspective, it can be easy to fall back on common sense anecdotes like "protect your passwords" or "don't share your bank account info online." Unfortunately, as technology advances, so do the ways in which we can be taken advantage of. Even though our students were born into this world of technology, they know surprisingly little about safe ways to engage online and often do things that we cannot anticipate. Thankfully, there are guidelines like FOIPPA that act to protect our kids from undue harm on the internet. It is guidelines like these and others (AI, cellphones, etc.) that guide our practice. If I have learned anything, it is to check these policies and guidelines before I implement any technology in my classroom not only for my safety, but my students' as well.

Third, curriculum is inseparable from the self. We are not robots, and we do not teach in a vacuum. All our knowledge is filtered through our experience and, when we share it, it is filtered again. This is like a game of telephone except when transfer occurs, it is not error that is produced but new knowledge. The act of sharing in and of itself causes new things to grow and this links the concept of knowledge and openness. Moving forward, I recognize myself in this process and that I must make the curriculum I teach my own. I need to address my own biases, misconceptions, and opinions before I approach the curriculum so that I can ensure I teach in a healthy way. I must also approach the curriculum with my students in mind as well. They each have their own experiences and the way I teach must respect that. This may seem of little consequence to a math and physics teacher, but I am teacher first and my lessons contain more than numbers and formulas. If I am successful, I will teach them how to think critically, approach others with empathy, and engage with their community in meaningful and authentic ways.

Penultimately, changes should be implemented after rigorous research has been completed rather than on a whim. It is easy as the captain of our educational ships to change course when the winds are not favourable. In this moment, we should pause and think carefully about our next action. I have learned in this program that research, whether rigorous or fulsome, should precede any large changes in our pedagogy or environment. While this is a reasonable recommendation, the deeper meaning is a little harder to find. When changes need to be made, we should not make them in isolation. We need to engage with our community – whether within our school or amongst academics – to chart the best course forward. If we act in isolation, we fail to open our classrooms to new experiences and communities. This leads to professional degradation on our parts and stagnation within our classroom as our ineffective ideas reflect off our walls. It would be helpful if every classroom had an emergency button that we can press when things aren’t working. In the absence of the button, we need to have the courage and strength to reach outside of our experience and ask for help.

Finally, in completing this project, I have learned many things but the most salient is that many students don't know how to effectively ask for help. This is interesting since low achieving students often know that they need help but for some reason avoid it. There is social complexity in their aversion to help that most of us can understand as adults: we don't want to be seen as someone who needs help because it means we are incompetent. When we adopt a growth mindset, that social pressure melts away since failure isn't defined by not understanding but, rather, not growing. What I have learned through this project is that to build an effective community of help in our classrooms, we need to do more than modeling and explaining. We need to shift the culture we have built by redefining success and making failure just another step in the process. Success is getting help and improving our understanding, not a high score on a test. Success is being open to new knowledge even if we think we understand. Success is trying, adjusting, and reflecting.

Reflections on Growth

When I reflect on my growth during the last two years in this program, it is easy to distinguish between my past self and where I am presently. When I began this program, I had a deep appreciation for teaching and an enthusiasm to try new things. As a new teacher, I had a reckless abandon for trying anything and seeing what works. I implemented some of this and a lot of that with a moment's forethought and very little research. This might be a good approach when you're cooking dinner but can be pedagogically dangerous if you don't know what you are doing. Despite this, I found a lot of success in my first year of teaching (which ended with me joining this cohort) because I had a knack for building relationships with my students. I spent a lot of time with my students trying to empathize with them and understand their struggles. Most importantly, I listened. As a result, trust formed between myself and my students – they believed that what I had them do in class was in their best interest and I believed that they would let me know if something was not working.

With trust firmly in hand, I had to figure out what to do with them in class each day. During my PDPP, there were a lot of fresh ideas such differentiation and inquiry but little theoretical exploration or philosophical discussion. This brings me to the middle of my EdTech journey with a course taught by Jennifer Thom. In this course, I learned about a process where change is needed, research is done, and changes are implemented. In the past, I skipped the middle step and went straight from ‘change is needed’ to ‘change.’ Without the research step, it was hard to justify my ideas before implementation. In a way, I was approaching education in a way that a seven-year-old approaches science: do something, see something, learn something.

