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# Dynamic belonging – how student belonging changes over time for first-generation students

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## ABSTRACT

Whilst students' sense of belonging (SoB) – an important concept in relation to student success – is accepted as changing over time, most existing research investigates this concept as a static phenomenon, using single, snapshot measurements. This mixed-method study utilises a longitudinal approach to measure students' sense of belonging at multiple points throughout the first year of undergraduate study. 101 students from two English universities completed questionnaires and online diaries as part of a larger study on student success and SoB. Linear mixed models and data visualisation analyses show that overall students' sense of belonging declines over the first year of study. This has implications for institutions in how they plan their approaches to support students with their sense of belonging, including challenges for potential 'frontloading' of welcome interventions near the start of the first term. The analyses also found that first-generation students had significantly lower SoB than their non-first-generation counterparts, but only later in the first year of study. Coding matrix queries were then utilised based on students' detailed responses to online diaries to help interpret and contextualise the quantitative findings. These subsequent analyses found that fragile relationships with peers on the course, cultural barriers, and a lower propensity to talk about finances or feel that they mattered to staff were more common among first-generation students. Overall, this article furthers understanding of the dynamic nature of belonging and how it is experienced differently by first-generation students, with insights into what may be causing these divergent experiences over time.

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## KEYWORDS

Student belonging; Student engagement; Longitudinal research; First-generation students; Mixed-methods

## Introduction

Students' sense of belonging (SoB) is an increasingly investigated concept in higher education literature (Gilani and Thomas 2025; Nguyen et al. 2025), due to its prominent connections to student success. Existing research has shown that a strong sense of belonging amongst students is significantly predictive of positive academic performance (Veldman, Meeussen, and van Laar 2023), engagement (Zumbrunn et al. 2014), mental wellbeing (Kahu, Ashley, and Picton 2022) and retention rates (Gopalan and Brady 2019; Gilani, McArthur, and Thomas 2024; Nguyen et al. 2025). The multi-dimensional concept of student belonging – elaborated further within the literature review section

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of this article – recognises a feeling of comfort, safety and ability to act as one's authentic self in different aspects of higher education communities (Picton, Kahu, and Nelson 2017; Strayhorn 2019; Ahn and Davis 2020; Cook-Sather and Seay 2021). It is this comfort, safety and authenticity, which allows students to engage in meaningful ways across their studies and wider aspects of university life; ultimately driving the successful outcomes sought after by students, universities and the governments that fund them.

Belonging is recognised as being dynamic, influenced by various factors such as social interactions, institutional support, and personal reflections (Thomas 2012; Gravett and Ajjawi 2021; O'Shea 2020). Despite this, the majority of existing research into this topic investigates belonging as a static phenomenon, by only measuring or exploring belonging at a single point in time (Gilani, McArthur, and Thomas 2024; Nguyen et al. 2025). Such approaches can only provide a limited understanding of SoB, as they can't explore how it changes over time and thus how different factors – or efforts to try to improve students' SoB – may only be impactful at certain points in students' higher education journeys.

Belonging – or a lack thereof it – is especially important at the start of students' time at university. Students are most likely to withdraw from their studies in the first year (Hillman 2021) and often make key decisions about whether they will stay at university by the end of the first term (Christie, Munro, and Fisher 2004; Webb and Cotton 2018). Given this increased 'risk' of withdrawal earlier in the student journey, universities are often advised to provide supportive interventions as early as possible (Austen et al. 2021). However, this frontloading approach can often mean that universities do not maintain their efforts to support belonging throughout the student journey. Some longitudinal research into students' SoB suggests that it decreases across the first year of study (Hausmann et al., 2007). Changes in SoB may also vary differently based on students' demographic background or routes to joining university (O'Sullivan et al., 2019; Ruedas-Gracia et al., 2023). To ensure that these different experiences of belonging can be fully explored, this study utilises the conceptual framework of the Bronfenbrenner model of human ecological development to better investigate how individuals' experiences – and their sense of belonging – are influenced by wider socio-economic and historical systems.

These complexities highlight the importance and potential benefit of longitudinal research into student belonging that can provide detail into *when* students may be most likely to report negative changes in their sense of belonging, *which* groups of students are most at risk of these changes, and *what* is happening within students' experiences to drive these changes. The purpose of this research was to address these gaps through the following three research questions:

RQ1: How does students' SoB change over the first academic year of study?

RQ2: Do changes in students' SoB vary based on demographic variables?

RQ3: What factors could be influencing a decline in SoB amongst first-generation students (students where no parents or caregivers previously attended university)?

The study utilised a longitudinal, mixed-methods approach with 101 participants from two English universities. To address RQ1 – how SoB changes over the first academic year – descriptive statistics, linear mixed models, and line graphs revealed a consistent decline, from an average score of 78.1 in October to 72.9 in May, echoing trends found in prior research (Hausmann et al., 2007). For RQ2 – whether SoB changes vary by demographics – linear mixed modelling identified first-generation status as the only significant factor, with a sharper decline in SoB among first-generation students. To explore this decline and address RQ3, thematic analysis of students' reflective online diaries was conducted using NVivo. First-generation students more frequently reported isolation and social fragmentation and were less likely to describe help-seeking behaviours or feeling valued by staff. Findings support existing literature and highlight the need for targeted, timely belonging interventions, as well as continued efforts to address the systemic barriers to first-generation students found across universities. Methodological limitations – including a very small sample size – are acknowledged, with suggestions for future research improvements.

## Literature review

### *Conceptualising sense of belonging in higher education*

Research into the nature of belonging amongst students, including its links to successful student outcomes, affecting factors and efforts to enable it, is increasingly prevalent (Gilani and Thomas, 2025). Broadly defined, sense of belonging (SoB) in higher education refers to a student's perceived social support on campus, a feeling of connectedness, and the experience of 'mattering' or being important to the institution (Strayhorn, 2019). Whilst this concept is accepted as multi-dimensional, messy and complex (Ajjawi et al., 2023), enhancing students' SoB is seen as a beneficial aim within the higher education context, due to its close connections to various aspects of student success (Gillen-O'Neel, 2021; Veldman et al., 2023; Gilani and Thomas, 2025; Nguyen et al., 2025).

### *Evolution of belonging in HE literature*

The conceptualisation of student belonging has undergone a significant evolution, shifting from institutional 'fit' to a more nuanced psychological and sociological need. The concept was arguably first introduced to higher education literature via Tinto's (1987; 1997) work on student retention. Tinto theorised that student persistence was driven by 'integration' – the extent to which a student felt part of the academic and social communities of their classrooms.

However, the specific positioning of 'belonging' as a distinct construct is widely attributed to Hurtado and Carter (1997). They challenged the earlier focus on integration, which often implied students must assimilate into the existing culture, by arguing for the importance of considering 'campus climate'. Their work shifted the focus onto how the wider university environment and 'institutional habitus' (Thomas, 2002) influence a student's sense of membership. This evolution was furthered by Strayhorn (2019), who conceptualised student belonging as a basic human need and a prerequisite for success. Strayhorn's model identifies core elements of belonging: it is a motive that drives behaviour, is time-dependent and context-specific, relates to mattering, and is heavily influenced by a student's intersecting identities.

### *Challenges in definition and scope*

One notable and frequent complication in the literature around SoB research is how the concept is defined differently across different studies and disciplines (Dias-Broens et al., 2024), as well as often being conflated with similar terms, such as engagement or involvement (Strayhorn, 2022). Furthermore, student perceptions of belonging are deeply subjective. When asked about defining belonging, students often talk about feelings and perception: 'Perception is at the heart of belonging' (Cook-Sather and Seay, 2021, p.740). This is often described metaphorically as feeling at home (Ahn and Davis, 2020) and of being able to be one's true, authentic self (Picton et al., 2017).

