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Inclusive Curricula: A Framework and Recommendations to Promote Students' Sense of Belonging in Blended-Learning Environments

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Abstract. It is important for educators to design curricula with inclusion in mind, as learners experiencing a 'sense of belonging' are more likely to feel included and to achieve improved academic outcomes. This is crucial for students in blended-learning environments where on-campus learners may be engaging with classmates who are studying online. Guided by the grounded theory methodology, this study sought to identify hands-on strategies and practical approaches of teaching practices known to nurture inclusiveness in blended-learning classrooms. Data was collected using convenience sampling. Participants from different cultural and educational backgrounds with at least five years of teaching experience in higher education shared their expertise in a focus group session and in interviews. The resulting inclusive framework encompasses the perspectives of teaching staff and students and includes best practices from the educational literature and practical guidelines for academics wishing to promote and improve their students' sense of belonging. The study findings also produced a collection of recommendations to foster a sense of belonging in learning environments for course and subject coordinators, instructors, and tutors.

Keywords: sense of belonging; inclusive learning; Community of Inquiry; blended-learning environment; higher education; grounded theory

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1. Introduction

Humans are complex social beings and, therefore, they need to feel that they belong; this is important for mental and physical wellbeing (Baumeister & Leary, 2017). As a general concept, experiencing a 'sense of belonging' can be defined as feeling a deep connection and being accepted within a social group or an environment (Allen et al., 2021). In the context of higher education, the sense of belonging has several facets, with social belonging and academic engagement

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being most prominent (Ahn & Davis, 2020). The feeling of belonging is very important in a learning environment where it may positively influence academic performance (Garrison, 2017; Larcombe et al., 2015; Metzger & Taggart, 2020; Peacock & Cowan, 2019; Strayhorn, 2018; Wilson et al., 2018; Yorke, 2016). However, over the past decade, learning environments have evolved and experienced unprecedented changes as a result of technological developments and in response to the disruption caused by the COVID-19 pandemic (Crawford et al., 2020). Worldwide, students have reported feelings of unease and general disconnect with their institutions and instructors (United Nations, 2021).

Teaching academics have been struggling to learn new ways to engage with their students, who may be partaking in on-campus face-to-face (F2F) sessions, or joining their F2F class remotely by means of rich-media synchronous technologies, or engaging and contributing asynchronously through online-learning environments (Giray, 2021; Kalsoom et al., 2022; Oyarzun et al., 2021). To encompass the variety of teaching modes, for the purpose of this study, we define blended learning as a combination of blended synchronous learning (BSL) sessions in which remote students participate in F2F classes by means of rich-media synchronous technologies (Bower et al., 2015) together with on-campus deliveries (also called hybrid learning), and asynchronous online-learning environments.

On the rebound from the disruption caused by the COVID-19 pandemic and to build on lessons learned through this period, it is paramount for academics to provide inclusive curricula to encourage and connect with their students from different social, cultural, linguistic, educational, and physical/psychological backgrounds and across varied technological platforms, both on or off campus. Since the meaning of the term 'inclusion' can be different among different people and 'inclusion in education' is often interpreted as inclusion of people with disabilities, it is important to point out that increasingly, educational communities refer to inclusion as an approach that welcomes and appreciates the diversity of learners across dimensions such as race, socioeconomic status, ethnicity, religion, gender, and ability (Ainscow, 2020; Balamoti, 2024; CAST, 2018).

Hence, inclusive education is about identifying strategies and practical approaches to value and support student diversity in learning environments (Suleymanov, 2015). Since blended learning should combine the advantages of both F2F and online-teaching approaches (Law et al., 2019), we sought to support teaching staff in higher education by answering the overarching question:
How can we best design inclusive curricula in blended-learning environments to promote students' sense of belonging'?

To answer this complex research question, it was sub-divided as follows:
1. What describes 'sense of belonging, inclusiveness and wellbeing for students?
2. Which aspects of blended learning promote students' sense of belonging'?
3. What are the established best practices for creating inclusive curriculum design for blended learning?

2. Literature Review

According to Metzger and Taggart (2020), "Belongingness is a psychological construct characterized by value, fit, and meaningful engagement in person-to-person, small group, and larger social contexts" (p. 231) and is different to a person's need to belong. Malone et al. (2012) used the General Belongingness Scale (GBS) survey instrument, which has been broadly adopted in differing work, social, and educational settings (e.g., Metzger & Taggart, 2020; Yildiz, 2017). More specifically, student belongingness is defined by Spencer et al. (2020) as "the extent to which students feel accepted, respected, included, and supported by others in an academic setting" (p. 199), for which the Belongingness Engagement and Self-Confidence Survey (BESS) was devised by Yorke (2016).

Subsequently, 13 universities in the United Kingdom across three disciplines adopted and trialed the BESS to measure their students' sense of belonging, resulting in scores for three scales: belongingness, engagement, and self-confidence. Overall literature emphasizes the importance of social connectedness and sense of belonging for improving student learning outcomes, underlining that belongingness is different for various cohorts of learners (Peacock et al., 2020). It has been noted that different students' cohorts had differing views on the sense of belonging and what it means to feel included (Adel & Dayan, 2021; Lin & Nguyen, 2021). The feeling of inclusion was perceived differently based on demographics parameters such as gender, age-group, first-in-family, socio-economic backgrounds, and ethnicity (Cureton & Gravestock, 2019; Delaney & Brown, 2018; Lin & Nguyen, 2021; Sathy & Hogan, 2023).