It is easy to fall into the trap of skipping the research step in education since we work in places (schools) that offer such a diverse palette of experiences and knowledge. A quick chat in the hallway can spur a new practice in the classroom that you might use for decades. This isn’t necessarily a bad thing, but it can lead to academic laziness and stagnation if the pool of teachers isn’t constantly changing. In this, I have identified my largest area of growth during this program: a desire and willingness to do rigorous research before implementing change. This is more than a quick google search or conversation with an experienced teacher. This looks more like getting into some literature and firing up Zotero. A deep dive where a Google Doc is started with summaries of salient articles and a plan for implementation that is supported by current literature. As a scientist, the evidence must always support the conclusion, and any changes must be accompanied by justification. Why would this be any different for a practicing teacher?

This reflection so far has focused on how my technical skills as an educator have changed over the last two years. This then begs the question “how have I grown holistically as a teacher?” When I look inwards, I sense a fundamental and intangible change in how I view education. While I cannot pinpoint an exact time or place when this shift occurred, I did have a moment recently where my eyes were opened to just how much I’ve changed over the last two years. During a Pro-D event at my school, our vice principal read a passage from a book that went something like this: in a gift culture, your value in a community is not determined by how

much you have, but by how much you give away. Strangely, this quote resonated with me, and it took a lot of recent introspection before its significance became clear to me. Why did the value of a gift strike such a familiar chord with me? The answer was obvious: education is a gift and that is no more prevalent than in EdTech where open education is the golden standard.

Before this program, I understood what open education was, but I had little sense of what it meant. As an educator, I spend all day creating, adjusting, and adapting resources for my students that I make available for them while they are my students. There is a natural tendency to hoard these resources and limit their availability. In some cases, we view our educational resources as commodities which can be bought, sold, and traded on the open market. This view is extremely western and narrowly defines value as strictly monetary. While I would never belittle someone for making a living from their work, I believe that I was meant to craft resources that are open to a larger community. An even deeper inflection point for my growth is the idea that creating resources that are not available to a wider audience is academic hoarding. While seemingly innocent, a resource that exists somewhere on my computer does little for a learner without an explicit connection to myself.

As I continue to grow from the seeds planted during this program, it is clear to me that every step of my process needs to be open and available online. I am an expert in a narrow silo of knowledge (IB Mathematics and Physics) and to hoard that for myself and my students would be a tragedy. Throughout this program, I have found a sense of responsibility to a greater community. No longer am I beholden to my immediate students, but any learner who looks to better understand the curriculum that has chosen me. As I move into the next stage of my career, I feel bound to the idea of aggressive openness; a push to make each part of my process and the whole available to anyone with an internet connection. Further than that, I also hope to provide a place for learners to access focused and relevant help; something that current literature has shown to be an area of need.

One final area of growth that has become clear in writing this is communication. Since I can remember, I have been a confident and expressive writer but, through this program, I can see that my written communication has reached a new level. Through our research courses and this final project, I have been able to integrate other works (citation) with greater flow than I ever have in the past. In my earlier writing, I often started with ideas and then found works to support them. This year, I started with a problem and approached literature without any preconceived notions or destinations in mind. As I started to see trends and themes, I had the pleasure of assembling the pieces as if they were a puzzle. When the puzzle was complete, I had arrived at a conclusion that I could not have imagined before starting my research. Through this program, I have emerged as a powerful writer that can connect pieces of information in a way that flows nicely throughout the work and arrives at logical and supported conclusions.

