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The collective classroom *"we"*: The role of students' sense of belonging on their affective, cognitive, and discourse experiences of online and face-to-face discussions

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Highlights:

- Across modes, more belongingness was tied to more enjoyment, utility, involvement.
- Lower-belonging students felt most comfortable in online discussions.
- Lower-belonging students felt judged by peers, yielding negative affective experiences.
- Patterns in students' use of the pronoun *We* aligned with their sense of belonging.

Abstract

This study examined how graduate students' sense of belonging reflected their cognitive and affective experiences and their discursive engagement in three classroom discussion environments: face-to-face, and synchronous and asynchronous computer-mediated discussions. Self-report surveys at mid-semester identified higher and lower belongingness students. Mid-semester and end-of-semester ratings allowed exploration of cognitive/affective factors. Online discussion transcripts were analyzed to determine how higher-belonging and lower-belonging students used the pronoun *We*, with codings ranging from close (*immediate*) to more distant connections (*far generic*). Findings were that higher-belonging students reported higher levels of enjoyment, usefulness, and involvement. Lower-belonging students expressed sensitivities to peer judgment. As for their discourse, higher-belonging students posted more *We* instances than lower-belonging students in both online discussion formats. In synchronous discussions, higher-belonging students used more *immediate We* pronouns, whereas lower-belonging students used more *far generic We*. Understanding students' experiences may aid educators in designing classroom discussion that supports learning and social-emotional well-being.

Keywords: classroom discourse, sense of belonging, online discussion, discourse analysis, modes of communication, student affect

The collective classroom "*we*": The role of students' sense of belonging on their affective, cognitive, and discourse experiences of online and face-to-face discussions

Introduction

Our purpose in this study was to explore advanced learners' self-perceptions of cognitive and affective experiences across different academic discussion environments in their classroom community. We aimed to examine how students' individual experiences and perceptions (e.g., perceived usefulness, sense of belonging to class, level of comfort) were reflected in their discursive engagement with course ideas in face-to-face classroom discussion as well as synchronous and asynchronous computer-mediated discussion settings.

Online Discussion for Learning

According to socio-constructivist perspectives, learning is a constructive process embedded in social and cultural contexts (Vygotsky, 1978). Aligned with this theoretical framework is an emphasis on learning as collaborative work by students building knowledge together, especially when a classroom encourages processes of community building, information sharing, negotiation, and discussion (Volet et al., 2009). Research has indicated that computer-mediated discussion affords a venue for socially situated collaborative learning because it supports interactions and active participation among students, whether the discussion is asynchronous (i.e., delayed time) or synchronous (i.e., real time; Chou, 2001; Park et al., 2015; Vogler et al., 2013; Vogler et al., 2017; Williams et al., 2016; Zengilowski & Schallert, 2020)).

Even before the move to remote instruction caused by the pandemic, instructors were including computer-mediated discussion (CMD) in college classrooms, a pedagogical practice that has been investigated for its effect on intellectual, affective, and social processes (Faigley, 1992; Fehrman & Watson, 2021; Luppicini, 2007; Wade & Fauske, 2004). As has been found with face-to-face classroom discussion (Anderson et al., 2001; Pacheco et al., 2019; Wells,

1987), CMD supports learning through allowing students to express uncertainty, resistance, and alternative viewpoints, and to discuss emerging understanding of course concepts (Jordan et al., 2014; Lee et al., 2011; Williams et al., 2016). Learning also happens by reading others' comments in an online discussion (Wilton, 2018; Zengilowski et al., 2018), where attending or "listening" to others can lead to knowledge constructing talk (Delahunty, 2018).

In asynchronous CMD, students contribute when it is convenient for them. This affords students the opportunity to organize their thoughts deliberately (Brierton et al., 2016; Hew, 2015) and engage in higher-order thinking skills (Al-Husban, 2020; Bjork et al., 2014; Zheng et al., 2018). In synchronous CMD, learners engage with each other in real time, enabling them to resolve uncertainties or misunderstandings quickly, which may help students develop ideas in line with course content (Jordan et al., 2014; Kim, 2014; Peterson et al., 2018; Szpunar et al. 2014). Foundational to this literature is the idea that learners use online discussion spaces to share diverse ideas, opinions, and uncertainties as a means of co-constructing knowledge.

Understanding how learning in CMD occurs requires an appreciation of its foundation in language processes. Vogler et al. (2013) described the practices essential to participating in CMD that show their contrast to more traditional classroom activities: "reading, writing, initiating, and responding converge and vie for attention, with reading and writing reflecting and influencing [...] thinking processes," thereby requiring "students to shift quickly among these processes, or even engage in them simultaneously" (p. 212). The challenges associated with such a coordination of processes are offset by beneficial effects of CMD-based classroom activities on students' learning experiences. For example, compared to face-to-face discussion, CMD has been found to provide students with greater opportunities to exchange different perspectives and negotiate divergent viewpoints with others, crucial for deep and meaningful learning (Aloni &

Harrington, 2018; De Wever et al., 2010; Lee et al., 2011; Vogler et al., 2013). Moreover, students are likely to experience less apprehension from peer evaluation and feel safer about sharing personal opinions when participating in online text-based discussion (Graham, 2019; Lim & Hall, 2015). Thus, CMD seems to offer a 21st-century venue for language processes in general, with a particular affordance for conversations that are meant to support learning.

Sense of Belonging

Before discussing the nuances of *belonging* in online spaces, we felt it important to consider belonging in the greater context of these graduate students' lives. Specifically in the realm of higher education, belonging consists of students' "perceived social support on campus, a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group (e.g., campus community) or others on campus (e.g., faculty, peers)" (Strayhorn, 2012, p. 3). Sense of belonging in the classroom has been commonly conceptualized as students' perceptions of being personally and academically accepted, valued, and supported by teachers and peers (Freeman et al., 2007; Goodenow & Grady, 1993; Kim et al., 2012; Osterman, 2000; Wilson et al., 2015). Previous research has highlighted how students' sense of belonging can be tied to race, ethnicity, and gender (Gray et al., 2018; Hurtado & Carter, 1997; Johnson et al., 2007), interacting with academic domain (e.g., STEM fields; Chemers et al., 2011), in addition to mentoring, professional, and organizational networks (Curtin et al., 2013; Lovitts, 2001) that could lead to relationships with similarly identifying peers (Tull et al., 2012). Further, feelings of class-level belonging show connections to students' motivations (academic self-efficacy, intrinsic motivation, and task value) and perceptions of their instructors (e.g., how encouraging they are of student participation; Freeman et al., 2007). Sense of belonging also predicts the use of adaptive help-seeking strategies (Payne

et al., 2021; Won et al., 2021). Importantly, students' identities and histories, in addition to their perceptions of university- and class-level factors, play dynamic roles in their conceptions of belonging in a particular class.

Belonging in Online Discussions

Despite the growing interest in the beneficial effects of CMD on students' learning, there has been relatively little research on how CMD contributes to students' social-emotional experiences, including feelings of belonging and engagement. Some researchers have argued that, because these online environments provide an equal opportunity to participate, thereby fostering a sense of community, students experience an increase in engagement in CMD environments (Luppicini, 2007). These CMD experiences, however, need to be structured and modeled intentionally to ensure learners are comfortable being vulnerable in sharing their perspectives and ideas (Delahunty, 2018; Song et al., 2021). If not, students may feel disconnected, lonely, and unengaged in online spaces (Lander, 2015; Schallert et al., 2003-2004; Sung & Mayer, 2012). Despite the research evidence confirming positive associations between sense of belonging and engagement with learning in the classroom, little research has examined to what extent such association could be rooted in various types of collaborative learning activities, including online discussion (Luppicini, 2007; Peterson et al., 2018).