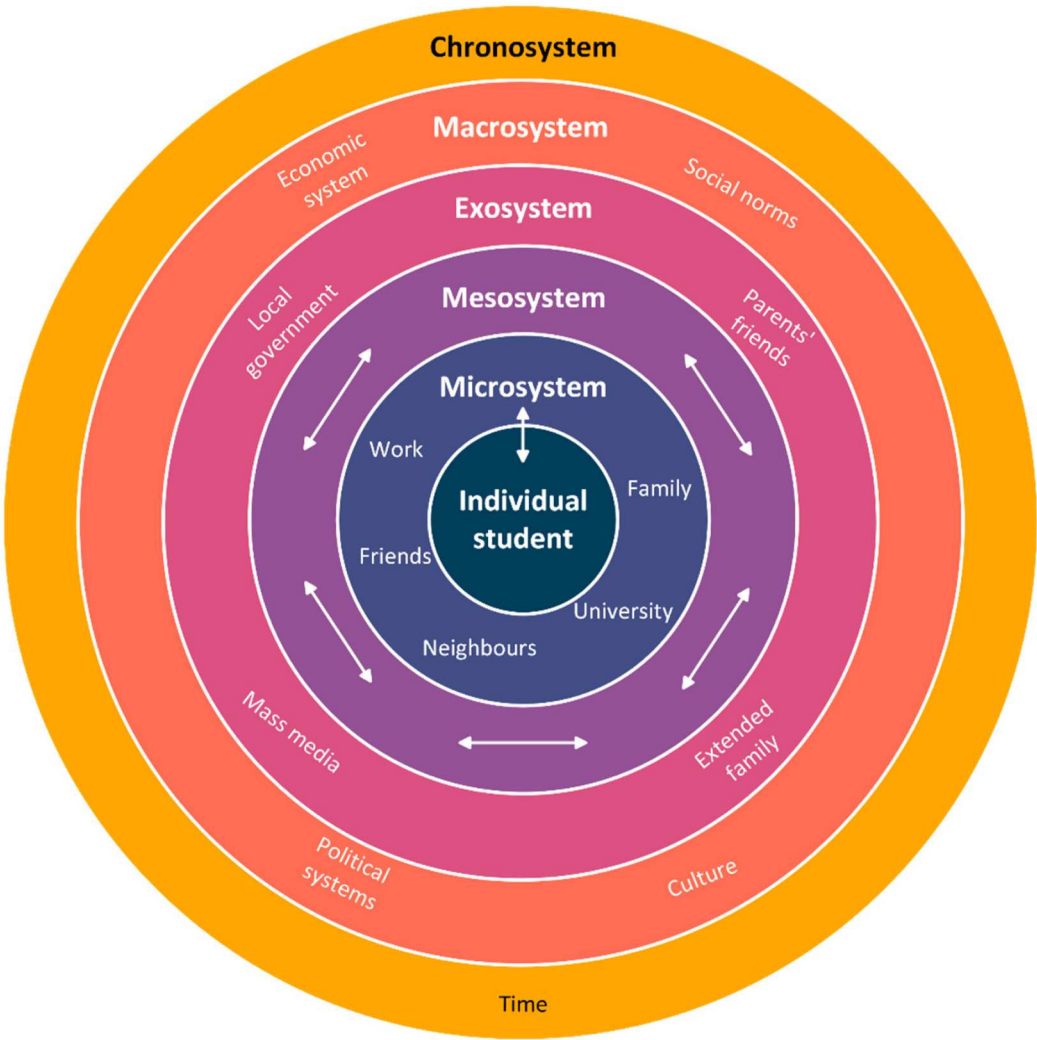
### *Conceptual framework: an ecological approach*

Studies also find that students may also have different belonging needs due to many different characteristics; such as their involvement in religious communities (Holloway-Friesen, 2019), distance that they live from university (Pokorny et al., 2016), other demographic factors (Means and Pyne, 2017; Fernández et al., 2023) and types of personality (Stahl and McDonald, 2024; Stubblebine et al., 2024). For this study, it is argued that a conceptualisation of students' SoB needs to consider all of these 'external to HE' factors that could be influencing students' sense of belonging in a different way for each student. As is argued by Strayhorn, 'What works for helping one to belong may not work for someone else' (2019, p.99).

Numerous studies have conceptualised this aspect of individualised belonging needs through the Bronfenbrenner Ecological Model of Human Development (Bronfenbrenner, 1979; Hamwey et al., 2019; Mulisa, 2019). This framework recognises the different environments through which individuals' experiences – and their sense of belonging – are influenced by wider socio-economic and historical systems, both within and beyond students' experiences of higher education (Renn and Arnold, 2003). For the example of first-generation students, this framework helps to contextualise how these students not only may not have access to family members with experience of higher education but also be less likely to have attended schools that placed the same importance on HE participation (Collier and Morgan, 2007).

Whilst the Bronfenbrenner Model places the individual at the centre, it recognises how the individual is shaped by various social, environmental, cultural and political factors over time (Bronfenbrenner, 1979; Figure 1). These are all domains through which student belonging could be enabled or thwarted, and these vary depending on the individual (Hamwey et al., 2019). Utilising

Bronfenbrenner Model of Human Bioecological Development



**Figure 1.** Bronfenbrenner Model of Human Ecological Development (Bronfenbrenner, 1979), adapted for university students.

the Bronfenbrenner model as a route to exploring belonging has the advantage over utilising a purely psychological framework, which risks separating students from their lived contexts and experiences (El Zaatari and Maalouf, 2022).

### ***How student belonging changes over time***

Despite belonging being fluid and transient in nature (Gravett and Ajjawi, 2021), most existing research looks at belonging at a single point in time. Where longitudinal research does exist looking into students' SoB it contributes to our understanding of how belonging fluctuates across students' course of study, and how the factors effecting belonging may change over time.

Longitudinal qualitative research has been utilised to explore how a factor or aspect of belonging is likely to affect students at different points throughout their studies (Picton et al., 2017; Viola, 2021). Whilst many studies that took this qualitative longitudinal approach did not explore how belonging changed over time, they are still useful in considering how institutions may need to support students in different ways across their higher education journeys (Means and Pyne, 2017; Kahu et al., 2020). Where longitudinal, qualitative research did explicitly examine how different aspects of students' SoB changed throughout their studies, this was especially welcome. For example, Kahu et al.'s (2022) approach to their longitudinal qualitative research allowed them to explore how academic aspects of students' SoB were more precarious – prone to fluctuation – than interpersonal and social aspects of belonging, which was steadier across time. However, the multi-dimensional nature of belonging means that we cannot fully separate these different domains; students are more likely to develop their academic SoB if they already feel that they belong socially (Axxe, 2023).

In some cases where quantitative longitudinal research has taken place, belonging is only measured at one point and then compared to other variables at another timepoint to investigate whether those other variables were predictive of higher levels of belonging (Veldman et al., 2023). Gillen O'Neel's work (2021) is one of the few studies that has measured belonging at multiple points in a short period of time. Their research looked at changes in belonging and engagement levels on a daily basis over a week and did find an antecedent correlation showing that increases in belonging led to subsequent increases in engagement. Where studies have been conducted that measure belonging at multiple points, results show that belonging tends to decrease during the first year of study (Hausmann et al., 2007; O'Sullivan et al., 2019), but that it is generally stable from year-to-year (Barringer et al., 2023; Ruedas-Gracia et al., 2023).

### ***Belonging amongst different demographics of students***

Longitudinal belonging studies often caveat that their generalised findings vary when examining students from different demographics and contexts. Students entering through contextual admissions routes and those from minoritised racial backgrounds often experience sharper declines in sense of belonging (SoB) relative to cohort averages (O'Sullivan et al., 2019; Ruedas-Gracia et al., 2023). However, these disparities are not merely demographic markers but are deeply rooted in the classed history – and indeed present – of higher education.

Scholars such as Reay (2018) argue that higher education remains a steeply hierarchical system where working-class students and other outsiders are still expected to adjust to institutional spaces designed with elite or middle-class learners in mind. This sense of alienation is often a result of a mismatch between the student's personal identities and the 'institutional habitus': the lived culture and expectations of the university (Thomas, 2002; Reay, 2017). For some students from historically underrepresented backgrounds, the university environment does not simply feel foreign but also asks students to engage in 'class-straddling' by forcing them to navigate between the different expectations and norms of their home communities and the university environment (Ardoin, 2018; Bettencourt, 2021). This can lead to 'dual alienation', where working-class students feel both disconnected from their institution overall, but also disconnected from

other students who seem to effortlessly integrate into campus communities (Bettencourt, 2021). These negative experiences can lead to students adopting social concealment strategies as an attempt to hide their 'othered' identity, which in itself can result in a lower sense of belonging (Harrel-Hallmark et al., 2022; Veldman et al., 2023).

Validating relationships with staff and relatable mentors are perhaps even more critical for SoB amongst students from low-income backgrounds or first-generation students, as these relationships help provide them with guidance of how to navigate and overcome institutional barriers (Kitchen, 2021). However, these are also the students who are mostly likely to face barriers to developing these positive relationships – either through living further away from campus – commuter students – or having a greater need for part-time work to cover costs of studying, which results in less time on campus (Mendoza et al., 2016).

This classed experience is often conflated with first-generation status. While first-generation students are frequently reported to have lower levels of belonging (O'Shea, 2020), the literature is nuanced. Some research suggest that belonging is significantly lower for students whose parents did not attend university (Pedler et al., 2022), while others have found that first-generation students can actually develop a higher sense of belonging by their final year as they successfully navigate unfamiliar institutional cultures and expectations (Hunt et al., 2017; Dias-Broens et al., 2024). This suggests that for first-generation and working-class students, SoB is a dynamic, longitudinal process of negotiation rather than a static deficit.