Generally, blended learning has been reported as a positive influence on student wellbeing and academic outcomes, irrespective of the proportion of online versus off-line instruction (Bernard et al., 2014; Nortvig et al., 2018; Zhang et al., 2023). When students were surveyed, they resoundingly preferred blended learning over traditional instructional learning (Bader & Köttstorfer, 2013; Milroy et al., 2013; Tripathi et al., 2017), with sense of belonging being associated with greater student satisfaction, social adjustment to university, and program persistence (Brodie & Osowska, 2021; Johnson, 2015; Wilson et al., 2018). However, in blended-learning environments, sense of belonging does not come naturally; it needs to be cultivated by educators, ensuring that all students feel connected and supported (Bower et al., 2015). Yet, as noted by Raes et al. (2020) regarding synchronous versus asynchronous learning pedagogies to promote inclusiveness and sense of belonging, there is a lack of specificity concerning this matter in literature.

Past research shows that since 1984, considerable effort had been given to make classrooms more inclusive for disabled students, which, over time, has evolved into the widely adopted Universal Design for Learning (UDL) guidelines for all learner types, regardless of age, background, or ability (CAST, 2018). The UDL guidelines have broad acceptance (New Zealand Ministry of Education, n.d.; University of New South Wales, n.d.), and they have been advocated appropriate for use in higher education (Dinmore, 2014; Fornauf & Erickson, 2020; Shastri & Clark, 2021). The guidelines use insights from neurological studies as to a) how

students engage, b) the different ways that students action their learning, and c) how students relate to learning materials. They are a set of practical strategies that are designed to improve equitable access to information for all students, to build knowledge and internalize it, and to empower learners through the provision of multiple means of engagement, materials representations, and available actions.

An analysis of the practices for creating an inclusive curriculum identified several studies investigating the impact of different strategies or interventions applied in teaching (Cunningham, 2014; Park & Shea, 2020; Spencer et al., 2020). These strategies were designed to improve students' educational experiences and were often informed by Garrison's (2017) Community of Inquiry (COI) framework (e.g., Park & Shea, 2020; Zhang et al., 2023). The oft-cited COI places a student's educational experience at the confluences of three presences: social, cognitive, and teaching, and it has frequently been used to explain empirical practices, particularly for online or blended learning (e.g., Heilporn et al., 2021; Spring & Graham, 2017). A recent review of the COI in online Engineering Education courses noted its broad geographical acceptance across 22 papers, in which it was typically applied as the context to guide program design or used as an evaluation tool for existing online and blended-learning programs (Zhang et al., 2023).

The literature highlights the need to support educators in fostering inclusive learning environments for diverse student populations in different teaching modes where blended learning encompasses all such teaching formats (F2F, online, and blended approaches that integrate synchronous and asynchronous teaching and learning). However, previous studies were conducted within a specific context that was limited to a specific subject area, for example, language learning (Shastri & Clark, 2021; Yildiz, 2017) or to a specific delivery mode such as fully online (e.g., Akpen et al., 2024; Brodie & Osowska, 2021; Thomas et al., 2014). To address this limitation, the current study aimed to create a unified inclusive framework to build students' sense of belonging through an inclusive curriculum that is not limited by delivery mode or by subject area.

3. Methodology

3.1 Research Design

This study employed grounded theory as research methodology, specifically the Straussian Grounded Theory developed by Strauss and Corbin. This grounded theory methodology prescribes a systematic coding approach, starting with open coding, then identifying categories through axial coding and thereafter, deriving theory through selective coding by integrating categories (Corbin & Strauss, 2014). Grounded theory is particularly valuable when exploring complex and evolving social processes such as fostering a sense of belonging and promoting inclusion. In this approach, researchers are permitted to use literature to form a general idea; however, the focus is on the concepts that emerge from the data through open, axial, and selective coding.

Data collection approaches commonly used within the grounded theory are interviews and focus groups. Both instruments are suitable for engaging

participants based on theoretical sampling in which participants are selected based on their relevant experience of the emerging themes and theory (Charmaz & Thornberg, 2021). Focus groups are an efficient way of collecting data since they allow the collection of multiple viewpoints in one session at the start of the study. They are a valuable technique when researchers want to uncover a wide range of themes and to understand which themes represent the collective insights among the participants (Hughes & Lamb, 2025). Follow-up interviews could provide additional insights and personal interpretations of the emergent themes (Bytheway, 2018).

3.2 Participants

To gain insights into the best practices for creating an inclusive curriculum design for blended learning, the study used convenience sampling, selecting teaching staff with at least five years of teaching experience in different delivery modes (F2F, online, and combination of both synchronous and asynchronous blended learning). The selected staff started their teaching careers before COVID-19, teaching predominantly F2F whilst offering blended-learning environments for asynchronous learning. However, during and after COVID-19, all staff members implemented a mix of blended synchronous and asynchronous teaching. These criteria for staff selection distinguish this study from many previous studies that focused only on engagement and inclusivity in online learning (Akpen et al., 2024; Shastri & Clark, 2021).

Australia is a multicultural country, so both the staff and the students in the study have a range of cultural backgrounds, which gives the teaching staff a good understanding of diverse students' needs. Four staff members from this sample have rich teaching experience not only in Australia but also in other countries in Asia, Europe, and North America. Regardless of their cultural background, all staff have excellent written and oral English skills. All staff members have expertise in teaching a range of subjects (e.g., IT and Computer Science, Information Systems, Social Studies, and Mathematics).

The focus group session and the interviews were conducted in English by the same researcher. All participants were given a plain language statement describing the project and thereafter, they signed the consent form (HREC Approval 2022-22957-27070-8). The duration of the focus group was approximately 90 minutes, and the interviews were about 60–70 minutes. Both the focus group and the interviews resulted in very rich data covering multiple aspects of student engagement, inclusivity, and developing the sense of belonging.

3.3 Data Collection

To guide the discussions, the questions were crafted to solicit the academics' insights into how to facilitate inclusive learning, reflecting on the strategies that work and those that fall short and focusing on blended learning. The same protocol with questions was used for both the focus group session and the interviews (Appendix A). Seven teaching staff agreed to participate in the focus group. Participants were asked about how technological affordances helped or hindered their efforts when dealing with different cohorts. In parallel, for the

purpose of theoretical sampling, interviews were conducted with teaching staff who did not participate in the focus group. Saturation was reached after the second interview (i.e., no new open codes emerged) and, therefore, we did not proceed with any additional interviews. All sessions were recorded live and professionally transcribed. To anonymize the participants, the focus group participants are referred to as FGP 1, FGP 2, FGP 3, etc. The interviewee participants are represented as Interviewee 1 and Interviewee 2.

