

Promoting a sense of belonging in university online learning: How and why initial teacher education students experience an increased sense of belonging

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Despite evidence of practices that support online students in university learning, promoting engagement and building a student sense of belonging continue to be a challenge. To enhance student engagement, a suite of evidence-based learning design strategies was incorporated across online units of study in initial teacher education programmes at a regional Australian university. To determine the impact of these strategies or elements, students were surveyed regarding their perspectives on how the elements had positively impacted their sense of belonging within the online university community. The systemic functional linguistics Appraisal framework was used to analyse qualitative survey data, which reported students experienced an increased sense of belonging expressed as positive Judgements of their own mental capacities. Students also expressed feeling cared for, valued and supported by academics and experienced enjoyment in their learning and reduced levels of stress. All elements were positively evaluated; however, unit coordinator behaviour, especially social capacity, was unexpectedly important in increasing student sense of belonging. Whilst ongoing incorporation of design elements to enhance engagement is important, the behaviours of unit coordinators actioned through these elements were paramount in promoting student belonging.

Implications for practice or policy:

- Increasing levels of student belonging may be improved by including learning experiences that promote feelings of success and relationships with others.
- Unit coordinators can enhance online student belonging by using online learning design elements to demonstrate approachability, understanding, supportiveness, availability, presence, care and patience.
- Universities should consider adopting organisation-wide initiatives that promote consistent and visible learning design features and staff presence, with the aim of addressing attrition and retention challenges.

Keywords: online learning, teacher education, tertiary education, belonging, regional, systemic functional linguistics

Introduction

Both a sense of belonging and personal connection are arguably essential for students in all university learning contexts (Hoi & Le Hang, 2021; Peacock et al., 2020). With the ever-increasing popularity of online learning, building connections by implementing relationship-rich education philosophies is considered more vital than ever (Felten & Lambert, 2020). Teacher-student and peer-peer connections are especially important in asynchronous online learning spaces (Reilly et al., 2012). Here, a low sense of belonging in students is associated with lower student engagement, which may be characterised by academic performance and retention but also incorporates social engagement (Hoi & Le Hang, 2021; Peacock et al., 2020). Accordingly, a significant body of knowledge describes the benefits and challenges of online learning (Appana, 2008; Bailey & Lee, 2020; Chiu et al., 2021; Dube, 2020; Jaradat & Ajlouni, 2021; Suharsih & Wijayanti, 2021; Yusuf & Ahmad, 2020) and its effective design, including strategies for increasing students' sense of belonging (Belt & Lowenthal, 2021; Wang, 2022). Yet, little is known about why such strategies increase belonging in higher education, and belonging has not been adequately conceptualised; current literature on sense of belonging spans several disciplines, without definitive consensus regarding definitions or interpretations. This study advances theoretical understandings of

belonging and practical implementation pertaining to elements of online learning that target student engagement. Building on current definitions of belonging that focus on feelings (Lewis et al., 2016; Peacock et al., 2020), the study examined how students experience belonging affectively, concurrent to student evaluations of the behaviours of self and others, and the online learning environment. Importantly, the study determined why particular elements of the online learning environment enhance students' sense of belonging.

At a regional Australian university, a team of academics and learning designers implemented a school-wide programme over 3 years, which focused on addressing engagement, increasing retention and decreasing attrition in initial teacher education (ITE) programmes. Most students within the school are female, mature-age and study online, with several experiencing the intersectionality of multiple underrepresented or widening participation demographics (Cherastidtham & Norton, 2018). Accordingly, these students are at greater risk for non-successful completion outcomes, and school unit coordinators (UCs) required timely, pragmatic and evidence-based strategies to address retention and attrition. In response, as a scholarly approach to teaching, the Commencing Student Success Project (CSSP) incorporated evidence-based basic elements (BEs) derived from the first-year student experience literature (e.g., Luzeckyj & Rankin, 2016; Tinto, 2012), into all years of undergraduate and graduate-entry ITE courses.

Lack of access to the physical campus means that the online experience and content must be engaging and interactive, purposely designed and intended for online delivery to retain all learners (Stone & Springer, 2019). Strategies including using instructor video, logical navigational design, consistency in unit organisation, inclusive discourse facilitation and teacher direct instruction, all contribute to cohesive online learning (Belt & Lowenthal, 2021; Wang, 2022) and informed the creation of the BEs in the programme. The evidence-based CSSP BEs are as follows:

- UC video introductions to unit and topics
- flexible assessment due dates (a submission window of up to 21 days)
- video explanation of assessments
- examples of assessment expectations provided
- assignment levels and requirements pitched at student level
- collective feedback provided to all students on how to improve their assessments
- UC is present and approachable within the unit
- consistency of learning management system (LMS) presentation
- module reflection points and clear learning goals for each topic
- clearly defined assessment rubrics.

Further, based on universal design for learning (UDL) (Meyer et al., 2014), the CSSP prioritised principles of engagement, representation and action and expression. The programme was additionally guided by the Australian Professional Teacher Standards domain of Professional knowledge – Know students and how they learn (Australian Institute for Teaching and School Leadership, 2022), focusing on building and facilitating effective two-way teacher-student relationships. This was central to the programme, as relationships are at the heart of improving student engagement, attrition and retention when geographic and temporal dispersal of online students impede social presence (Smith & Sivo, 2012), participant interaction, collaboration and personalisation of learning (Powell & Bodur, 2019). Uniquely, the CSSP was proactive in targeting staff in UC roles to promote student engagement, rather than reactively "fixing" lack of student engagement through punitive measures.

