Connecting Threads: Exploring the Link between Academic Help Seeking and Student Sense of Belonging in Online Learning.

by

Lawrence Armo Biney

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We acknowledge and respect the Lək̓ʷəŋən (Songhees and 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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Supervisory Committee

Dr. Mariel Miller, Supervisor

Department of Educational Psychology and Leadership Studies

Dr. Allyson Hadwin, Departmental Member

Department of Psychology

Abstract

Online post-secondary learning has become increasingly prevalent in recent years, and this trend has accelerated further since the global pandemic. Although online education can provide more flexible access to post-secondary study, it can be challenging as learners are often required to manage their learning more independently and may experience fewer social connections. Adaptive help-seeking—seeking enough support to solve problems independently—is critical for academic success, yet research on this behavior in online contexts remains limited. Few studies have explored how factors like sense of belonging influence help-seeking in online environments. This study addresses this gap by examining the relationship between sense of belonging in online courses and students' adaptive and maladaptive help-seeking. Participants were 129 undergraduate students in a first-year, hybrid course, working in small learning pods with access to various help-seeking resources. Toward the end of the course, sense of belonging was assessed using the sense of belonging subscale in the Perceived Cohesion scale (Bollen & Hoyle, 1990), and academic help-seeking was measured using a scale adapted from Karabenick (2004) and Han (2014). Findings indicated sense of belonging had a positive relationship with adaptive help-seeking. However, there was a negative relationship between sense of belonging and maladaptive help-seeking (avoidant and threat-based). Also, there was an nonsignificant relationship between sense of belonging and executive help-seeking. These results contribute to a broader understanding of the interplay between a sense of belonging and help-seeking in online learning, paving the way for the design of supportive online classes that foster adaptive help-seeking.

Keywords: Sense of belonging, online learning, academic help-seeking, self-regulated learning

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Dedication

This thesis is dedicated to my parents, Mr. Benard Biney and Madam Florence Baidoo, who have always believed in me and supported me through every step of my academic journey. It is also dedicated to my late grandmother, Maame Aku Sika, whose unwavering belief in my potential, expressed in her unique and loving way, inspires me.

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Introduction

The continual changes in today's educational landscape have increased opportunities for students to engage in online post-secondary learning. Research suggests that online course registrations across Canadian universities grew by around 10% between 2016-17 and 2017-18 (Johnson, 2019). In the four years since the COVID-19 pandemic, post-secondary institutions have swiftly aligned their strategic priorities to increase their offerings of online courses and meet students demand (Changing Landscape of Online Education 8, 2024). This is because online learning offers several advantages, including increased flexibility and access to post-secondary education (Dumford & Miller, 2018; Goodman et al., 2019 Soffer et al, 2019). However, it also presents challenges. For instance, students may experience fewer social connections while learning online (McInnerney and Roberts, 2004). Without regular face-to-face interaction, students may miss out on casual conversations with classmates or immediate instructor feedback (Ebohon et al., 2021). These experiences are crucial for building a sense of connection and community. The lack of social presence can lead to feelings of isolation and disconnection, potentially impacting students' motivation and engagement -specifically their help-seeking (Won et al., 2018). Given these challenges, it is not surprising that while registration in online courses increased considerably during and after the pandemic, the proportion of students engaged however also decreased more rapidly over time (Spitzer et al., 2021).Thus, to facilitate online students' engagement in courses, it is essential to understand the factors that influence students' learning experiences in online learning environments (Chen et al., 2022).

Help-seeking, one of the means of engagement, is an aspect of self-regulating learning that may be particularly relevant to success in online environments. It refers to attempts by

students to obtain support from another person when they are not able to meet their needs or attain a desired goal through their efforts (Nelson Le-Gall, 1981). Research has demonstrated that help-seeking is an important learning behavior (Karabenick & Knapp, 1991). However, few studies have examined how help-seeking occurs in online contexts (Yang & Stefaniak, 2023).

Few studies have examined how conditions, such as students' sense of belonging to online learning environments, may afford or constrain adaptive forms of help-seeking in online learning contexts. While the influence of a sense of belonging on academic behaviors has been explored in face-to-face settings (e.g., Won et al., 2021), the transferability of these findings to the online domain is unclear. Further research is needed to investigate the relationship between students' sense of belonging and their engagement in adaptive (instrumental) and maladaptive (executive, avoidant, or threat-based) help-seeking behaviors. Identifying these dynamics is essential for developing effective strategies to support students in online learning environments.

Literature Review

Academic Help Seeking

Research suggests that academic help-seeking is important for learning (Korpershoek, 2020) and essential for student engagement and success in post-secondary education (Chen et al., 2021; O'Keeffe, 2013). Academic help-seeking refers to attempts by students to obtain support from another person when they are not able to meet their needs or attain a desired goal through their efforts (Nelson Le-Gall, 1981). Four forms of help-seeking—instrumental (adaptive) help-seeking, executive (expedient) help-seeking, help-seeking avoidance, and help-seeking threat—and two sources of help-seeking, formal and informal help-seeking, feature prominently in the existing literature.

Instrumental help-seeking involves requesting only the amount and type of help needed to allow the student to solve the problem or attain the goal themselves (Karabenick 2003). Students using this approach will proactively strategize and seek only assistance to overcome their academic challenges. Newman (2002) suggests instrumental help-seeking not only fosters autonomy and self-efficacy as students actively engage in problem-solving but also enhances their understanding and mastery of the subject matter. It encourages students to take control of their learning process, promoting self-regulation and independent problem-solving skills (Karabenick, 2003).

Executive (expedient) help-seeking involves students requesting assistance to have someone else solve a problem or attain a goal on their behalf (Karabenick, 2003). Students delegate the task of solving the problem to others when they use executive help-seeking (Karabenick & Knapp, 1991). This kind of help-seeking is effort-avoidant, unnecessary, and

perpetuates dependency (Karabenick, 2012). It does not help a student become more independent in solving similar issues in the future.

Help-seeking avoidance occurs when students refrain from seeking help despite recognizing their need for assistance (Newman, 2000). This behavior can be detrimental to academic success as it may lead to persistent struggles and decreased learning opportunities (Karabenick, 2003). It is often driven by fear of negative evaluation or a desire to appear competent (Butler, 1998), which can hinder academic progress. In such instances, a classroom climate that promotes warmth and supportive relationships can empower the help-seeking avoidant students to risk asking for help (Fong et al., 2023; Ryan et al., 1998).

Help-seeking threat refers to the fear or apprehension students may experience about seeking help due to perceived negative consequences, such as appearing incompetent (Karabenick, 2004). This fear can inhibit help-seeking behaviors, potentially exacerbating academic difficulties (Newman, 2000). In this context, students harboring negative perceptions about the repercussions of seeking assistance may worry that the potential drawbacks of obtaining help could surpass its advantages, leading them to refrain from seeking support (Karabenick, 2004).

Formal help-seeking involves students asking for help from professionals or experts as teachers, while informal help-seeking involves asking for assistance from peers and family (Nelson Le-Gall, 1981). By seeking help from formal sources, students can access expert guidance and structured learning experiences. This can contribute to improved academic performance. Although informal help-seeking sources would not always offer this kind of structure, the approach is still useful for overcoming academic difficulties. For example, a student’s peers can be an invaluable source of help.

Self-Regulated Learning and Help-seeking

Help-seeking is a critical aspect of self-regulated learning (SRL). Self-regulated learning (SRL) is a self-directed process of actively engaging with one's thoughts, feelings, and behaviors to achieve personal learning goals (Zimmerman, 2008, 2011). Students who can regulate their learning will actively and deliberately use metacognitive, motivational, and behavioral processes to attain their defined learning and performance goals.

While multiple models of SRL exist (Panadero, 2017), Winne & Hadwin's (1998) model proposes that self-regulated learning involves a recursive cycle that unfolds over four phases, namely: (a) Task understanding: students construct a personal, internal understanding of the task they have to complete; (b) Goal setting and planning: the student generates goals and develops a plan to attain their goals and this is based on the student's task perceptions; (c) Task enactment: the student works on completing the task or attaining the goal by engaging the strategies selected in the second phase and ; (d) Adaptation phase: at this stage, the student can make revisions to task perceptions, goals and plans, and strategies. Adaptation can be large-scale or small-scale. For students, this stage is especially critical when they face challenges. Because, in the face of challenges, a student must modify their approach to reach the goals they have set for themselves. It is, however, important that a student metacognitively monitors their learning so they will know when to skip or revisit phases of the cycle while they work toward completing a task (Winne & Hadwin, 1998).

The model offers a cognitive architecture- namely COPES- to further elaborate how students navigate within and between phases. This acronym represents conditions, operations, products, evaluations, and standards (Winne, 1997). Conditions are factors perceived by students that surround their work. These factors encompass internal elements like metacognitive

knowledge, beliefs regarding the nature of knowledge, and motivational beliefs such as self-efficacy. It also includes students' perceptions of external factors such as available resources, social environment, and time. By considering external factors, learning becomes situated, meaning it takes place within a context and is influenced by the same. Operations refer to the cognitive processes involved in handling tasks. These processes include activities like strategizing and rehearsing information for encoding. At each phase, these operations yield various outcomes, such as task perceptions, goals, plans, and adaptations. Products serve as prerequisites for the stages that follow such that a student's perceptions of tasks inform the kinds of goals the student would set, and goals shape the selection of strategies. Students evaluate the products of each stage as well as their overall performance. They have several standards for evaluating products. Here, again, the processes are recursive, so products from one stage and discrete episodes of engagement (referred to as 'tasks') impact future stages and tasks. Student's ability to go through these recursive processes successfully is linked with better academic performance in both traditional (Nota et al, 2004) and online courses (Broadbent & Poon, 2015).