4. Data Analysis – Initial Open Coding

The transcripts were read reiteratively by all the researchers independently to achieve immersion in the thoughts shared by the participants. During each reading, iteration descriptive codes were assigned to sections of data (independent open coding). Thereafter, the researchers compared their coding results and agreed upon a shared set of codes. Adjustments were made as codes for similar participants' reflections were compared. For example, the following codes were initially applied to the explanations of the focus group participants:

> *''I come into a semester with a plan; I want to deliver certain things and then during the semester, I learned that certain students don't have the background to go that deep into this subject. So maybe I need to take a step back and spend a lecture on some other subject. So, the key is to be a little bit flexible and always keep the students, the ones in Zoom and the ones in class, in the back of your mind, making sure that you cater to their needs. ''* (FGP 1) – labeled as 'Action if students lack required background knowledge'
>
> *"So, in the end, I was just aligning expectations for everyone. So hey, we are on the same boat. We might have different knowledge levels about this. We all here to learn from each other"* (FGP 2) – labeled as 'Cater for different levels of knowledge'
>
> *''It was acknowledging that I have diverse cohort when I start the subject … So, I have in my cohort, students of medicine, of psychology, environmental engineering, quite a few of design students and hardcore computer science students. So, the difficulty came in actually from making the subject interesting and relatable to all. ''* (FGP4) – labeled as 'Diverse educational backgrounds'

Further transcript reading revealed one more statement that appeared to be an overall summary:

> *"[P]ay attention to your audience. It's almost like that. Pay attention, acknowledge they're different, offer sort of ways for different students"* (FGP 4).

So, a new label was created – 'Acknowledging students' differences. This acknowledgment led to identifying strategies that address these differences, from cultural differences to differences in background knowledge. This process gradually transformed into axial coding.

5. Identifying Inclusive Curricula – Themes Emerging from Axial Coding

Following grounded theory, we used axial coding to gain a deeper insight into how academics view inclusive learning and sense of belonging. During the axial coding of the focus group and interview transcripts, emerging open codes were categorized into five axial codes, all of which allowed the identification of aspects of inclusive curricula (seeking answers to the research sub-question 2) and inclusive learning environments, content redesign, teaching strategies, student assessment and feedback, and group work.

5.1 Inclusive Learning Environments

Initial discussions demonstrated the diverse views of academics on inclusive learning environments. This part of the discussion provided answers to research sub-questions 1, 2 and 3 as focus group participants, and later, the interviewees discussed their inclusive practices and indicated what helps them to promote a sense of belonging among students. All participants showed an appreciation that inclusivity in the classroom is more complex than simply catering for differences in gender and ability, conveying that a broad set of diversities exist among cohorts, including cultural backgrounds, different school and work experiences, and in some classes, different discipline backgrounds. Three of the seven academics emphasized that the creation of an inclusive learning environment needs to be purposefully crafted:

> *''We always have it somehow implicitly in the back of our mind that we should cater to different types of people, cultures, and so on. But I think taking a more active, proactive approach to making sure that everything works for everyone is very important. ''* (FGP 1)

The discussions identified two important strategies to foster inclusiveness: (a) setting the tone of the class; and (b) the need to lead by personal example. The first class is an important opportunity to share with students what they can expect and what is expected from them whilst acknowledging the diversity of backgrounds and knowledge levels in relation to the subject matter and its technologies:

> *''No one is comfortable and it's uncomfortable, but we learn from each other and that's quite normal. And normalizing that discomfort so that they can feel they can learn and it's okay to ask questions so that they feel comfortable to ask questions where they are uncomfortable. ''*(Interviewee 1)

Three academics discussed the use of gamification to assist in making students feel more at ease and to establish personal connections, allowing students to discover the experiences and perspectives of their classmates. Another academic starts their classes with a joke to help build a community:

> *''Humor is something that we all have in common. Humor makes people smile. And of course, it's important to choose jokes which everyone would understand, taking into consideration that we come from different cultures. … So, you start with a joke, and you immediately find common ground. ''*(FGP 3)

The various approaches to inclusivity and creating a sense of belonging that were discussed by the academics were grounded in recognizing the diversity among the students. A suggested helpful approach was to

> "*Acknowledge they're different; offer sort of ways for different students*"

(FGP 4) and cater for those differences:

> "*It was acknowledging that I have diverse cohort when I start the subject …. actually, communicating with those various cohorts*" (FGP 4).

In another instance, the composition of the teaching team mirrored the diversity among the cohort:

> ''*… tried to have people[staff] who have gone through the subject from diverse backgrounds, contributing back to the subject and showing that students from a diversity of backgrounds who struggled initially with the subject, and they ended up doing really well and is now teaching the subject to show that anyone can do it.* '' (Interviewee 1)

Overall, the teaching staff are aware of student diversity, and they all ensure that this diversity is actively addressed in the learning environment of their subjects.

5.2 Content Redesign

This section illustrates the practices used to apply inclusivity to study materials, which addresses Research Sub-Question 3. Several academics conveyed the need to revamp the subject content and teaching materials, particularly as traditional texts and resources often use stereotypically privileged white male case studies such as,

> "*a man that loves driving a sport car*" (FGP 2).