Indeed, some researchers have suggested that, even though CMD is low in social context cues, students in CMD environments can actively engage with their peers and teachers, and consequently build a strong sense of community online (Fehrman & Watson, 2021; Gunawardena, 1995; Rovai, 2002), as long as discussion participants attend to one another and their ideas (Delahunty, 2018). To this point, Zengilowski et al. (2015) focused on the effect of small discussion groups on engagement in an online course that enrolled 270 participants. Small

groups led to an increase in the number of contributors and contributions each week relative to a

previous semester when groups involved more than double the number of students per group.

Smaller cohorts had higher proportions of active participants than the larger groupings, perhaps

because smaller groups created environments in which students felt more accountable to each

other and more comfortable posting their ideas. This finding aligns with Whiteside's (2015)

conclusion that being active, or socially present, in small groups may foster stronger feelings of

belonging than in larger groups.

Belonging Expressed Through the Use of "We"

With an interest in online interactions and community building, previous research has

examined the ways students participate in CMD by establishing particular *footings* through use

of words and ways of taking up others' utterances, thereby expressing their positioning relative to

class members (Davies & Harré, 1990; Williams et al., 2016). *Positioning* refers to the ways that

speakers/signers/writers orient themselves toward a community and reflect their degree of

involvement in it. According to Annese and Traetta (2010), descriptions of oneself as belonging

to a *We* that represents the whole community expresses an internal collective positioning. Thus,

the use of the pronoun *We* seemed particularly interesting as a way to connect individuals' means

of expressing themselves and their varying senses of belonging or being connected to their

interlocutors.

Investigations into uses of the term *We* have considered the broader meanings and

implications associated with its use. Linguists have noted that *We*, at least in English, has an

inclusive (I + you) and an exclusive (I + they) form (e.g., Helmbrecht, 2002; Uzum et al., 2018),

that allows the speaker/signer/writer to change their footing (Goffman, 1981) without changing

the pronoun (Rounds, 1987). *We* can signal a user's membership to distinct communities or

groups, establish their social identities, and facilitate relationships or a sense of solidarity with their listeners/readers (Helmbrecht, 2002; Kuo, 1999; Muthi'ah et al., 2022; Uzum, 2013).

Several studies have considered teachers' use of *We* in the context of their classrooms and students (e.g., Rounds, 1987; Uzum, 2013), with Muthi'ah et al. (2022) noting that teachers of English as a foreign language used *We* in six distinct ways (Speaker + more than one addressee, + more than one third party, + indefinite group; indicating "I," "you, " "they"), with hopes of motivating students to create inclusive learning environments. Extending outside of the classroom, Kuo (1999) reported that writers of scientific articles employed *We* with five different meanings (writers; writers + readers; writers + researchers; the discipline; ambiguous). Beyond these considerations of how teachers, academic writers, and more generic speakers/signers/writers use the term *We*, it would seem important in educational environments to examine the ways students use language intentionally with one another to express their positionings, identities, and experiences. Thus, for our study, we were interested in graduate students' use of the pronoun *We,* anticipating that it would provide a window into students' social and emotional experiences when learning, interacting, and writing in CMD environments.

Rationale and Research Questions

In this study, we investigated a graduate class that used three forms of discussion, face-to-face oral discussion as well as synchronous and asynchronous CMDs over the course of a 15-week semester. We sought to understand students' perceptions of themselves and their relationship to the classroom community through microanalysis of students' online "talk" and through survey responses. Our research questions were:

    (a) How do graduate students with different levels of perceived belongingness report on their experiences, in terms of perceptions of involvement (psychological engrossment or deep

attention), enjoyment, usefulness for learning, and comfort participating in different

modes of academic discussions?

(b) How do graduate students with different levels of belongingness use the pronoun *We* in

expressing themselves in different online discussion modes?

Method

Setting

We, the researchers, had access to a graduate-level course in educational psychology

taught at a U.S. public university before the pandemic. The course, devoted to various concepts,

theories, and key research studies related to human learning, was organized as a hybrid class

allowing for three discussion modes as a means for students to express their opinions, ask

questions, and help one another gain a solid understanding of course material. Each class session

was 2.5 hours long and consisted of a mix of in-person lecture and face-to-face discussion,

though students were encouraged to interject at any point as the instructor lectured. During the

last 15 to 30 minutes of class time, all members of the class, including the teacher, engaged in

synchronous CMD while seated together using their personal laptops. This activity was meant to

serve as an extension of the previous discussion and to allow students to raise any lingering

questions or bring up new topics that had not been introduced during the face-to-face time.

A third discussion mode involved asynchronous online discussion and occurred at three

time points across the semester, replacing in-person class meetings. For a given asynchronous

discussion, students had 48 hours to post comments about assigned readings, with a minimum

requirement to post three times (either by initiating a thread or responding to someone). It was

agreed upon by the students that they would post one comment within the first 24 hours to

facilitate robust discussion. During each asynchronous session, the teacher created individual

boards, one for each of the week's assigned readings. Students posted their musings in the respective thread but were not required to participate in all three boards.

Participants

The participants were the ten students enrolled in the educational psychology course. Nine identified as female and one as male. Although all were part of the College of Education, their concentrations differed: special education, curriculum and instruction, educational leadership and policy, educational psychology, and a teaching preparation program. Five students were in their second year of their program, and others in their first or third years. The age of students ranged from 23 to 59, with a median age of 29.5-years-old. Most students identified as White (6), with the remaining students identifying as Hispanic/Latino/Spanish-origin (2) and Asian (2). Of the three international students in the class, one was raised in an English speaking country; for another, English was not the person's first language, though schooling had been conducted primarily in English; for the third student, English was a second/foreign language and the majority of schooling had occurred in the person's first language.

Students had had some experience with online asynchronous postings (9 of 10) but not as much familiarity with in-class, synchronous modes of online discussion (4 of 10 had engaged with synchronous discussions). As this study was conducted before the pandemic, these students were accustomed to and were meeting in-person for most of their classes.

Data Sources

The primary data source came from downloaded transcripts of the online discussions, both synchronous (8) and asynchronous (3 threads in 3 sessions = 9 total), as well as coherence graphs for each CMD (Figure 1). Given that, in synchronous online discussions, students' posts

arrive at times that do not represent the linear development of a topic, constructing a coherence graph displaying the interconnections among posts is useful. These connections are determined during analysis based on such indicators as naming the person to whom one is responding, mentioning key words from a previous post, or announcing the start of a new topic (Schallert et al., 1996). A third data source involved observational notes taken by a member of the research team that documented who spoke in the face-to-face discussions.