Self-regulated learning (SRL) is a framework that describes how students actively engage with and regulate their learning through the deliberate management of thoughts, emotions, and behaviors to achieve academic goals (Zimmerman, 2008, 2011). Academic help-seeking refers to attempts by students to obtain support from another person when they are not able to meet their needs or attain a desired goal through their efforts (Nelson Le-Gall, 1981). Winne & Hadwin's model of SRL is particularly appropriate for discussing academic help-seeking in the context of self-regulated learning because conditions in the COPES architecture highlight the dynamic and contextual elements that shape learning behaviors as help-seeking.

From this perspective, academic help-seeking is a key learning strategy for academic success (Karabenick & Dembo, 2011) that involves reaching out to others and may be influenced by one's socialization with one's peers, teachers and parents (Newman, 2000). Among high school students, studies show that students' perceptions of social contexts are linked to their use of help-seeking strategies. For example, adolescents' perceptions of teacher support and a positive peer climate were connected positively with adaptive help-seeking, but a negative classroom climate is strongly associated with maladaptive(Ryan & Shim, 2012; Shim et al., 2013).

While help-seeking is often considered to be a strategy that is enacted during the performance phase of SRL (Karabenick & Berger, 2013), a student may, however, engage this operation in any phase of regulation, such as during phase 1 to attain clarity about a task, during phase 2 to facilitate high-quality goals and plans for the task.

Research indicates that students may have several reasons for selecting the source to access help. Students with social intimacy-goal orientation are more likely to seek help from peers because they desire positive peer relationships (Ryan et al., 2001) and may have little concern about how that reflects on them. On the other hand, those with a social status-goal orientation are more likely to avoid seeking help from their peers because they are concerned with social visibility and prestige (Ryan et al., 2001). They may even have reservations about asking for help from their instructors. However, one could argue that for such students, requesting help from formal sources may be less threatened and favored over seeking help from peers.

Some forms of academic help-seeking are more beneficial than others. For example, instrumental help-seeking is linked with positive student outcomes (Astatke, 2018; Fong et al.,

2023; Horowitz et al., 2013; Karabenick, 2003). To obtain optimal results, students seeking instrumental help will metacognitively monitor their learning and choose the appropriate learning strategies to address their learning challenges (Karabenick, 2003). This usually involves acknowledging the need for assistance and asking for the help they require to solve a problem on their own. Among the college student population, research hints at a strong connection between college students' use of help-seeking strategies and their cognitive strategies and behavioral engagement, resource management strategies, course-related anxiety, and academic performance (Karabenick & Knapp, 1991; Karabenick, 2003, 2004).

While seeking help may be useful for students, they do not always ask for help when they face academic challenges (Butler, 2006; Ryan et al., 1998). They may engage in less adaptive forms of help-seeking that can impede learning (Horowitz et al., 2013; Karabenick, 2003). For example, help-seeking avoidance may prevent a student from approaching their instructor to seek clarity about a task even when they need it.

Also, help-seeking threat may instigate negative perceptions of the negative consequences of seeking help, stopping the student from seeking help. In fact, some students may feel embarrassed and consider seeking help as a strategy that reflects negatively on their central personal qualities (Nadler, 1987; Nelson-Le Gall, 1985). Regrettably, when students fail to engage in adaptive help and get clarity about a task, the student's confusion about the task will linger, and this will eventually affect their performance on the task (Karabenick, 2003, 2004; Ryan et al., 2005).

Factors that Impact Help-Seeking

Certain personal factors can influence students' help-seeking behaviors. Won et al. (2021) indicate that students' confidence in their ability to self-regulate their learning can foster adaptive

help-seeking. These students who perceive themselves as academically competent are more likely to possess self-enhancing ego orientations, and that will have a positive influence on their help-seeking behavior (Payakachat et al., 2013). In contrast, ambivalence (i.e., uncertain attitude toward one's capabilities, the value of one's studies, and one's career) and the perception of help-seeking as threatening (reflecting negatively on one's central personal qualities) will reduce student use of academic help-seeking as a strategy (Payakachat et al., 2013).

Several social and environmental factors can influence college students' help-seeking behavior. For example, Micari and Calkin (2021) found a positive link between perceived instructor openness to questions and student help-seeking. Similarly, perceived faculty helpfulness and positive peer relations are linked to increased help-seeking (Payakachat et al., 2013). Such supportive classroom environments that foster a sense of belonging have been strongly associated with adaptive help-seeking behavior (Won et al., 2021). However, in learning environments where students perceive peer exclusion, their willingness to seek help is reduced (Zander & Höhne, 2021).

Culture and gender have been identified as influential on students' academic helping-seeking behavior. In a qualitative study, Jeng and Perry (2024) found that culture influences students' engagement in help-seeking and help-giving. They argue that students' shared cultural values can be internalized as individual beliefs. These beliefs are dynamic and can adapt to new contexts and environments. They consequently impact students' help-seeking behaviors. It is worth noting that evidence regarding the frequency with which students seek help for academic challenges within an individualist versus collectivist cultural orientation is mixed (Jeng, 2024). Marrs et al. (2012) found no gender differences in academic help-seeking behaviors, but masculinity and femininity significantly influenced these behaviors. Androgynous students were

more likely to seek help, while masculine-typed students had the lowest help-seeking scores. Here, too, Fong et al. (2023), in their meta-analysis, reported that findings on gender effects on help-seeking are mixed.

It is important to acknowledge the complexity of factors influencing academic help-seeking behavior in face-to-face learning contexts. These effects may not fully translate to online learning environments due to the nuanced differences between the two settings. Thus, research must explore these factors and their impact on help-seeking in online learning.

Help-Seeking in Online Contexts

According to Dabbagh & Kitsantas (2004), because of the more autonomous nature of learning online, the use of SRL strategies is of greater importance in online learning environments. Moreover, the absence of well-defined standards on role behaviors and functions (i.e., role ambiguity) in online learning may lead to unsociability. This leaves students anxious and stressed (Kohan et al., 2017). Such conditions may impede students' ability to self-regulate their learning, making it difficult for students to grasp concepts taught in those contexts (Azevedo & Hadwin, 2005).

Regardless, Cheng et al. (2013) posit that online learning spaces provide new possibilities for academic help-seeking beyond allowing for changes in teaching and learning strategies. For example, a student can submit a request for help on an online forum anonymously, and instructors or peers can respond to this request for help. In this instance, negative feelings related to asking for help, which may impede help-seeking, can be eliminated. Despite this, Mahesneh et al. (2012) report that many students in online courses avoid asking for help and prefer to ask peers if they need help.

Different online learning conditions may influence students' help-seeking in online settings. Broadbent and Howe (2023) found that help-seeking as a strategy improves academic success for students who are less confident but has no impact on confident students. They explain that for confident students, asking for help may expose them to information or resources they are already aware of, making help-seeking less impactful on their achievement. However, the less confident students may access untapped resources by asking for help. These resources, in turn, equip them to perform better.

In another study, researchers exploring the use of online discussion boards to support students' help-seeking behaviors found that a student's familiarity with the help provider (peer) enhanced the chances that the students would seek instrumental help, and this also reduced help-seeking threat if they had to seek assistance to resolve academic challenge (Chao et al., 2018).

High-structured web-based classroom scripts have been found to foster learning but promote less help-seeking than low-structured classroom scripts (Mäkitalo et al., 2011). Conceivably, the former provides clarity and structure, making help-seeking less useful to students. In contrast, a less scripted class may result in uncertainties that require students to seek clarity from their peers or teachers.

Notably, findings in online learning contexts about the effect of help-seeking on student outcomes are consistent with findings in traditional classrooms. For example, experimental research shows that academic help-seeking in online settings improves students' involvement and outcomes of students (Chyr et al.,2016). It is evident that students in both traditional and online learning environments appreciate the value of help-seeking and use it as a strategy when they face academic challenges. Both student groups, according to Broadbent and Lodge (2021),

reported using live chat as a help-seeking tool, but online students used this medium more than blended students because online students could get help instantly, and it was more convenient.

While there are similarities in help-seeking patterns in online and traditional learning environments, Broadbent and Lodge (2021) suggest that affordances in online learning contexts (e.g., convenience for students) make help-seeking desirable. It is possible that seeking help in those learning environments via live chats eliminates barriers as the threat to the ego of the "helpee," as described by Nadler (1987).

Sense of Belonging

One factor that may be related to help-seeking is a sense of belonging. Hurtado & Carter (1997) described a sense of belonging as a psychological feeling of belonging or connectedness to a social, cultural, professional, spatial, or other type of group or community. The concept reflects one's subjective sensation of profound connection to a social group, physical location, and both individual and shared experiences, and it is a fundamental human need that predicts several mental, physical, social, economic, and behavioral outcomes (Allen et al., 2021).

In the context of education, this may refer to students' feeling of being included, respected, accepted, and valued as members of the class or school. Beyond a feeling of value and acceptance, Goodenow (1993) stresses that students must feel there is support and respect for their autonomy and them as individuals. When students feel like they belong, they engage more proactively, attend classes, and retain more information in class. In comparison to their counterparts who have a low sense of belonging to their group, students with a high sense of belonging typically demonstrate a positive outlook toward their academic endeavors. This consequently leads to improved performance and success in school.