### ***Challenges for longitudinal belonging research***

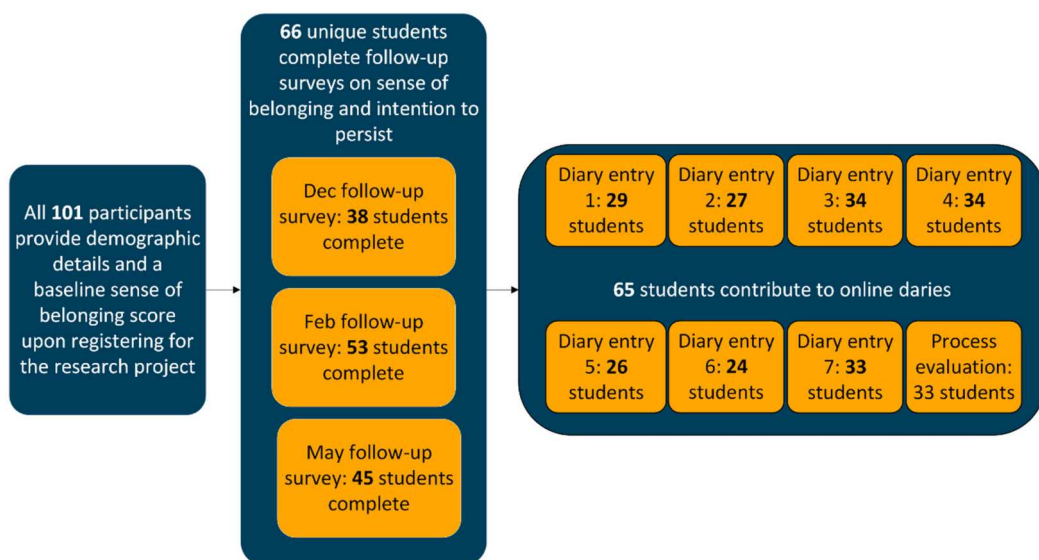
Through existing studies, multiple challenges have been identified to adequately measure changes in belonging. Studies have questioned how early we can begin reliably asking students to self-report SoB at university in a meaningful way, with little agreement. While some studies purposely excluded any measurements of belonging that were gathered within the first term of the first year of study (Ruedas-Gracia et al., 2023), others decided to measure students' SoB even before they had formally begun their teaching (O'Sullivan et al., 2019). The extent to which SoB can predict outcome measures – such as retention – may depend on when SoB is measured, with measurements at the start of students' studies being less reliable (Gilani et al., 2024). One of the other challenges presented in assessing the existing longitudinal research and how belonging changes over time is the variety of scales or measures used to quantitatively assess students' SoB (Lingat et al., 2022). Despite critiques of assessing complex concepts of belonging with single question items (Lingat et al., 2022), there is a pressure on longitudinal studies to use abridged versions of belonging scales (Hausmann et al., 2007) or single-item measurements of belonging (Gopalan et al., 2019) to reduce survey fatigue from participants.

Given the importance of belonging to wider student success outcomes, a key consideration for universities is exploring the role they can take in enhancing students' SoB over time. Belonging is dynamic in its nature and so universities need to understand how it changes for students, so that they can effectively develop and evaluate interventions to enhance it. Existing research has established how different factors affecting belonging may play a more significant role at different points in the student journey. Whilst in the long-view belonging is relatively stable, fluctuations are more apparent when examining this concept in closer timeframes. During students' first year of study, SoB may decrease – however, this may be due to unreliable measurements of belonging so close to the start of studies.

## **Methodology**

### ***Participants and data collection***

All first-year undergraduate students (n = 5619) at two English universities were invited to take part in a wider longitudinal study around student success – which included the completion of online surveys and online diaries about their experiences throughout the first year – with 101 students



**Figure 2.** Methods of data collection used within the research project, with numbers of participants at each stage.

eventually taking part (Figure 2), resulting in a sample size of 1.8%. Students were invited as part of email communications to new students, informing them about supportive activities over the Welcome period.

To expand the external validity of the study, the two universities were chosen for their differences in student populations. One had less selective recruitment approaches, resulting in a majority of students coming from widening participation demographics (39% mature, 25% Black, 41% free school meals eligible, 24% from quintile 1 of the index of multiple deprivation – a UK-based ranking of neighbourhoods considering factors such as crime, health outcomes, and education access) – i.e. historically underrepresented student groups – whilst the other was a highly selective institution (7% mature, 6% Black, 9% free school meals eligible, 7% from index of multiple deprivation quintile 1). Within the demographics of participating students themselves: 62% of these students were female, 48% had no parents attend university and 23% had only one parent attend university, 41% were international students, 46% had a commute greater than 30 min, and 65% had no experience of private education prior to university. Full demographic details of each participant are listed in Appendix 3.

Participant consent was gathered when students signed up to take part in the overarching research study, in line with the ethical approval provided by the University of York's Education Ethics Committee. All students were provided with full details of the study, including what data they would be asked to provide and how this would be processed. Belonging surveys were issued to students four times in the academic year (October, December, February and May). Participants were incentivised for their participation in each survey with a £5 voucher.

All 101 participants were also invited to an online diaries aspect of the wider study. 65 of these 101 students took part, contributing a total of 304 online diaries and open text survey responses between them. Participants were given the choice of how they wish to provide their reflections for each of the online diary entries – which could take the form of either blogs, video diaries or audio recordings – and were prompted to share their thoughts on their SoB roughly every three weeks (Appendix 1). Online diaries were chosen as the method of data collection as they allow for longitudinal collection of data near to when events happen, thus reducing the potential for errors in recall (Cucu-Oancea, 2013). In addition, the method allows for data collection without in-person interaction between the researcher and the participants, thus reducing the risk of

establishment of bonds that could influence SoB, as well as providing a distance that may allow participants to disclose information that they perceive as too personal to share in interviews (Day and Thatcher, 2009). Similar to the surveys, for each completed diary entry participants received a £5 voucher.

With 101 students participating in the study, this represents a sample size of just 1.8% of the total eligible population of new students across the two participating institutions. The sample is further decreased when considering just the online diaries respondents. This low response limits the generalisability of this study, as it introduces a high risk of non-response bias. However, this is mitigated in this study through specific analyses exploring missing data, reporting of significance values and effect sizes within quantitative results, and through the connecting of quantitative results with the subsequent qualitative aspect of the study. Potential reasons for the low take-up of the study are discussed further within the limitations section.

## **Measures**

The Yorke belonging scale (2016) was utilised for both the baseline measurement of students' SoB and follow-up surveys. This was utilised due to it being created and tested within the context of UK higher education, covering a breadth of domains of belonging (Ahn and Davis, 2020) and due to its relatively short length, which is especially important to reduce fatigue in a longitudinal study. Cronbach's Alpha analysis was conducted to assess the scale's internal validity – the extent to which each student responded consistently to questions within the scale. This analysis showed that the Yorke belonging scale has a Cronbach's Alpha score of 0.842 – representing a very strong level of internal consistency.

## **Data analysis – surveys**

To prepare survey data for analysis, results for the six Yorke scale items were converted to numeric values (i.e. strongly agree = 5, strongly disagree = 1), averaged and then normalised to produce an overall belonging score between 0 and 100. A generalised linear mixed model was used to assess whether baseline or subsequent levels of belonging were predictors of students missing future surveys or diary entries. Descriptive data and visualisations are presented around students' changing level of belonging, which are then explored further through the use of linear mixed models and linear regression models. Linear mixed models were used to ensure that multiple data points from the same students could be accounted for. As part of follow-up analyses to explore different types of parents' educational status, pairwise comparisons were made of estimated marginal means from linear mixed models. This provided a way to assess whether differences between having one or two parents previously attend universities were in themselves significant without having to recode reference values within models. All analyses were conducted in R Studio.

## **Data analysis – online diaries**

Although quantitative and qualitative data were collected concurrently, this study follows an explanatory logic, with the quantitative findings guiding the subsequent qualitative analysis. This approach aligns with a sequential explanatory mixed methods design (Taherdoost, 2022), allowing for contextualisation of statistical trends in participants' SoB through exploration of their online diaries. As part of the wider study, full analysis of participants' online diaries was conducted through a reflexive thematic analysis method (Braun and Clarke, 2006), which utilised a primarily deductive approach in theme identification around the connections between student belonging and agency. NVivo software was utilised for the coding and identification of themes.

To ensure rigor and trustworthiness in the qualitative findings, several steps were taken to align with the principles of credibility, dependability, and confirmability (Nowell et al., 2017). In the initial

coding stage (full coding list available in Appendix 2), participants were not classified based on their demographic data or institution of study. This partially 'blinded' the data from the researcher, so that no assumptions about the students' experiences based on demographic details – including first-generation status – could be made throughout the coding process, aiding authenticity and trustworthiness (Spiegelhalter, 2019). As suggested by Braun and Clarke (2006), several stages of theme identification and reconsideration took place before themes were finalised, with researchers returning to the data after each stage to check for credibility – i.e. whether themes were appropriately drawing from codes and whether codes were labelled accurately – before refining themes and generating thematic visuals. Coding comparison queries – a commonly applied tool to improve both credibility and dependability – were used to ensure that each theme was sufficiently distinct, as well as internally consistent. Sentiment coding analysis was conducted manually and used to support the development of theme generation.