Figure 1

Excerpt From a Coherence Graph for Synchronous Computer-Mediated Discussion
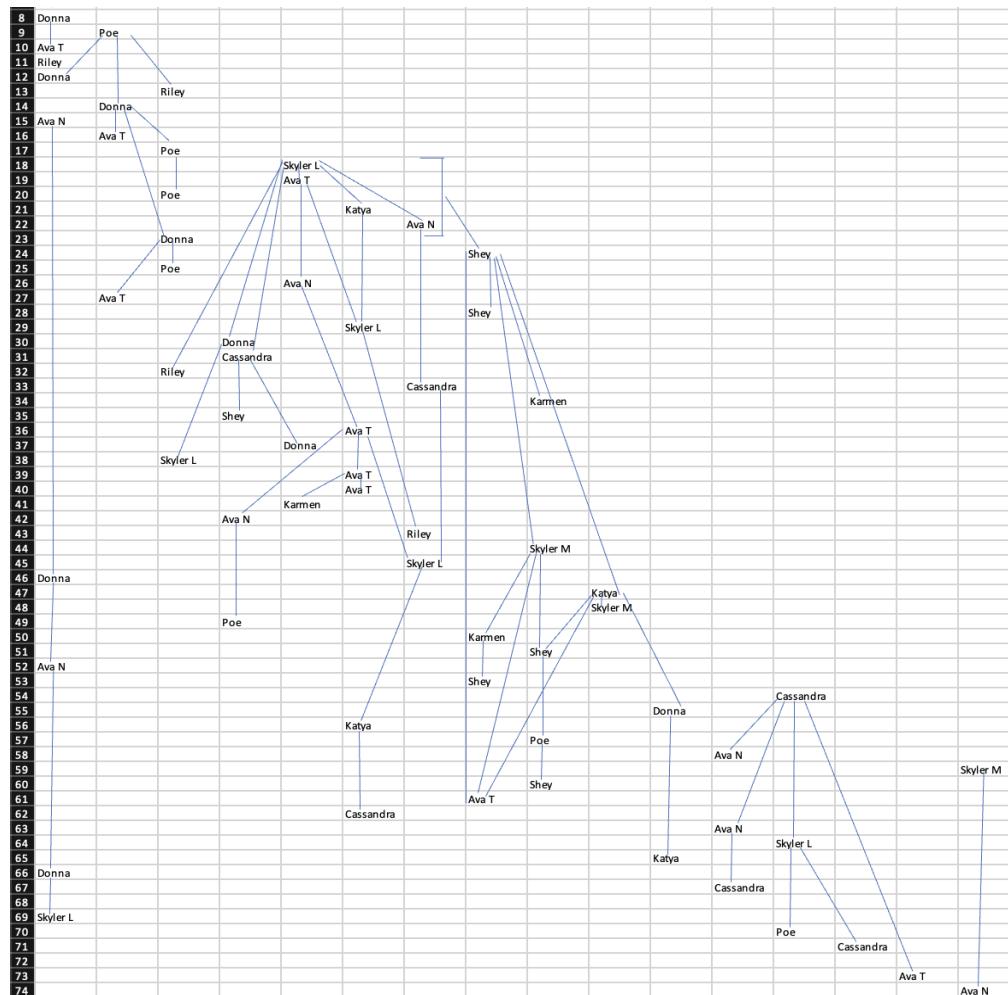
Note. Numbers on the left indicate the order in which comments were posted, with the names of comment authors listed in the cells. Lines show to which comments students were directly responding (connected lines) or generally referencing (bracketed lines).

In addition, three surveys were administered at the beginning, middle, and end of the semester. These surveys asked students to evaluate their experiences with classroom discussions using rating scales to measure their feelings of comfort, enjoyment, involvement, and usefulness across the three discussion contexts (face-to-face, online synchronous, online asynchronous). Along with demographics, the first survey asked students to provide their ratings based on reflections on past experiences with classroom discussion, including both face-to-face and online modes, if they had experienced such in the past. The second and third surveys asked about students' experiences in the three course-specific discussion modes. A final data source came from an end-of-semester course assignment, a self-reflection essay, prompting students to describe their experiences in the modes of discussion.

The students were informed at the beginning of the semester that their responses to surveys and their postings in the online discussions were being considered for a research study, and that they would have a chance to agree to the use of their data as part of research after the course had ended and their grades had been posted. This was the procedure approved by the institution's IRB for conducting classroom research so that students would feel free to participate in the course and nevertheless have the chance to refuse consent once the course was over. All students agreed to our use of their data. All names in this report are pseudonyms. We assigned the same first name and used a distinguishing last name initial for two pairs of students in order to capture the fact that students sharing the same name created a potential source of confusion when students responded to each other in discussions.

Data Analysis

Our first step was to analyze students' responses to the surveys. We used the survey at midpoint of class to create two groups of students, the five who rated themselves as experiencing

higher levels of belonging across the three mediums and the five reporting lower levels of

belonging (see top panel of Table 1 for mid-semester group means and ranges of scores in each

mode). Sense of belonging was measured by averaging students' responses to four items adapted

from Freeman et al. (2007): (a) perceived care from other students in this course, (b) feelings of

isolation (reverse coded), (c) being a part of the class, and (d) acceptance from teacher and

classmates. These items used 5-point scales at mid-point, but to compare more easily across

other variables and the data collected at the end of the semester, we converted them to a 7-point

range. Note that the two belonging groups included an equal number of students representative

of racial/ethnic demographics. Two of the international students were part of the lower-

belonging group, with both having completed most/all of their prior education in English. The

third international student, the one male student in the class who had learned English as a foreign

language, had self-ratings that placed him in the higher-belonging group.

Having formed these two groups, we compared mean levels of feelings of comfort in

participating, involvement in, enjoyment of, and usefulness for learning from each of the three

kinds of discussion, with one item used to measure each of these qualities of students'

experiences. Quantitative analysis involved calculating the means and range of scores for the two

groups on all measures. Due to our small sample size, we relied on a descriptive approach and

did not test for statistical significance. Within each of the two reference groups (i.e., lower- and

higher-belonging), participants' ratings on the target measures were averaged separately for each

discussion mode (i.e., face-to-face, synchronous, asynchronous). The mean scores of each group

were calculated for both time points (i.e., mid-semester and end-of-semester). All items are

presented on 7-point rating scales.

Table 1

Means and Ranges of Students' Belonging Scores by Mode, Group, and Time Point

	Higher Belonging (n=5)				Lower Belonging (n=5)			
	Mid-Semester							
	F2F	SCMD	ACMD	Overall Mean	F2F	SCMD	ACMD	Overall Mean
Mean	6.5	6.8	5.2	6.1	4.8	5.3	4.6	4.9
Range	5.9-7.0	6.3-7.0	4.0-6.3	5.6-6.8	3.5-5.9	3.0-6.3	4.3-5.0	3.8-5.3
	End-of-Semester							
	F2F	SCMD	ACMD	Overall Mean	F2F	SCMD	ACMD	Overall Mean
Mean	6.2	6.0	5.7	6.0	5.3	5.5	4.5	5.1
Range	4.5-7.0	3.3-7.0	3.3-7.0	4.6-7.0	4.0-6.0	2.5-7.0	3.8-5.3	3.6-5.9

Note. Discussion modes are presented as follows: F2F (face-to-face), SCMD (synchronous computer-mediated discussion), ACMD (asynchronous computer-mediated discussion).

We employed content analysis within a discourse analytic approach (Hardy et al., 2004). To begin our qualitative analyses, two members of the team inductively created a coding scheme for the term *We*, based upon three randomly selected synchronous CMD transcripts. This initial coding, brought to the whole team for consensus discussion, resulted in six final codes: *close generic*, *far generic, external immediate, immediate, third-person*, and *imperative* (see Table 2 for the final set of codes, definitions of each, and examples from synchronous and asynchronous transcripts). Another transcript was coded by four research team members in order to calculate intercoder reliability, which ranged from .60 to .90, with an overall average reliability of .77. Next, all transcripts were coded by pairs of researchers, with the few remaining questions resolved at team consensus meetings.

Finally, we triangulated quantitative and qualitative data, using the coding of students' references to *We* to help elucidate survey results about students' levels of comfort, involvement, enjoyment, utility, and belonging as informed by our reading of students' self-reflection essays. In this final pass, we took each discussion mode in turn and considered how students with higher and lower levels of belonging to the classroom community had changed across the semester.

Findings

Research Question 1

In our first research question, we asked whether students of different levels of belonging reported varying experiences of involvement, enjoyment, utility for learning, and comfort participating in different discussion modes. In answer, we examined students' reported ratings of their affective/cognitive experiences in different modes of academic discussions, using mid-semester and end-of-semester responses to the surveys.

Our first step was to corroborate students' assignments to the two belonging groups. Having formed the two groups based on mid-semester survey responses, we wanted to explore whether they still differed in their perceptions of belonging to the class in each mode by semester's end. As shown in Table 1, when considering means across discussion modes, the higher-belonging group (HB) reported higher levels in belonging than the lower-belonging (LB) group at both time points and for each of the three modes.