Although the CSSP aimed to improve engagement (Grono et al., 2022), one outcome was an increase in students' sense of belonging. This study investigated what it means to belong for students who have undertaken units that incorporate the BEs. This was guided by two research questions: how is belonging experienced, and why do certain BEs increase the sense of belonging for these students? Below, this paper discusses effective online learning and student belonging in online spaces, then introduces the theoretical framework, systemic functional linguistics (SFL), and its value for conceptualising belonging. Following

Appraisal analysis (Martin & White, 2005) of qualitative survey data, suggestions are provided for how university teaching staff may implement online learning design elements for greatest impact on belonging and engagement.

Literature review

Learning online globally has become a more widely used and accepted teaching practice in the higher education context (Mishra et al., 2021; Naidu, 2021; Wang, 2022). Beyond being essential during the pandemic, online learning has many benefits, including making education more convenient and accessible, increasing flexibility of access, focusing learning through modularisation and easing the integration of education with modern life (Liu et al., 2020). In the Australian context, enrolment in external and online modes dominates university student choice (Stone & O'Shea, 2019). Online learning facilitates university study that may not otherwise be accessible, particularly for mature-aged students (Kara et al., 2019). Further, many mature-aged students undertaking online study are female (Stone, 2017; Stone & O'Shea, 2019), and from regional, rural and remote areas (Crawford, 2022). Similarly, non-traditional students are more likely to undertake study online, including students who enter university via alternate pathways (Pitman et al., 2016), those who are first in family to attend university (Stone, 2017; Stone & O'Shea, 2019) and students living with disability (Stone, 2019). However, challenges remain around online learning efficacy with these cohorts in higher education. Key barriers that inhibit successful progress and encourage attrition include poor time-management, issues with meeting deadlines, social isolation and limited or delayed feedback (Cherastidtham & Norton, 2018; Paudel, 2021). Further, university students studying online with less adequate skills or supports are likely to experience attrition and disengagement (Fan et al., 2023), which is especially poignant for equity groups. A significant challenge with online study is that some students feel disconnected from their lecturers, peers, the wider university community and the learning environment, undermining engagement (Hoi & Le Hang, 2021; Peacock et al., 2020) and successful progress and completion (Paudel, 2021).

There is a clear relationship between student engagement, the learning environment and student belonging. Certainly, a university's commitment to supporting students can impact positively on their success; and there are perennial factors recognised as playing an integral part in improving the conditions needed for student success, such as providing social interaction and support (Tinto 1975, 2012). Scholarly efforts have interrogated the nature of these links in online learning (e.g., Belt & Lowenthal, 2021; Wang, 2022); yet, how the learning environment impacts upon student belonging remains under-conceptualised. A sense of belonging in online higher education may be defined as "the extent to which individuals feel like a valued, accepted, and legitimate member in their academic domain" (Lewis et al., 2016, p. 1). Peacock et al. (2020, p. 20) further suggested that a sense of belonging has two attributes: "The first involves feelings of being accepted, needed, respected, mattering, and valued in a class. The second pertains to feelings of fitting in - being connected with a group, class, department, subject, institution, or all of these". Other definitions are underpinned by notions of ease, comfort and security (Cook-Sather & Felton, 2017; May, 2011). Regardless of the variations between definitions, they each emphasise that affective elements, or student feelings, are foundational to student belonging. Definitions are, however, limited in conceptualising how feelings of belonging relate to the online learning environment or other members of the online learning community. The study reported here addresses this shortfall, examining how student belonging relates to elements of the environment and its members.

To overcome the factors that impede belonging and strengthen engagement, universities include various design elements in online learning. Such elements have demonstrated their efficacy and positive impact (e.g., Cherastidtham & Norton 2018; Grono et al., 2022; Luzecky & Rankin, 2016; Tinto, 2012); however, although these elements improve belonging, little is known about how and why this is so. Taking a linguistic perspective can provide new insight into element effectiveness (Adlington et al., 2024). For example, Stone (2017) confirmed that timely and detailed feedback improves academic success. However, Shrestha's (2022) linguistic analysis of feedback revealed how the language choices of assessors impacted on how meaningful and relevant the feedback was. For this reason, linguistic analysis informed the present study of why the BEs improve belonging as well as how belonging is experienced.

The language theory SFL posits that language is used by people to “interact in order to make meanings” (Eggins, 2004, p. 11). Although alternative theories view language use as a cognitive process, most notably Chomsky’s (2006) transformational generative grammar, SFL focuses on the social purpose (or *function*) of language. As belonging is an inherently social experience, SFL is an ideal theory with which to explore student belonging in online learning spaces. SFL distinguishes between three types of meaning, or *metafunctions*, made in all texts and interactions (Halliday & Matthiessen, 2014). When using SFL to understand online text-spaces, it is helpful to focus on just one metafunction. For example, website navigation may be improved or impaired by considering hyperlinks from the *textual* metafunction perspective – how we organise texts so that they are cohesive and coherent (Djonov, 2008). Focusing on the *ideational* metafunction – meanings about the world and our experience – can enlighten how effective blog authors use tags to summarise or extend upon ideas in posts (Adlington, 2019). By attending to the *interpersonal* metafunction – meanings we use to interact with others and build relationships – assessment feedback may be improved by using language that evaluates academic writing instead of evaluating students (Shrestha, 2022). The interpersonal metafunction is relevant to the present study that examined student belonging.