Recommendations for Future Research and Practice

While completing this research project, I was fascinated by connectivism. The more I read, the more it made sense both in the context of education and, on a larger scale, the social structure of human interaction. Frustratingly, there is little research on the applications of connectivism in K-12 education which made it impossible to use as a primary theoretical model for my project. It remains a nebulous and abstract depiction of social interaction and knowledge sharing that is ill-defined in any practical sense. I would recommend that connectivism be explored at the K-12 level with a focus on exploring how networks of help can be formed, maintained, and improved. I would also be interested in the development of future models of connectivism since, to my knowledge, none exist that can be easily applied in an educational context. In short, I think that further research needs to be done on the application of connectivism at the K-12 level both because it is interesting and likely captures an aspect of EdTech that is underdeveloped.

Another area that could be further developed is research regarding the design of online learning environments. In my search of literature relating to online help forums, most of the studies had explored how students engage with each other and the environment. There was little in the way of designing these spaces to increase efficacy and engagement. While the results of current studies informed how I designed my online help forum, a good deal of interpretation and reverse engineering had to be done to arrive at an effective implementation of my vision. Future research could explore how online spaces can be designed to offer the flexibility needed to address diverse student needs. This would be like how differentiation transforms learning activities so that each learner has an entry point and can make the best use of curricular resources. Future research could guide educators in designing differentiated online learning spaces that provide each learner, no matter their experience or comfort with online spaces, with a way to enrich their learning both in class and asynchronously.

Lastly, another area for future research would be the interpretation and application of the Freedom of Information Protection and Privacy Act (FOIPPA). The Act is quite clear about the rights and protections afforded to children with regards to online interaction but there is room for interpretation. When designing learning opportunities for students, FOIPPA injects an ethical component that requires our undivided attention. For example, FOIPPA does not allow students to use web services that store personal information outside of Canada. While this is a reasonable standard, how can we encourage our students (especially the older ones) to interact online effectively and become resourceful if we have these limitations? One aspect of digital literacy that is paramount to their ability to form critical thinking skills is choice. If we have to prevent our students from using certain applications due to FOIPPA concerns, how can we capture that learning in a different way? An interesting gap in research that could be easily explored would be the ethical considerations of FOIPPA and a guide for how to design learning experiences that are both safe and fulsome.

As for recommendations for policy, an interesting addition could be a guideline or policy for how students interact with each other in online communities. While this already exists in the context of cyber-bullying, there is a gap with setting expectations for how students interact with one another while soliciting help online. Classroom contracts exist that set the social culture for a physical of online space but there is little in the way of knowledge sharing. We value in our students their ability to be resourceful, but we don't always structure that very well since we see them as competent internet users. Recent research has shown that while adolescents are skilled users of technology, they often fail to use it in educational ways unless prompted. A powerful resource for our students would be a guideline for how to gain knowledge online. There is an obvious tie in with artificial intelligence here which is an aspect of knowledge acquisition, but further concepts could include trustworthiness of sources, ways to form effective help requests, and interpreting bias. This guideline could nicely condense our current concerns with artificial intelligence, digital literacy, and online safety.

Finally, I have two recommendations for future practice and the first is to be intentional when you implement new practices or technology into your classroom. All my research has led me to the conclusion that things work better when they are done with intention. This means doing research, explaining your intentions to your students, and being open to adjustments. When building a culture of help in your classroom, you need to model positive help-seeking behaviour so that students can vicariously enjoy the benefits. When designing online learning spaces, it is best to make your presence felt both in design and through interaction. When adding tools to your pedagogical tool belt, your research should make you confident in their use. If we believe in what we are doing and communicate that to our students, we transform our practice into something that is much more than a job. Education cannot be done without trust and that starts with how much we trust ourselves and our methods.

The second recommendation for future practice is to do your research. When you find yourself in the middle of a problem that is too complex for a quick fix, take a moment and use

your research skills to uncover the solution. Not only will this unearth new ideas and perspectives, but it will also give you the confidence to carry through with changes and stay the course. Sometimes we approach a problem with a solution already in mind but that only works for chess and mathematics. We can transform our pedagogical problem-solving skills by approaching educational problems with research rather than reaction. This works for new teachers and more experienced teachers alike since new ideas elude both groups, the former for a lack of time in the chair, and the latter because of their distance from academia. If we can approach our problems with a research-first attitude, we can ensure that we are always on the cutting edge of current educational practice and make use of effective and proven methods to improve our classroom process and culture. An interesting extension of this would be a guideline for teacher research or an added role for a librarian where they assist in finding solutions to educational problems through literature. This policy or role could revolutionize how teachers approach problems in their classrooms and lead to a much stronger connection between the K-12 system and university academia.

