Nursing Students Desire to Belong in Online Learning Environments. Part 1: A Mixed-Methods Study

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COVID-19 has contributed to unprecedented ways of being and life experiences, such as the need for social and physical distancing, fear of contracting the virus, and overall uncertainty about the near future, all of which have resulted in increased levels of stress and decreased feelings of belonging and connection to others (Chan et al., 2021). In early 2020, the declaration of the COVID-19 pandemic caused an immediate shift from traditional in-person classroom delivery to online delivery in some schools and programs to ensure the continuity of education. Many universities and colleges in Canada and around the globe with traditional in-person or hybrid formats, experienced drastic changes to teaching modalities, with most transitioning to fully online delivery in an effort to lessen the spread of the virus and its impact. Preserving well-established teaching and learning practices and creating effective new ways of teaching and connecting were priorities during this time of rapid change. Nursing programs needed to consider new or alternative ways of delivering teaching and learning experiences for students.

In the four-year collaborative nursing degree program where this study took place, students who started the program at the college site transition to the university site for the last two years of the program. At the time of this study, this research team was working on a project exploring nursing students' sense of belonging after transitioning from college to university. Preliminary findings from that research suggested that students have difficulty finding the support they need as they make this transition, and that difficulty was amplified by the pandemic, which necessitated a rapid shift to a completely online learning environment (Montague et al., 2022). Similar to students in many other programs (Allen, 2020; Potts, 2021), students in this collaborative nursing degree program lost the rich, in-person connections or sense of belonging that they had with their peers, faculty, clinical staff, and patients. In this article, we report on phase one of a two-phase explanatory sequential mixed-method research study.

Background

The need to belong was first identified by Maslow (1943) as one of the five basic needs essential to human beings. Maslow's theory was later supported by Baumeister and Leary (1995), foundational pioneers in belonging research, who theorized that having a sense of belonging is fundamental to human existence and in promoting well-being. Hagerty and Patusky (1995), in their seminal research on belonging, defined a sense of belonging as "the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment" (p. 173). Strayhorn (2019), in an attempt to further understand the factors that influence students' sense of belonging within higher education, built on Maslow's hierarchy of needs theory and defined a sense of belonging as "students' perceived social support on campus, a feeling or sensation of connectedness, and the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the campus community or others on campus such as faculty, staff, and peers" (p. 4). Ashktorab et al. (2017) noted that when students feel a sense of belonging or connection to their educational institution, they are likely to be more engaged and motivated to participate in various activities. In addition, Mooney and Becker (2021) asserted that:

> sense of belonging, or belongingness, describes how accepted one feels in their academic community and is an important factor in creating inclusive learning environments. Belongingness is influenced by many factors including students' backgrounds and experiences; other people; environments (physical and virtual); academic discipline; external factors such as local, regional, and global issues, and time. (p. 13)

A sense of belonging is deemed critical by many scholars for its impact on student engagement and success (Farrell & Brunton, 2020; Kim & Lundberg, 2016; Strayhorn, 2019). A number of research studies have suggested positive associations between a sense of belonging and students' academic achievement, intent to persist, involvement in campus or class activities, and proactive pursuit of academic assistance from professors and classmates (Albloushi et al., 2019; Alkan, 2016; Hoffman et al., 2002–2003; Morgan et al., 2020; Strayhorn, 2019). Conversely, other studies have shown that the lack of a sense of belonging leads to adverse outcomes, such as feelings of social rejection, isolation, anxiety, and depression, all of which negatively impact students' learning of skills and motivation to learn (Alkan, 2016; Ashktorab et al., 2017; Montague et al., 2022; Peacock et al., 2020).

While a considerable body of literature is related to a sense of belonging and in-person education, a recent literature search identified relatively few studies that have explored a sense of belonging in students who are engaged in online learning, and to our knowledge, a limited number of studies have been conducted with nursing students. One study, by Thomas et al. (2014), conducted with students in Australia, examined inclusive teaching in an online environment. Their analysis identified a sense of belonging as a strong theme that influenced the student experience. Students and faculty noted that creating a sense of belonging was essential in online learning; however, it was not always present. Similarly, Peacock et al. (2020) emphasized the importance of cultivating a sense of belonging for students who might perceive the online learning environment as isolating and distant when compared with in-person classes, which facilitate greater connections with peers and instructors.