However, complications arise when looking at scores more closely. First, the LB group reported increasing levels of belonging in face-to-face and synchronous modes of discussions from mid-semester to end-of-semester, remaining essentially the same for the asynchronous mode. In contrast, the HB group reported slightly decreasing levels of belonging in the face-to-face and synchronous discussion modes, and increasing levels in the asynchronous mode.

Second, two individuals who had been assigned to the HB group at mid-semester (Poe and SkylerM, both reporting belonging levels above the highest individual in the LB group) did not express mean levels of belonging at semester's end that surpassed all individual belonging scores from the LB group. For example, Poe rated himself as having a high sense of belonging at mid-semester but had dropped to a level lower than most of the students in the lower-belonging group by semester's end. As the only man in the class and the only student who had been raised and schooled in a non-English-speaking country, he noted feeling he was different from the other students. He reported he often did not understand his classmates' comments, especially when they alluded to culturally bounded information, potentially hindering his perceptions of belonging to the classroom community (Anderson, 2017).

Given that roughly half of the course discussions had occurred by the time of the mid-semester survey and we could not verify where the shift in belonging occurred for these two students, Poe and SkylerM, we kept them in the HB group for the purposes of our analyses. This decision was supported when we examined the number of contributions each individual made to the face-to-face discussion, which showed that both HB and LB groups had individuals who made frequent and infrequent comments in class (HB: 17-119 total comments; LB: 11-187 total comments). Although Poe and SkylerM were among the more infrequent "talkers" in class, their rate of in-class comments was relatively stable across all class sessions. Also, there was at least one "quiet" student in each group (HB: Karmen; LB: AvaN) who remained consistent in their self-ratings of belongingness across the semester. Thus, rate of talk in class did not seem to coincide with belongingness ratings. We discuss potential indications, reasons, and implications for these shifts in later sections.

Figure 2

Mean Scores on Cognitive and Affective Measures for Higher-Belonging and Lower-Belonging Groups at Mid- and End-of-Semester
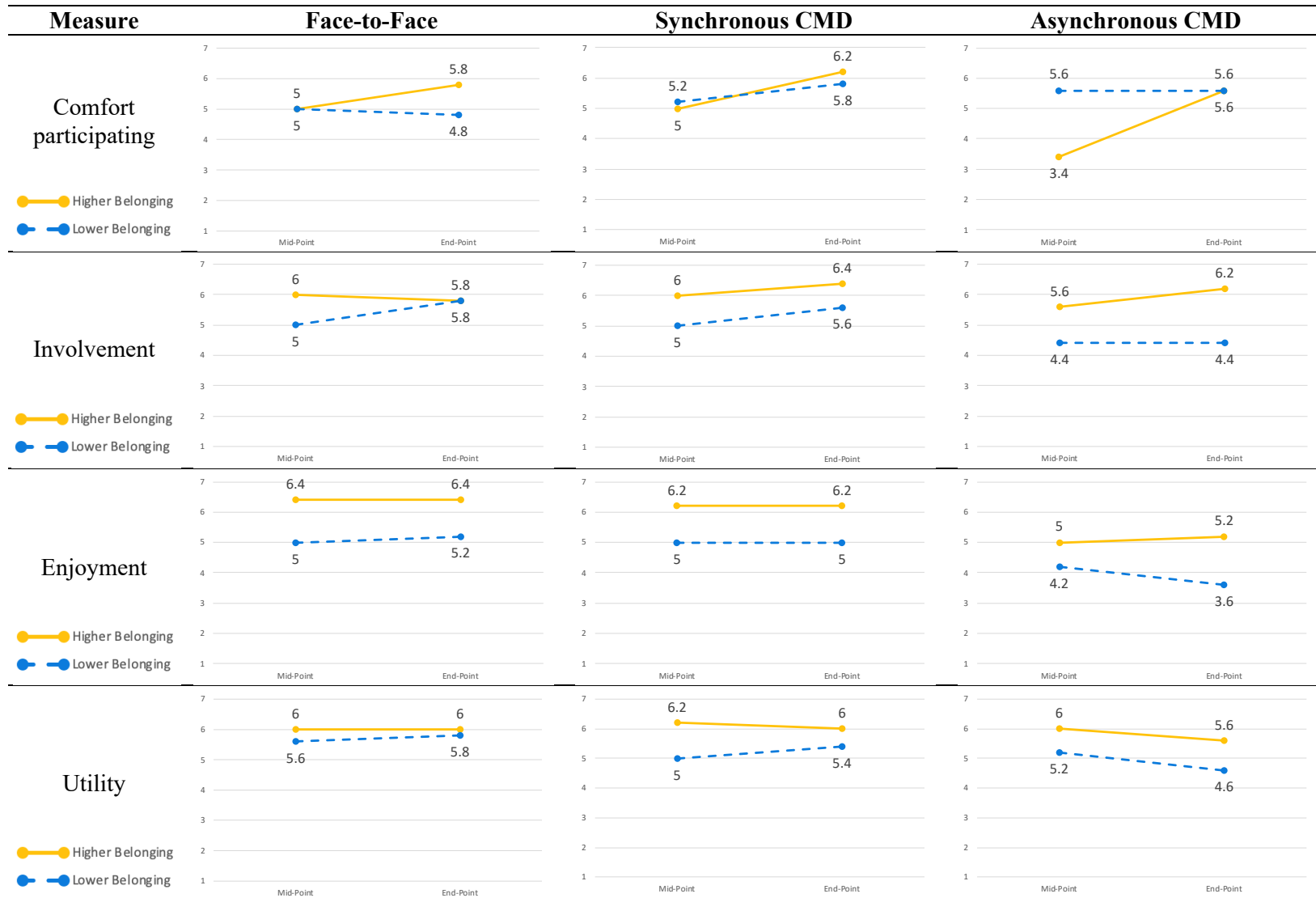
Our second step was to compare the two groups on each of the other scales. The higher-belonging (HB) group reported increased levels of comfort participating in discussions across the semester in all three modes of discussion, whereas the lower-belonging (LB) group's comfort decreased slightly in the face-to-face mode (0.2 points), remained the same for asynchronous, and increased for synchronous discussions. The degree of change in face-to-face discussion was greater for the HB than the LB group, as was the degree of change in the asynchronous mode. Overall, those who had lower levels of belonging felt equally comfortable participating in the synchronous and asynchronous discussions, and least comfortable in face-to-face discussion. In comparison, the HB group felt more comfortable participating in the face-to-face and synchronous discussions, and less comfortable in the asynchronous discussions, particularly at mid-semester.

For involvement, the HB group reported similar and high levels of involvement at mid-semester and semester's end in the three discussion modes, ranging from 5.6 to 6.4. The LB group reported increasing levels of involvement from mid-semester to end-of-semester in face-to-face and synchronous modes and similar levels in asynchronous discussion; however, their mean scores were all lower than those of the HB group except in the face-to-face discussion where they converged with the HB group at semester's end.

Although the lower-belonging group was lower in level of enjoyment than the higher-belonging group when participating in all three modes of discussion, the two groups reported generally similar levels across the semester. In the asynchronous mode, however, the LB group reported a decreased level of enjoyment at semester's end, dipping to a point below the midpoint of the scale.

In terms of usefulness to one's learning, the LB group reported increased levels of perceived utility for face-to-face and synchronous discussions across time points. The HB group showed high levels of judging these two discussion modes as useful to their learning, at 6.0 and 6.2. In addition, both groups reported decreasing levels of perceived utility for the asynchronous mode, and the degree of change across time was greater for the LB group.