Sense of Belonging in Online Learning Spaces

In online learning, sense of belonging can be considered an essential element to facilitate learning. According to Garrison (2017), online community learning is an experience that involves collaboration among group members, a feeling of belonging, and acceptance in a group that shares a common interest. This highlights that for learning to occur in such a space, the context must be designed to foster a feeling of value, respect, and acceptance for students.

McInnerney and Roberts (2004) report that learning online may leave some students feeling alienated and isolated. This is because such context comes with some inherent difficulties that may hinder a sense of connectedness, especially for first-year undergraduate students (Tang et al., 2023). The nature of online learning may hinder seamless interactions between first, students and teachers; second, students and their peers (Van Tyron & Bishop, 2009). Challenges like these may shed some light on the potentially detrimental effects of online learning on pass rates and grades observed by Francis et al. (2019).

Peer interaction has been identified as a factor that foster a sense of belonging in online learning environments. Peer interaction allows students to collaborate with peers with whom they share similar interests (Jaiswal et al, 2022) and such interactions are necessary for community building. This idea of community building is particularly important for tertiary students because it allows students to form supportive bonds with their peers (Hensley et al., 2021). In school contexts where students feel cared for, they are driven to perform to the best of their abilities, and such feelings of value and acceptance also prevent attrition (Pearson, 2012). So, the opportunity for students to meaningfully interact and collaborate in online learning spaces can support students to experience a sense of belonging even in large online classes (Garrison, 2017; Palloff & Pratt, 2010; Rudestam & Schoenholtz-Read, 2010).

Relationship between Sense of Belonging and Academic Help-seeking

Currently, few studies have examined the relationship between a sense of belonging and academic help-seeking. Theoretically, sense of belonging can be seen as playing a key role in help-seeking. Specifically, a sense of belonging refers to one's subjective sensation of a profound connection to one's group (Hurtado & Carter, 1997). It is a socioemotional factor that develops from one's perception of how well one is accepted, valued, or respected in a group. Within the SRL COPES framework (Conditions, Operations, Products, Evaluations, Standards), sense of belonging can be considered a condition for engagement in the regulation of learning through each phase. Conditions in COPES include external conditions, such as the task environment, and internal conditions, including beliefs, such as a sense of belonging, that impact how each phase unfolds (Winne, 2001).

Sense of belonging can be seen as one of those conditions that may impact students' behavior. Osterman (2000) points out that a strong feeling of belonging has a positive impact on the students' academic attitudes, beliefs, and motives. Thus, a learning context that fails to promote feelings of acceptance and belonging may undercut students' experience of membership in a community. This may negatively affect a student's academic behavior and progress in school.

Linnenbrink and Pintrich (2001) further suggest that students' subjective experiences of the context have a significant influence on several aspects of the learning process. They influence a student's perceptions and beliefs and consequently form the basis of the moods or feelings that come with learning. These contexts influenced moods, in turn, affect the kind of standards and operations, i.e., strategies and techniques that students employ to complete a task (Winne & Hadwin, 1998). Findings by Won et al. (2018) are consistent with this view. Their results linked a

robust sense of belonging to students' use of metacognitive and time management strategies as well as peer learning strategies.

Newman (2000) suggests that when there is familiarity and friendship among students, students are more likely to engage in help-seeking successfully, and they will consider help-seeking a useful strategy. Therefore, students with a strong sense of belonging to their class should feel safe to ask their peers or instructors for help, but those who do not feel accepted, valued, or supported should ask for little or no assistance. Research in line with this shows that adolescent students who avoid help report the lowest levels of emotional support and social efficacy with the teacher (Ryan et al., 2005). This, again, emphasizes the importance of a supportive environment for help-seeking.

Research findings in traditional learning contexts for university students are consistent with findings by Ryan et al. (2005). For example, Won et al. (2021) posit that a strong sense of belonging may influence students' academic help-seeking behavior, whilst executive help-seeking is not significantly predicted by a sense of belonging. Such studies may have implications for online learning. It is possible that interactions, or the lack thereof, in online learning contexts may have implications for students' sense of belonging and, consequently, the type of help they may seek in their online classes. This study will elucidate these proposed associations.

Research Purpose

The purpose of this study is to investigate the influence of students' sense of belonging in an online learning environment on their engagement in adaptive (instrumental) and maladaptive (executive, avoidant, or threat-based) help-seeking behaviors. By examining the relationship between these constructs, the research seeks to provide insights that can inform the design of

interventions to enhance the online learning experience. Specifically, this study will examine the three research questions:

1. What is the impact of sense of belonging on adaptive help-seeking behaviors for online learning?

   H01: Sense of belonging will not significantly predict Instrumental help seeking (IHS).

   Ha1: A strong sense of belonging will significantly predict Instrumental help-seeking.

2. What is the impact of sense of belonging on maladaptive help-seeking behaviors for online learning?

   HO2: Sense of belonging will have no effect on help-seeking avoidance (HSA),

   Ha2: Sense of belonging will negatively predict help-seeking threat (HSA),

   HO3: Sense of belonging will have no effect on help-seeking threat (HST),

   Ha3: Sense of belonging will negatively predict help-seeking threat (HST).

   HO4: Sense of belonging will not significantly predict executive help-seeking (EHS).

   For hypothesis 4, The existing literature does not provide a clear directional hypothesis regarding the relationship between EHS and sense of belonging. Therefore, a non-directional hypothesis is proposed to explore any potential relationship without a predetermined direction.

Research Design

This study employed a correlational design to explore the relationship between students' reported sense of belonging in an online learning environment and their engagement in distinct types of help-seeking behaviors. The correlational design is particularly suited for this study as it allows for examining relationships between variables without manipulating any of the variables involved (Creswell, 2015). This is particularly beneficial in the context of this study because the aim of this study is not to manipulate students' sense of belonging or their help-seeking behaviors but rather to understand the existing relationship between these constructs. By analyzing the data collected, the study seeks to provide valuable insights that can inform the design of interventions to enhance the online learning experience.

Participants

Participants included 129 first-year undergraduate students enrolled in two sections of a large first-year course. Across both sections, 43% were women, 46% were Men, 3% were non-binary, and 8% preferred not to say. Participants mean age was 20.03 (SD=4.56). From 149 students, 20 cases with missing values were deleted using the listwise deletion method because the number of respondents exceeded the sample size suggested by the G-Power analysis. The students were registered in either the Fall or Spring online session of a first-year undergraduate course– *Learning Strategies for University Success*, at a Western Canadian university. The course had two components: A synchronous online/in-person lab session led by a facilitator where students focused on putting course concepts into action with peers and an online module to be completed asynchronously before the lab session. Each week, students worked in a small 'learning pod' of 4-6 students to share experiences and tips for managing learning. Students had access to various help-seeking resources during the course, including office hours and online

community support. Students enrolled in this course completed the scales as part of course requirements. Because of the purpose of this study, only responses of participants enrolled in online lab sections of the course were included in the study.

Instructional Context

Throughout the semester, students were exposed to a diverse range of topics related to their learning, situated in Winne and Hadwin's Self-Regulated Learning (SRL) model. The instructional design included activities that encouraged students to reflect on their learning behaviors and strategies, fostering autonomy and personal growth. Personalized reports were generated from the collected data. This enabled students to reflect and make meaningful changes to their learning practices.

Measures

Sense of Belonging

In week nine, the sense of belonging subscale in the Perceived Cohesion scale (Bollen & Hoyle, 1990) was used to assess students' sense of belonging as it related to their learning pod. The scale (Appendix A) included three items, and the items were adapted to fit the purpose of the study (e.g., I feel a sense of belonging to my learning pod; I feel that I am a member of my ED-D 101 Learning Pod; I feel that I am a member of my ED-D 101 Learning Pod). Originally, responses were scaled on Likert scales ranging from 0 ("strongly disagree") to 10 ("strongly agree), but they were transformed from one to seven for simplicity. Responses were summed and averaged for each respondent. The brevity of this scale makes it more practical in terms of administration time and reducing respondent burden. Salisbury et al. (2006) found that the scale demonstrates convergent and discriminant validity in virtual settings, and the items loaded in a manner consistent with previous studies.

Academic Help-Seeking Behaviors

Students' help-seeking tendencies specific to the learning-to-learn course were measured with a self-report measure of academic help-seeking (See Appendix B) adapted from Karabenick (2004) and Han (2014). The scale comprises 15 items, with responses recorded on a 5-point Likert scale ranging from 1 (not at all true) to 5 (very true). This measure consists of five subscales: (1) executive help-seeking (e.g., If I ask another student for help on something I do not understand, I want to be given the answer rather than an explanation of how to find the answer myself.); (2) instrumental help-seeking (e.g., If I ask other students for help with something I do not understand, I want them to help me find the answer myself and not give the answer to me.); (3) help-seeking avoidance (e.g., When I cannot do a homework problem, I skip it rather than ask anyone for help) (4) help-seeking threat(e.g., I would feel like a failure if I needed help in a course) and (5) formal versus informal help-seeking (e.g. I would prefer asking another student for help in a course rather than the instructor.). All items are provided in Appendix B. Respondents were prompted to think specifically about their ED-D 101 Learning Community while answering the questions on the scale.

Considering the purpose of the study, only items on the instrumental help-seeking subscale, executive help-seeking subscale, help-seeking avoidance subscale, and help-seeking threat subscale were included in the analysis. Karabenick (2004) reported a Cronbach coefficient of 0.62 for instrumental help-seeking, 0.78 for executive help-seeking, 0.77 for help-seeking avoidance, and 0.81 for help-seeking threat.