The ongoing COVID-19 pandemic restrictions have led to significant social isolation and loneliness among students because of the lack of social interaction and decreased communication with peers and faculty (Allen, 2020; Kunaviktikul et al., 2022; Leal Filho et al., 2021). These physical restrictions presented a barrier to a sense of belonging for many students and had the greatest impact on those who were already socially isolated and experiencing loneliness (Allen, 2020). Langegård et al. (2021) noted that for many students, developing and maintaining connections with peers and faculty was a key strategy to fostering and maintaining their sense of belonging; however, this was a challenge for some students while studying online during the pandemic.

As online learning becomes a larger part of postsecondary education (Bok, 2020; Garris & Fleck, 2022), further research to explore nursing students' perceptions of a sense of belonging is needed to develop an enhanced inclusive curriculum and to identify strategies that will promote a sense of belonging and provide the necessary academic and educational institutional supports to encourage student success.

Purpose of the Study

The goal of this study was to describe nursing students' sense of belonging in an online learning environment and to identify strategies and supports to help foster their sense of belonging.

Theoretical Framework

A sense of belonging has been theoretically identified as a basic human need (Maslow, 1943; Tinto, 1993), and researchers suggest that one's perception of a sense of belonging influences behaviour (Baumeister & Leary, 1995; Goodenow & Grady, 1993). Hoffman et al. (2002–2003) posited that a student's sense of belonging made students more resilient and more

comfortable in the postsecondary learning environment. Their relatively early work on a sense of belonging with college students identified five factors that make up the construct of a sense of belonging: perceived peer support, perceived faculty support, classroom comfort, isolation, and faculty empathy. Hoffman et al.'s Sense of Belonging Scale was used for data collection in this study.

Methods

Design

An explanatory sequential mixed-method design with two phases was used for this study. In phase one, the focus of this paper, we used a mixed-method approach. The quantitative component consisted of an online survey and the qualitative component was the three open-ended questions included as part of the survey. To assess for face validity and content validity, an expert nurse educator reviewed the modified scale to check for clarity, simplicity, the number of items, comprehensiveness, conciseness, and the relevance of each statement. In addition, to further assess the face and content validity, the scale was shared with two nursing students to solicit information about the content, length, and duration; their interpretation of the items; and their recommendations on content they thought would be more suitable (DeVellis, 2011; Polit & Beck, 2021; Singh & Thirsk, 2022). Phase two consisted of a qualitative approach using in-depth interviews, which will be reported in the future. Findings from the quantitative arm of the study were used to inform the qualitative data collection and analysis (Creswell & Creswell, 2018; Fetters et al., 2013).

Sampling and Participants

The study was reviewed and approved by the participating institution's research ethics boards. Participants provided informed consent online before completing the survey. Participants were third-year nursing students from a collaborative nursing degree program who were taking all their courses online as a result of the COVID-19 pandemic. The population consisted of 163 students who had recently transitioned from college to university. An email with information about the study and a link to the survey was sent to all potential participants and was posted on the learning management system and on the nursing students' association social media sites. On clicking the link, students viewed a consent form followed by the survey. Of the possible 163 students, we were able to recruit 80 (49%) for the online survey.

Data Collection and Analysis

The participants completed the online Sense of Belonging Scale, which also included five demographic items (age, gender, ethnicity, postsecondary education, and technology use). The Sense of Belonging Scale, a 15-item scale, was used to measure students' perceptions of belonging while taking courses through online learning. The original 28-item tool was developed by Hoffman et al. (2002–2003) to capture the key concepts that they had identified in an earlier study. Their factor analysis of the tool identified five factors that make up the construct of a sense of belonging: perceived peer support, perceived faculty support, classroom comfort, isolation, and faculty empathy. In 2010, Tovar and Simon conducted a study with a more diverse student population to further validate the Hoffman et al. tool. Their psychometric testing identified three factors that were theoretically consistent with the Hoffman et al. scale: instructor-student relationships, student-peer relationships, and student-class interactions. The survey, as revised by Tovar and Simon, included 16 items. We removed one item (socializing with faculty) as it was not appropriate for our student experience, and we slightly modified the language in each of the remaining items

to fit the context of the online environment. Students used a 5-point Likert-type scale to respond to the items. The survey was completed online, using a survey software tool, Qualtrics, and the data were imported to SPSS v 27 for data analysis. Descriptive statistics were used to calculate frequencies and means for the survey items. The Cronbach alpha for the current study was 0.84, providing evidence for the reliability of survey items (Polit & Beck, 2021).