Noteworthy patterns also emerged from students' open-ended survey responses. One question asked participants if and how their feelings of comfort in contributing to the varying discussions had changed since the beginning of the semester. LB students' responses frequently focused on worries about others' perceptions of interactions or contributions. Both AvaN and Cassandra, for example, explained that they had low levels of participation because they preferred answering direct questions addressed to them specifically or responding to others' contributions as opposed to contributing unsolicited ideas. SkylerL and AvaT, also members of the LB group, identified how the norms of each discussion format contributed to their levels of comfort. Both appreciated the relaxed timing of the asynchronous conversation but felt the synchronous discussion moved too quickly for them to reflect, with SkylerL mentioning the "pressure to respond quicker" in this medium. AvaT explicitly stated that she felt "self-conscious" about her contributions, noting that the synchronous "online discussion gave me the impression that conforming to the social norms of this group would require a significant limitation on my speech." Being concerned about judgment from her peers may have made AvaT feel that she needed either to reduce the number of comments she made or reduce the length of any one comment, limiting her ability to shape the conversation and contribute without monitoring herself.

Although more frequent in the LB group, we did note one HB participant, Poe, with concerns about his participation levels in the synchronous discussions. After taking the time he needed to formulate a comment, he often found his peers had moved on to new ideas. Not surprisingly, his comments did not elicit many responses from other class members. These repeated experiences eventually had the effect of leaving him disconnected from the conversation, "embarrassed" in his words, by feeling that his comments were not timely. "Over and over again I almost gave up participating in the synchronous discussion. In the end I could only make some brief comments to show my existence." Over time, Poe's goal in posting had become merely to "show [his] existence" as a member of the class, even if he believed his comments did not advance the discussion or his own learning.

When students were asked to explain why they felt the level of belonging they had identified for each medium, differences between the higher- and lower-belonging students were once again evident. Those who felt a greater sense of belonging addressed aspects such as the flow of conversation or their experiences learning from interactions with others. LB students differed in that they included more emotional reactions and perceptions in their responses. For example, Cassandra noted how "asynchronous discussions feel very isolating because everyone is concerned with style, length, etc.," whereas AvaT expressed how it was easier to feel a sense of belonging when she was not putting herself "in the position of an object of judgment." This difference also manifested in the language students used to express their relations to others in the discussions. For example, two students made similar comments that the face-to-face discussion allowed them to see others' reactions and to clarify ideas. SkylerM, a higher-belonging student, stated this idea without embellishment, whereas SkylerL, a lower-belonging student, qualified the sentiment, noting it is "easier to [be] emotionally invested in what people are saying." As

evidenced in their open-ended responses, lower-belonging students seemed to report a heightened sense of perceived judgment and incorporated more affective sentiments into their evaluation of classroom discussion environments than higher-belonging individuals.

Alternatively, there may exist a mutually reinforcing relationship between students' feelings of belonging and their concerns about being judged by peers. When made to feel welcome and part of a group early on, it is possible students will have fewer concerns about being judged by fellow learners. This may apply even to students who, by virtue of circumstances such as taking an out-of-major course or realizing they are under-prepared for the content, or by virtue of a personal disposition to feel cautious when joining new groups, may feel some distance from a classroom group.

Summary of Findings for Research Question 1

In sum, several trends were evident over the semester for each belongingness group. The HB students consistently reported higher levels on all measures (i.e., comfort participating, involvement, enjoyment, and usefulness) than their LB peers, for all modes of discussion except for their feelings of comfort in synchronous and asynchronous CMD at the semester's mid-point. At both time points (mid-semester and end-of-semester), the HB group's responses were all above the midpoint, 4 on the 7-point scale, for comfort, enjoyment, usefulness, and involvement. For the LB group, ratings were nearly always lower than the HB group's responses and remained stable or increased from mid- to end-of-semester, except in a few instances where they decreased. The LB group converged with the HB group at semester's end on involvement in face-to-face discussions, and comfort participating in asynchronous conversations. Based on their self-reflections, we found students with lower feelings of belonging to express more sensitivity to peer judgment.

Research Question 2

For our second research question, we wanted to explore whether students with different levels of belongingness expressed themselves and participated in distinct ways across different modes of discussion, specifically looking at their use of the term *We* as a marker of whom someone is including in relation to themselves. Before reporting on how the two belongingness groups of students used *We* in their postings, we discuss the codes we developed.

Defining the Codes

Of the six categories we identified in students' use of *We* (Table 2), the two codes most distinct from each other are *immediate We* (personal and literal) and *far generic We* (broad and abstract/theoretical). An *immediate We* code was used whenever *We* referenced fellow members of the class. Comments with *immediate We* codes frequently involved students citing a specific reading from the course, connecting to ideas discussed in the face-to-face conversation preceding the online discussion, or describing group dynamics/actions. For example, AvaT contributed to an asynchronous conversation saying, "...It reminded me a little of the approach Conley took in the article *we* read last week..." (ACMD 1c); and in a synchronous discussion, Cassandra re-introduced an idea, "...and just today *we* talked about how the culture of one classroom can be different from the one across the hall" (SCMD 4/24). Meanwhile, AvaN brought up class dynamics in an asynchronous post, stating "...I feel like our co-construction of knowledge is diminished in the face-to-face setting in that *we* aren't helping each other work through ideas and problems as frequently as *we* do in the synchronous forum" (ACMD 3b).

In contrast, for *far generic We* codes, students used *We* to refer either to a broad category (e.g., "Western Society"), or to an abstract "everyone" without explicitly identifying any specific category or group. Postings where this code was applied varied in their content, but frequently

addressed abstract, common, or pervasive ideas. For example, while discussing conceptual

change in an asynchronous post, Katya posed, "So, say in the case of our supposed gun advocate,

we were to somehow [be] able to circumvent the backfire effect and educate them on the need

for gun control" (ACMD 2a). Where Katya's comment addressed a hypothetical, yet plausible

situation, Shey addressed humans' general lived experiences in a synchronous post: "As *we* get

older, not only do *we* develop more specific interests, *we* also have more difficulty learning

things that are outside those interests" (SCMD 2/20). With both the *immediate* and *far generic*

We codes, all members of the class could consider themselves part of the group indicated by an

individual's use of the pronoun *We*.

For *close generic* and *external immediate* codes, the use of *We* refers to a particular

group. For *close generic* codes, students used *We* to refer to a specific group of which they, and

potentially some of their classmates, were members. The most common groups referenced or

implied with close generic comments were *teachers*, *educational researchers*, or *members of*

academia. The majority of students in the class had either been teachers previously, were

teaching classes currently, or were in their last semester of a teaching preparation program. Riley

had been an educator before enrolling in graduate school and frequently drew upon her

experiences when making comments and when addressing other teachers in the class.

Responding in a synchronous discussion to Katya, who was in the teacher preparation program,

Riley made reference to their shared identities using the *close generic We*: "@Katya I think your

point is important to remember as teachers; both that *we* need to be adaptive and that *we* need to

help our students learn many different strategies in order to be adaptive" (SCMD 2/20). In

contrast, AvaN, who was not (nor had been) a teacher, enacted a *close generic We* to identify

herself as a member of the academic community, but explicitly distanced herself from the group

of teachers in the class. She stated, "I think it is so much more important than *we* realize what

kind implicit and explicit messages are being conveyed to students across identities (females,

POC, dis/ability, primary language etc.) by the very people who are teaching them" (ACMD 1a).

Although all students in the class were members of the academic community by nature of their

enrollment in graduate school, AvaN's comment seemed to work to distance herself from the

teacher group that often dominated the class discussions.

External immediate We codes were applied when students positioned themselves as a

member of an existing group that was not part of the class, indicating closeness or connection to

a group outside the current classroom community. For example, SkylerM, when discussing how

members of this class interacted with each other, brought in an example from another course in

which she felt closer to her classmates.