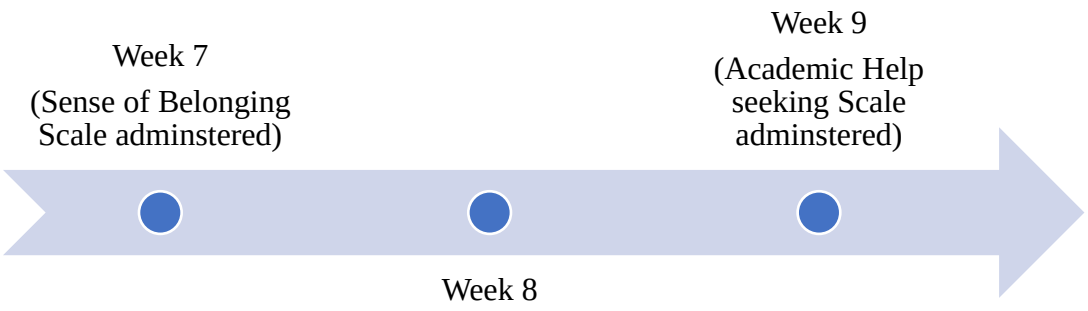
Procedure

Data collection occurred during the 2023 Fall and 2024 Spring terms. In week 9, students completed a survey that assessed their sense of belonging to their pod and the broader university

community. In week 10, they completed an online scale measuring academic help-seeking behaviors. This sequential design ensured that students had sufficient exposure to the SRL-related topics before engaging with the reflective assessment.

Figure 1.

Timeline showing the weeks when the surveys were administered.



Data Analysis

First, 129 complete responses were included in the analysis from the 141 responses collected. The G-Power analysis suggested that a sample size of 55 would be sufficient to achieve an 80% chance of detecting a medium effect size (0.15). Therefore, listwise deletion was used to remove 20 incomplete responses. Since the final sample size of 129 is well above the required 55 for 80% power, listwise deletion can be used without compromising the statistical power of the analysis. Also, an inspection of the grades and content completion rates of the students whose responses were deleted indicated no distinct pattern that would disproportionately represent these students. Among the 20 students with missing data, four had final grades in the first and second quartiles of the class, while the remaining 16 fell into the third and fourth quartiles. Their course content completion rates varied widely. It ranged from 39% to 90%. This indicates that while some students with missing responses may have struggled academically (as evidenced by their lower grades and completion rates), most were performing well and progressing steadily in the course.

Second, descriptive statistics, including means, standard deviation (SD), skewness, and kurtosis, were calculated for each subscale to provide information about the distribution of the data. Psychometric acceptability values (-1.5 to +1.5) were used as criteria for skewness and kurtosis, as Tabachnick & Fidell (2013) suggested.

Third, a sensitivity analysis (see Appendix H) was conducted using Analysis of Variance (ANOVA). This indicated no significant differences in the scores of students registered in the Fall and the Spring terms across all the subscales measures, except for the scores on the help-seeking threat subscale.

Fourth, a simple path model was fitted to examine the impact of sense of belonging on distinct types of help-seeking behaviors. This approach was chosen because it allows researchers to estimate the direct and indirect effects of a single predictor variable on multiple dependent variables (Frey, 2016). The independent variable was sense of belonging. The dependent variables included the four types of academic help-seeking: 'instrumental help-seeking,' 'avoidant help-seeking,' and 'help-seeking threat.'

Fifth, Maximum likelihood with robust standard errors (MLR) was used to analyze the path model. In confirmatory factor analysis (CFA), the use of maximum likelihood (ML) assumes that the observed indicators follow a continuous and multivariate normal distribution, which is not appropriate for ordinal observed variables. Robust Maximum Likelihood (RMLR) was introduced into both models as the normality assumption (see Appendix E) appeared to be slightly or moderately violated (Li, 2016).

Before conducting the analysis, assumptions of linearity, independence of errors, homoscedasticity, and normality of residuals were checked and met. First, linearity was assessed by creating scatter plots of the independent variable against the dependent variables, which visually confirmed that no non-linear relationships were present. Second, the independence of errors was evaluated using the Durbin-Watson test for autocorrelation. Results indicated that the Durbin-Watson statistic was not significantly different from 2. This confirmed there was no autocorrelation among the residuals. Third, homoscedasticity was verified by plotting the residuals against the predicted values, and the plot showed a random scatter with no discernible pattern. Thus, the assumption was not violated. Finally, the normality of residuals was assessed using a Q-Q plot, where the points lay on a straight line. The residuals were normal (See Appendix F) for outputs for assumption tests.

Results

For this study, the test of reliability for the sense of belonging subscale indicated a Cronbach's alpha of 0.92. Meanwhile, the reliability of the help-seeking subscales ranged between 0.69 and 0.91 (see Appendix C). Instrumental help-seeking subscale, which has four items and had the lowest Cronbach alpha of 0.69 but was still within the acceptable range and consistent with Karabenick (2004) with an α= 0.62 and Han (2014) with α = 0.67. All variables met psychometric acceptability thresholds for skewness and kurtosis, ranging from -1.5 to +1.5, as recommended by Tabachnick & Fidell (2013).

Descriptive statistics (Table 1) and correlations among the variables were computed (Table 1). Sense of belonging, measured on a 7-point scale (1 = strongly disagree to 7 = strongly agree), showed a mean of 5.39 (*SD* = 1.24) . The responses ranged between 4.15 and 6.63. Students' help-seeking behaviors were measured on 5-point scales (1 = not true at all to 5 = true always). Executive help-seeking had a mean of 3.2 (*SD* = 0.85) and the responses ranged between 2.35 and 4.05 on the scale. Instrumental help-seeking showed a mean of 1.83 (*SD* = 0.83) and responses ranged between 1.00 and 2.66. Help-seeking threat indicated a mean of 1.83 (*SD* = 0.98), with responses falling between 1.00 and 2.81. Help-seeking avoidance had a mean of 2.09 (*SD* = 0.87), with responses falling between 1.22 and 2.96. While descriptive ranges are provided to illustrate the spread of responses, it is important to note that help seeking responses are constrained by the scale minimum (1) and maximum (5).

Table 1.

Descriptive Statistics and Correlation Matrix

	Descriptive Statistics			Pearson Correlations			
Variables	Mean	SD	SoB	EHS	IHS	HSA	HST
Sense of Belonging (SoB)	5.39	1.24	1.00				
Executive Help-Seeking (EHS)	3.2	0.85	-0.01	1.00			
Instrumental Help-Seeking (IHS)	1.83	0.83	0.35*	0.02	1.00		
Help Seeking Avoidance (HSA)	2.09	0.87	-0.18*	0.41*	0.12	1.00	
Help Seeking Threat (HST)	1.83	0.98	- 0.28*	0.41*	-0.01	0.65*	1.00

Note. '***' =0.001 '**'= 0.01 '*' =0.05 N = 129. Correlations reflect the strength and direction of associations. Relationships are described as weak (r ≈ 0.1−0.3), moderate (r ≈ 0.3−0.5), or strong (r > 0.5). Correlations near zero indicate no meaningful association.

The results from the correlation matrix showed that Sense of Belonging (SoB) had a negligible to moderate negative correlation with executive help-seeking, help-seeking avoidance, and help-seeking threat. It had a moderate positive correlation with instrumental help-seeking. Instrumental help-seeking had a negligible positive association with executive help-seeking and a weak positive correlation with help-seeking avoidance. But indicated a negative yet negligible correlation with help-seeking threat.

The correlation table indicated a negligible and nonsignificant negative correlation (i.e., β= -0.01, $p \geq 0.05$) between sense of belonging and executive help-seeking. Thus, we excluded it

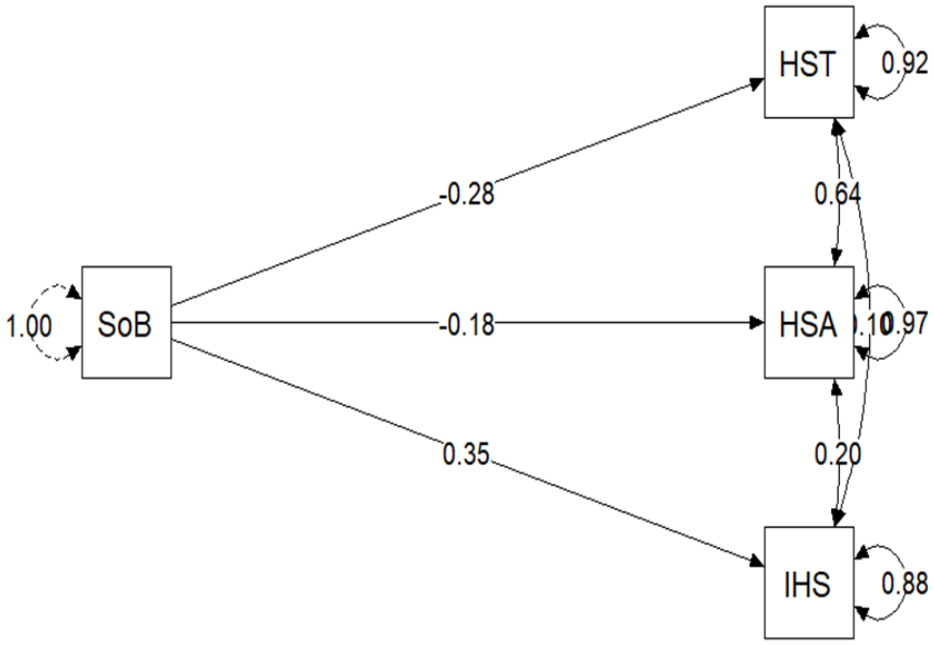
from the path analysis as this negligible association could not add any valuable information to the path analysis.