For this study, we added three open-ended questions to the survey in which students were asked to share their thoughts on those aspects of online learning that promoted a sense of belonging, those that hindered their sense of belonging, and their recommendations about ways to enhance their sense of belonging. Coding and analysis of the three open-ended questions were guided by Braun and Clarke's (2006) six-step approach to conducting thematic analysis using a deductive top-down coding approach. Four researchers individually read and coded the responses from participants for the three research questions. The four researchers then met, discussed initial codes, and identified themes that related directly to the three open-ended questions to which we were seeking answers.

Results

Sense of Belonging Survey

The majority (67; 87%) of survey respondents were women, and 10 (13 %) were men. Most (34; 42.5%) were in the 16–20 age group, followed by the 21–25 age group (33; 41.2%); the remaining 13 (16.2%) were ages 26–40. We had a diverse group of respondents based on self-identified ethnicity (see Table 1). Twenty-three students (28.4%) had previous postsecondary education. Students reported using a range of technologies to access their online learning, the most common being the laptop, which was reported by almost all (93.7%) participants (see Table 2).

Table 1

Students' Self-Identified Ethnicity

African	Caucasian/Asian	Slovenian
Armenian	Chinese/Australian	Somali
Chinese	Chinese/White	South Asian
Filipino	East African	South Asian (Pakistani)
Bengali	Greek	Sri Lankan
Black	Indian	Taiwanese
Bulgarian	Jamaican	Tamil
Canadian	Korean Canadian	White
Canadian Indian	Latin American	White Russian
Caucasian	Nepali	

Table 2

Technology Used to Access Online Learning

Technology	n (%)
Laptop	75 (93.7%)
Smart phone	47 (58.7%)
Tablet	15 (18.7%)
Desktop	12 (15%)

The mean score for participants in the survey was 40.9 out of a possible 75 or 54.5% (Table 3). Scores ranged from 18 to 67/ out of 75 or 24% to 89.3%. The items with the three lowest scores were the following: "I have met with classmates outside of classes to study for an exam," "I invite people I know from my classes to do things socially," and "I have discussed personal matters with students who I met in class." The items with the three highest scores were these: "I feel that a faculty member would take the time to talk to me if I needed help," "If I miss class, I know students who I could get notes from," and "I know people in my class." In the next section, we provide an analysis of the open-ended questions.

Table 3

Sense of Belonging Mean (SD)

Item	Mean (SD)
I have met with classmates outside of classes to study for an exam	1.6 (1.0)
If I miss class, I know students who I could get notes from	3.3 (1.3)
I discuss events which happened outside of class with my classmates	3.1 (1.3)
I have discussed personal matters with students who I met in class	2.1 (1.2)
Other students are helpful in reminding me when assignments are due or when tests are approaching	3.1 (1.3)
I have developed personal relationships with other students in my classes	2.6 (1.2)
I invite people I know from my classes to do things socially	1.9 (1.1)
I feel comfortable asking questions in my classes	2.6 (1.3)
I feel comfortable volunteering ideas or opinions in my classes	2.7 (1.2)
Speaking in class is easy because I feel comfortable	2.5 (1.3)
I know people in my class	3.3 (1.0)
I feel comfortable talking about a problem with faculty	2.8 (1.2)
I feel that a faculty member would be sympathetic if I was upset	3.0 (1.2)
I feel that a faculty member would take the time to talk to me if I needed help	3.3 (1.2)
If I had a reason, I would feel comfortable seeking help from a faculty member outside of class time (office hours, etc.)	3.1 (1.3)

Factors Hindering Students' Sense of Belonging

Students highlighted some of the factors that hindered their sense of belonging in the online learning environment in response to the open-ended questions. These were organized into the following three sub-themes: a lack of opportunity to build relationships with peers, perceived faculty teaching styles and behaviours, and students' emotional well-being. Many students felt that there were insufficient opportunities to build relationships with peers because of the nature of the online learning environment, which resulted in a lack of socialization, a lack of physical presence, unfamiliarity with their classmates, and limited interaction with classmates. Some students felt that the online environment was impersonal and did not provide opportunities to interact in meaningful ways with peers. Specifically, having cameras off during the Zoom classes was noted as a barrier in facilitating engagement with classmates and making the environment more personal. As one student stated:

> Being distanced, it is hard to get to know someone. I feel that the calls we have over Zoom are purely for class purposes and never become something social. If we were able to see each other in person, it would be easier to develop relationships and form more social connections. I feel very disconnected.