> Because of our history and the trust that has been instilled in our relationships over time,
> I notice us interacting more fluidly and informally, almost, during our discussions, since
> *we* know one another's backgrounds, expertise, and experiences, and are able to tailor our
> questions as such to our peers, whereas in this course, many of us come from different
> areas of study, or even places in the world, or different generations. (ACMD 3b)

This coding also appeared when students raised problems or questions that they expected fellow

class members to help them address because of their lived experiences or simply in pursuit of

commiseration. In one asynchronous discussion, students were discussing how to ensure teachers

assigned students to productive groups. Being part of the teacher preparation program, Katya

contributed, "With the teacher-determined grouping that my CT [cooperating teacher] and I

implemented, *we* did alleviate a lot of distracted chatter, but it resulted in the rather unhappy and

unsuccessful groups that I mentioned previously" (ACMD 3a). While connecting with a group

that was outside of this class, she still identified herself as a teacher, which may have been a

point of connection for the other educators in the course.

As for the last two kinds of *We* codes, the *third person* and *imperative We*, these were extremely rare, though interesting. We had only one instance of a third-person *We*, with Riley re-voicing the words of a person with whom she did *not* want to be associated: "I do think that it is also that 'group' work does need to be taught AND modeled. I think it is old pedagogy, probably a misunderstanding of socio-culture theory: 'Oh, **we** are doing things together, so that is social'" (SCMD 4/3). As for using *We* to mean *you* in an implied imperative, only the course instructor used the word in this way and only twice, as when she said, "**we** shouldn't assume either that the direction is one way nor that it's a causal connection" (ACMD 2b).

Table 2

Coding Scheme for "We" from Synchronous and Asynchronous Computer-Mediated Discussions (CMD)

Type of *We*	Example
Immediate *We*: Refers to individuals in the class/chat.	Shey: Riley, I'm going to add to the comment you made before **we** started the online portion... (SCMD, 4/24)
	Ava T: It reminded me a little of the approach Conley took in the article **we** read last week, as they both seem to be moving towards an integrated approach that embraces the complexities of human behavior. (ACMD 1c, January)
Far Generic *We*: Refers either to a broad category (e.g., "Western Society") or does not refer to a specific category explicitly, but implies that *We* means it applies to some abstract "everyone."	Cassandra: @ Riley […] I'm also thinking that when **we** learn information from the internet, **we** also engage in a very active participatory process. (SCMD, 3/27)
	Karmen: The rhetoric about Spanish is changing and hopefully **we** will get to a point where **we** value all cultures/ backgrounds/STUDENTS the way that **we** do other cultures. (ACMD 3c, April)
Close Generic *We*: When participants use the generic *we* to refer to a specific group of which they and, potentially, their classmates are members.	Ava N: @Riley [...] And with courses as well as full degree programs being offered entirely online, how do **we** try to walk all this back and insert some of the research in there saying these might not be designed in the most effective and productive way for learners? (SCMD, 2/27)
	Katya: In this article **we** learn that a necessary condition of knowledge revision is the simultaneous activation of both prior knowledge and incoming information. (ACMD 2a, March)
External Immediate *We*: Participants position themselves as a member of a literal, existing group that is not a part of the class, but that may be relatable to peers.	Riley: @Skyler [...] My students began to recognize when they were overwhelmed and **we** would often take breaks to breathe. **We** started the day with our morning meeting followed by mindful breathing, then journal writing. **We** breathed before transitioning... (SCMD, 2/13)
	Skyler M: During my current work in the classroom, I find myself living in the tension between what I've learned in my teacher-eduactor program here at UT, in which **we** focus on appreciative inquiry, student discovery, mastery performance. (ACMD 1a, January)
Third-Person Using *We*: While revoicing (quoting) someone in a group to which the speaker does not belong.	Riley: @Skyler and @Karmen [...] I do think it is also that "group" work does need to be taught AND modeled. I think it is old pedagogy, probably a misunderstanding of socio-culture theory: "Oh **we** are doing things together, so that is social." (SCMD, 4/3)
Imperative Statement *We*: Direction or instruction to *you*, but *you* is replaced by *we* (e.g., *We* should take off our shoes when we get into the house).	Donna: AND **we** should not forget that taking a cultural approach might apply to comparing kids in urban schools versus rural schools. It doesn't have to cross nation borders to be a cultural study. (SCMD, 4/24)
	Donna: But, as Katya mentioned, when a researcher says that some variable, let's [say] goal orientation, predicts some other variable, say interest, **we** shouldn't assume either that the direction is one way nor that it's a causal connection. (ACMD 2b, March)

Frequencies of Types of "We" in Written Discussion Modes by Two Belongingness Groups

Within online discussions, instances of *We* differed in terms of frequency by mode, by belongingness group, and by types of *We* represented. Across all transcripts and both modes, the percentage of comments containing at least one *We* ranged from 3% to 69%, with an average of 27%. However, transcripts of synchronous discussions had fewer instances, ranging from 3% to 36% across eight discussions with an average of 12% (with 467 comments comprising the full data set). By comparison, in asynchronous transcripts, percentages of comments with at least one *We* ranged from 18% to 69%, with an average of 40% (with 109 comments across three discussions; see Table 3 for comparisons of *We* instances by mode and belongingness group).

Table 3

Proportions of Types of We Instances by Mode and Belongingness Group

	Synchronous CMD		Asynchronous CMD	
	HB	LB	HB	LB
Total Number (and Proportion) of *We* Instances	33 (53%)	29 (47%)	69 (66%)	36 (34%)
Types of *We* instances				
Immediate	25%	21%	8%	31%
External Immediate	25%	10%	38%	11%
Close Generic	34%	38%	13%	19%
Far Generic	16%	31%	40%	39%

Note. Instances of *We* are presented by discussion mode, synchronous and asynchronous computer-mediated discussion (CMD), and by belongingness group, higher-belonging (HB) or lower-belonging (LB).

In both the synchronous and asynchronous discussions, the higher-belonging (HB) group posted more comments containing *We* when compared to the lower-belonging (LB) group. Specifically, of synchronous comments with instances of using *We*, 53% were posted by students

in the HB group and 47% were posted by the LB group. More dramatic was the difference

between the groups in the asynchronous discussions. There, the HB group posted 66% of *We*

instances, whereas the LB group contributed 34%. Taking the term *We* as indexing a sense of

belonging to a given group, this finding would indicate that LB individuals felt nearly similar

levels of belonging as their HB peers in synchronous discussions, but felt less so in the

asynchronous discussions, corroborating the results of the end-of-semester survey (see Table 1).

Considering the different types of uses of *We* leads to a more complex picture. We

analyzed how frequently each belonging group used the different types of *We* codes in both

online discussion modes. For these proportions, we used the total number of *We* instances made

by each group as denominators, thus providing the proportion within group and within mode of

each type of *We* code. In synchronous discussions, the HB group used a greater proportion of

immediate We (HB: 25% vs. LB: 21%) and *external immediate We* (HB: 25% vs. LB: 10%)

codes than the LB group. The LB group had proportionately more instances that we labeled with

far generic We (LB: 31% vs. HB: 16%) and *close generic We* codes (LB: 38% vs. HB: 34%)

when compared to the HB group. We interpret these differences as suggesting that participants

who felt less of a sense of belonging to the class tended to take more generic positionings toward

the classroom community as reflected in their use of *We*. By contrast, HB students expressed

their sense of belonging to the class community more explicitly, using *We* to index their sense of

belonging to a referent group that included themselves and others in the class.

However, data from the asynchronous discussions seemed to complicate these

explanations. Across the asynchronous transcripts, the HB and LB groups had roughly equivalent

percentages of *We* instances coded as *far generic* (40% and 39%, respectively), and the LB

group posted a slightly greater proportion of *We* instances coded as *close generic* (19% vs. 13%).