The full findings of the analysis of participants' online diaries are not presented within this article. Instead NVivo's matrix coding queries were utilised to contextualise the findings of RQ2: that first-generation students had a significant decline in their SoB compared to their non-first-generation counterparts. 40% of online diary contributions came from first-generation students, so codes were interrogated where matrix coding queries showed first-generation students had disproportional representation – in this case where they made either less than 30% or greater than 50% of the contributions (Appendix 2). A 10% deviation threshold was selected as a meaningful indicator of thematic divergence between the two groups. Codes that met this above criterion of disproportional representation then underwent further reflexive thematic analysis, replicating the same steps as above, but with codes already generated, to arrive at a series of themes that are discussed within the latter part of the results section. By presenting detailed participant quotes and explaining the specific connections between SoB decline and the emerging themes, this study offers generalisations that explain how and why the quantitative trends occurred, making the mechanisms that affected belonging visible.

## Results

### *Preliminary analyses*

The demographic profile of the participants was assessed against the overall student body at the two institutions to evaluate sample representativeness. Two-sample z-tests showed that there were no significant differences in proportions across gender or age between the study sample and the overall institutional populations at either university. Whilst there were also no significant differences in proportions for international students or first-generation students at the selective-recruiting institution, at the less-selective-recruiting institution international students ( $z = 6.4971$ ,  $p = 0.011$ ) and first-generation students ( $z = 36.8$ ,  $p < 0.001$ ) were significantly more likely to register for the study.

One challenge with longitudinal studies is the prevalence of missing data. Whilst students were encouraged to take part in all survey data points, the design of the overarching research recognised that other time commitments would make this unlikely. Missing data can be problematic in longitudinal studies if participants' likelihood to miss data points is correlated with the subject being investigated. In this instance, if students were less likely to take part in future surveys if they had a lower SoB, then it would mean that the data points that *were* submitted are artificially higher than we should expect for the participants overall. To address this potential problem, this section explores whether students' SoB is a predictor of them missing future surveys submission points.

Given that whether a student missed their subsequent submission point is a binary outcome (Yes/No), a generalised linear mixed model was used to explore this relationship. The model tested whether a student's prior SoB score predicted the probability of non-submission at the following time point. The analysis found that SoB was not a statistically significant predictor of subsequent data missingness ( $\beta = -0.005$ ,  $p = 0.682$ ,  $n = 192$ ). Usefully, the GLMM also revealed a substantial variability in the completion

likelihood across students (Random Intercept Variance = 0.85, SD = 0.92), confirming that while individual students differ in their overall likelihood to complete follow-up surveys, this variation is not explained by their self-reported belonging levels – i.e. the outcome variable.

### ***RQ1 – how belonging changes over time***

The results reported within this section focus on exploring the descriptive data from students' survey responses. Each participant's belonging journey is visualised, also allowing for discussion of the average – both mean and median – results across the entire study population. Means and standard deviations for each survey are presented in [Table 1](#) and visualised in [Figure 3](#). [Figure 3](#) helps to visualise the absolute belonging scores that students reported within surveys and how these change across the academic year.

These data show, more prominently, that students' SoB decreases through the first year of study for these undergraduate participants. On average, students' SoB decreased about two points at each survey measurement point, resulting in an overall decrease in belonging from 78.1–72.9 – representing a five-point decrease.

Whilst there was a concern that there might be a divergence between the mean and median values of students' SoB scores, the values are almost identical throughout the year. The only exception to this is a slight divergence for the May survey results, where the median value is 75, compared to a mean of 72.9. Overall, this suggests that most students participating in the study saw a decrease in their SoB from the start of the year.

Whilst these analyses describe the trend amongst students on average, the trajectory of each individual student was considered. For students who took part in both the October and May surveys (i.e. the first and last measurement points), 31% had an increase in their SoB, 22% no change and 47% a decrease. This aligns with the previous analyses, showing that more students saw a decrease in their sense of belonging than an increase across the first academic year.

Linear mixed modelling was used to explore whether survey timepoints are predictors of changes in belonging ([Table 2](#)), confirming an overall decreasing trend in mean SoB across the academic year. Specifically, the final survey point in May showed a statistically significant decline compared to the October baseline ( $\beta = -5.195$ ,  $p = 0.007$ ,  $n = 101$ ). The intermediate time points (December and February) did not show a statistically significant decline from baseline ([Table 2](#)).

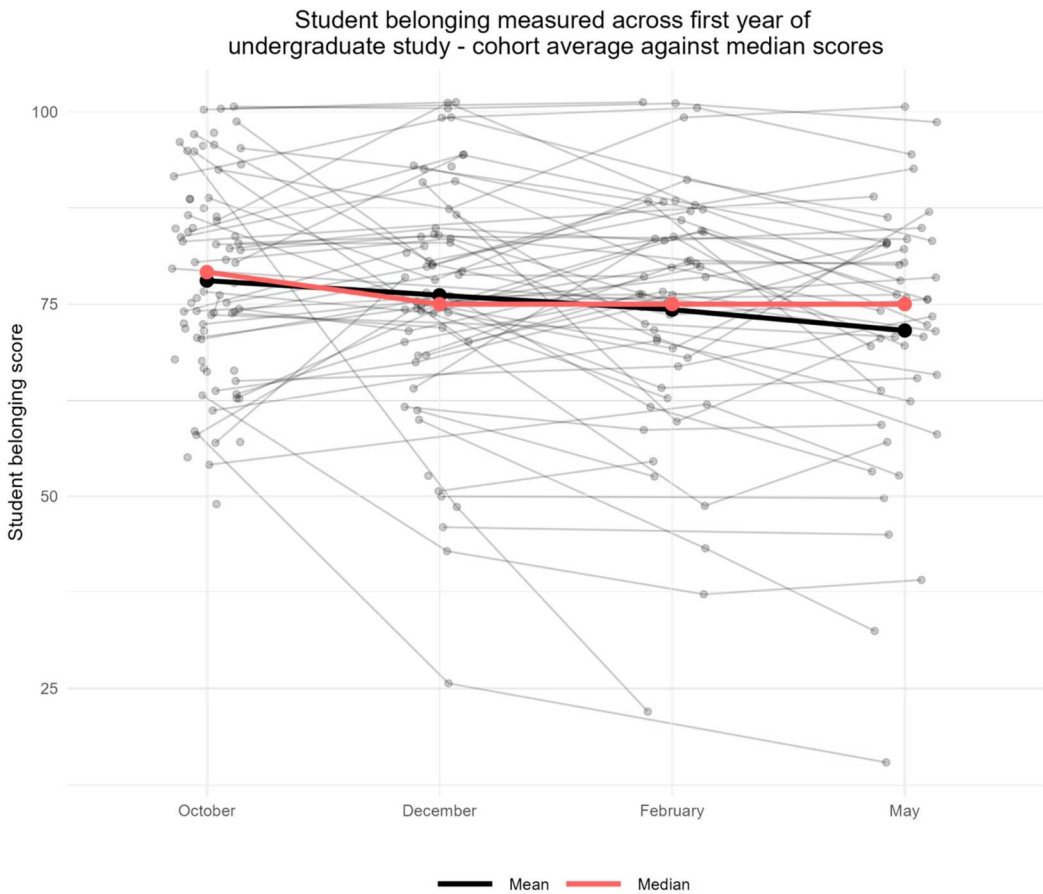
In addition to the changing nature of belonging, these results also highlight differences in the variability of the data across timepoints. Standard deviations for each survey increase across the year; from 12.8 for the overall October survey data to 17.1 for the May survey. As is visible within [Figure 3](#), almost no students report a SoB below 50 within the October survey measurement, however more students do report such variability in their belonging in later surveys. Descriptively, this indicates that student experiences become less uniform over time. Although a regression analysis of these standard deviations ([Table 3](#)) did not reach statistical significance ( $p > 0.05$ ), this is likely due to the limited number of timepoints ( $n = 4$ ).

### ***RQ2 – changes in belonging amongst different demographic groups***

The literature review section of this study articulated how student belonging is a concept often tied closely to equality, diversity and inclusion. In many studies across many different contexts, research

**Table 1.** Descriptive statistics of medians, means and standard deviations (SD) from each survey point.

| Data point | Median | Mean | Standard deviation |
|------------|--------|------|--------------------|
| Oct survey | 79.2   | 78.1 | 12.8               |
| Dec survey | 75.0   | 76.2 | 15.3               |
| Feb survey | 75.0   | 74.3 | 15.8               |
| May survey | 75.0   | 72.9 | 17.1               |



**Figure 3.** Change in students' SoB – mean against median scores.

has investigated how SoB varies by different demographic groups. Whilst most research looking at differences in belonging amongst demographic groupings focuses on single measurements of belonging, the longitudinal nature of this study allows us to explore whether *changes in belonging* amongst demographic groups also shows expected variations.