Methodology

Data collection context and method

The CSSP investigated the impact of the BEs on student engagement and retention in online ITE courses (ethics approval HE20-083). Courses included the Bachelor of Education programmes (K-6 Teaching, Early Childhood and Primary, Secondary Arts, Secondary STEM, K-12 Teaching), the Bachelor of Special and Inclusive Education (Primary) and Master of Teaching programmes (Primary and Secondary), with a total of 155 units adopting the BEs. Part of the study, reported here, examined students’ experiences of belonging in online learning. The students invited to participate were all those who had completed study in Teaching period 2 of 2022, in units that adopted the BEs ($n = 44$), including 100- to 500-level units across disciplines (e.g., primary and secondary curriculum, educational psychology, sociology, pedagogy). In total, 203 (11%) of 1812 eligible students participated.

An anonymous survey was conducted of participants following completion of Teaching period 2. As most participants were ongoing students, anonymity was provided to elicit more honest and authentic feedback (Babbie, 2020). In addition, in consideration of power differentials, with possible future teaching relationships between members of the research team and students, anonymity ensured data (e.g., critique of units and academic staff) would not inadvertently colour individual students’ future learning experiences or assessment. As part of the survey, participants were asked to rate “How important were each of the elements to increasing your sense of belonging in these units?” with a 7-point Likert scale. Then, participants were invited to provide open-ended written responses to the question “Please elaborate on why the options you chose above increased your sense of belonging to these unit(s)”. In total, 76 of 203 participants provided the corpus of written responses.

Data analysis

The corpus was analysed according to SFL conventions. SFL posits that people convey meaning by making choices of language, with language options able to be mapped out as systems (Halliday & Matthiessen, 2014). The system associated with the interpersonal metafunction is the Appraisal framework (Martin & White, 2005), used to analyse the language of evaluation. Although the framework accounts for three evaluative resource types, analysis focused on student use of the resources of ATTITUDE. ATTITUDINAL analysis was selected because it would provide significant insight into how and why the BEs increased belonging, whilst analysis of the two other resource types would provide limited additional insight.

Analysis of evaluative language attended to the ATTITUDINAL language resources used to express feelings (Affect), judgements about people and their behaviour (Judgement) and evaluations of objects and phenomena or aesthetic qualities of people (Appreciation) (Martin & White, 2005). Responses were

searched for words or phrases that were coded as instances of Affect, Judgement or Appreciation (Martin & White, 2005), then sub-types within, following Bednarek (2008) for Affect and Ngo and Unsworth (2015) for Judgement and Appreciation. Figure 1 shows the Appraisal framework including sub-types.

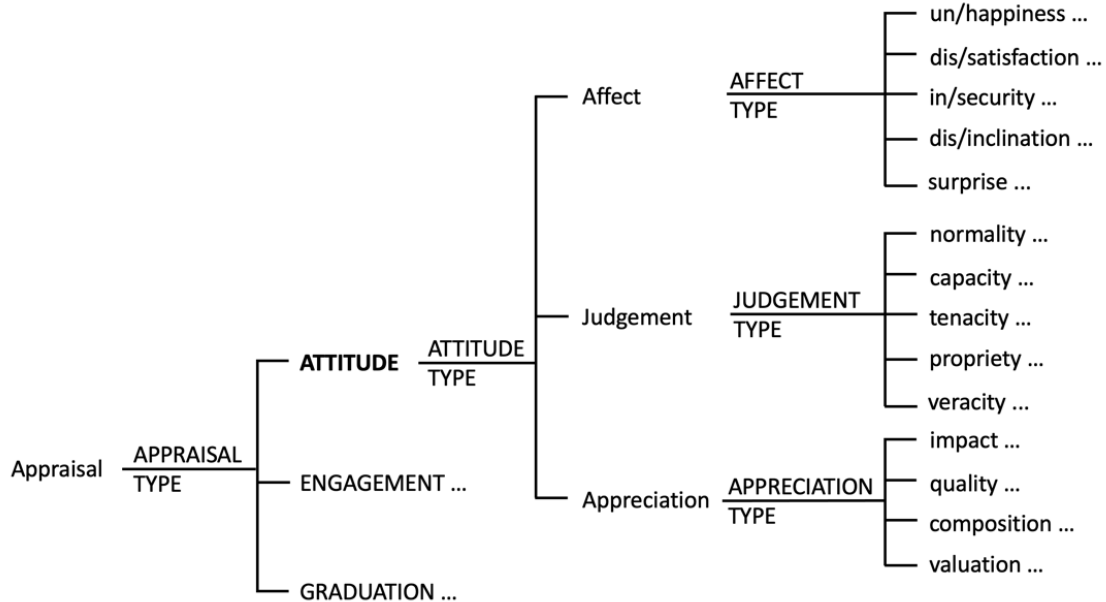


Figure 1. Overview of appraisal resources; adapted from Bednarek (2008), Martin and White (2005) and Ngo and Unsworth (2015)

Note. Capitalisation is used to distinguish the framework's metalanguage from common use of language. The top tier is completely capitalised (e.g., ATTITUDE), the next tier uses first letter capitalisation (e.g., Judgement) and successive tiers are uncapitalised. Ellipses indicate where further levels of delicacy are available.