Also, the HB group had a substantially higher proportion of *external immediate We* (38% vs. 11%) instances, thereby using *We* to refer to groups with which they identified that were outside of the current course. The more incommensurate finding, however, given our expectation that students with lower levels of belongingness might refer to the immediate group of fellow class members less frequently, is that the LB group used a greater proportion of *immediate We* instances (31%) than the HB group (8%) in the asynchronous discussions. This may reflect LB students' relative comfort when participating in the asynchronous space, as illustrated by our survey data (see Figure 2). Not only were LB students more comfortable participating in asynchronous discussions than they were in other discussion formats, but at mid-semester, they were also more comfortable participating asynchronously than were their HB classmates (both groups were equally comfortable participating in asynchronous discussion by the end of the semester).

Summary of Findings for Research Question 2

Discourse data produced during the two online modes were analyzed to establish whether levels of belonging were somehow reflected in how the students discussed course topics with each other, focusing on the word *We* as an index of how individuals expressed their connection to the class community. Findings were that the HB group posted more comments containing at least one instance of *We* than the LB group in both synchronous and asynchronous discussions, providing evidence to support survey results that LB individuals felt lower levels of belonging than their HB peers in both discussion modes. Through content analysis of the transcripts, we identified six uses of the term *We*. These ranged from more immediate representations where students' words seemed to imply they belonged to the same community as their current classmates, as in *immediate We* codes, to revoicing through the use of the *third-person We*, or to

referring to an abstract "everyone" by introducing a *far generic We*. At least in the synchronous discussions, the students expressed themselves in ways commensurate with their reported levels of belonging, with the HB group using proportionately more *immediate We* references and the LB group making proportionately more *far generic We* references.

Discussion

In recent educational research, the role played by emotions has increasingly been portrayed as crucial to an understanding of students' academic experiences, be they young elementary school students first starting their academic career or well-experienced learners undertaking graduate studies (Pekrun & Linnenbrink-Garcia, 2015). How students feel while learning is now considered as important as how students come to acquire new knowledge. This study addressed research questions about how students' sense of belonging to their classroom community aligned with other affective and cognitive feelings they reported about the class and whether their feelings would be reflected in their actual "talk" in online discussions. For this last question, we investigated whether students' use of the pronoun *We* would reflect their sense of belonging. We take up these findings by juxtaposing them with the existing literature by way of three points: (a) the role of belonging in the classroom, (b) the potential of online discussion for students' sense of belonging, and (c) sense of belonging as reflected in students' discourse. We conclude by addressing issues that may limit generalizations to be drawn from the study and by providing implications and recommendations for research and practice.

The Role of Belonging in the Classroom

Belongingness seemed an important predictor of how students experienced this course, not only in its face-to-face mode but also when class discussion took place in an online venue. Like previous work that has shown positive consequences of feelings of being connected and

belonging to a community (e.g., Freeman et al., 2007; Micari & Pazos, 2012), students who reported higher levels of belongingness seemed to enjoy their time in the classroom, to be more engaged when learning in class, and to value the classroom discussion more than those reporting a lower level of belongingness.

Most studies of belongingness have conceptualized and measured the construct at the level of the school campus (e.g., Allen et al., 2018; Gray et al., 2018), reporting that greater school belongingness was related to persistence and achievement. In a longitudinal study of belonging in high school, Gillen-O'Neel and Fuligni (2013) reported that whenever students reported stronger feelings of belonging, they concurrently rated their studies as more enjoyable and useful. By measuring belongingness to the classroom group, our approach indicated that sense of belonging may penetrate down to the level of particular classroom activities, connected to learning by way of capturing students' attention. In this way, sense of belonging becomes fuel for motivation to learn.

It is possible that how these students built a sense of belonging was related to the teacher's practices (Zumbrunn et al., 2014), specifically, the incorporation of various discussion modes where students were encouraged to learn from and support one another throughout the course. This instructional choice reflected the instructor's valuing of socioconstructivist pedagogical practices that she enacted by having students learn with each other through discussion of course ideas. As Matthews (2020) reported, students of teachers who held views of success in the mathematics classroom as dependent on help from others reported higher levels of belongingness when compared to students of teachers who saw math success as based on a learner's own personal initiative. Pedagogical practices that prioritize student talk and collaboration, such as the online discussions in this study, could have influenced students' sense

of belongingness by way of increasing their knowledge of each others' views, voices, and stories (Delahunty et al., 2014; Peacock et al., 2020).

It is important to remember, for our context and for any classroom, that students do not always have the same response to the same teacher practice: one student's most rewarding class may be another student's most dreaded. And in the case of our study, despite experiencing the "same" opportunities to discuss course concepts in different modes, our students expressed clearly different levels of belongingness across contexts. Thus, in addition to reporting an overall beneficial effect of belongingness, our data allowed for a nuanced look at its fluctuation and context-specific manifestation. Because we measured students' affective and cognitive experiences of the class at two time points and for three class modes (face-to-face, synchronous, and asynchronous), we were able to see that students' experiences varied in interesting ways. As Do and Schallert (2004) and Schallert et al. (2016) have noted, the progression across a semester is marked by ebbs and flows in how students feel, influenced by outside factors as well as course topics. The same applies to students' feelings of whether they have a strong connection to the classroom community. Although we chose to identify the two groups of students by their mean belongingness ratings across modes at mid-semester, some students in the high belonging group had come to feel less connected to the class by end-of-semester. Because we measured belonging only at two time points, we could not determine when shifts in sentiments had occurred. As Schallert et al. (2016) described in a semester-long study of a seminar-style course, students take into account many factors when determining why they would engage. Learners' contributions to discussions were influenced by whether they felt prepared for a day's discussion and whether they cared about or needed to understand the day's topic for their own scholarly pursuits. Although sense of belonging was not measured in that study, other scales that are relevant to the

current study, including enjoyment, interest, and involvement, were administered before and

after every online discussion, allowing for a more detailed look at the connection between

affective variables and online comments.

The Potential of Online Discussion Environments for Students' Sense of Belongingness

   Prompted by concerns that online venues may create lonely experiences for students,

there have been investigations into how belonging can be cultivated in online environments (e.g.,

Tate & Warshauer, 2022). We noted in our findings that online written discussions could support

students' sense of belonging, even though this was not an experience shared by all students.

Students differed in how they responded to the different discussion venues, helping explain the

mixed findings reported in the literature about online learning (Lander, 2015; Luppicini, 2007;

Schallert et al., 2003-2004; Sung & Mayer, 2012; Zengilowski & Schallert, 2020). Learning is a

constructive process in which what individuals bring to a learning environment, such as prior

experiences and engagement, is intertwined with the social and cultural contexts created in the

moment (Volet et al., 2009; Vygotsky, 1978). Online discussions in a course may allow lower-

belonging individuals to feel more comfortable participating and a greater sense of belonging

than a solely in-person discussion context can afford. For some students, it may not. Especially

for students whose primary language is not the one used in synchronous discussions, the rapid

pace of incoming comments can be overwhelming. When students need time to listen to/read

responses and prepare/write their ideas (e.g., Takahashi, 2021; Vogler et al., 2017), they may

find that topics move too quickly to facilitate meaningful participation and connection.

   Thus, we do not claim that incorporating online discussion into classroom practices can

serve as a panacea for all issues that give rise to students feeling silenced or othered in a

classroom community, including those stemming from systemic inequities and the psychological

stigma that can impact feelings of belonging for disenfranchised students (Matthews, 2020).

However, we see it as promising that some students reported more positive affective and

cognitive responses to the online discussion formats than to the face-to-face classroom setting.

This was more likely for students who had a lower sense of belonging to the classroom

community. Thus, by offering a different space for contributing to the group's intellectual work,

the voices and ideas of students who would have perhaps remained silent when face-to-face were

allowed to influence the overall meaning-making of the class.