Conversations mentioned searches for teaching materials around topics that were geographically and gender neutral and were thus likely to have broader appeal:

> ''*I collect case studies that intentionally take students across the globe. If I have five case studies, one would be in the US, another one would be in China, another one in Europe and so on. … I think there is an opportunity to be more mindful of case study selection that could serve or cater to this specific goal of introducing students to cross-cultural differences.* '' (FGP 1)

A similar approach was echoed by Interviewee 1 who reflected,

> "*[W]e doesn't just use case studies from America and Australia. We use an internationalized set of case studies. We've had case studies of companies in China, in Southeast Asia, in Japan, in India, Canada.*"

Universally, academics searched for case studies that are grounded in different cultures and minority groups. This encourages students to question different cultural approaches in order to illustrate various perspectives on a problem, the diversity of possible solutions, and the variety of users and stakeholders requiring accommodation.

An important aspect of using these real-life examples was discussed by two other academics as ways for their students to question and confront their own assumptions about stereotypes, minority groups, and non-typical users. This illustration of diverse ways to approach and solve problems was seen by academics as one way to acknowledge and celebrate students' differences and as a way of creating an inclusive learning environment:

> *"To me, inclusion comes from the materials that we provide … It's beautiful to be different and to have different backgrounds. That's an opportunity for them to learn from different countries"* (FGP 5).

Whilst discussing the selection of learning materials, three academics described overhauling their subjects to make the content more relatable to the students:

> *"So that the student who is very proficient still can be engaged, while the student who have never heard of computer science or programming can still feel confident and try to give it a go"* (FGP 4).

To assist in keeping their course relevant and up to date, FGP 4 elaborated,

> "*[W]e remodeled COVID cases, vaccination, propagations, spread of COVID. We modeled the permissions, ticketing systems, red, yellow, and choosing who is violated and how Netflix database works.*"

Interviewee 2 surveyed their graduates to determine the materials that are most valuable in their current jobs:

> "*[T]o sees how what they've learned aligns with their work. Did we teach the right things, basically. It's a curriculum review … with several people saying, 'This is absolutely the foundation of what I do at work every day.''*

In addition, for authenticity, this academic adopted the use of industry-standard evaluation tools and organized a site visit, thus providing students with valuable industry experience.

5.3 Teaching Strategies

Participants reflected on teaching strategies that ensured that students felt more included. One common strategy that was mentioned by many was planning group discussions within lectures and using breakout rooms for the online discussions:

> *''[W]e can meet and we can talk. We can practice case studies together, but maybe we are in person, maybe you are in a breakout room; it doesn't matter as long as you have other sources that can help you. ''* (FGP4)

Another inclusion strategy employed the use of polling and quizzing software. For example, FGP 4 mentioned,

> "*Poll everywhere, small competitions, small practice things, videos, things to be consumed whenever."*

whereas FGP 3 noted the usefulness of Kahoot:

> *"It's more fun than ordinary quizzes, and we do Kahoot together. It's a group revision so that you can see what mistakes other people make. And after every question, I would explain why this answer cannot be correct."*

In addition, discussion forums were seen as an essential component to foster conversations and to build community among cohorts, although they only work when students actively engage with them. Importantly, learners must believe it is safe to engage with the discussion forum, with encouragement given as,

> "*There are no silly questions. It's a learning space; otherwise, you didn't [need to] be here. We all here to learn from each other, including myself*" (FGP 2).

FGP 2 discussed how they linked their lecture slides to questions posed on the discussion board:

> "*[W]henever we had a great answer, there's a button on that discussion we would endorse. We'd make that the official answer. ''*

In all instances, timely instructor response times underlined the importance of the discussion forums:

> "*… because that was so responsive, students started answering to students … once they realized all of the use of that, I think that naturally became a reliable space, a safe space for them.*" (FGP 2).

A much-discussed issue for academics was how to be inclusive whilst managing large lecture groups. One suggestion was,

> "*Employing a teaching assistant to co-ordinate online synchronous feedback.*"

in blended-learning classes (FGP 6).

Teaching a class of over 300 students, FGP 2 told of using automated computer scripts:

> "*Because I use FeedbackFruits, so when I have the averages, I have scripts that if I see that someone is 30% below the average of that team, then I will contact them.*"

This is through sending a personal email to the students simply enquiring if everything was all right and they were okay. This often-appreciated approach by struggling students helped to establish communication and avoided the disconnect reported by others of the perils of system automated emails that often estrange and disenfranchise students (Read et al., 2003).

5.4 Student Assessment and Feedback

Inclusive assessment practices are a critical component in promoting equity and accessibility within educational settings. The practices discussed and their context are important in answering Research Sub-Question 3. Assessment needs to measure student progress over the course of a program. Some focus group academics favored small assessment tasks, quizzes, or short answer questions, not least for their ease of marking and reducing the likelihood of plagiarism. This approach was seen to engage both types of students:

> *''[S]tudents who are very operational about their class, right, I must do this. I have to do this. Is this going to be on the exam?' as opposed to the students who are like, I want to know more about this. I want to learn more about this space and how it's used. ''* (Interviewee 2)

FGP 2 noted that assigning the weekly quiz as a small assessment hurdle is a strong motivator, as it sends a message to the students that participation is monitored whilst giving students quick feedback on their progress.

Many academics include assessments in which students work in groups collaboratively and create solutions by incorporating different perspectives. For evidence of student learning, FGP 2 uses peer assessment in which students give feedback to teammates. This is followed by a self-assessment in which students reflect and react to the feedback received. This academic evaluates evidence that learners have acted on the previous feedback:

> "*[W]e provides feedback, and 10% of the next mark will be if they've reworked the system based on what they've received from us.*"

FGP 3 queried,

> "*Should there be circumstances when we allow multiple submissions because that's how you know that the student is learning?*"

This is particularly where formative assessment is being used and one topic builds upon previous knowledge.

Regarding formal feedback on large-scale assessments (e.g., complex projects that require significant time and effort from students), most academics discussed using detailed rubrics to improve the quality of submissions and feedback. Standard practice was to release the rubric as part of the assignment specification, ensuring that students,

> "*Know the expectations … they see all criteria; they see possible marks; they see obtained marks, and then they see this is your overall feedback*" (FGP 4).