The previous linear mixed model (Table 2) was expanded to investigate the relationship between changes in levels of belonging against demographic factors (Table 4). This found that parents' education status was the only significant predictor of change in students' SoB ( $\beta = 9.630$ ,  $p = 0.036$ ,  $n = 101$ ): i.e. first-generation students – students who had no parents or caregivers with prior experience of higher education – had significantly greater decreases in their SoB, compared to their non-first-generation counterparts.

To further unpack the first-generation label, a follow-up analysis was conducted using Estimated Marginal Means (EMMs) to compare students with no, one, or two + university-educated parents

**Table 2.** Linear mixed model assessing the extent to which survey timepoints predict changes in students' SoB. The model includes a random intercept for each student to account for repeated measures across time points ( $n = 101$ ).

| Term                    | Estimate | Std error | <i>p</i> -value |
|-------------------------|----------|-----------|-----------------|
| (Intercept)             | 76.657   | 1.626     | 0.000           |
| Survey point – December | –0.617   | 1.741     | 0.723           |
| Survey point – February | –3.458   | 1.796     | 0.056           |
| Survey point – May      | –5.195   | 1.897     | 0.007           |

**Table 3.** Linear regression model analysing the extent to which standard deviations in summary descriptive data is predicted by timepoint. October survey acts as reference group ( $n = 4$ ).

| Term                    | Estimate | Std error | <i>p</i> -value |
|-------------------------|----------|-----------|-----------------|
| (Intercept)             | 12.900   | 1.841     | 0.000           |
| Survey point – December | 2.267    | 2.603     | 0.409           |
| Survey point – February | 2.767    | 2.603     | 0.318           |
| Survey point – May      | 3.233    | 2.603     | 0.249           |

**Table 4.** Linear mixed model assessing the extent to which survey timepoints **and** demographic variables predict changes in students' SoB. The model includes a random intercept for each student to account for repeated measures across time points ( $n = 101$ ).

| Term                                            | Estimate | Std error | <i>p</i> -value |
|-------------------------------------------------|----------|-----------|-----------------|
| (Intercept)                                     | 72.863   | 5.302     | <0.001          |
| Survey point – December                         | –1.283   | 1.978     | 0.517           |
| Survey point – February                         | –4.096   | 2.084     | 0.056           |
| Survey point – May                              | –5.968   | 2.158     | 0.006           |
| Gender – Male                                   | –5.493   | 3.524     | 0.123           |
| Age – Non-mature                                | 2.360    | 4.096     | 0.566           |
| Commute length – Short                          | –2.758   | 3.293     | 0.405           |
| Prior education – Privately educated            | 0.014    | 4.167     | 0.997           |
| Fee status – UK student                         | 3.724    | 4.040     | 0.359           |
| Parents' education status – attended university | 9.630    | 2.34      | 0.036           |

**Table 5.** Pairwise comparisons of estimated marginal means from the linear mixed model exploring belonging and parents' education status ( $n = 43$ ).

| Parents' educational status comparisons                    | Estimate | Std error | <i>p</i> -value |
|------------------------------------------------------------|----------|-----------|-----------------|
| No vs Yes – one of them has                                | –9.097   | 4.213     | 0.033           |
| No vs Yes – two (or more) of them have                     | –3.795   | 3.342     | 0.298           |
| Yes – one of them has vs. Yes – two (or more) of them have | 5.302    | 4.450     | 0.236           |

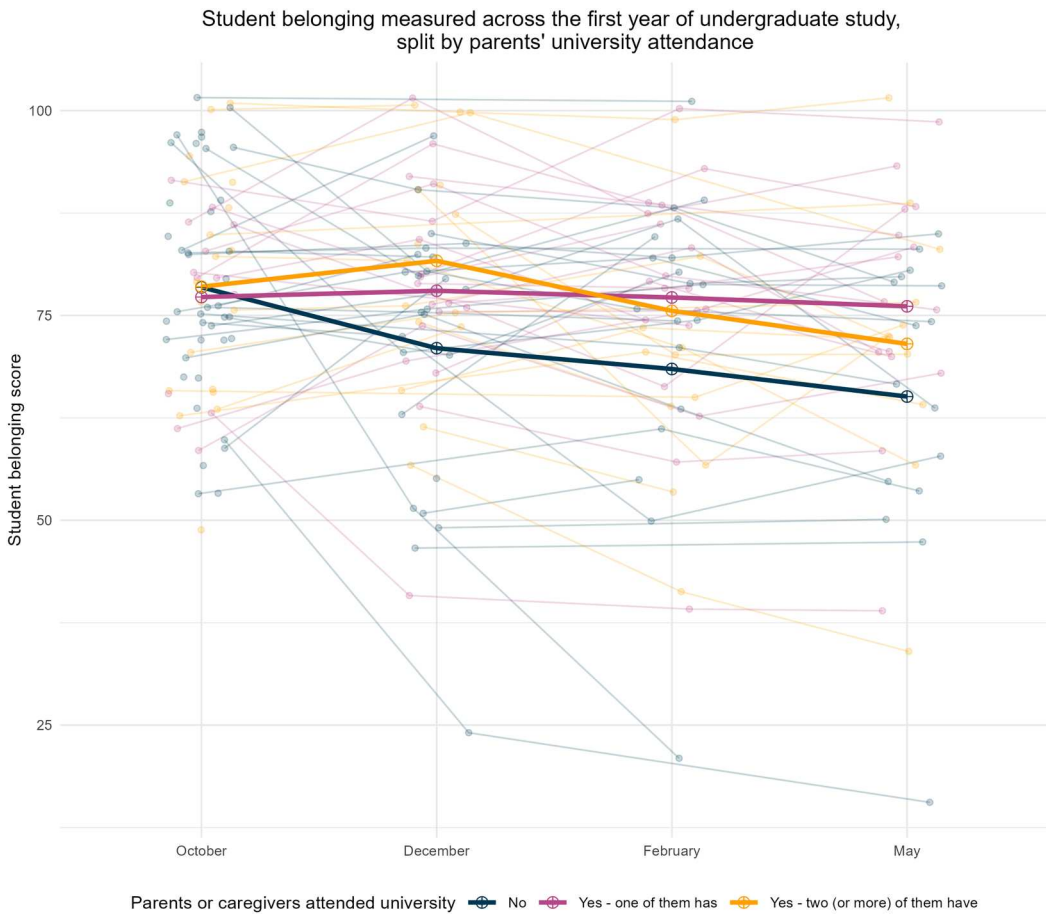
(Table 5). Pairwise comparisons revealed a significant belonging gap only between first-generation students and those with one university-educated parent ( $\beta = -9.097$ ,  $p = 0.033$ ,  $n = 101$ ).

The changing SoB amongst students by parents' educational status is explored further through line graph visualisation in Figure 4. Here it can be seen clearly that at the start of the academic year – as measured through the October belonging survey – there was almost no difference in SoB across these different demographic groups. However, in all future surveys, differences by parents' educational status emerge. Near the end of the first term – as measured through the December belonging survey – students who had two or more parents or caregivers attend university had the highest SoB compared to students with other parents' education status; however, this group's SoB then fell in the subsequent survey. By the end of the academic year – May belonging survey – it was students' who had just one parent or caregiver attend university that had the highest SoB – although this still represents a slight decrease from their SoB at the start of the academic year.

In summary, whilst there are some differences in how students' SoB changes over the first academic year across all demographic groups, the only demographic variable that showed a significant difference in changes in belonging was parents' education status. Further analysis into this variable showed, perhaps counter-intuitively – that it was students who had just one parent or caregiver attend university who had the least negative change in their SoB.

### ***RQ3 – dynamic narratives of belonging from first-generation students***

Matrix coding queries against the coded results of students' online diary entries were utilised to find disproportional representation by first-generation status (Appendix 2). The following section shows



**Figure 4.** Student belonging survey measurements across the first year of undergraduate study – split by parents' education status.

the themes that emerged from these disproportionately represented themes. Illustrative quotes are utilised amongst presentation of the themes. These quotes are all from first-generation students, except for the last theme as no first-generation students talked about finances. Full demographic details of each participant are provided within Appendix 3.

### *Fragility of social connections*

Within the online diaries, some first-generation students noted that they had begun the academic year with optimism and a sense of connection, but that this had declined over time. First-generation students commented on how their friendships had fragmented through changing patterns of attendance and engagement in classes: 'The second term has definitely brought about a big change ... attendance is lower, so it's harder to keep up with friends and find that sense of comfort in each class' (P28). Beyond affecting the social connections of first-generation students, these changes in engagement patterns amongst their peers also affected their commitment to the learning environment: 'My current SoB is dwindling ... the lessons aren't engaging at present, it feels pointless' (P37). Social isolation was commented upon by first-generation students not just when other students were attending less, but due to natural changes in teaching schedules during periods of increased deadlines: 'During this period of less teaching, more independent learning and deadlines, I have found it harder to maintain a SoB.' (P39)

In contrast, first-generation students were more likely than their non-first-generation counterparts to talk about friendships outside of their course – in accommodation, clubs, part-time work, or social events:

'Within my course I have found it very hard to make friends and sometimes it gets a bit lonely in lectures. However, at my accommodation I have made some of the most amazing friends ... I find that I can be myself around them' (P31).