Sense of Belonging Reflected in Students' Discourse

A final research question we were exploring in this study is whether students' sense of

belonging would be reflected in their actual discourse. We focused on the students' use of the

pronoun *We* in their online comments as an index of the group of individuals to which they were

acknowledging a connection. Previous research exploring the pronoun *We* had identified its

multiple different referential uses (e.g., Kuo, 1999; Muthi'ah et al., 2022). This finding was

replicated in our data even as it extended the analysis beyond investigations of teacher use

(Muthi'ah et al., 2022) and practitioner textbook authors (Uzum et al., 2018). Further, we

examined how learners positioned themselves and their peers, and how this positioning aligned

with their reported feelings of belonging.

Our coding scheme reflects the complex nature of how *We* is used in English,

characterized by a broad referential range and nuanced discourse functions that vary by

addressee inclusivity and social, cultural, and historical context (Pavlidou, 2014). Similar to

Uzum et al. (2018), our study used the lens of positioning theory (Davies & Harré, 1990) to

examine how students' use of the *We* pronoun represented their perceived inclusivity and

exclusivity of themselves and others (i.e., reflexive positioning, interactive positioning) in the

context of collaborative learning through online discussions. The types of *We* identified in our data analysis appear to reflect the notions of "inclusive" and "exclusive" *We* (Helmbrecht, 2002), indicating that using *We* can either refer to those present in the discussion or it can refer to another group of individuals not currently present, of which the speaker feels a part and from which the speaker feels those present are not included. The inference we are making with our analysis is that the use of specific forms of *We* reflected the speaker's sense of belonging, of connection, to the particular group of fellow class members for the duration of the semester.

We also believe our approach advances existing views of the meaning of the pronoun *We* by incorporating gradations of inclusivity and exclusivity as these apply to students' pronoun use. Previous analyses have either taken a relatively simple binary view of inclusive versus exclusive pronoun *We* (Helmbrecht, 2002) or they have offered a more nuanced analysis showing gradations of inclusivity but applied only to the teacher's talk (Muthi'ah et al., 2022). Because the students in our study were involved in classroom discussion, encouraged to share their views, they needed to position themselves and others relative to the concepts they were incorporating into the discussion. In so doing, *We* became an index of groups to which they were announcing their mutual inclusion. Returning to our considerations of positioning, our analysis of the term *We* brings in Pavlidou's (2014) conception of *We* as an indicator of the speaker's self or identity, how individuals relate to or see themselves as similar or different from their group members. Beyond the linguistic differentiations of what is implied by these various instances of *We*, we note how their use may express more hidden feelings of belonging within the classroom context.

Limitations and Delimitations

We would be remiss if we did not point to some important limitations in our data gathering that constrain interpretations. First, it is important to note that data collection for this study occurred prior to the COVID-19 pandemic that radically altered many educational settings, including for students enrolled in graduate studies. Thus, our findings may differ for learners who have more experience using different discussion modes, face-to-face (in person as well as through a video platform) and online discussion modes (chatting in a backchannel as well as dedicated synchronous discussion and asynchronous postings). Future research may leverage this period to build upon our findings in considering how students' affective and cognitive experiences are informed across in-person and technologically mediated forms of discussion.

Second, we want to consider how students' feelings of belonging could impact their interpretation of the other self-report survey measures. Here, we have in mind reports of cultural and historical differences in what parents think it means to be "involved" in their children's education, related to how comfortable they feel at the child's school, their racialized school experiences, their neighborhood structures, and social dynamics (Bhargava & Witherspoon, 2015; Cross, 2003). For our study, it is possible that there was an unexamined relationship between the graduate students' histories, cultural backgrounds, feelings of belonging, and what they believed it meant to be "involved" in a discussion, for the discussion to be "useful" to their learning, for them to feel "comfortable" participating in and "enjoying" the discussion. Beyond simply rehashing the point about the limitation of self-report measures, we want to acknowledge the possibility of a difference in interpretation of the measures by the two belonging groups.

A third limitation is that our discourse data and analysis of the students' use of the *We* pronoun was only possible for the synchronous and asynchronous discussions. Although we

asked students to respond to survey items and to reflect on their experiences of face-to-face

discussion, we did not analyze the content of these discussions but only had tallies of the number

of contributions of each student in face-to-face discussion. Without associated transcripts, we are

unable to determine how their use of *We* might reflect connection to the classroom community in

the face-to-face discussion setting.

Finally, we recognize that a study with only ten graduate students comprises a small

group with which to address our research question. This resulted in limited demographic

representation among students, a factor that may have differentially impacted students who did

not share some of their identities with others, potentially contributing to lower feelings of

belonging over the course of the semester (Eliason & Turalba, 2019). This small number also did

not allow us to run statistical analyses to determine significant differences for the survey

responses or number of *We* contributions between the higher- and lower-belonging groups.

However, the small size was a benefit when considering the broader discussion spaces. A class

of only ten students allowed for all to remain in one synchronous online discussion group, and

possibly encouraged them to contribute more often in all modes of discussion than had there

been a greater number of participants (Zengilowski & Schallert, 2020; Zengilowski et al.m

2015). Although the sample size may limit the generalizability of some findings, we believe our

triangulation across data sources gives confidence to interpreting the findings as responsibly

representing the students' experiences and contributions (Lincoln & Guba, 1985). As an initial

foray into an interesting question, we see these data as providing a meaningful foundation for

future work.

Implications and Conclusion

Implications from these data support the importance of examining students' academic discussion experiences from affective as well as cognitive perspectives. Our results indicated that graduate students who perceive lower and higher levels of belongingness to their classroom communities are likely to have differing experiences and to behave differently in varied discussion environments. As such, these findings may be especially relevant for promoting equitable learning experiences for minoritized students in predominantly white institutions (PWI) of higher education. Decades of research on Black students' college retention and graduation patterns indicate that Black learners at PWIs, for instance, feel disconnected from their instructors and classmates, and that some "depart from college [...] due to a lack of sense of belonging" (Strayhorn, 2008, p. 502). Using a variety of discussion modes (e.g., asynchronous, synchronous, and face-to-face) in college courses, although certainly a small step in combating inequities in higher education, could offer minoritized students opportunities to engage in ways that are more comfortable, affirming, inviting, and less threatening (Eliason & Turalba, 2019).

Although we consider lower-belonging students' participation in online discussions to be a positive contribution generally, it warrants future investigation as to how the integration of online modes impacted their levels of face-to-face participation during class time. These findings could help clarify whether different modes of online discussion foster access to conversation for students who would not otherwise contribute, cause them to feel comfortable enough to contribute in-person, or inhibit learners from speaking up in class. In addition, we had only one student whose first and primary academic language was not English. Practitioners could benefit from future research exploring how fostering belonging could make the written space, where syntactic and grammatical errors seemingly can be more easily and repeatedly scrutinized, an environment where students feel comfortable using their learned language to participate in class.

Academic discourse activities can aid in fostering a sense of belonging in classrooms (Gunawardena, 1995; Lander, 2015; Luppicini, 2007; Peterson et al., 2018; Rovai, 2002). For students who have been excluded or who frequently worry about being judged by their peers, online discussion environments can provide a venue where these individuals feel comfortable participating and that they belong (Lim & Hall, 2015). Moreover, increasing the options for contribution to conversations through the inclusion of multiple discussion modes inherently allows for a greater diversity of learners to participate and develop important skills (Johnston, 2019). The inclusion of CMD may allow lower-belonging students to see themselves as part of the collective classroom *We*. Still, the creation of online spaces alone cannot democratize classroom access to ideas and facilitate connection for all students or in all contexts; in fact, inequities can be exacerbated when learning moves to online spaces. Nevertheless, we believe that centering student voices in investigations of learning will contribute to a more inclusive future for learning, both in-person and online.

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