FGP 4 further emphasized that markers were expected to provide additional, non-trivial, written comments:

> "*Then writing personal feedback for each assignment. So, I always have mandatory fields there so that there are all these small points that students see.* ''

This would be further scrutinized by the supervisors:

> *"[W]e gives them [markers]feedback occasionally if we see issues with how they assess things. It sort of allows us to be in the loop and understand what they're marking and what issues they see in the assignments*" (FGP 1).

Discussions gravitated to the role of tutors and how crucial it was to have reliable tutors who were most often tasked with providing feedback. Three academics noted the requisite for very clear and finely graded criteria in the marking rubrics to ensure consistency among markers. For this, FGP 1, in his role of subject coordinator, shared a practice of meeting with tutors/markers to discuss possible variety among upcoming student submissions and how to mark them. He then follows up by requesting markers to supply graded assessments of

> "*Someone who did poorly, a mediocre, and average, and a good assignment. So, this way, we could assess how they judge good, bad, and so on.*" FGP 1.

FGP 2 engaged industry partners to scrutinize and improve the rubric used in their industry-based subject:

> *"This year I got three people that are from industry … that are working at Telstra … And now I have rubrics that … evolved so much, and they're helping me to improve that."*

5.5 Group Work

Group work plays an important role in getting students to collaborate and learn from each other, so it was seen as essential to provide opportunities for students to work in diverse groups. This theme provided insights that were beneficial for answering research sub-questions 1 and 2. The discussions most often focused on the mechanics of how to organize group work, with the main issue being deliberated as whether to mandate group membership or to allow students to decide who they want to team up with.

Academics who regularly arranged the groups' compositions often did this for pragmatic reasons such as to avoid conflict among group members and to promote within-group learning. In addition, creating mixed teams comprising local and offshore students ensures that industry clients could physically meet with at least one team member whilst allowing others to attend meetings via online channels. FGP 2 justified their deliberate approach to placing students into mixed teams, advising the students that they

> "*don't pick your teammates in the real world, so we are trying to put you in this mixed team because you may face that in future.*"

This participant acknowledged that conflicts and issues arise within teams, and these could not be avoided. Rather, FGP 2 pointed out that by having diverse skills, this allowed team members to complement each other. So, the teaching team.

> *"Wanted technical people to work with – designers, artists. The language is different, but because, as engineers, they would have limitations in putting together design and vice versa*".

Interviewee 1 was among those who were allowing students to self-select their groups. Moreover, this interviewee discussed how they use classroom discussions to explain to students that most successful groups have a diversity of opinions. Furthermore, he scaffolded group development by convincing students to create an agreement between members and detail the outcomes should one member does not contribute. As Interviewee 1 acknowledged,

> "*10-20% of students choose to still form all their groups within one culture*"
> and
> "*that's a choice they make, and often times, those groups don't do as well, right?*"

This demonstrated that their output sometimes suffered due to limited prospects. Regardless, this educator felt strongly that students should take responsibility, thus allowing students to reflect:

> *"[T]hink about the composition of your group. How did that impact on you?"*

6. Best Practices in Inclusive Curricula – Selective Coding

According to the grounded theory methodology, the selective coding stage involved identifying the key focus areas in the study. Our study focused on sense of belonging as the core concept, and the other categories were considered through the lenses of helping to create an inclusive learning environment. Initially, we created the following tree structures of codes with two main selective codes: Teaching' and 'Social' (Figure 1).

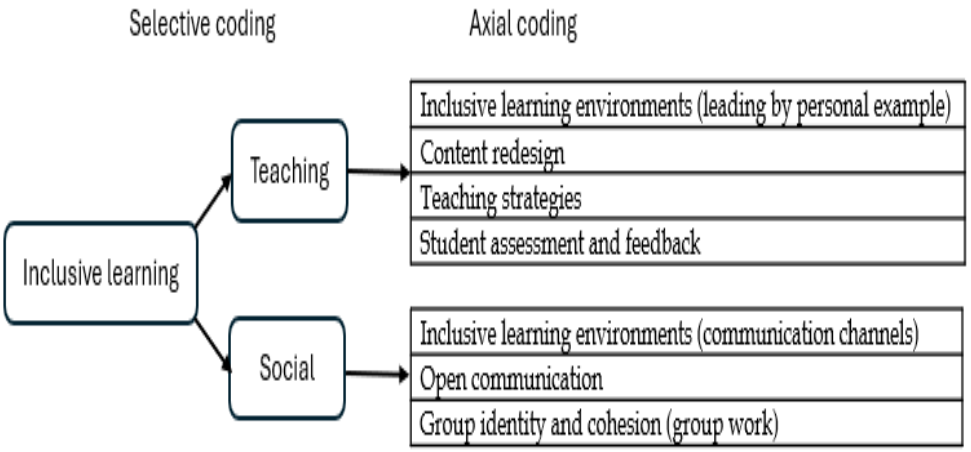

Figure 1: Axial and selective codes – first decision

Aligning with the Strauss and Corbin view of coding as an iterative and dynamic process (Corbin & Strauss, 2014), the categories of the codes were examined and discussed multiple times. In one of these discussions, a point was raised that the identified axial codes aligned closely with the teaching, social, and cognitive presences described in Garrison's (2017) COI framework. The observation was the cognitive/learning aspect of assessments and feedback, which is focused on students' rather than instructors' learning and engagement. Providing the codes were not forced into an existing model or framework, it is acceptable to align emergent codes with existing bodies of theory post hoc if the data supports it, which was the case here. As a result, the three dimensions from the COI framework became our focal categories that captured the key aspects of our data (updated codes are depicted in Table 1).

When discussing how to ensure and optimize inclusivity, the academics in the current study underlined important aspects of the teaching presence, emphasizing the need for educators to become strong role models, to lead by example, and to create learning environments that celebrate the diversity of views and the different ways to solve problems. In expressing their concerns with traditional texts and resources, academics related several approaches to mitigate

this problem such as offering a diversity of real-life case studies, organizing consultation sessions and discussion forums as students' communication channels for help-seeking, and arranging a set of short video recordings around key concepts. Notably, these are illustrative examples of the subcategories of the teaching presence classified by Garrison as Design and Organization, Facilitating Discourse, and Directional Instruction (Akyol & Garrison, 2008; Garrison, 2017).