Identifying and coding ATTITUDINAL resources is a highly context specific (Ngo & Unsworth, 2015) and subjective task (Fuoli, 2018), which makes some coding difficult (Shrestha, 2022). Considering this, a double-coding process was followed. Initially, segments were coded as belonging to a sub-type. Then, segments within a sub-type were compared with each other to ensure consistency, and segments that did not match were re-coded. This was repeated for all sub-types. Finally, segment groups were checked by an independent SFL researcher, and remaining problematic segments were re-coded until agreement was reached. The coded data were then analysed to determine trends in the use of evaluative language regarding how belonging was experienced (research question 1), and why the BEs increased belonging (research question 2).

Findings

How and why student belonging in online learning is experienced was expressed using all three ATTITUDINAL resources: Affect, Judgement and Appreciation. Table 1 shows the three types of ATTITUDE found in the data set, rates of usage (per 1000 words), usage of each type as a percentage of total ATTITUDINAL segments, and usage of positive and negative ATTITUDE:

Table 1
ATTITUDE type, polarity and rates of usage

ATTITUDE type	n = segments	% ^a	Per 1000 words	Example (coded segment bolded)
Affect (total)	27	17.9%	14.5	
+ve	24	15.9%	12.9	I felt ... cared for
-ve	3	2%	1.6	... feel like an idiot
Judgement (total)	52	34.4%	28	
+ve	50	33.1%	26.9	The lecturers were approachable
-ve	2	1.3%	1.1	I am a student who can struggle with things
Appreciation (total)	72	47.7%	38.8	
+ve	64	42.4%	34.5	Clear assessment details
-ve	8	5.3%	4.3	... poor explanations
Total segments of ATTITUDE	151			

^a% = percentage of total instances of ATTITUDE.

Segments were predominantly coded as positive ATTITUDE (91.4% positive), for example, happiness rather than unhappiness, which was unsurprising given participants were asked about an inherently positive experience – increased belonging. Most instances of negative ATTITUDE were expressed in comparison to positive experiences of belonging in CSSP units, for example:

.... the unit [was] interesting, as some units can be **repetitive** and **difficult to engage with**

Table 2 below further describes the three types of ATTITUDE, revealing differences in how belonging was experienced, as distinct from which BEs were effective at increasing student belonging and why.

Table 2
ATTITUDE sub-types and usage

ATTITUDE type	n = segments	% ^a	Example (coded segment bolded)
Appreciation (total)	72	47.7%	
How	12	8% content made the unit enjoyable
Which and why	60	39.7%	Clear assessment details
Judgement (total)	52	34.4%	
How	11	7.3%	I was able to understand
Which and why	41	27.1%	The lecturers were approachable
Affect (total)	27	17.9%	
How	23	15.2%	I felt ... cared for
Which	4	2.7%	I like the flexible dates
Total segments of ATTITUDE	151	100%	

^a% = percentage of total instances of ATTITUDE.

Overall, approximately half (47.7%) of all coded language segments were Appreciation, and the most common expressions of why the BEs increased student sense of belonging. Appreciation evaluates the “quality of processes, things and products (and human beings when they are seen as entities)” (Bednarek, 2008, p. 15). Accordingly, it is predictable that participants use Appreciation when asked to discuss the BEs – all but one of which may be considered processes and things. Expressions of Affect were least common (17.9%), with meaning pertaining to how we feel (Bednarek, 2008). Similarly, it is predictable that students will express Affect infrequently in response to questions about why the BEs increased their sense of belonging. Less predictable, however, is the significant expression of Judgement. Just over one-third of all segments were instances of Judgement. The language of Judgement evaluates human

behaviours (Bednarek, 2008), so it was surprising that a high proportion of Judgement was in response to a question primarily about the processes and objects that constituted the BEs; only one of 10 BEs – UC is present and approachable – referenced human behaviour. Below, further analysis of evaluative language shows how student belonging was experienced (Table 3), why the BEs increased student belonging (Table 4) and why Judgement featured in participant language (Table 5).

How student belonging in online learning is experienced interpersonally (research question 1)

How belonging in online learning is experienced by students was expressed using all three ATTITUDINAL resources: Affect, Judgement and Appreciation. Affect pertains to how we feel: “do we desire something or not, do we feel happy or sad, confident or anxious [secure], interested or bored, surprised or unsurprised?” (Bednarek, 2008, p. 171). Instances of all five Affect sub-types, including both positive and negative security, were found in the corpus regarding how students experience belonging (Table 3).