Students perceived that some faculty teaching styles and behaviours hindered their sense of belonging. Several students felt that there was inconsistency with teaching styles, inconsistency with grading assignments, and less opportunity to engage during the synchronous online classes. In addition, a few felt unsupported by their teachers when their comments were not acknowledged during class, emails were responded to late, or there was no response at all to their concerns. One student's comment explains this: "Professors who do not encourage discussion or do not use the Zoom chat box or breakout rooms. Some professors would take more than 2–3 business days to respond to concerns, others would not respond at all." These behaviours led to students feeling disengaged, unwelcomed, and uncomfortable approaching faculty.

Students felt that various factors in the online environment had an impact on their emotional well-being and subsequently contributed to hindering their sense of belonging. The workload for online learning was perceived to be increased compared to the traditional in-person classes. Others noted that not being able to connect with peers before or after class, having no privacy during Zoom classes, having difficulty maintaining previous relations because of COVID-19 restrictions, and not being able to find same-minded peers to connect with increased their stress levels in the online learning environment. One student stated:

> There wasn't much time to feel focused in class. I felt that with the transition to online classes, the workload of each course was doubled in comparison to going in person. I felt the workload was too overwhelming. I always felt really stressed [and] there was no time to really focus on personal growth within a class and [get] to know faculty and my classmates.

Another student noted:

> I believe Zoom and online learning has increased my anxiety to the point where I try to avoid socializing because I'm so anxious. I was really looking forward to going to school in person and getting to know my classmates. I feel scared online, and I avoid talking during classes 'cause my mind is always racing, I'm scared that I'm saying the wrong thing or I'm

going to mess something up. It's crazy to think that a mute/unmute button has so much power over my emotions.

These examples show the varying impacts of the online learning environment on students' emotional well-being.

Factors Promoting Students' Sense of Belonging

Students provided information on what promoted their sense of belonging during online learning experiences, and this was organized into the following three sub-themes: peer connection, faculty support, and positive engaging class experience.

From a peer-connection perspective, students felt that by attending town hall meetings organized by the school, they felt connected. One participant stated that it "feel[s] like I am not the only one struggling and that we are all in this together." Other forms of peer connectedness were accomplished through informal group chats using different platforms, such as Facebook and Discord. Students also appreciated the opportunity to establish peer connections via extracurricular activities and organized groups that were offered at the school.

From a faculty-support perspective, students identified the important role faculty played in promoting a sense of belonging during their online learning experience. Students appreciated the faculty's ability to encourage discussion by enabling the chat function during synchronous online classes that fostered a safe and comfortable classroom environment. Students also appreciated the faculty's ability to seek feedback and opinions from students in the class. Some students stated, "professors . . . take the time to acknowledge students' hard work and ask for opinions that they actually take into account." Also, students appreciated the faculty maintaining open communication channels by responding to emails promptly, providing updates about the course, and including reminders for assignment due dates, which helped to decrease stress.

Furthermore, students identified that positive, engaging class experiences promoted students' sense of belonging in an online learning environment. The positive, engaging class experiences were achieved by having the opportunity to attend and participate in synchronous classes, as stated: "Synchronized classes really helped! The more frequent use of chat box also really helped as well and gave me a chance to communicate and engage more with my colleagues and professors." Other positive experiences included collaborating in group projects with peers as this class activity provided students with an opportunity to interact with their classmates. As noted by students, all these positive modes promoted their sense of belonging during online learning experiences.