Path Analysis Modeling

To answer the research questions, a path model was specified with sense of belonging as the predictor and instrumental help-seeking, help-seeking threat, and help-seeking avoidance as the outcomes. The model was saturated. This meant it had zero degrees of freedom and inherently exhibited perfect fit indices. As a result, model fit statistics are not informative in this case.

Figure 2.

Path model 1 for sense of belonging and help-seeking variables.



What is the Impact of Sense of Belonging on Adaptive Help-Seeking Behaviors for Online Learning?

The path model indicated that a sense of belonging explained 12.1% of the variance in instrumental help-seeking scores (β= 0.35, p < 05), with a higher sense of belonging associated with higher levels of instrumental help-seeking.

What is the Impact of Sense of Belonging on Maladaptive Help-seeking Behaviors for Online Learning?

In the model, we examined the predictive relation between a sense of belonging as a predictor and help-seeking threat and help-seeking avoidance as outcomes to answer this question. Based on the nonsignificant correlation of executive help-seeking to sense of belonging (β= -0.01, p < 0.05), we did not include it in our path model.

Sense of belonging negatively predicted both help-seeking avoidance (β= -0.18, p< 0.05) and help-seeking threat (β= -0.28, p< 0.05). Sense of belonging explained 3.4% of the variance in the help-seeking avoidance score and 7.9% in the help-seeking threat scores. Sensitivity analysis (see Appendix D) suggested some differences in the help-seeking threat scores across the Fall and Spring terms. The analysis revealed that students in the Fall term had a significantly higher mean help-seeking threat score (M = 2.04) than students in the Spring term (M = 1.67). As a result of this observation, we included the term (Fall vs. Spring) and the interaction between sense of belonging and term (SoB_Term) in a second model (see Appendix H). However, the negative link between these two controls and help-seeking threat were nonsignificant.

Discussion

The purpose of this study was to investigate the impact of students' sense of belonging in an online learning environment and their engagement in adaptive (instrumental and maladaptive (executive, avoidant, or threat-based) help-seeking behaviors. Findings supported the first alternative hypothesis that a strong sense of belonging will significantly predict instrumental help-seeking. Additionally, a strong sense of belonging negatively predicted both help-seeking avoidance and help-seeking threat behaviors, supporting the alternative hypotheses (Ha2 and Ha3). Finally, the relationship between sense of belonging and executive help-seeking was nonsignificant.

Sense of Belonging in Online Learning Context

While online learning can present challenges such as isolation and limited face-to-face interactions (McInnerney & Roberts, 2004), our study suggests that a supportive learning community can significantly mitigate these drawbacks. In such environments (whether online or face-to-face) where students report feeling valued, accepted, and respected, they are more likely to stay engaged, persist (Osterman, 2000), and achieve positive learning outcomes . It is possible that synchronous peer interactions and meaningful collaboration within participants' learning pods counteracted feelings of isolation and contributed to the development of students' sense of belonging (Garrison, 2017; Palloff & Pratt, 2010; Rudestam & Schoenholtz-Read, 2010). This stresses the importance of synchronous communication in online learning for students' sense of belonging. Though the literature (e.g., Edwards & Hardie, 2024; Mulrooney & Kelly, 2020) suggested sense of belonging is not typical in an online course, it was not the case in this course. One thing that may have contributed to this finding is the course design. For example, while some online courses are asynchronous or self-paced with little learner interaction, this

online course emphasized social aspects heavily in the design (specifically, it has a large class, learning communities, and learning pods - same membership over the term). This finding contributes to existing research that suggests that specific pedagogical approaches are key for learning above and beyond the course modality (Irvine, 2020). To improve students' experiences in the course, future research could examine the degree to which these unique features of the ED-D 101 learning-to-learn course contribute to students' sense of belonging.

Sense of Belonging as Predictor of Academic Help-Seeking

Research indicates that students in online learning spaces seek help under certain conditions. This can be formal or informal (Mahesneh et al., 2012; Yang et al., 2024), but there is little research (e.g., Mahesneh et al., 2012) about whether the help they ask for is adaptive. This study identified a significant positive relationship between sense of belonging and instrumental help-seeking. This is consistent with Winne and Hadwin's (1998) model of Self-Regulated Learning (SRL) and the findings by Won et al. (2021) in face-to-face learning. This result suggests that a sense of belonging contributes to adaptive help-seeking in online learning contexts. According to Winne and Hadwin's (1998) model, conditions (both internal and external) such as sense of belonging influence students' perceptions and beliefs. They, in turn, shape students' approach to current and future tasks. Sense of belonging provides a supportive context that enhances students' confidence and motivation to engage in adaptive help-seeking behaviors (Osterman 2000; Won et al., 2018; ,Won et al., 2021). Despite the challenges online learning presents, students are more likely to perceive challenges as surmountable and to seek out the specific assistance needed to overcome them when they feel that they belong.

The negative relationship between sense of belonging and both help-seeking avoidance and help-seeking threat further illustrates how sense of belonging, a socio-emotional factor,

impacts help-seeking behaviors especially in online settings. Help-seeking avoidance, driven by a fear of negative evaluation or a desire to appear competent (Butler, 2011), is mitigated by a strong sense of belonging. When students perceive a supportive and accepting environment, they are less likely to avoid seeking help due to concerns about being judged or competent.

Similarly, help-seeking threat, which involves apprehension about the potential negative consequences of seeking help (Karabenick, 2004), is reduced when students feel integrated and valued within their learning community. This again aligns with the notion that a supportive environment diminishes the perceived risks associated with asking for help and encourages students to overcome their fears and seek necessary support (Fong et al., 2023; Ryan et al., 1998; Won et al., 2018). In such learning contexts, students are driven to focus on learning, understanding, and mastering tasks. They are encouraged to work towards personal growth and to improve their skills rather than compete, which may breed anxiety and threat, thus fostering maladaptive help-seeking.

For both of these maladaptive (avoidance and threat-based) forms of help-seeking, college students will be more inclined to proactively seek instrumental help to resolve academic challenges because the negative feeling linked with seeking assistance can be alleviated by the feeling that they are accepted and valued and will not be assessed negatively by their peers and instructors for seeking help. Considering the amount of variance sense of belonging accounts for in the help-seeking avoidance scores (3.4%) and help-seeking threat scores (7.9%), future research could explore other factors that might be implicated in the student's decision to engage these maladaptive forms of academic help-seeking in online learning contexts.

Consistent with Won et al.'s (2021) findings, this study found that sense of belonging and executive help-seeking share a negative relationship that did not approach significance. Students

who feel connected to their academic environment and supported by peers and instructors tend to engage in proactive help-seeking behaviors (Ryan & Shim, 2012; Shim et al., 2013), which are associated with the self-regulated approach to learning. They are motivated to define tasks clearly, set meaningful goals, plan effectively, use appropriate strategies, and adapt based on feedback (Won et al., 2021). In contrast, executive help-seeking involves seeking assistance in a way that minimizes personal effort and engagement in learning (Karabenick, 2012). Students who engage in this form of help-seeking are more likely to skip investing effort into understanding the task, setting goals, planning, and enacting strategies. They avoid the critical engagement required to regulate their learning. Thus, they may, for instance, prioritize short-term goals as completing a task quickly over meaningful learning or invest little to no personal effort in completing a task. While sense of belonging facilitates active and effective participation in self-regulated learning, its positive influence on help-seeking behaviors might be diminished when students prioritize short-term goals or are not personally invested in solving the problem, as in the case of executive help-seeking. This can explain the negligible association between a sense of belonging and executive help-seeking. Considering that this finding is consistent with research in face-to-face settings (e.g., Won et al., 2021), future research can investigate other factors that may moderate this association because findings from such studies can help educators discourage executive hep seeking while promoting more effective help-seeking behaviors among students in different learning contexts.

Interestingly, the sensitivity analysis in our preliminary analysis revealed significant differences in help-seeking threat scores across Fall and Spring terms. The sensitivity analysis revealed that students in the Fall term had a significantly higher mean help seeking threat score ($M = 2.04$) compared to students in the Spring term ($M = 1.67$). Although this temporal dynamic

(when included in our second path model) had no substantial effect on help-seeking, it is worth noting that such differences exist. It suggests that the context of each term may influence students' perceptions of threat when seeking help (Linnenbrink & Pintrich, 2001; Winne & Hadwin, 1998). In the Fall, new university students might experience heightened uncertainty and pressure as they adjust to new academic environments. The uncertainties that come with this adjustment process may explain the higher help-seeking threat scores observed. By Spring, increased familiarity with the environment and established social connections may reduce the perceived threat (Chao et al., 2018). The finding highlights the importance of targeted interventions in the Fall to alleviate online students' anxiety about seeking help. Ongoing support in the Spring will ensure students continue to engage in healthy help-seeking behaviors.

Future research with larger samples could explore the underlying causes of this difference in help-seeking threat scores. Qualitative studies across terms might uncover specific stressors, perceptions, or experiences that vary between terms. This will provide deeper insights into how and why these differences arise and how this temporal dynamic might influence students' help-seeking choices.