Table 1: Axial and selective coding

Selective coding	Axial codes
Teaching	Inclusive learning environments (leading by personal example)
	Content redesign
	Teaching strategies
Social	Inclusive learning environments (communication channels)
	Open communication
	Group identity and cohesion (group work)
Cognitive	Student assessment and feedback

Similarly, the codes marking student assessment and feedback relate to the cognitive presence in that they help to promote knowledge construction and confirmation of meaning through reflection and critical discourse. Various supportive strategies for cognitive presence such as aligning content with professional practice and current events, embedding collaboration into assessment to promote social interactions, the publication of rubrics for assessment tasks, the use of regular quizzes, and responsive, timely feedback were recognized by the academics in this study and in the literature (Dunlosky et al., 2013; Giray, 2021; Sathy & Hogan, 2023; Thomas et al., 2014).

However, there were some important practices that were not discussed at length in either the focus groups or the interviews. These practices were derived from the literature and included offering multi-modal channels for conveying subject information through customization of both auditory and visual- content, text and fonts, layout, animation, captions, and simulations together with a proposal to support students' individual choice and autonomy in how they participate in their learning activities (CAST, 2018; Pellicer, 2021).

Regarding social presence, academics articulated various aspects of inclusive learning environments such as communication with and among students and how best to optimize group cohesion. Their helpful suggestions of using early welcoming approaches, self-disclosure, the use of humor, and discussion forums as ways of promoting social interactions and belongingness for students have been recognized by previous studies (Delello et al., 2022; Pellicer, 2021; Thomas et al., 2014). Our academics identified two practical concerns about engaging students in their subjects. The first was what should academics use as their measure of student engagement? They queried the practicality of traditional analytics of live class attendances as a true indicator of student engagement with materials. As voiced by one academic,

> "*My concern is what is that metric? It's like access in general or it's the live one like the engagement that we want? Because I didn't have that online, but the discussion board was booming at the same time*" (FGP2).

The second concern was the challenges that teachers face in the post-COVID future. Increasingly, teaching staff are being overwhelmed by the workload, as they are expected to be proficient in three different delivery modes: F2F, blended, and online. As pointed out by Interviewee 1,

> "*[W]e expects our staff to do more things that are different. We also need to recognize that both the casual staff and the academics need support and training*".

In fact, academics agreed that there is a need

> "*to train our tutors better in how to facilitate those online discussions. Because even the most experienced people, it's very hard to get anyone to come online and to feel comfortable, to turn on their camera to ask questions*" (Interviewee 1).

Interviewee 1 reiterated the most successful practice of encouraging students by saying,

> "*This is a safe environment. We respect each other*".

Several academics mused that the pandemic had forced them to be open to alternative ways of engaging with students whilst voicing their concerns about time constraints and the expected increased demands on their teaching deliveries in the future.

7. Developing the Framework

The goal of this research project was to create an inclusivity framework with hands-on strategies for nurturing sense of belonging in blended-learning classrooms through inclusive curricula, thus answering Research Sub-Question 3. The findings from the discussions with the academics were enriched by insights reported in research literature. The resulting framework (Table 2) summarizes recommendations and practices on promoting students' sense of belonging in a range of learning environments from F2F to online to blended (both synchronous and asynchronous). In this synthesis, each guideline was arranged by its presence in the Garrison's COI framework (2017): teaching, social, and cognitive.

Overall, the framework encompasses and addresses multiple facets of a student's learning experience. The use of COI in this instance was underlined by Zhang et al. (2023) for its strength in guiding practice. Their insights recommend its adoption as most appropriate for those wishing to design online courses, particularly in engineering disciplines. More broadly, our study enriched the COI framework with strategies on promoting students' inclusivity that are applicable to multiple disciplines and blended-learning environments. The designed framework allows an academic to adopt context-appropriate individual approaches from across the social, teaching, and cognitive presences and to incorporate these into their teaching offerings, thereby maximizing the opportunities to nurture inclusivity across all aspects of their student's learning experience.

In the current study, we developed the framework by assembling best practices from literature and our empirical work. We highlighted the adoption of several

UDL strategies that help to address the needs of students who differ in ability, culture, and preferred learning style by providing multiple ways to engage through different methods of representation and multiple means of action/expression (CAST, 2018; Shastri & Clark, 2021). A similar approach was reported recently by Shastri and Clark (2021) for intensive English language teachers to consider when transferring from traditional to online classes. As in our study, the authors found that adopting an overall COI perspective and enhancing it with UDL strategies helps to support student learning, especially in online environments where crucial language cues, verbal and non-verbal, can be missed. Their contribution is a set of eight design questions to challenge and focus language teachers who are planning lessons and activities whilst moving between traditional and online synchronous formats.

Table 2: The inclusive framework

Teaching Presence	Social Presence	Cognitive Presence
Design and organization • Emphasize goals and break goals into short-term objectives • Prepare materials, ensuring a well-paced course and activities • Offer a diversity of case studies, cultural viewpoints in explanations • Build fluencies with graduated levels of support for practice and performance through approaches, strategies, activities, and feedback • Vary the methods for response and navigation by providing alternatives to interact with instructional materials and technologies, illustrating through multiple media • Consider proportions of synchronous vs asynchronous iterations to ensure continual student engagement • Plan for group discussion and peer interaction • Clarify vocabulary and symbols using hyperlinks to definitions	**Personal/affective** • Promote expectations and beliefs that optimize motivation using reminders, guides, rubrics, and checklists • Relate real-world personal success stories • Highlight patterns, critical features, big ideas and relationships • Promote understanding across languages and cultures using electronic translation tools, online glossaries, and images and videos • Optimize individual choice and autonomy to participate in learning activities • Learn the names of students using icebreaker sessions or practice sharing activities at the beginning of the semester • Regular emails from teaching staff – introduction and touching base **Open communication** • Foster collaboration and community through group learning, peer	**Assessment** • Offer different options for assessment, providing choices of topics, resources, or assignment formats • Vary demands and resources to optimize challenges (e.g., quizzes, formative tasks) • Use supportive digital tools such as online quizzes and discussion forums • Promote active learning through problem-solving, role playing, discussions, and presentations • Embed social interaction within assessment tasks • Consider the appropriateness of assessment type for synchronous and asynchronous environments, for example, open-ended or problem-based questions are suitable in asynchronous environments whereas time-bound, skill-based assessments such as oral assessments need to be synchronous