Students' Suggestions to Increase Sense of Belonging

Student suggestions to increase a sense of belonging were captured in the following three sub-themes: opportunities for social connection with peers, creative online design and delivery, and enhanced faculty support and engagement. Opportunities for social connection with peers were important to students and included both in-class and overall institutional chances to connect with one another. Working together in groups helped to build relationships. Having cameras on during virtual sessions and participating in breakout rooms and chats were also suggested as strategies to foster students' associations and engagement with one another. Joining clubs and other student activities was suggested as a proactive practice that students could use to enhance their interactions at the new school site. Students expressed a desire to meet students from all three partner sites of their collaborative program.

Creative online design and delivery ideas from students included more synchronized, short, concise, faculty-monitored classes, with inclusive and interactive discussions. Students also expressed that they would appreciate help to navigate course content, small class sizes, more clarity and consistency with guidelines and expectations, transparency between faculty and courses, and an understanding that each student's needs are different. Students noted that this "allowed [for their] voices to be heard" and they appreciated when faculty "asked how things are and how to support [their] learning." One student suggested that the faculty provide a survey before class. Having "lighthearted" and "fun" interactive learning activities, such as Kahoot, were emphasized as being important to students.

Enhanced faculty support and engagement suggestions included having extended office hours, giving timely email responses, listening to student concerns in a non-judgmental way, and doing weekly check-ins with students. Providing an outline for when assignments were due was also noted as helpful. Students suggested that the program host more town hall meetings in which students can share thoughts about the program and their experiences. Encouraging social connection via social media was expressed as an important message for faculty to reinforce with students. Students also shared that further faculty education on the use of technology and interactive online learning would enhance the student experience. Specifically, students suggested that "more breakout room usage in Zoom with the professor monitoring each group" would help to augment the learning experience.

Discussion

In this study, we explored students' sense of belonging in an online learning environment and identified strategies and supports to help foster their sense of belonging. The mean score on the Sense of Belonging Survey was 54.5%, meaning most students reported a weak or poor sense of belonging with their current online learning. It is important to note that the two survey items with the lowest scores, "I have met with classmates outside of classes to study for an exam" and "I invite people I know from my classes to do things socially," pulled the mean score down. This finding is not unexpected; students were not socializing outside of class during the COVID-19 pandemic. Data from the open-ended items explain the low scores from the other survey items. In particular, students identified specific examples in which they felt their sense of belonging was supported or hindered.

As a result of COVID-19 pandemic restrictions, social interactions were dismantled and led to forced isolation for students (Kunaviktikul et al., 2022). However, developing connections with peers and faculty was found to be an important factor in participants' sense of belonging. Other studies have also found that the online environment made it difficult for students to develop a strong sense of belonging and community with their peers and faculty (Beeson et al., 2019; Ebert et al., 2019; Langegård et al., 2021). Regarding satisfaction and engagement in an online environment, a few studies reported that the least important factor for students was relationships with peers (Gray & DiLoreto, 2016; Hampton et al., 2020; Hampton & Pearce, 2016); however, most of these studies were conducted with graduate students or nurses who were enrolled in bridging from diploma to degree program with at least one online course. Our study contradicts these previous studies, as we found that connection to peers was an important factor in fostering students' sense of belonging. Chatterjee and Correia (2020) found graduate students had a greater sense of community than undergraduate students. Our findings in this research add to these studies as undergraduate students were looking forward to attending secondary education and developing relationships in higher education.

Similar to other studies, we found that students' reduced sense of belonging may translate to a reduced sense of community, and this was noted in two areas: being educated in an online environment (Diep et al., 2017; Ebert et al., 2019; Pramana et al., 2022) and the impact of COVID-19 restrictions (Agu et al., 2021; Kunaviktikul et al., 2022; Li et al., 2020; Masha'al et al., 2020; Mukasa et al., 2021). In an online environment, the lack of social interactions hindered students' sense of belonging because they were not able to develop "friendship, cohesion, and bonding . . . as they enjoy one another and look forward to time together" (Schroeder et al., 2016, p. 251). In accordance with other studies, we found that for some students, the lack or limited ability to develop interactions with peers negatively affected their psychosocial environment and hindered their sense of belonging and learning (Langegård et al., 2021; Shah & Cheng, 2019). Several authors highlighted that online education limits students' opportunities to develop social interaction (Agu et al., 2021; Kunaviktikul et al., 2022; Langegård et al., 2021).