References

Al Mamun, M. A., & Lawrie, G. (2024). Cognitive presence in learner–content interaction process: The role of scaffolding in online self-regulated learning environments. *Journal of Computers in Education*, *11*(3), 791–821. https://doi.org/10.1007/s40692-023-00279-7

Al-Furaih, S. A. A., & Al-Awidi, H. M. (2021). Fear of missing out (FoMO) among undergraduate students in relation to attention distraction and learning disengagement in lectures. *Education and Information Technologies*, *26*(2), 2355–2373. https://doi.org/10.1007/s10639-020-10361-7

Aydin, İ. (2024). Ethical issues in educational technology. *Kastamonu Eğitim Dergisi*, 861–881. https://doi.org/10.24106/kefdergi.1426735

Barroso, C., Ganley, C. M., & McGraw, A. (2021). *A meta-analysis of the relation between math anxiety and math achievement*.

Boekaerts, M. (1999). Self-regulated learning: Where we are today. *International Journal of Educational Research*, *31*(6), 445–457. https://doi.org/10.1016/S0883-0355(99)00014-2

Broadbent, J., & Lodge, J. (2021). Use of live chat in higher education to support self-regulated help seeking behaviours: A comparison of online and blended learner perspectives. *International Journal of Educational Technology in Higher Education*, *18*(1), 17. https://doi.org/10.1186/s41239-021-00253-2

Cheng, C. K., Paré, D. E., Collimore, L.-M., & Joordens, S. (2011). Assessing the effectiveness of a voluntary online discussion forum on improving students' course performance. *Computers & Education*, *56*(1), 253–261. https://doi.org/10.1016/j.compedu.2010.07.024

Cho, K., & Cho, M.-H. (2013). Training of self-regulated learning skills on a social network system. *Social Psychology of Education*, *16*(4), 617–634. https://doi.org/10.1007/s11218-013-9229-3

Cho, M.-H., & Heron, M. L. (2015). Self-regulated learning: The role of motivation, emotion, and use of learning strategies in students' learning experiences in a self-paced online mathematics course. *Distance Education*, *36*(1), 80–99. https://doi.org/10.1080/01587919.2015.1019963

Cohen, R. L., & Zusho, A. (2023). *Prior achievement in math impacts adolescents' help-seeking behavior in interactive learning environments*.

DiBenedetto, M. K. (Ed.). (2018). *Connecting self-regulated learning and performance with instruction across high school content areas*. Springer International Publishing. https://doi.org/10.1007/978-3-319-90928-8

Donelle, L., Facca, D., Burke, S., Hiebert, B., Bender, E., & Ling, S. (2021). Exploring Canadian children's social media use, digital literacy, and quality of life: Pilot cross-sectional survey study. *JMIR Formative Research*, *5*(5), e18771. https://doi.org/10.2196/18771

Dontre, A. J. (2021). The influence of technology on academic distraction: A review. *Human Behavior and Emerging Technologies*, *3*(3), 379–390. https://doi.org/10.1002/hbe2.229

Fajri, F. R., & Amir, M. F. (2022). Math self-regulated learning assisted by metacognitive support by reviewing sex differences in mathematics anxiety. *REID (Research and Evaluation in Education)*, *8*(2), 100–113. https://doi.org/10.21831/reid.v8i2.49157

Fong, C. J., Gonzales, C., Hill-Troglin Cox, C., & Shinn, H. B. (2023). Academic help-seeking and achievement of postsecondary students: A meta-analytic investigation. *Journal of Educational Psychology*, *115*(1), 1–21. https://doi.org/10.1037/edu0000725