Table 3
Affect sub-types used to express how belonging is experienced

Affect sub-type	n = segments	% of Affect (how)
Security: Quiet	9	39.1%
Insecurity: Disquiet	3	13%
Happiness: Affection	7	30.4%
Inclination: Desire	2	8.7%
Satisfaction: Pleasure	1	4.4%
Surprise	1	4.4%
Total segments of Affect: how belonging is experienced	23	100%

The concept of belonging itself fits within the Affect sub-type of security: quiet. Students used a variety of language to express belonging (security: quiet), for instance (coded segment indicated in **bold**):

- (1) I felt **like I was part of a class** in real time
- (2) I felt **like I wasn't the only one** sometimes not understanding
- (3) I felt **like I was part of the community**

Students also compared their positive experiences of belonging with negative experiences in non-project units using language expressing insecurity: disquiet, for example:

- (4) ... poor explanations [make me] feel disengaged and **ultimately unaccepted**

Aside from segments expressing belonging, happiness: affection was the most common Affect expressed by students regarding how they experienced belonging (30.4%), especially feeling cared for and valued. For instance:

- (5) ... feel **like I was valued**
- (6) I felt more **cared for**
- (7) ... [I] feel **more visible**

Students expressed that their UCs experienced similar Affect:

- (8) ... it feels like they **care about** our progress

Students also expressed satisfaction: pleasure:

- (9) ... you feel a sense of belonging and **pride**

A sense of belonging was experienced as inclination: desire by one student:

(10) I feel **more inclined to** engage in the unit

while another student experienced belonging owing to the UC's desire:

(11) [the unit coordinator] **wanted** me to succeed

Finally, one student expressed negative surprise regarding marks in a non-project unit:

(12) the entire class was **shocked** at the terrible grades

The language of Judgement evaluates "human actions, behaviour or character by reference to a set of ethical norms" (Bednarek, 2008, p. 15). Judgement pertains to normality, capacity, tenacity, propriety and veracity (see Figure 1). However, all 11 instances of Judgement regarding how students experienced belonging (Table 2) were positive expressions of their own capacity: mental: "mental or cognitive performance" (Ngo & Unsworth, 2015, p. 17), particularly success (13), understanding (14) and executive functioning (15–17):

(13) ... getting **the best results I've ever had**

(14) I was able to **understand** the expectations

(15) I was able to ... **follow along**

(16) ... and **not get so lost** ...

(17) [the] videos helped me re-centre any time I had **fallen behind** ...

Expressions indicated mental capacity was improved because of the consistency of LMS presentation ($n = 3$), BEs associated with clarifying assessment expectations (*video explanation of assessments* ($n = 3$), *examples of assessment expectations* ($n = 1$)), the *flexible assessment due date* ($n = 1$) and *UC video introductions to unit and topics* ($n = 1$). The remaining two expressions targeted all BEs.

Appreciation evaluates the "quality of processes, things and products (and human beings when they are seen as entities)" (Bednarek, 2008, p. 15) and includes the sub-types of impact ("emotive response" (Ngo & Unsworth, 2015, p. 13)), quality, composition and valuation. Emotive responses to aspects of the learning environment, or Appreciation: impact ($n = 12$), were deemed expressions of how students experienced belonging and constituted 8% of all instances of Appreciation in the corpus (Table 2). Students reported that the BEs made them feel supported (18) and experience enjoyment (19) and (20) and reduced levels of stress (21):

(18) These **supportive** factors made me feel a sense of belonging

(19) The unit content is what made the unit **enjoyable**

(20) **Friendly**, collaborative atmosphere in zooms

(21) ... assessment due dates did not feel **overwhelming** at all!

Instances of impact pertained to the BEs generally ($n = 3$), and specifically the *UC video introductions to unit and topics* ($n = 3$), *consistency of LMS presentation* ($n = 1$) and *flexible assessment due date* ($n = 1$). Evaluations of non-BE unit features included Zoom ($n = 1$), the chunking of assessment ($n = 1$) and the informal Messenger group established by students ($n = 2$).

Most instances of Appreciation ($n = 60$, Table 2) evaluated the quality, composition and valuation of learning environment BEs, indicating why BEs were effective at increasing belonging. These are examined below.

Why the BEs were effective at increasing belonging (research question 2)

Students identified why BEs were effective at increasing belonging using all three ATTITUDINAL resources. In total, 39.7% of all ATTITUDINAL expressions in the corpus were instances of Appreciation (Table 2) that evaluated quality, composition and valuation of BEs and project units, with a relatively even distribution of types of Appreciation seen in Table 4.

Table 4

Appreciation sub-types used to express why BEs were effective at increasing belonging

Appreciation sub-type	n = segments	% of Appreciation (why)
Quality (total)	20	33.3%
: Effectiveness	9	15%
: Manageability	7	11.7%
: Appropriateness	3	5%
: Convenience	1	1.6%
Composition (total)	18	30%
: Complexity	13	21.7%
: Balance	5	8.3%
Valuation (total)	22	36.7%
: Benefit/harm	18	30%
: Significance	4	6.7%
Total segments of Appreciation: why BEs are effective	60	100%

Evaluations of quality indicate a particular standard and may be coded more delicately as evaluating aesthetics, appropriateness, effectiveness, convenience and manageability (Ngo & Unsworth, 2015, pp. 15, 17) (Table 4). Students positively evaluated BEs associated with assessment (*assignment levels and requirements pitched at students; video explanation of assessments*), and UC video introductions to unit and topics in terms of appropriateness (22)(25), effectiveness (23)(26) and manageability - the “relative ease of dealing with matters” (Ngo & Unsworth, 2015, p. 20) (24):

- (22) All assignments were **aimed at students** (quality: appropriateness)
- (23) [the structure of the assignment] **assisted** my understanding (quality: effectiveness)
- (24) ... **realistic** assessments ... (quality: manageability)
- (25) **No stone was left unturned** in videos and explanations (quality: appropriateness)
- (26) I could **rely on** them [materials] for weekly expectations (quality: effectiveness)

Evaluations of quality: aesthetics were not present in the corpus.