Overall, the findings reinforce and add to prior research on the influence of conditions on college students' help-seeking behavior (Won et al., 2021). It shows the importance of college students' feelings of acceptance and affiliation with their learning pod to their adaptive and maladaptive help-seeking behaviors. Additionally, it guides researchers toward new directions for future studies on online help-seeking behaviors. Furthermore, it provides insights into the types of help-seeking students in online learning programs use when they face academic challenges. The insights can equip online college educators to design online post-secondary programs and interventions that support students' self-regulation- specifically, their engagement

in adaptive help-seeking. This, in turn, will improve their learning outcomes (Astatke, 2018; Fong et al., 2023; Horowitz et al., 2013; Karabenick, 2003).

Limitations

The study relied on a convenience sample of students who registered in an elective course on Self-Regulated Learning (i.e., the sample is not random). As a result, the responses might not completely represent the perspectives of average university students who were not included in the research. Participants may have already had some interest in learning strategies, self-regulation, or academic improvement. This could have influenced their attitudes toward help-seeking. The students were also likely to have gained more insight into the value of instrumental help-seeking as the course progressed. This could have led them to self-report higher tendencies toward adaptive help-seeking. This consideration is crucial when generalizing the results to other online learning contexts.

Also, the path model used in this study showed perfect fit indices (*CFI* = 1.00, *TLI* = 1.00, *RMSEA* = 0.00, *SRMR* = 0.00). However, this perfect fit is because the model was saturated, meaning it had zero degrees of freedom and perfectly reproduced the data. While the fit indices appear ideal, they don't provide insights into how well the model generalizes to new data or captures the true relationships between variables. Future research could explore more parsimonious models to evaluate these relationships better.

Additionally, the help-seeking scale assessed help-seeking tendencies rather than actual help-seeking behaviors. The help-seeking scale in this study assessed students' tendencies or preferences in hypothetical situations rather than observing their actual help-seeking behaviors in real-time. While this approach provides insights into students' intentions and attitudes, it does not capture whether these tendencies translate into actions. For instance, a student may report a preference for instrumental help-seeking but, in practice, might hesitate to seek help at all. Aside from that, both measures leave room for social desirability bias because they are self-reported.

Participants might respond in ways they perceive as more socially acceptable or aligned with what they believe the researcher expects.

Also, the use of listwise deletion for missing the cases could influence the generalizability of the results. Although the inspection of the grades and content completion rates indicated that some of these students with missing responses may have been struggling academically (as indicated by their lower grades and completion rates), most of those students progressed steadily in the course and performed well. This suggests that missing data was not exclusively tied to students at academic risk. However, it is possible that the missing data may reflect aspects of students' attitudes that were not captured by the data used for the path analysis. This potential shortfall should be considered when interpreting the findings.

Finally, the path analysis only examined the association between the sense of belonging and academic help-seeking without assuming causation. Consequently, future research can explore potential causal links between the two constructs using longitudinal quasi-experiments with control conditions to further clarify their relationship. For example, researchers could track students' sense of belonging and academic help-seeking behaviors over a semester. Researchers can leverage natural or existing belonging-enhancing practices (e.g., peer interaction) in some settings while using others as control groups. This approach will avoid direct manipulation of belonging and rather focus on observing changes driven by these interventions. It also makes it both ethical and practical. In such a study, researchers can carefully match groups or statistically control for confounding variables. This design would help clarify the relationship between sense of belonging and help-seeking without compromising participants' well-being.

Conclusion

In a nutshell, the findings of this study elucidate the association between sense of belonging and distinct types of help-seeking in online learning. Specifically, a strong sense of belonging was found to positively predict instrumental help-seeking and negatively predict help-seeking avoidance and help-seeking threat. However, it did not significantly predict executive help-seeking.

The results stress the need to design effective pedagogical strategies that foster supportive learning environments and optimize educational outcomes in the digital era. However, considering the variance accounted for by sense of belonging, it is likely that other factors influence help-seeking behaviors in online learning contexts, especially executive help-seeking. Future research could explore such possibilities as well as factors that may mediate or moderate this relationship. Such inquiries will better shape our understanding of students' help-seeking behavior. For avoidant and threat-based help-seeking, experimental studies could explore the effect of peer interactions on students' help-seeking patterns in online learning.

Notably, online programs must be designed to foster a sense of belonging since it is critical for promoting adaptive help-seeking behaviors and enhancing learning. By creating supportive, inclusive, and interactive online spaces, educators can help students feel more connected, confident, and less threatened by asking for help in the face of challenges. They will be more likely to engage with their learning in meaningful ways. These efforts are likely to lead to better academic outcomes and a more satisfying learning experience for students in online learning spaces.

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Appendices

Appendix A

Sense of Belonging subscale Perceived Cohesion Scale

Instruction**:** The next few questions ask you to consider your experiences in ED-D 101 this term.

Please indicate how much you agree with the following statements.

SoB1- I feel a sense of belonging to my ED-D 101 Learning Pod.

SoB2- I feel that I am a member of my ED-D 101 Learning Pod.

SoB3- I see myself as a part of my ED-D 101 Learning community.

Likert scales ranging from 0 ("strongly disagree") to ("neutral") to 7 ("strongly agree"

Appendix B

Academic Help- Seeking Scale

(a) Instruction: The following questions ask you to think specifically about your ED-D 101 Learning Community. Read each statement and choose a response that is typical of you.

Factors	Items
Executive help-seeking	**EHS1:** If I ask another student for help on something I do not understand, I want to be given the answer rather than an explanation of how to find the answer myself.
	EHS2: The purpose of asking somebody for help in a course would be to succeed without having to work as hard.
	EHS3: Getting help in a course would be a way of avoiding doing some of the work.
Instrumental help-seeking	**IHS1**: If I ask other students for help with something I do not understand, I want them to help me find the answer myself and not give the answer to me.
	IHS2: When I ask an instructor for help, I want the instructor to give me hints or clues rather than the answer.
	IHS3: If I need help in a class, I only want as much help as necessary to complete the work myself.
	IHS4: If I were having trouble understanding the material in a course, I would ask someone who could help me understand the general ideas.

Help-seeking avoidance	**HSA1**: When I cannot do a homework problem, I skip it rather than ask anyone for help. **HSA2**: Even when I think the work in my class is too hard to do on my own, I will not ask for help. **HSA3**: If I didn't understand something in a course I would guess rather than ask someone for assistance.
Help-seeking threat	**HST1**: I would feel like a failure if I needed help in a course. **HST2**: I would not want anyone to find out that I needed help in a course. **HST3**: Getting help in a course would be an admission that I am just not smart enough to do the work on my own.
Formal versus informal seeking	**FVIH1**: Getting help would be one of the first things I would do if I were having trouble in a course. **FVIH2**: I would prefer asking another student for help in a course rather than the instructor.

Response scale: Not at all true = 1, A little true = 2, Somewhat true = 3, Fairly true = 4, Very true = 5

(a) Instruction: The following questions ask you to think specifically about your ED-D 101 Learning Community. Read each statement and choose a response that is typical of you.

The purpose of asking somebody for help in a course would be to	Not at all true	A little true	Somewhat true	Fairly true	Very true

succeed without having to work as hard.					
When I ask an instructor for help, I want the instructor to give me hints or clues rather than the answer.	Not at all true	A little true	Somewhat true	Fairly true	Very true
I would prefer asking another student for help in a course rather than the instructor.	Not at all true	A little true	Somewhat true	Fairly true	Very true
When I cannot do a homework problem, I skip it rather than ask anyone for help.	Not at all true	A little true	Somewhat true	Fairly true	Very true
If I didn't understand something in a course, I would guess rather than ask someone for assistance.	Not at all true	A little true	Somewhat true	Fairly true	Very true

I would not want anyone to find out that I needed help in a course.	Not at all true	A little true	Somewhat true	Fairly true	Very true
I would feel like a failure if I needed help in a course.	Not at all true	A little true	Somewhat true	Fairly true	Very true
Getting help would be one of the first things I would do if I were having trouble in a course.	Not at all true	A little true	Somewhat true	Fairly true	Very true
If I were having trouble understanding the material in a course, I would ask someone who could help me understand the general ideas.	Not at all true	A little true	Somewhat true	Fairly true	Very true
If I ask another student for help on something I do not understand, I want to be given the	Not at all true	A little true	Somewhat true	Fairly true	Very true

answer rather than an explanation of how to find the answer myself.					
Getting help in a course would be a way of avoiding doing some of the work.	Not at all true	A little true	Somewhat true	Fairly true	Very true
Even when I think the work in my class is too hard to do on my own, I will not ask for help.	Not at all true	A little true	Somewhat true	Fairly true	Very true
Getting help in a course would be an admission that I am just not smart enough to do the work on my own.	Not at all true	A little true	Somewhat true	Fairly true	Very true
If I ask other students for help with something I do not understand, I want them to help me find	Not at all true	A little true	Somewhat true	Fairly true	Very true

the answer myself and not give the answer to me.					
If I need help in a class, I only want as much help as necessary to complete the work myself.	Not at all true	A little true	Somewhat true	Fairly true	Very true

Appendix C

Reliability of Subscales

Subscale	α
SoB	0.92
IHS	0.69
EHS	0.78
HSA	0.79
HST	0.91

Appendix D

Sensitivity Analysis

ANOVA Summary for Sense of Belonging

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
as.factor(Term)	1	3.11	3.109	2.023	0.16
Residuals	127	195.21	1.537		