Gall, S. N.-L. (1985). Chapter 2: Help-seeking behavior in learning. *Review of Research in Education*, *12*(1), 55–90. https://doi.org/10.3102/0091732X012001055

Goldie, J. G. S. (2016). Connectivism: A knowledge learning theory for the digital age? *Medical Teacher*, *38*(10), 1064–1069. https://doi.org/10.3109/0142159X.2016.1173661

Hoferichter, F., Kulakow, S., & Raufelder, D. (2022). How teacher and classmate support relate to students' stress and academic achievement. *Frontiers in Psychology*, *13*, 992497. https://doi.org/10.3389/fpsyg.2022.992497

Huang, K., Law, V., & Lee-Post, A. (2024). Relationships among class climate, students' internal help-seeking inclinations, participation in peer help and achievement in an online class. *British Journal of Educational Technology*, *55*, 2132–2150. https://doi.org/10.1111/bjet.13437

Kanakana-Katumba, M. G., & Maladzhi, R. (2019). Online learning approaches for science, engineering and technology in distance education. *2019 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, 930–934. https://doi.org/10.1109/IEEM44572.2019.8978892

Keshavarzi, F., Teo, T., Heidari, E., & Mehrvarz, M. (2024). Mediating role of academic help-seeking among students' social networking self-efficacy and social presence in online environments. *Education and Information Technologies*, *29*(8), 9773–9794. https://doi.org/10.1007/s10639-023-12204-7

Kilday, J. E., & Ryan, A. M. (2023). Who do students ask for help with classwork? Sources of help and changes in help-seeking from peers during early adolescence. *The Journal of Early Adolescence*, *43*(6), 746–783. https://doi.org/10.1177/02724316221124784

Lao, D., & Boynton, S. (2022). *Teachers say social media is 'hurting' students—But their jobs have also gotten harder*. https://globalnews.ca/news/8430423/social-media-teachers-students-youth/

Lee, D., Rothstein, R., Dunford, A., Berger, E., Rhoads, J. F., & DeBoer, J. (2021). "Connecting online": The structure and content of students' asynchronous online networks in a blended engineering class. *Computers & Education*, *163*, 104082. https://doi.org/10.1016/j.compedu.2020.104082

Liljedahl, P. (2021). *Building thinking classrooms in mathematics, grades K-12: 14 teaching practices for enhancing learning.* Corwin Mathematics.

Lim, Shelley, & Heo. (2019). The regulation of learning and co-creation of new knowledge in mobile learning. *Knowledge Management & E-Learning: An International Journal*, 449–484. https://doi.org/10.34105/j.kmel.2019.11.024

Liu, D., Carter, L., & Lin, J. (2024). Towards connectivism: Exploring student use of online learning management systems during the Covid-19 pandemic. *Online Learning*, *28*(2). https://doi.org/10.24059/olj.v28i2.4047

MacKenzie, T. (2016). *Dive into inquiry: Amplify learning and empower student voice*. EdTech Team Press.

Martín-Arbós, S., Castarlenas, E., & Dueñas, J.-M. (2021). Help-seeking in an academic context: A systematic review. *Sustainability*, *13*(8), 4460. https://doi.org/10.3390/su13084460

Miles, S. J., & Vela, K. N. (2022). Asking for help as a key to success: The relationship between student help-seeking skills and mathematics self-efficacy. *School Science and Mathematics*, *122*(7), 371–380. https://doi.org/10.1111/ssm.12553

Newman, R. S. (2008). *The motivational role of adaptive help seeking in self-regulated learning*.