The Appreciation sub-type, composition, encompasses complexity (how hard something is to follow) and balance (how something hangs together) of phenomena (Martin & White, 2005). In total, half of the expressions regarding composition evaluated positively the BEs that improved assessment clarity (e.g., *examples of assessment expectations*) (39%) (27) and videos (11%) (28):

- (27) ... very **clear** (composition: complexity) explanations of the tasks and assessment
- (28) The videos were **short and sharp** (composition: complexity)

Non-project units were occasionally used as negative counters (16.6%):

- (29) ... [non-project] units can be **repetitive** (composition: balance) and difficult to engage with

The Appreciation sub-type, valuation, pertains to the significance - the “value or significance of things” (Ngo & Unsworth, 2015, p. 12), and benefit/harm of a phenomena - “did it enhance or destroy?” (Ngo & Unsworth, 2015, p. 15). Students’ positive evaluations of valuation: significance highlighted the importance of BEs relating to assessment, for instance, *rubrics*:

(30) Clear assessment details and criteria are **essential** (valuation: significance)

Positive evaluations of valuation: benefit/harm centred on helpfulness, with 78% of these expressions pertaining to the helpfulness of BEs including those that provided assessment details, the *flexible assessment due date*, *video explanations of assessments* and *video introductions to topics*:

(31) ... very clear explanations of the tasks and assessment was **helpful** (valuation: benefit)

Again, a negative counter was used to express the value of the BEs:

(32) Online learning can be very **isolating** (valuation: harm). The above important items [helped me feel] connected to the class.

Some instances of Appreciation evaluated the whole unit or LMS site (33–35), teaching strategies (36) and using Zoom (37):

(33) the **interactive** [LMS] site and **easy** navigation (quality: effectiveness, quality: manageability)

(34) The unit was **well structured** (composition: balance)

(35) Being this **organised** made it easier to feel part of the community (composition: balance)

(36) Being able to ask questions on a **regular** basis was particularly helpful (quality: convenience)

(37) The Zoom Q&A sessions **helped** greatly (valuation: benefit)

Although not explicitly mentioning *consistency of LMS presentation*, this BE appears to be evaluated in (33) to (35), while (36) and (37) pertain to elements beyond the BEs.

Positive evaluations of valuation: significance were also made by students regarding the importance of unit content, for instance:

(38) [the unit] allowed me to ... understand the **importance** of educating young children

Finally, alongside Appreciation, Affect was also used by students to simply identify which BEs increased their sense of belonging:

(39) I **like** the flexible dates (happiness: affection)

(40) **Loved** the videos for each assessment (happiness: affection)

(41) I **enjoyed** the way the unit was structured (satisfaction: pleasure)

Students were asked why the BEs were effective at increasing belonging, foregrounding evaluation of the BEs as phenomena, and the language of Appreciation in the corpus. However, 27.1% of all evaluations were Judgements of UC behaviour (Table 2), associated with one BE – *UC is present and approachable*. The evaluations incorporate all five sub-types of Judgement (Table 5).

Table 5

Judgement sub-types used to express why BEs are effective at increasing belonging

Judgement sub-type	n = segments	% of Judgement (why)
Normality (total)	3	7.3%
: Behaviour	3	7.3%
Capacity (total)	27	65.9%
: Social	20	48.8%
: Mental	5	12.2%
: Material	2	4.9%
Propriety	8	19.5%
Veracity	2	4.9%
Tenacity	1	2.4%
Total segments of Judgement: why BEs are effective	41	100%

All Judgements of UCs were positive, with a focus on social capacity (48.8% of Judgements), in particular UC approachability (43), availability and presence (44), aligning with the *UC is present and approachable* BE itself and understanding (45) and supportiveness (46):

- (42) Unit coordinator was very **approachable**
- (43) [The UC's] **availability** and **presence** was incredibly helpful
- (44) ... a unit coordinator who **understands** life and its impact on study
- (45) [The UC] was an amazing **support** to me as an online student

Evaluations of UCs also included positive Judgements of propriety, specifically helpfulness (47), fairness (48), care (49), fast response (50), patience (51) and positive Judgement of veracity (52):

- (46) [The UC was] **helpful** when students asked questions
- (47) ... **fairness** from unit coordinators [improved belonging]
- (48) ... providing a sense of warmth and glow in **caring**
- (49) ... I **had a reply within 20-30 minutes of my email** [on the weekend]
- (50) When you have a unit coordinator who ... is **patient** ... you do feel like you have a sense of belonging.
- (51) **Nothing was hidden** if students asked a question about assessments, the unit coordinator answered plainly

Why BEs increased belonging, in terms of participant evaluations, and the relationship between BE types and evaluation types are summarised in Figure 1. Figure 1 includes evaluations of how belonging is experienced that imply why the BEs increased belonging, indicated by dashed lines.