ANOVA Summary for Executive help seeking

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
as.factor(Term)	1	0.62	0.62	0.88	0.35
Residuals	127	88.52	0.7		

ANOVA Summary for Instrumental help seeking

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
as.factor(Term)	1	0.48	0.48	0.66	0.42
Residuals	127	92.89	0.73		

ANOVA Summary for Help seeking Avoidance

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
as.factor(Term)	1	1.02	1.02	1.36	0.25
Residuals	127	95.2	0.75		

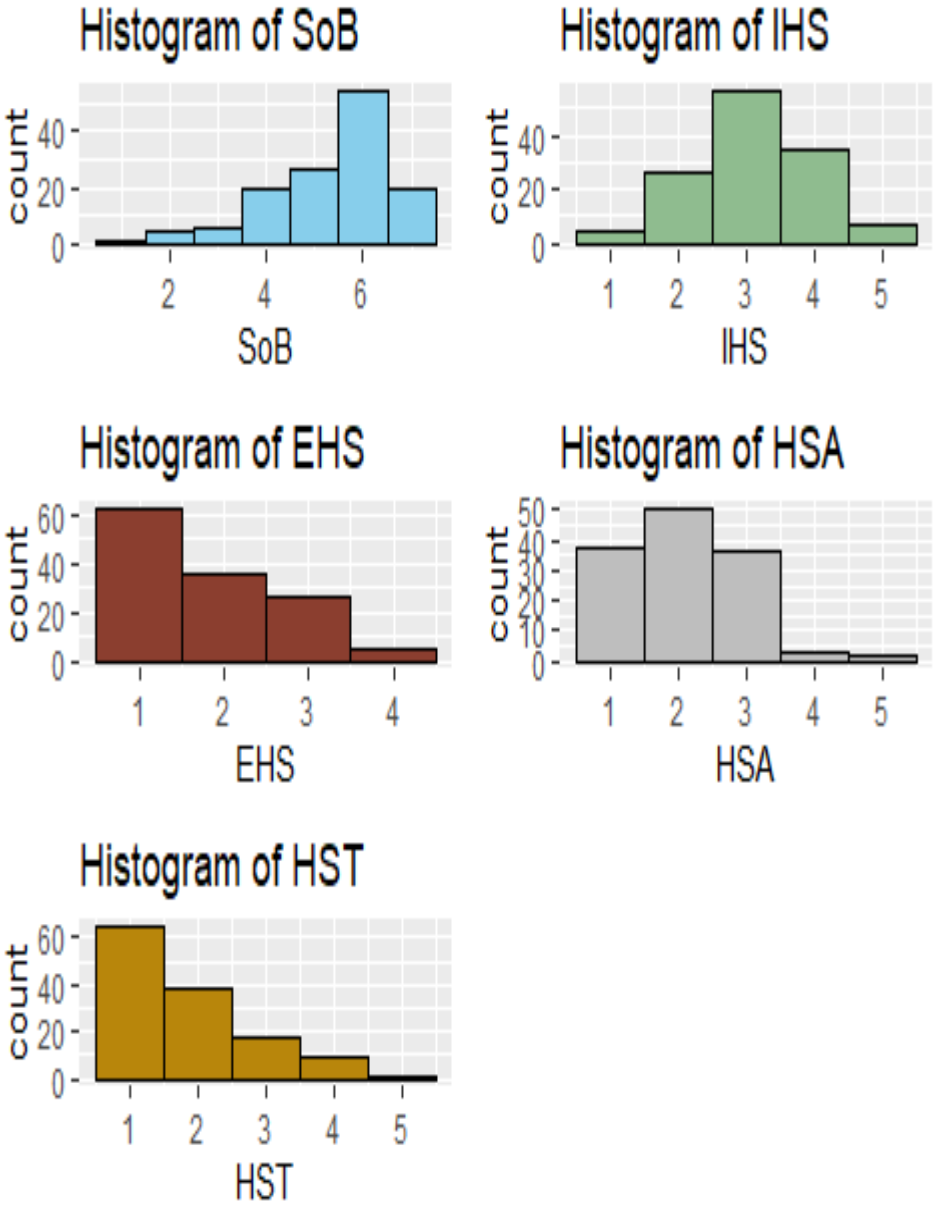
ANOVA Summary for Help seeking threat

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
as.factor(Term)	1	4.35	4.35	4.67	0.03 *
Residuals	127	118.13	0.93		

Notes: '***' 0.001 '**' 0.01 '*' 0.05

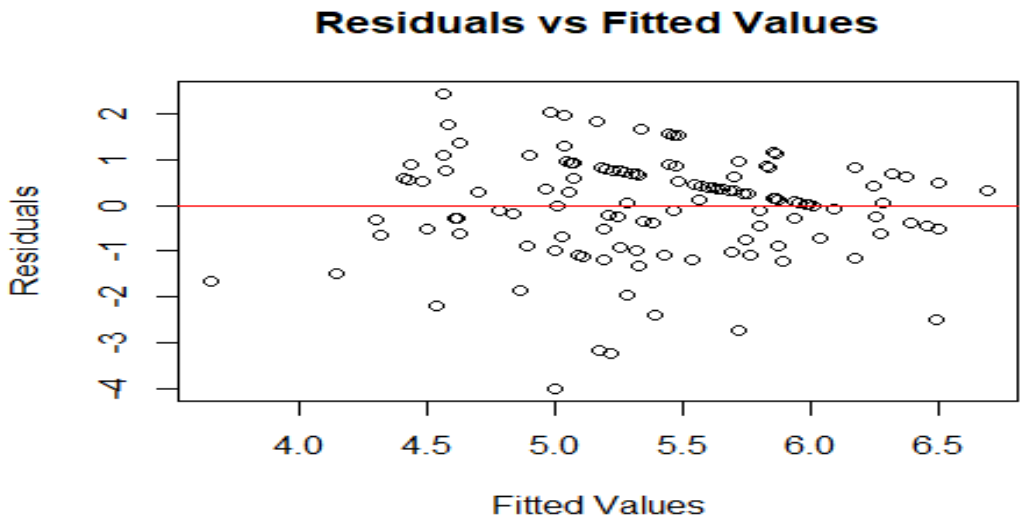
Appendix E

Univariate Distribution of Variables

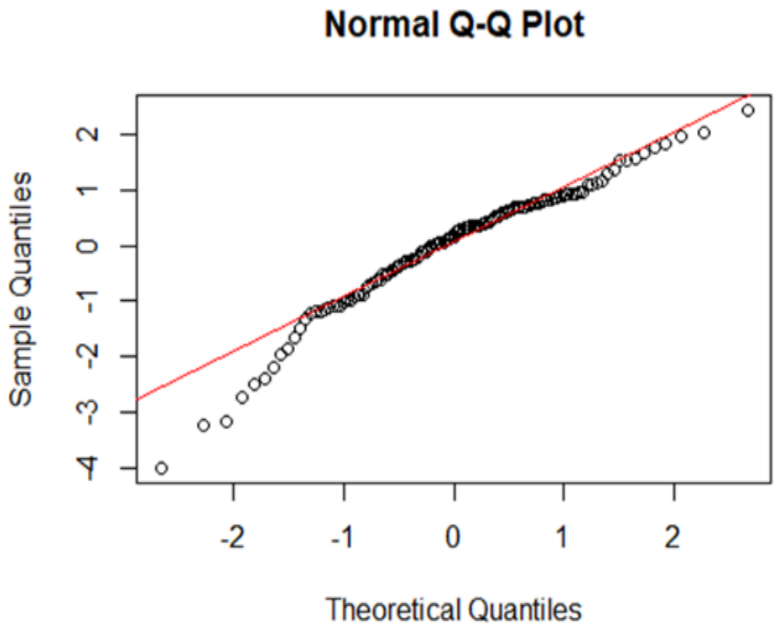


Appendix F

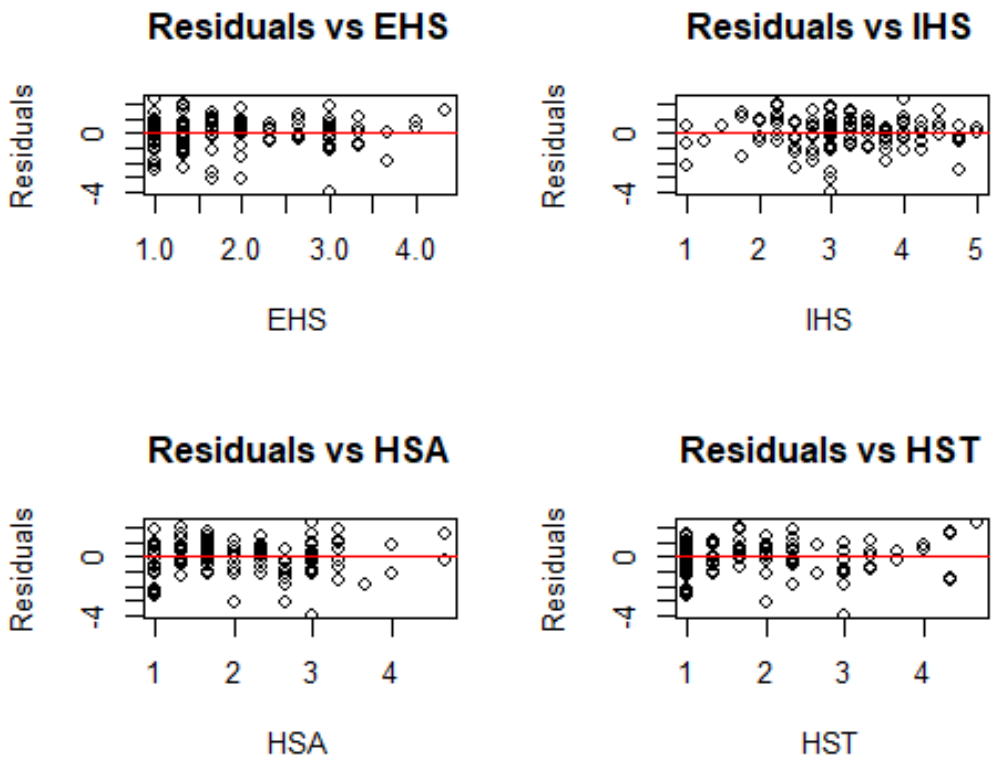
Assumption Tests



Homoscedasticity



Normality of Residuals



Linearity

Durbin-Watson test

Data: model

DW = 2.1006, p-value = 0.7231

Alternative hypothesis: true autocorrelation is greater than

The Durbin-Watson statistic is approximately 2.10, and the p-value is 0.72(*). This suggests that there is no significant autocorrelation in the residuals of the model. This indicates that the errors are independent.