Consistent with the results of other studies, some participants felt that self-directed learning was isolating, diminished their sense of connectedness to faculty, and increased their study workload (Beeson et al., 2019; Ebert et al., 2019; Knight et al., 2021; Mukasa et al., 2021). Given the importance of connection and social interaction in enhancing a sense of belonging in an online environment, there is a need to draw attention to the faculty's ability to facilitate student engagement. Students' sense of belonging was hindered when there was a lack of faculty presence in the online environment (Langegård et al., 2021; Mukasa et al., 2021; Peacock et al., 2020). As with students' perceptions in our study, not all faculty had expertise in teaching nursing theoretical and practical courses online. The unprecedented nature of the pandemic forcing courses to be delivered online affected the ease of transition to this learning environment for nursing faculty. Faculty responses collected from other studies varied in nature and highlighted that some faculty had limited (to no) experience in online teaching (Badiozaman, 2021; Seetal et al., 2021). This lack of faculty expertise in the online teaching environment may have led to an overall reduced sense of belonging for students in our study. The importance of faculty preparedness in teaching online is supported in previous research studies (Agu et al., 2021; Ebert et al., 2019; Li et al., 2020).

Not all students reported a negative experience on the survey, and the open-ended items explained those findings. Similar to our findings, Skelcher et al. (2020), in their study of graduate students' experiences in an online program, found that variations in scores existed in students' sense of belonging. In our study, the survey data were supported by open-ended responses where students highlighted the importance of social relationships with their peers. Findings from our study support earlier studies that reported that students had a stronger sense of belonging when they were able to develop relationships with their peers (Peacock et al., 2020). This is similar to a study by Diep et al. (2017), who found that knowledge sharing and a sense of social interaction increased a sense of belonging in an online learning environment. The literature highlights that connectivity equates to feelings of community and involvement (Jamison & Bolliger, 2020), which then translates to an improved learning environment (Frye, 2020).

The social interaction extended beyond connections with peers or classmates and included the opportunity to develop formal and informal meaningful relationships with faculty. Our findings concur with other studies that indicated availability and connection to supportive faculty increased students' sense of belonging and community (Berry, 2017; Jamison & Bolliger, 2020; Schroeder et al., 2016). A sense of belonging was promoted when there were instructor-student interactions and instructors who facilitated social interaction between students (Jamison & Bolliger, 2020). For

example, social media, discussion boards, and online chats led to a sense of community and connection between peers and faculty (Berry, 2019; Jiang, 2017; McDaniels et al., 2016; Oliphant & Branch-Mueller, 2016).

Recommendations

Based on the results of this study, we provide some recommendations and strategies to promote a sense of belonging when teaching in an online environment for undergraduate nursing students. We encourage faculty to explore how they engage with students in fostering a sense of belonging and for nursing education programs to consider the type of strategies they use to elicit ongoing feedback from students. Additionally, we encourage faculty to be reflexive about their current teaching practices and further explore the techniques used to integrate online pedagogical approaches, based on students' suggestions, to mitigate stressors, foster emotional well-being, enhance a sense of belonging, and facilitate student success. In particular, we found that social media, online interactive tools, and diverse and creative learning options support students in their desire to belong in an online learning environment.

Limitations

One limitation of the study was that convenience sampling was used; this type of sampling may result in selection bias. Students with a special interest in a sense of belonging in an online learning environment may have volunteered to participate in the study, and the sample may not fully represent the student body. Another limitation was that the response rate for the survey was 49%. While low, that may be considered satisfactory for an online survey (Polit & Beck, 2021; Singh & Thirsk, 2022). The response rate may have been related to some online fatigue and stress students felt during the pandemic.

Conclusion

In this paper, we described undergraduate nursing students' sense of belonging in an online learning environment during the COVID-19 pandemic. Our mixed-method design, a mix of survey and open-ended questions, proved effective. The open-ended questions complemented the survey as they revealed explicit student experiences and allowed for further exploration of the opportunities and challenges in the online learning environment by specifically identifying the factors that impacted students' sense of belonging.

A strong sense of belonging is important to student engagement and success. The rapid transition from in-person to online learning presented unique opportunities and challenges for faculty and students, making it particularly important to understand the factors that hinder and support a sense of belonging in online learning environments. Students' perceptions and the recommendations identified in this study may help faculty increase students' sense of belonging in their online courses.

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