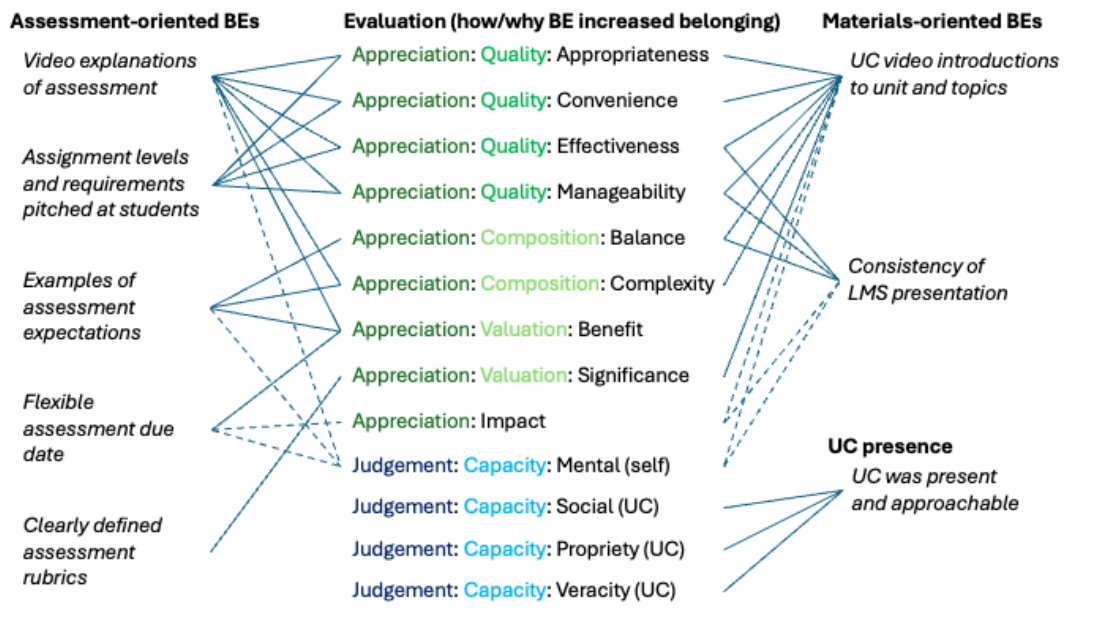


Figure 1. Relationships between types of BEs and types of evaluation (why BEs increased belonging)

Discussion

This research explored student sense of belonging, specifically of online students at a regional Australian university. Although this concept has been considered previously (Crawford et al., 2022; Felten & Lambert, 2020; Peacock et al., 2022), the study was the first of its kind to adopt SFL as a theoretical framework to facilitate new understandings. Appraisal analysis of qualitative survey data revealed how belonging is experienced by ITE students in online learning and why particular online learning design elements, in this case the BEs, are effective at fostering a sense of student belonging.

Belonging was expressed by students using all evaluative language types – Affect, Judgement and Appreciation. How belonging was experienced was expressed in near-equal measures of positive Affect, Appreciation and Judgement. Many students reported that they felt cared for and valued (Affect). Students expressed Affect: happiness and, in particular, affection, and the expressions themselves conform with established attributes of belonging (Lewis et al., 2016; Peacock et al., 2020), especially students *matter* and *being accepted* and *valued*. In addition, analysis revealed that students experienced an increase in belonging because they felt cared for and valued *by their UCs and teaching staff*. Established definitions of belonging focus on how the individual feels (Lewis et al, 2016; Peacock et al., 2020), but the study demonstrates students’ sense of belonging moves beyond the internal experience to encompass relationships with staff members in the online learning community.

Similarly, students expressed Appreciation for the learning environment BEs, especially the *UC video introductions to unit and topics*. The BEs helped students feel supported, and experience enjoyment and reduced stress, aligning with Cook-Sather and Felton’s (2017) and May’s (2011) attributes of belonging that encompass ease, comfort and security with the environment. Furthermore, belonging was experienced by students as positive Judgements of their own mental capacity – improved success, understanding and executive function – resulting from the BEs in use. These students’ Judgements of their own mental capacity do not align well with the current definitions of belonging focused on feelings but might align with Lewis et al.’s (2016, p. 1) attribute of feeling like “a legitimate member in their academic domain” and Peacock et al.’s (2020, p. 20) feeling of “fitting in”. Conceptualising what is meant by being a legitimate member of and fitting in with the academic community is thus an important area for further investigation. Having a more explicit understanding of student belonging in online spaces allows for better tailoring of learning experiences and environments.

Why the BEs increased belonging was mostly expressed by students as Appreciation. Many BEs targeted assessment, including *providing examples of assessments*, *video explanations* and *pitching the assignment level at student level*. Students indicated belonging increased because these BEs made assessments effective, appropriate, suitably complex and manageable (Appreciation: quality), and *clearly defined assessment rubrics* were seen as significant in their value. Student evaluations confirmed that when used well by unit coordinators, BEs increased belonging for reasons that align with their design intention; for instance, assignments pitched at student level increase belonging because they are appropriate and manageable. However, including a *flexible due date* increased belonging in a surprising way. Evaluations of this BE showed that, besides reducing the risk of attrition for online learners associated with assessment due dates (Stone, 2017), the *flexible due date* increased belonging for some students because it improved self-efficacy. To increase belonging in online learning, assessment materials should clearly communicate expectations, for instance, by providing examples of assessments and video walk-throughs, because students feel they belong when they know what they need to do to be an effective student. However, more investigation might determine, for example, what constitutes effective video explanations of assessment, or a clearly defined rubric.