Independence of Errors

Appendix G

95% confidence intervals for Path model 1

	lhs	op	rhs	est	se	z	pvalue	ci.lower	ci.upper
1	IHS	~	SoB	0.239	0.058	4.122	0.000	0.125	0.352
2	HSA	~	SoB	-0.128	0.064	-1.998	0.046	-0.253	-0.002
3	HST	~	SoB	-0.221	0.075	-2.955	0.003	-0.367	-0.074
4	IHS	~~	IHS	0.636	0.073	8.743	0.000	0.494	0.779
5	HSA	~~	HSA	0.721	0.090	7.992	0.000	0.544	0.897
6	HST	~~	HST	0.875	0.131	6.671	0.000	0.618	1.132
7	IHS	~~	HSA	0.138	0.065	2.116	0.034	0.010	0.266
8	IHS	~~	HST	0.071	0.057	1.257	0.209	-0.040	0.182
9	HSA	~~	HST	0.506	0.093	5.449	0.000	0.324	0.688
10	SoB	~~	SoB	1.537	0.000	NA	NA	1.537	1.537

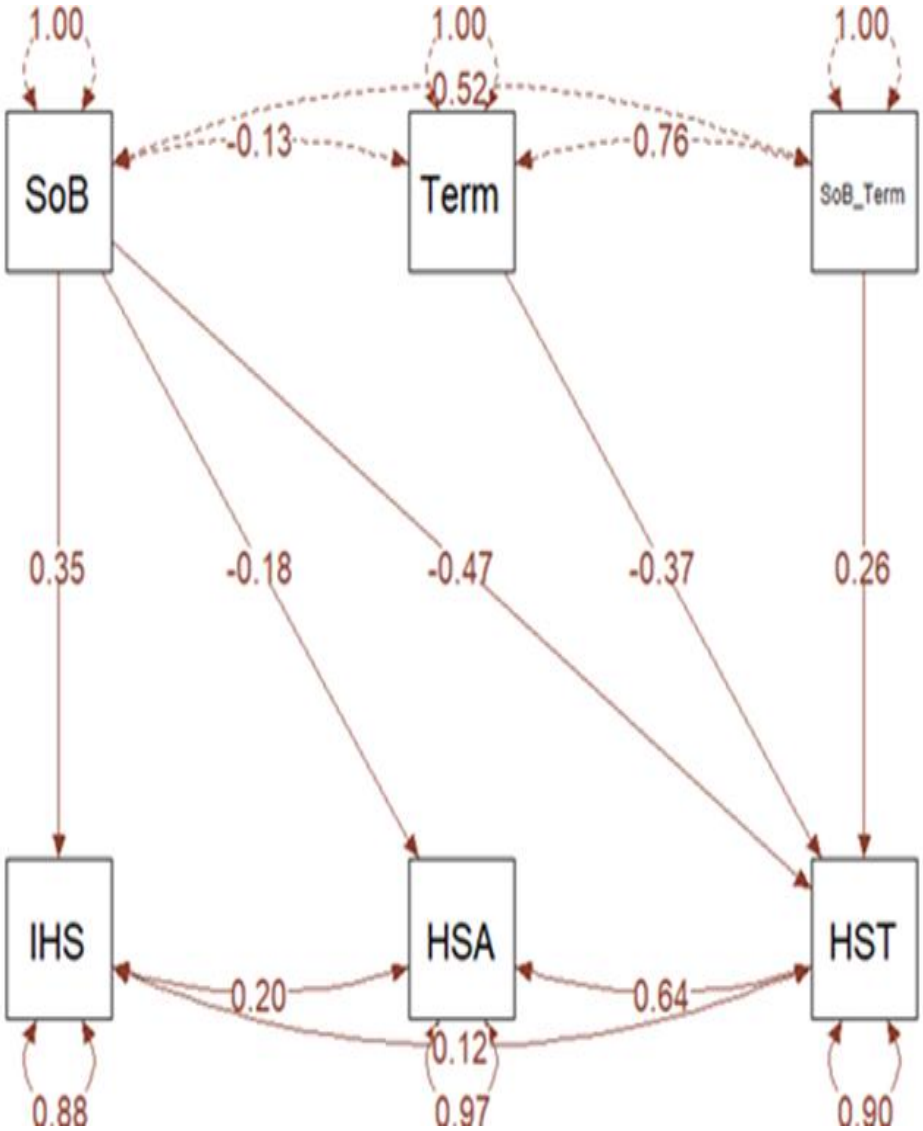
Appendix H

Regression Output for Model 2- With Control Terms

	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
IHS ~						
SoB	0.24	0.06	4.12	0	0.24	0.35
HSA ~						
SoB	-0.13	0.06	-2	0.05	-0.13	-0.18
HST ~						
SoB	-0.36	0.22	-1.63	0.1	-0.36	-0.47
Term	-0.72	0.65	-1.1	0.27	-0.72	-0.37
SoB_Term	0.08	0.12	0.67	0.5	0.08	0.26

Appendix I

Path Model 2 with Control Terms



Path Model 2

Appendix J

Certificate of Ethical Approval

Certificate of Ethical Approval: Amendments for Harmonized Minimal Risk Behavioural Study

University of Victoria

University of Victoria
Human Research Ethics Board
Michael Williams Building, R. B202 PO Box 1700

STN CSC
Victoria, BC V8W 2Y2

Tel: 250-472-4545

Also reviewed and approved by:

Simon Fraser University

SFU
SIMON FRASER UNIVERSITY

Principal Investigator:	**Primary Appointment:**	**Board of Record REB Number:**	**REB Number: H22-01164**
Allyson Hadwin	University of Victoria	BC22-0310	PAA #: H22-01164-A003

Study Title:
Examining student success: Promoting adaptive regulation with innovative technologies (PAR-IT) -- UVIC TRANSFER

Approval Date: November 22, 2023 **Expiry Date: June 26, 2024**

Research Team Members:	Mariel Miller, UVic Faculty Member; Tod Milford, UVic Faculty Member; Philip Winne, SFU Faculty Member; Ramin Rostampour, UVic Graduate Student; Paweena Sukhawathankul, UVic Faculty Member; Meg Kapil, UVic Graduate Student; Stuart MacDonald, UVic Faculty Member; Safoura Askari, UVic Graduate Student; Meng Qi Wu, UVic Graduate Student; Lesley Michelle Bahena Olivares, UVic Research Assistant; Muqing Nie, UVic Graduate Student; Rikka Paular, UVic Graduate Student; Behnoosh Khoramrooz, UVic Graduate student; Syed Qudsia, UVic Graduate student; Jason Harley, McGill University; Sanna Jarvela, University of Oulu; Matthew Moreno, McGill University; Muqing Nie, UVic Graduate student; Sungjun Won, Gongju National University of Education; Maria Amoros Teijeiro, Research Assistant/ UVic Graduate Student; Lawrence Biney, UVic Graduate Student; Alyssa Husband, UVic Graduate Student; Lexi Sermer, UVic Graduate Student.
Sponsoring Agencies:	- Social Sciences and Humanities Research Council of Canada (SSHRC) - "Examining student success: Promoting adaptive regulation with innovative technologies (PAR-IT)" - Social Sciences and Humanities Research Council of Canada (SSHRC) - "SSHRC Partnership Development Grant [Jason Harley (PI); Hadwin (CO-PI)] Advancing educational theory, assessment, and practice in higher education collaborative regulatory training. We will be leveraging data collected in the PARIT study for this study also." - University of Victoria - "LTSI Learning and Teaching Development Grant [MillerPI] Supporting students to leverage learning analytics for self-regulating learning in a large, first year undergraduate course "
Documents included in this	

approval:	**Document Name**	**Version**	**Date**

This ethics approval applies to research ethics issues only and does not include provision for any administrative approvals required from individual institutions before research activities can commence. The Board of Record (as noted above) has reviewed and approved this study in accordance with the

requirements of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2, 2018).

The "Board of Record" is the Research Ethics Board delegated by the participating REBs involved in a harmonized study to facilitate the ethics review and approval process.

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

This study has been approved either by the Board of Record's full REB or by an authorized delegated reviewer.