Teaching Presence	Social Presence	Cognitive Presence
and explanations, videos, and animation • Encourage deep learning through explicit relationships between elements and connect them to previously learned structures through explicit cross-curricular connections • Construct activities that allow for students' self-discovery **Discourse** • Conscious choice of technology to support communication between teacher and students and between students, on- and off-line • Optimize access to tools and assistive technologies for navigation, interaction, and peer collaboration • Offer ways to customize the display of information, both auditory and visual-content, text and fonts, layout, animation, and simulations **Directional instruction** • Strong teaching presence where teacher is a role model and guide • Relate course content to the real world, optimizing relevance, authenticity and diversity • Maximize transfer of knowledge and generalization through scaffolds to connect to prior knowledge, mnemonics to help remember, electronic reminders, review, and practice	interaction and support, and group work • Teacher presence as a facilitator and guide to learning • Offer examples that highlight any biases and misconceptions for students • Promote respect for diversity and varying viewpoints • Use multiple media for communication, including social media and web tools such as discussion forums and animations • Guide appropriate goal setting and facilitate personal coping skills and strategies through scaffolding with reminders, models, and checklists and provide links to external support services • Guide information processing and visualization by breaking information into smaller units and releasing it progressively • Be aware that instructor reactions may be viewed differently by on- and off-line students • Use consistent communication protocols • Use nested threaded structure for online discussion forums **Group identity and cohesion** • Plan for diversity in group composition and avoid tokenism • Tasks should be open-ended and collaborative	• Develop self-assessment and reflection through aids, templates, or charts to recognize a student's progress • Incorporate real-world problems and industry examples **Feedback** • Needs to be appropriate for the task • Needs to be constructive and offer positive reinforcement in a timely manner • Increase mastery-oriented feedback that emphasizes effort and improvement to encourage perseverance • Enhance capacity for monitoring progress using templates to guide quality and completeness, checklists, and rubrics • Provide feedback to the entire group rather than identifying a single student within the group • Consider proportions of synchronous vs asynchronous modes of feedback to ensure positive student learning experiences

Teaching Presence	Social Presence	Cognitive Presence
• Consideration of whether interactions should be voluntary or mandated		

Note. The framework offers guidelines on building students' sense of belonging through inclusive curricula

Our study underlines that the amalgamation of UDL and COI can be successfully used in other language-learning domains. The strength of our approach is its broader application, as it capitalizes on synchronous and asynchronous technologies to ensure a student-centered approach to engage and motivate learners in blended environments. It offers multiple and various strategies for large classes and across diverse cohorts.

Notably, analysis of the literature and the collected data shows that aspects identified by educators as being the most significant (answering Research Sub-Question 2) are not necessarily noted by their own students as being the most important. This disparity is related to how each group views the three presences of the COI framework. For academics, their thoughts and efforts were strongly targeted toward aspects of teaching and cognitive presences. For teaching presence, many academics highlighted the need to overhaul content so that case studies and teaching materials centered on topics that were geographic and gender neutral and likely to have broader appeal.

For cognitive presence, academics' emphasis was on the need for assessment topics to be relatable using industry examples and real-world issues. Furthermore, several made extensive use of digital platforms and tools such as discussion forums to stimulate student conversations, to support engagement, and to provide feedback from peers and instructors in both blended synchronous and asynchronous learning modes. Quizzes were also used to aid self-assessment and to document learners' progress, and rubrics were employed in supplying consistent feedback and in helping students structure their assessment efforts. Furthermore, academics valued the role of good tutors who could be relied upon to give appropriate feedback.

From our previous project (Mendoza & Venables, 2022), students' feedback across the cohorts (F2F, blended, online) showed that they were very interested in their social interactions with peers and academics alike and indicated how these interactions helped and supported their cognitive efforts and their understandings of materials. When encouraged by their teachers and supported by appropriate technologies, students appreciated opportunities to engage socially in both lecture and tutorial classes and to work collaboratively with their peers on assessment tasks.

As a factor for boosting their sense of belonging, students identified timely, constructive, and personalized feedback as being important for improving understanding and building knowledge. Although academics also appreciated the importance of quality feedback to students, they felt overwhelmed by

organizational demands and most often delegated this task to casually contracted tutors, concentrating their own efforts on rubric design and measures to ensure marking consistency. Therefore, the main misalignment between the perceptions of students and academics is concerning the importance of a student's social presence for creating inclusive learning environments. In our focus group forums, it seemed that academics expressed an operational appreciation for the aspects that impacted their students' learning outcomes, focusing more on the mechanics of managing problem situations involving student conflict rather than on promoting social interaction per se as the mechanism to enhance learning.

To address this shortfall and bias, academics adopting and implementing some of the practical social presence strategies of the inclusivity framework (Table 2) into their offerings ensure that more of their students will feel included and better connected with their course, as their social and cognitive needs are better met (Pellicer, 2021; Richardson & Lowenthal, 2017). More broadly, we assert that academics adopting any of the strategies and recommendations presented in this paper will enhance each student's learning experience through the promotion of a more inclusive learning environment.