Peeters, A., Robinson, V., & Rubie-Davies, C. (2020). Theories in use that explain adolescent help seeking and avoidance in mathematics. *Journal of Educational Psychology*, *112*(3), 533–550. https://doi.org/10.1037/edu0000423

Reese, S. A. (2015). Online learning environments in higher education: Connectivism vs. dissociation. *Education and Information Technologies*, *20*(3), 579–588. https://doi.org/10.1007/s10639-013-9303-7

Romano, L., Tang, X., Hietajärvi, L., Salmela-Aro, K., & Fiorilli, C. (2020). Students' trait emotional intelligence and perceived teacher emotional support in preventing burnout: The moderating role of academic anxiety. *International Journal of Environmental Research and Public Health*, *17*(13), 4771. https://doi.org/10.3390/ijerph17134771

Rutherford, T., Buschkuehl, M., Jaeggi, S. M., & Farkas, G. (2018). Links between achievement, executive functions, and self-regulated learning. *Applied Cognitive Psychology*, *32*(6), 763–774. https://doi.org/10.1002/acp.3462

Schunk, D. H., & Greene, J. A. (Eds.). (2018). *Handbook of self-regulation of learning and performance* (Second edition). Routledge, Taylor & Francis Group.

Smalley, R. T., & Hopkins, S. (2020). Social climate and help-seeking avoidance in secondary mathematics classes. *The Australian Educational Researcher*, *47*(3), 445–476. https://doi.org/10.1007/s13384-020-00383-y

Suldo, S. M., Shaunessy-Dedrick, E., Ferron, J., & Dedrick, R. F. (2018). Predictors of success among high school students in advanced placement and international baccalaureate programs. *Gifted Child Quarterly*, *62*(4), 350–373. https://doi.org/10.1177/0016986218758443

Turnbull, D., Chugh, R., & Luck, J. (2023). Learning management systems and social media: A case for their integration in higher education institutions. *Research in Learning Technology*, *31*. https://doi.org/10.25304/rlt.v31.2814

Usher, E. L., Li, C. R., Butz, A. R., & Rojas, J. P. (2019). Perseverant grit and self-efficacy: Are both essential for children's academic success? *Journal of Educational Psychology*, *111*(5), 877–902. https://doi.org/10.1037/edu0000324

Usher, E., & Schunk, D. (2018). Social cognitive theoretical perspective of self-regulation. *Handbook of Self-Regulation of Learning and Performance*, 19–35. Routledge, Taylor & Francis Group.

Van Rijsewijk, L. G. M., Oldenburg, B., Snijders, T. A. B., Dijkstra, J. K., & Veenstra, R. (2018). A description of classroom help networks, individual network position, and their associations with academic achievement. *PLOS ONE*, *13*(12), e0208173. https://doi.org/10.1371/journal.pone.0208173

Won, S., Hensley, L. C., & Wolters, C. A. (2021). Brief research report: Sense of belonging and academic help-seeking as self-regulated learning. *The Journal of Experimental Education*, *89*(1), 112–124. https://doi.org/10.1080/00220973.2019.1703095

Wong, J. (2024). How school cellphone bans are playing out in the country's classrooms this fall. *CBC*. https://www.cbc.ca/news/canada/canada-school-cellphones-ban-1.7341559

Xu, J. (2023). A latent profile analysis of homework time, frequency, quality, interest, and favorability: Implications for homework effort, completion, and math achievement. *European Journal of Psychology of Education*, *38*(2), 751–775. https://doi.org/10.1007/s10212-022-00627-8

Yang, F., Yang, X., Xu, M., & Stefaniak, J. (2024). An exploration of how students prioritize help-seeking sources in online learning environments. *TechTrends*, *68*(3), 456–468. https://doi.org/10.1007/s11528-024-00944-3

Yen, C.-J., Tu, C.-H., Ozkeskin, E. E., Harati, H., & Sujo-Montes, L. (2022). Social network interaction and self-regulated learning skills: Community development in online discussions. *American Journal of Distance Education*, *36*(2), 103–120. https://doi.org/10.1080/08923647.2022.2041330

Zhu, Y., Zhang, J. H., Au, W., & Yates, G. (2020). University students' online learning attitudes and continuous intention to undertake online courses: A self-regulated learning perspective. *Educational Technology Research and Development*, *68*(3), 1485–1519. https://doi.org/10.1007/s11423-020-09753-w