In a similar way, one first-generation student commented on how they had enjoyed spending more time at their part-time job where they did feel a SoB because they hadn't built such a strong connection to their campus.

### *Invisible work of cultural capital*

There were no explicit references from participants as to being first-in-family to attend university. However, many points were made by mature and international first-generation students about challenges fitting in with the culture. Students talked about the barrier of not understanding cultural references, which slowed their ability to connect with peers:

'I feel like I can't get involved with the other groups ... maybe there's some barriers in between me and them ... maybe the culture.' (P57)

'I am unsure of what topics are appropriate to discuss, and I am mindful of cultural differences that may cause offense.' (P38)

Even when other students were welcoming, not being able to instantly 'click' (P3) hindered belonging.

### *Supportive staff as anchors*

An overall theme from all participants was the importance of mattering to staff, especially academic staff, as a route towards belonging. Whilst many first-generation students acknowledged positive relationships with staff, they were less likely to do so than non-first-generation students. First-generation students appreciated knowing about available support:

'Everyone also had an academic adviser, which I personally never had to use. But ... I knew that if I ever needed anything, I would be able to ask' (P14).

Whilst there were many comments from students about approachability and responsiveness, first-generation students were more likely to have negative comments about this, noting how 'incredibly frustrating' (P43) it was to get no or slow responses to queries.

Many students felt that staff wanted them to succeed, which was an important part in feeling that they belonged: 'they do actually care about you and your grades' (P14). Students emphasised the importance of building up relationships with staff who knew them personally and thus understood what their goals were. When student voice was utilised by staff to make change, students emphasised how this made them feel 'respected' (P43, P44).

### *Silence around finances*

Whilst finances were talked about frequently by other students, there was a notable absence of any remarks related to finances from first-generation students. Whereas other students described actively managing their finances, planning holidays, and budgeting – suggesting a level of financial literacy, control and optimism – there was no mention of these topics from first-generation students. When non-first-generation students talked about finances, they talked openly about financial constraints and how a lack of money can limit participation in wider social life around university. One non-first-generation student even discussed how they didn't want to ask their parents for money, so was prioritising finding part-time work to help with their finances, 'I don't want to ask my parents for money ... So instead, I need to find part-time work and I feel like I let that get in the

way quite a bit.’ (P4 – a non-first-generation student). Other students noted how they had overcome bureaucratic challenges around financial support: ‘Academic advisors can guide you if you need help with bursaries.’ (P6); ‘living is less stressful since I got all the paperwork behind me (bank account opening, NI application etc, searching for job etc ...).’ (P16). It is notable that finances were mentioned so many times as affecting the SoB for other students but not discussed at all by first-generation students within this study.

## Discussion

### *What causes students’ sense of belonging to decrease?*

The results of this study provide three main areas of contribution to knowledge on the topic of student belonging: how students’ SoB changes over the first year of undergraduate study, how changes in students’ SoB may be predicted by their parents’ educational status, and what may explain these negative changes in belonging for first-generation students.

Results show that students’ SoB slightly decreases through the first academic year of study, aligning closely with previous studies (Hausmann et al., 2007; O’Sullivan et al., 2019). While some of this may be attributed to the reliability of early measurements of students’ SoB (Ruedas-Gracia et al., 2023) with students potentially putting on a ‘brave face’ at the start of their university journey, there are also potential explanations offered through the expansive literature on student transitions. The ‘honeymoon period’ of high-energy welcome activities and supportive scaffolding of university induction provides a temporary boost to students’ SoB that often masks the challenges of transition (Fisher and Hood, 1987). As the thrill of the new setting wears off, students then have to accept the reality of academic rigor and the distance from existing communities and systems of support prior to starting university (Wilcox et al., 2005; Christie et al., 2008). The former, experiential justification, based on the extent of transition activity, would suggest that institutions should consider how activities to support students’ SoB can be continued longer into the first year of study. The latter, psychological reason, suggests that early measurements of students’ SoB may be artificially high and therefore should be used cautiously or avoided.

While early belonging interventions often rely on the common assumption that belonging is a process that naturally increases over time as students adjust (Walton & Brady, 2017), this study’s findings suggest that for many this process is not linear. Instead of a cumulative growth, there was an erosion of students’ SoB, after an initial boost of welcome activities, suggesting a lingering precarity that must be actively maintained (Crawford et al., 2024). The significant drop by the end of the first year suggests that induction should not be seen as an event, but as a longitudinal process of orientation (Fernandez et al., 2023). Furthermore, although the overall trend in belonging was negative, the observed decline in SoB only reached statistical significance when comparing the final May timepoint to the October baseline. This pattern suggests that students’ sense of belonging may be more resilient or stable during the initial phase of the academic year, a period often characterised by high engagement and institution-led support. Conversely, the significant drop in belonging by May could reflect a cumulative effect of academic fatigue, assessment-related stress, and loss of peer and staff relationships as formal teaching periods conclude. This finding highlights that the erosion of belonging is not a smooth, linear process but rather a stepped or accelerated phenomenon that becomes critical towards the end of the academic year, underscoring the need for targeted, later-cycle interventions.

### *Belonging for first-generation students*

Results also further complicate literature on first-generation students and SoB. Whilst previous studies generally find that first-generation students have lower levels of belonging (O’Shea, 2020), this can depend on whether first-generation status is defined as having neither parents or caregivers as previous attendees of university or not both parents or caregivers (Pedler et al., 2022). Within this

study, initial measurements of belonging at the start of the academic year were almost identical regardless of parents' education status, contrasting with prior studies that suggest student demographics are the primary predictor for initial belonging (Strayhorn, 2019). However, by the end of the first academic year, students who had no parents or caregivers attend university had significantly lower SoB compared to non-first-generation students.

The subsequent qualitative analysis sheds light on what may have been happening during the academic year to negatively impact on the SoB of the first-generation students within this study. Whilst many previous studies have commented on the importance of building connection with peers on the course (Thomas, 2012; Kahu et al., 2022), first-generation students seemed to report that these relationships were fragile and so prone to disruption through changes across the academic year. This fragility could be explained by significant external commitments that first-generation students often have to balance alongside their studies, such as family care and part-time work (Ardoin, 2018). These competing identities mean that social connection on-course is often deprioritised not by choice, but by necessity (Bettencourt, 2021).

When initial attempts at friendship are met with cultural barriers (O'Shea, 2016; Reay, 2018), first-generation students may retreat to pre-existing social circles outside the university to maintain a sense of psychological safety. This explains why first-generation students in this study sought connection elsewhere – either outside of the course or beyond the university entirely; a rational response to an environment that feels 'foreign or unknown' (Dias-Broens et al., 2024).

Comments from all students aligned with previous research showing the importance of building relationships with staff towards students' SoB (Hausmann et al., 2007). However, first-generation students were much less likely to talk about feeling that they mattered to staff, compared to their non-first-generation counterparts. Whilst there were still many positive stories from students about mattering to staff, first-generation students' online diaries also highlighted frustration with slow responses to queries. This aligns with previous research suggesting how first-generation students may lack the cultural capital to navigate unclear expectations, as they have fewer people who they can turn towards to check what they can and cannot expect from academic staff (Collier and Morgan, 2007). Any negative impact on SoB from unclear expectations would be likely to impact students more as the academic year progresses (Means et al., 2017), explaining the steeper decline in belonging for first-generation students seen within the quantitative findings.

Finally, there was a notable absence of any comments from first-generation students within their online diaries about finances. Given that first-generation students are likely to face the same financial challenges as other students – or perhaps even greater challenges, with first-generation students being more likely to come from lower socio-economic backgrounds (Adamecz-Volgyi et al., 2021) – these findings suggest that there may be an unwillingness or discomfort around discussing finances unless directly prompted. This aligns with prior research that explores how first-generation and working-class students often perform 'class straddling', attempting to hide financial stress to fit into the perceived middle-class norm of the carefree student (Bettencourt, 2021). Not only do these social concealment strategies place an additional emotional burden on first-generation students, but they also may impact help-seeking behaviours, leading to further financial challenges (Harrel-Hallmark et al., 2022; Veldman et al., 2023).