8. Implications for Practice

Whilst amassing the strategies presented by teaching staff and the literature reflecting the views of staff and students on how to promote inclusive blended-learning environments (Table 2), we noted various points of emphasis and advice for augmenting students' sense of belonging in blended-learning environments; this was specifically directed toward course and subject coordinators, classroom instructors, and tutors. The advice on how best to nurture inclusiveness is presented below as a set of recommendations for their consideration and implementation.

8.1 Recommendations for Course and Subject Coordinators, Instructors, and Tutors

The points below summarize the practical experiences shared by the study participants and possible courses of action derived from the literature:

1. Offer project encouragement to all students and convey the message that diversity of backgrounds is welcomed.
2. Create a safe, inclusive learning environment in which students feel a sense of belonging and where differences of perspective and opinion are explicitly encouraged.
3. Undertake a review of the course content and activities within units to ensure that diversity is recognized, lauded, and encouraged through the following:

- offering different cultural case studies and examples in the teaching materials;
- promoting culturally diverse group membership in group tasks; and
- comparing various perspectives for problem-solving, highlighting the strengths of different approaches.

4. Review and revise tutorial materials and activities to incorporate more practical aspects, real-life examples, and industry perspectives, especially for online students participating in blended synchronous situations.

5. Review and revise tutorial materials and activities to incorporate peer interaction and group work that allows for sharing of diverse perspectives.
6. Seeking opportunities to mirror student cohort diversity among teaching teams by having former graduates and industry partners of different backgrounds instruct on the subject.
7. Optimize learner's choice and autonomy in participating in learning activities through different ways of engaging.
8. Examine the support provided by the platform and the technology used in blended-learning environments, looking to improve interactivity between all groups, synchronous and asynchronous.
9. Consider varying the methods for response and navigation by providing alternatives for students to interact with instructional materials and technologies; illustration is through multiple media.
10. Ensure all assessment tasks and rubrics are aligned to improve student understanding.
11. Provide a diverse range of feedback approaches that are timely, purposeful, and constructive (e.g., F2F, online, textual, visual, automated, summative, formative).
12. Ensure that feedback to students is formative in learning and encourages effort.

9. Conclusion

As we emerge from the disruption caused by the COVID-19 pandemic, many academics are reflecting on and reporting on their experiences of the emergency rush to online and/or blend-learning classes at their institutions. As higher education institutions decide on their new 'normal', it is important that the programs being offered are designed to nurture the learners' sense of belonging as an effective approach to support their learners' academic adjustments and to promote their scholarly successes. Inclusive learning environments come about when educators plan for collaborative learning activities that encourage social engagement among their students and promote open communication between educators and students in person and online.

Therefore, academics wishing to have a positive impact on their students' sense of belonging can do so through thoughtful consideration of the guidelines from the inclusive framework (Table 2) and selecting the instructions that are most appropriate for their classrooms. We believe it is possible for academics to accommodate students of varying needs within large, blended-learning classes by adopting the variety of successful approaches provided they can take advantage of appropriate technical affordances, and most importantly, by ensuring that they are well-supported by their institutions to do so.

Whilst the guidelines, the recommendations, and the lessons presented in the inclusive framework are pertinent and useful to all academics who are interested in improving students' sense of belonging across the spectrum of learning situations, this study had some limitations. The major limitation was the small sample size. However, to mitigate this limitation, our sample of participants was heterogenous, with expertise spanning a broad spectrum of subject areas and

representing a range of cultures and significant experience in teaching with different modes of delivery (F2F, online, and blended learning, both synchronous and asynchronous). In addition, the findings from our data were cross-referenced with our previous study that involved a large sample of international students (with a wide a range of backgrounds and experiences) and the existing literature in the field. This step ensured validity of the findings.

Conflict of Interest

The authors have no conflicts of interest to disclose.

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Appendix 1

Focus Group Questions:

Preliminary questions

1. Can you recall a subject, either here or elsewhere, that 'really worked' in creating an atmosphere where students felt comfortable and included? Can you tell us what it was about the subject that helped foster this sense of belonging for students?
2. Have you had experiences where things could have been done differently to achieve increased participation and a better sense of belonging for students? What could be changed about those situations to improve them?

Core questions

We are particularly interested in blended synchronous learning situations where some students are present in the classroom and other students participate online. Regarding helpful approaches for including students:

3. What do you think works best for online students to help them to feel included in a session?
4. Do you think the approaches that are successful in helping online students to feel included are the most appropriate strategies for on-campus students who are participating in the lesson to feel included? Could you explain any differences in what needs to be done for each group?

Now, regarding blended synchronous learning environments:

5. Can you tell us about specific actions that you have used to create this sense of belonging? Which actions seem to work? Which initiatives were ill-fated and did not produce the hoped-for outcomes?
6. In your opinion, what is the lecturer's/tutor's level of contribution in creating an environment to help students feel more included?

Furthermore, we would like to discuss the separate impacts of curriculum delivery, assessment, and feedback and how they affected students' sense of belonging in a subject:

7. To what extent do you believe the delivery of teaching materials or the curriculum helped or did not help in assisting students to feel comfortable within a subject and in positively influencing their sense of belonging?
8. In your opinion, how important is casual feedback within the classroom for both online and on-campus students compared to structured feedback from assessments?
9. What makes an assessment good and well thought through? How does assessment affect student wellness?
10. What role, if any, does the subject's online presence play in student learning? To what extent do you think your students use it for sourcing materials, understanding assessments, and receiving feedback in your blended synchronous subjects?

11. In creating an inclusive classroom and supporting your students, how do you find the technological affordances supplied by the university? Please elaborate on how they support or hinder your efforts.
12. What do you think is specifically needed to support academics in creating an 'inclusive' curriculum and in effecting its delivery in their blended subjects? Is specific training an issue?

Concluding questions

13. Can you think of any points about inclusive classes in blended-learning situations that we may have missed?
14. Any overall comments about our topic today?

Thank you for sharing your thoughts and opinions today. They are greatly appreciated.