Like assessment-oriented BEs, materials-oriented BEs increased belonging because of their appropriateness, effectiveness and manageability, but also because of their composition. For instance, students expressed that belonging increased because *UC videos introducing the unit and topics* were thorough and reliable in communicating expectations about when and how learning tasks were to be undertaken. *Consistency of LMS presentation* also increased belonging because it made units manageable for students, and well organised units (composition: balance) “made it easier to ... feel part of the community” (anonymous student participant). This finding supports the idea that consistency improves engagement because it reduces cognitive load (Hoi & Le Hang, 2021) and implies that reducing cognitive load helps students feel they belong. (An alternative reading is that organisation improves belonging by performing an affective function, which complements the cognitive function that organisation serves.) To increase belonging in online learning, videos should provide content in sufficient depth, periodically and at points of need. Further, investing in creating consistent, well-organised and well-constructed learning spaces and materials improves belonging alongside reducing cognitive load.

Finally, Judgements of UC behaviour provided insight into why *UC presence and approachability* increased belonging, enacted, for example, in forum interactions and in part through BEs, for example, videos. Alongside confirming UCs were present and approachable, students identified that UCs’ understanding and supportiveness (social capacity) increased belonging. Students also indicated UC propriety – their helpfulness, fairness, care, patience, transparency and fast response – increased belonging. Teacher presence is imperative to building a sense of belonging, engendered in “welcoming students through personal introductions, being responsive on discussion boards, providing timely and detailed feedback ... [and] assisting with problems” (Stone, 2017, pp. 8–9). However, as student evaluations indicated, it is the substance of UC communications – the nature of *UC presence and approachability* – that increases belonging. Exploiting the elements that embody UC presence, such as videos, UCs should incorporate into communications language that expresses care and understanding, supportiveness and helpfulness, fairness and patience to increase student belonging. For instance, UCs might include language that acknowledges the student perspective and reduce language that emphasises the UC’s perspective as the only valid one (see, for example, Adlington et al., 2024).

Supporting the long-established idea that emotions are integral to the process of adult learning (Dirkx, 2001), these findings highlight that affective engagement should not be underestimated in creating a sense of belonging. Humans are innately social beings, so the emotive language students used to describe the ways in which they engage with their UC is perhaps unsurprising. The affective domain is additionally important in asynchronous online learning given that strategies fostering a student-staff sense of community can enhance cognition (Reilly et al., 2012). The findings here suggest that student sense of belonging is particularly associated with an online classroom milieu that fosters caring and valuing relationships, alongside opportunities for positive experiences of cognitive performance and effective delivery of materials. To create such environments, educators must build their understanding of language

features and processes in the online learning space that enhance students' sense of belonging. Thus, the ongoing evidence-based design of online learning spaces and experiences to this end may support stronger student engagement and retention.

Conclusion

There is a clear connection between online learning design, student engagement and belonging, and student success. Yet, consistent engagement of online students remains a vexing issue. To address this challenge, our study investigated how university students experienced belonging, and why certain learning design elements increased their sense of belonging. Importantly, the study determined the need to expand definitions of belonging to capture the relationship between the internal feelings of belonging experienced by students and the external targets of those feelings, such as relationships with teaching staff and design elements of the online learning space. Further, although the careful construal of the BEs in a learning environment is necessary for positive student outcomes, the social capacity of staff and their interaction with students through these BEs is critical to increasing student belonging. Accordingly, this research allows opportunity for reflection on how universities can support students to maximise their success by implementing the evidence-based BEs that simultaneously increase students' senses of belonging.

This research is, however, limited to analysing the experiences of online ITE students at one regional Australian university where online learning is the norm. Although findings are likely applicable to disciplines beyond ITE, student experiences of belonging in online spaces may differ in contexts where on-campus or hybrid learning patterns dominate or for specific demographic groups not reported here. We recommend that replication of this research methodology is considered at other institutions, to investigate the widespread experiences of perceptions of belonging for online university learners. A broader qualitative study may determine how widespread these experiences are in Australian universities and beyond. To complement this future student-focused research, considering the experiences of staff who teach online would also be illuminating. Across both student and staff domains, investigations that expand on what it means to truly belong in university contexts would be valuable in informing a model that encompasses self, others and the environment.

We recommend that university learning design policy and practice should actively seek to increase student sense of belonging to improve student engagement across disciplines. This can be achieved through a focus on capacity-building for UCs and teaching staff regarding key elements of learning design and engaging with affective elements of learning that support student belonging. This will enable researchers, practitioners, academics, policymakers and universities to delve deeper into the role that a sense of belonging has in engaging and retaining online students.

Author contributions

Rachael Adlington: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Visualisation, Writing – original draft, Writing – review and editing; **Kristy O'Neill:** Conceptualisation, Investigation, Project administration, Resources, Writing – original draft, Writing – review and editing; **Catherine Rita Volpe:** Conceptualisation, Data curation, Investigation, Writing – original draft, Writing – review and editing; **Ingrid Harrington:** Conceptualisation, Data curation, Investigation, Methodology, Project administration, Supervision, Validation, Visualisation, Writing – review and editing.

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