### **Limitations and future research**

The primary limitation for this study has been its sample size of participants. This was likely due to the positioning of the study as inviting students to both surveys and online diaries, which may have been felt by some students as 'too much'. The low response could mean that those participating in the study are not representative of their overall student populations or have a particular interest in the topic of student belonging, which may have influenced their involvement and results. To address this limitation, two-sample z-tests were used to understand significant differences between the overall student populations and study populations across key demographic

variables. The likelihood that students would have entered the study due to a specific interest in student belonging was also mitigated by how the study was positioned when promoted to potential participants, as this focused more generally on student success as a topic. Furthermore, all quantitative analyses report both statistical significance and effect sizes to ensure that the influence of a smaller sample can be clearly understood by readers. Finally, the quantitative results from this study are complemented by the rich qualitative data presented by students through the online diaries.

Whilst 101 participants took part in the study, not all participants completed each follow-up survey or online diary opportunity. This is a challenge with any longitudinal research study and has been addressed in this article through analysis to test whether students' SoB was a predictor of completing or missing future data collection points. The limitations to sample size have meant that this article was not able to look at intersectionality between student demographics in a meaningful way, beyond those inherent in the linear mixed model analyses. Furthermore, no analyses were conducted comparing results between the two institutions, due to lower participation from the selective-recruiting university. This limits the external validity of the study, as it means that analyses were not able to show whether key findings – such as the significant decrease in students' SoB from October to May was significant at both types of institutions independently. In addition, as not all follow-up surveys were completed by every student, this led to varying response rates in each case. The number of observations included within each individual analysis have been included either in the caption or within tables themselves to address this.

Further research could help to address these gaps by:

- 1) Attempting to gather large numbers of participants at a variety of institution types, to see if these trends in belonging changes are replicated across contexts
- 2) Reconsider study design by focusing initial recruitment just for the surveys – where large response rates are most important – and then offering separate recruitment routes for those who wish to additionally take part in online diaries
- 3) Exploring whether these changes in belonging continue beyond the first academic year of study.

## Conclusion

This article has explored how students' SoB changes over the first year of study and how this is predicted by students' first-generation status. Building on previous research, results show that students' SoB significantly decreases throughout the first year of study. Whilst beginning the year with similar levels of belonging, first-generation students saw decreasing levels of belonging compared to their non-first-generation counterparts. Qualitative analysis of the rich online diaries kept by students during the year, suggests that the main differences in experiences of belonging for first-generation students were more fragile social connections with coursemates, cultural barriers, less frequent feelings of mattering to staff, and a reluctance to discuss the impact of finances on their SoB. Results suggest that universities should consider developing interventions to support students' SoB later into the academic year to address expected decreases in belonging. Furthermore, universities may be able to address declining SoB amongst first-generation students by considering how changes to teaching schedules and wider attendance patterns may impact social connections, how unclear expectations of staff responsiveness may impact relationships with academic staff, and how talking about and seeking help around finances may need to be normalised.

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## Appendices

### Appendix 1 – prompts used within online diaries and open text questions within surveys.

| Overarching prompt questions (present in all diary entry requests)                                                                                                                                                |                                                                                                                                                                         |                                                                                                                                                                           |                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| What are some of the areas where you have felt a sense of belonging at university over the last few weeks?                                                                                                        | Are there any areas where you have felt more isolated, excluded or alienated?                                                                                           | Have you taken any steps to build your sense of belonging?                                                                                                                | What barriers have you faced in your attempts to build your sense of belonging?                                                          |
| Additional, timely prompts                                                                                                                                                                                        |                                                                                                                                                                         |                                                                                                                                                                           |                                                                                                                                          |
| Oct / Nov                                                                                                                                                                                                         | Nov / Dec                                                                                                                                                               | Dec / Jan                                                                                                                                                                 | Jan / Feb                                                                                                                                |
| What spaces at university (both online and in person) do you feel a positive sense of belonging? Are there any spaces where you don't feel welcome?                                                               | To what extent do you feel like you belong in your classes (lectures and seminars)? What are the positives and negatives?                                               | Have you been able to find groups of students to make friends where you feel like you belong?                                                                             | What are your relationships like with academic staff on your course? Do you feel respected and a sense of belonging with your lecturers? |
| Feb / Mar                                                                                                                                                                                                         | Mar / Apr                                                                                                                                                               | Apr / May                                                                                                                                                                 |                                                                                                                                          |
| How has your belonging changed at university since you started back in September? What feels different now compared to six months ago? Have your priorities changed in terms of areas where you wanted to belong? | What challenges are you still facing in terms of feeling a sense of belonging? Is there anything that you've tried to do to overcome barriers that still hasn't worked? | As we're now coming towards the end of the academic year, what lessons have you learned about building belonging? What do you wish you could have known when you started? |                                                                                                                                          |
| Open text questions within surveys                                                                                                                                                                                |                                                                                                                                                                         |                                                                                                                                                                           |                                                                                                                                          |
| Briefly describe some of the steps that you have taken recently to build relationships at university and find spaces (either physical or online) where you feel that you belong?                                  |                                                                                                                                                                         | Is there anything more that you want to do next to develop your sense of belonging at university? If so, briefly describe what.                                           |                                                                                                                                          |

### Appendix 2 – Full list of codes used as part of reflexive thematic analysis, with matrix coding queries used to show what percentage of contributions to a code came from first-generation students.

| Name                                     | Participants | References | % from first-gen students |
|------------------------------------------|--------------|------------|---------------------------|
| Attachment to spaces                     | 38           | 394        | 40.51%                    |
| Access to resources                      | 14           | 36         | 48.32%                    |
| Attendance or absence from spaces        | 30           | 95         | 42.28%                    |
| Attributes of spaces                     | 12           | 32         | 24.06%                    |
| Feeling safe or welcomed in a space      | 23           | 56         | 28.65%                    |
| Feels like home                          | 5            | 7          | 63.93%                    |
| Flexible access                          | 13           | 20         | 58.35%                    |
| Living spaces                            | 19           | 43         | 43.97%                    |
| Online spaces                            | 9            | 12         | 60.62%                    |
| Placements                               | 2            | 2          | 0.00%                     |
| Quiet or private spaces                  | 17           | 34         | 36.40%                    |
| Spaces to socialise                      | 22           | 38         | 37.80%                    |
| Study spaces (either alone or groupwork) | 10           | 17         | 27.66%                    |
| Fairness                                 | 6            | 7          | 80.71%                    |
| Finances                                 | 10           | 13         | 0.00%                     |
| Grades and academic success              | 25           | 65         | 33.32%                    |
| Passion for the subject                  | 14           | 24         | 18.33%                    |
| Identity and self                        | 43           | 315        | 35.07%                    |
| Confidence                               | 35           | 153        | 35.83%                    |
| Cultural capital                         | 21           | 32         | 31.31%                    |
| Freedom of expression                    | 15           | 20         | 40.60%                    |

(Continued)

Continued.

| Name                                    | Participants | References | % from first-gen students |
|-----------------------------------------|--------------|------------|---------------------------|
| Identity judged or respected            | 28           | 75         | 38.60%                    |
| Respect for my experiences and story    | 14           | 32         | 22.16%                    |
| Interacting with peers                  | 50           | 777        | 35.26%                    |
| Alumni involvement                      | 1            | 1          | 0.00%                     |
| Cliqueness – others already belonging   | 12           | 25         | 37.50%                    |
| Comparisons with peers                  | 33           | 127        | 33.13%                    |
| Course size or structure                | 25           | 66         | 31.82%                    |
| Events                                  | 26           | 89         | 23.65%                    |
| Family + friends outside of uni         | 15           | 30         | 25.37%                    |
| Friendly or mean peers                  | 19           | 43         | 27.10%                    |
| Friends leaving uni                     | 1            | 3          | 0.00%                     |
| Friends outside the course              | 14           | 23         | 51.01%                    |
| Groupwork (formal)                      | 14           | 26         | 36.57%                    |
| Peers on course (informal)              | 39           | 195        | 41.65%                    |
| Societies and groups                    | 32           | 146        | 32.08%                    |
| Interacting with staff                  | 35           | 304        | 27.06%                    |
| Engaging course content                 | 21           | 53         | 32.21%                    |
| Respect and mattering to staff          | 19           | 69         | 22.43%                    |
| Staff approachability                   | 29           | 86         | 21.49%                    |
| Student Callers                         | 1            | 1          | 0.00%                     |
| Support and care from staff             | 20           | 94         | 24.78%                    |
| Mental health and wellbeing             | 16           | 40         | 34.28%                    |
| Part-time job                           | 22           | 43         | 32.34%                    |
| Self-reflective activities              | 45           | 783        | 31.80%                    |
| Accepting things outside of our control | 7            | 11         | 19.93%                    |
| Authenticity in decision and actions    | 32           | 112        | 33.91%                    |
| Contributing to something greater       | 23           | 44         | 20.20%                    |
| Hopes and fears                         | 24           | 54         | 38.57%                    |
| Ownership of next steps                 | 26           | 112        | 43.29%                    |
| Reflections and expectations            | 17           | 69         | 38.54%                    |
| Student voice and feedback              | 21           | 35         | 17.96%                    |
| Taking action to belong                 | 39           | 270        | 31.08%                    |
| Wanting uni or others to take action    | 19           | 48         | 33.67%                    |
| Time and capacity                       | 30           | 93         | 40.67%                    |
| Workload in studies                     | 27           | 75         | 43.40%                    |
| Sentiment analysis                      | 52           | 776        | 32.26%                    |
| Improvement – getting better            | 25           | 75         | 32.30%                    |
| Mixed sentiment                         | 38           | 195        | 33.73%                    |
| Negative sentiment                      | 33           | 149        | 35.44%                    |
| Neutral sentiment                       | 13           | 17         | 26.11%                    |
| No change in perspective                | 2            | 2          | 48.44%                    |
| Positive sentiment                      | 48           | 324        | 29.42%                    |
| Worsening                               | 6            | 14         | 56.75%                    |

**Appendix 3 – Full demographic and participation details from online diary participants (Key: WP = widening participation, Int = international).**

| Code | Uni | Parents attended Uni | Gender | Age bands | Fee status | Commute time (mins) | Private education | # Diaries | # surveys |
|------|-----|----------------------|--------|-----------|------------|---------------------|-------------------|-----------|-----------|
| P1   | WP  | 0                    | Male   | 18–24     | UK         | 30–59               | No                | 1         | 1         |
| P2   | WP  | 2+                   | Male   | 18–24     | Int        | 10–29               | Yes               | 1         | 0         |
| P3   | WP  | 0                    | Male   | 25–29     | Int        | 30–59               | Yes               | 1         | 0         |
| P4   | WP  | 1                    | Female | 18–24     | UK         | 30–59               | No                | 6         | 2         |
| P5   | WP  | 0                    | Male   | 18–24     | UK         | 10–29               | No                | 2         | 0         |
| P6   | WP  | 1                    | Female | 18–24     | UK         | 30–59               | No                | 7         | 2         |

(Continued)

Continued.

| Code | Uni       | Parents attended Uni | Gender     | Age bands | Fee status | Commute time (mins) | Private education | # Diaries | # surveys |
|------|-----------|----------------------|------------|-----------|------------|---------------------|-------------------|-----------|-----------|
| P7   | WP        | 2+                   | Female     | 18–24     | UK         | 10–29               | No                | 1         | 1         |
| P8   | Selective | 2+                   | Female     | 18–24     | UK         | 10–29               | No                | 4         | 2         |
| P9   | WP        | 2+                   | Female     | 18–24     | Int        | 10–29               | No                | 2         | 0         |
| P10  | WP        | 1                    | Male       | 18–24     | UK         | 10–29               | No                | 5         | 2         |
| P11  | WP        | 2+                   | Male       | 18–24     | Int        | 10–29               | Yes               | 0         | 2         |
| P12  | WP        | 2+                   | Male       | 18–24     | Int        | 30–59               | No                | 1         | 1         |
| P13  | WP        | 0                    | Female     | 30–39     | UK         | 60–120              | Yes               | 4         | 2         |
| P14  | WP        | 0                    | Female     | 18–24     | UK         | Not sure            | No                | 1         | 1         |
| P15  | WP        | 1                    | Female     | 18–24     | Int        | 30–59               | Yes               | 4         | 1         |
| P16  | WP        | 1                    | Female     | 25–29     | Int        | < 10                | Yes               | 7         | 2         |
| P17  | Selective | 1                    | Female     | 30–39     | UK         | 30–59               | No                | 7         | 2         |
| P18  | WP        | 0                    | Female     | 18–24     | UK         | 30–59               | No                | 0         | 2         |
| P19  | Selective | Not sure             | Male       | 18–24     | UK         | < 10                | No                | 7         | 2         |
| P20  | WP        | 0                    | Male       | 40–65     | UK         | 30–59               | No                | 7         | 2         |
| P21  | WP        | 0                    | Male       | 18–24     | Int        | 10–29               | Not sure          | 0         | 1         |
| P22  | WP        | 1                    | Female     | 40–65     | UK         | 30–59               | No                | 5         | 2         |
| P23  | WP        | 2+                   | Female     | 18–24     | UK         | 30–59               | No                | 7         | 2         |
| P24  | WP        | 0                    | Female     | 18–24     | UK         | 30–59               | No                | 0         | 1         |
| P25  | WP        | 1                    | Female     | 40–65     | UK         | 60–120              | Not sure          | 2         | 2         |
| P26  | WP        | 0                    | Female     | 18–24     | UK         | 120+                | No                | 2         | 1         |
| P27  | WP        | 2+                   | Female     | 18–24     | Not sure   | 10–29               | No                | 3         | 2         |
| P28  | Selective | 0                    | Female     | 18–24     | UK         | 10–29               | No                | 6         | 2         |
| P29  | WP        | 1                    | Female     | 18–24     | UK         | 30–59               | No                | 3         | 2         |
| P30  | WP        | NA                   | Female     | 18–24     | Int        | 10–29               | Yes               | 0         | 1         |
| P31  | WP        | 0                    | Female     | 18–24     | UK         | 10–29               | No                | 2         | 2         |
| P32  | WP        | 2+                   | Male       | < 18      | Int        | 30–59               | Yes               | 1         | 1         |
| P33  | Selective | 1                    | Male       | 18–24     | UK         | 10–29               | Yes               | 0         | 1         |
| P34  | Selective | 2+                   | Male       | 18–24     | UK         | 10–29               | No                | 0         | 1         |
| P35  | WP        | 1                    | Male       | 18–24     | Int        | 10–29               | Yes               | 4         | 2         |
| P36  | Selective | 1                    | Non-binary | 18–24     | UK         | 10–29               | No                | 7         | 2         |
| P37  | WP        | 0                    | Female     | 18–24     | UK         | 10–29               | No                | 7         | 2         |
| P38  | Selective | 0                    | Female     | 25–29     | Int        | 10–29               | No                | 2         | 2         |
| P39  | WP        | 0                    | NA         | NA        | Not sure   | 10–29               | Not sure          | 6         | 2         |
| P40  | Selective | 1                    | Male       | 18–24     | UK         | 10–29               | No                | 4         | 2         |
| P41  | Selective | 1                    | Female     | 18–24     | Int        | 10–29               | Yes               | 5         | 2         |
| P42  | Selective | 0                    | Female     | 18–24     | UK         | 30–59               | No                | 2         | 1         |
| P43  | WP        | 0                    | Female     | 18–24     | UK         | 10–29               | No                | 0         | 2         |
| P44  | WP        | 0                    | Female     | 18–24     | UK         | 10–29               | No                | 0         | 1         |
| P45  | Selective | 2+                   | Female     | 18–24     | UK         | 10–29               | No                | 1         | 1         |
| P46  | WP        | 0                    | Female     | 30–39     | Int        | 30–59               | No                | 1         | 0         |
| P47  | Selective | 2+                   | Female     | 18–24     | Int        | 10–29               | Yes               | 7         | 2         |
| P48  | WP        | 1                    | Male       | 18–24     | UK         | 30–59               | No                | 1         | 0         |
| P49  | Selective | 2+                   | Female     | 18–24     | Int        | 10–29               | Yes               | 2         | 2         |
| P50  | Selective | 1                    | Female     | 18–24     | UK         | 10–29               | No                | 4         | 1         |
| P51  | WP        | 2+                   | Female     | 18–24     | UK         | 10–29               | No                | 0         | 1         |
| P52  | Selective | 2+                   | Female     | 18–24     | UK         | 10–29               | Yes               | 5         | 2         |
| P53  | WP        | 2+                   | Male       | 18–24     | UK         | < 10                | Yes               | 0         | 1         |
| P54  | WP        | 0                    | Female     | 40–65     | UK         | 60–120              | Yes               | 0         | 2         |
| P55  | WP        | 0                    | Female     | 18–24     | NA         | 30–59               | No                | 3         | 2         |
| P56  | Selective | 1                    | Male       | 18–24     | UK         | < 10                | Yes               | 6         | 2         |
| P57  | Selective | 0                    | Female     | 18–24     | Int        | 10–29               | Yes               | 4         | 1         |
| P58  | WP        | 1                    | Female     | 18–24     | Int        | < 10                | Not sure          | 0         | 1         |
| P59  | WP        | 0                    | Female     | 25–29     | UK         | 30–59               | No                | 7         | 2         |
| P60  | WP        | 2+                   | Male       | 18–24     | Int        | 10–29               | Yes               | 2         | 2         |
| P61  | WP        | 0                    | Female     | 18–24     | Int        | < 10                | No                | 6         | 2         |
| P62  | Selective | Not sure             | Female     | 18–24     | Not sure   | 10–29               | No                | 7         | 2         |
| P63  | WP        | 2+                   | Male       | 18–24     | Int        | 30–59               | Yes               | 2         | 0         |
| P64  | Selective | 1                    | Female     | 18–24     | UK         | < 10                | No                | 6         | 2         |
| P65  | WP        | 0                    | Female     | 18–24     | UK         | 10–29               | No                | 7         | 2         |