Do I Belong in Law School? The Role of Academic and Social Climate

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Abstract

Research on sense of belonging in higher education has been shown to have significant impacts on students' mental health and academic performance. While a low sense of belonging can have negative impacts on all students, sense of belonging is a factor that varies by student identities, disproportionately impacting some groups over others. Emergent and empirically robust research on legal education, predominantly in the US, UK, and Australia, has found that female, minority, and economically disadvantaged students report much lower levels of 'sense of belonging'; while some research points to the influence of learning design, the social environment, student motivation and behavior, and the competitive nature of the legal profession. In Europe and elsewhere, there has been a growing concern with law students' psychological distress, but research is scarce.

To fill this gap, we developed a faculty-wide concurrent mixed methods survey, which was answered by 624 students at the University of Oslo. In this paper, we ask the following questions: (1) to what extent do students experience a sense of belonging; 2) what explains its variation; and 3) how can it be improved? The quantitative responses were analyzed using descriptive statistics and structural equation modelling of 23 independent variables, and 222 open responses were subjected to unsupervised thematic analysis through ChatGPT assistance and human interpretation. In doing so, we examine specifically the influence of four potential explanations of sense of belonging – social identity, social interaction, academic motivation, and cognitive appraisal.

We find a strong variation amongst students with 63% responding that they experience a sense of belonging. A further fifth of students experiences a very basic level of sense of belonging (accepted, valued) while a final fifth of students do not register any sense of belonging.

The quantitative and qualitative analysis suggests that certain social interaction constructs – teacher-student interaction, social learning environment, and sense of competition – are particularly and directly powerful in explaining this variation. In other words, the academic and social climate is central. At the same time, we find that this climate mediates some of the other theorized explanations including social identity (gender, age), academic motivation (personal relevance of study, influence on course design), social interaction (use of writing lab, group rooms and group sofas, faculty employment, grade pressure from others) and partly cognitive

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appraisal (social media use). In addition, gender is an important determinant of whether students feel comfortable participating in class. These findings are backed up by the qualitative findings, which show a strong student focus on their interactions with students and staff and the value of group spaces. Students suggest several interventions and the direct and indirect findings on academic and social climate point towards research-based interventions for improvement for those that experience a poor sense of belonging.

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1. Introduction

A large body of empirical research has demonstrated that sense of belonging in higher education is an important determinant of students' academic success (Abdollahi & Noltemeyer, 2018; Allen et al., 2021a; A. Freeman & Carlson, 2023). It has been linked to academic performance (Cwik & Singh, 2022; de Beer et al., 2009), retention (Morrow & Ackermann, 2012; O'Keeffe, 2013; Pedler et al., 2022), motivation (Strayhorn, 2012a), and '21st century skills' such as resilience (Scarf et al., 2016). Moreover, it has broader implications for students' well-being (Baumeister & Leary, 2017), mental health (Gopalan et al., 2022; Skipper & Fay, 2023), self-esteem, self-efficacy, and self-mastery (Erb & Drysdale, 2017). As sense of belonging is a fundamental human need, almost as important as food and physical safety (Hagerty et al., 1992; Maslow, 1954; Strayhorn, 2018), its role in shaping productivity and mental health has gained increasing the attention of scholars, educators, and the general public (Brownlee, 2013; Eastwood, 2021; Osterman, 2010).

Explaining a sense of belonging though is a more complicated task. In the field of higher education, a significant body of literature has focused on the role of student's social identities. Empirical research has found that minority students' experience a lower sense of belonging; while a growing number of studies show that this is also the case for female students, and especially minority female students (Vaccaro & Newman, 2022). Other studies have focused on the learning context individual academic motivation (Glass et al., 2017), or more contextual social identities such as newness and study program track (Strayhorn, 2012, p. 20; Whitcomb et al., 2023) or students' behavioral patterns, such as physical exercise and social media use (Skead et al., 2018). Identification of these factors in some higher education settings has permitted the testing of different interventions to improve sense of belonging, with some achieving considerable success (Fisher et al., 2019).

Within legal education, there has been an increasing focus on sense of belonging. This is partly because research has long shown disproportionately high levels of psychological distress in legal education (Kronman, 1993; Riskin, 2002; Sheldon & Krieger, 2007; Skead et al., 2018). Research undertaken in the USA and Australia has shown that race and gender are particularly strong determinants of sense of belonging (Bodamer, 2020; Jones et al., 2023; Moore & Drisceoil, 2023; Moriarty & O'Boyle, 2023; Murray & Mundy, 2019). However, the field remains nascent. There are few studies that examine the broad range of factors that are thought to influence sense of belonging, such as competitiveness, grade pressure, and traditional learning design, which often characterize such learning environments. Moreover, almost all the

studies are exploratory and qualitative in nature, while research in Europe and other regions is almost non-existent. This can be contrasted to other fields such as medicine, nursing, psychology, and business studies, where there is a more substantial body of research.

In this study, we take therefore a systematic and mixed methods approach to studying sense of belonging in legal education. We use structural equation modelling and unsupervised topic modelling of free text answers and take a departure point in a multi-factor and interactive explanatory model. We theorize that four important types of factors may influence sense of belonging. (1) *social identity* (personal and study-related): (2) *social interaction* (with teachers, students, and employers); (3) *academic motivation* (intrinsic and learning design-driven), and (4) *cognitive appraisal*. We also theorize about the relationships between these factors, especially the effects on aspects of social interaction. For example, minority status or participation in a distinct study program may affect how students experience interactions with teachers and students or engage in extra-curricular activities that may strengthen social bonds.

In this paper, we ask three questions: 1) to what extent do students experience a sense of belonging; 2) what explains its variation; and 3) how can it be improved? In so doing, we base our empirical analysis on a survey conducted outside the Anglo-American context. We surveyed all students at the faculty of law at the University of Oslo, and garnered 624 responses, including 222 free text answers on sense of belonging. With relatively high levels of perceived competition and grade pressure, the learning environment at this law school is comparable to other law schools, making arguably the findings relevant elsewhere in the world. Indeed, Jensen (1995) and Hauge and Raaheim (1994) found high levels of psychological distress in Norwegian legal education and the annual Study Barometer, until recently, has shown relatively low scores for legal learning environments.[6] Moreover, there are students undertaking study programs in criminology, sociology of law, e-Governance, and human rights, which permit comparison across sub-learning environments.

However, it is important to note one important limitation in our study. The sense of belonging is a dynamic and multi-directional phenomenon. There is evidence that suggests that it can recursively affect the explanatory factors at play – for example, improved sense of belonging may improve academic motivation or boost engagement with the learning environment (see discussion in section 2.2). Thus, there can be virtuous and vicious cycles of

[6] Include references to Study Barometer, as well as SHoT (see https://www.fhi.no/en/cristin-projects/ongoing/the-shot-study/).

sense of belonging as it respectively improves or worsens. These dynamics will be investigated in a future paper, where we also examine the broader effects of sense of belonging on, and its relationships with, exam anxiety, framing of stress, self-mastery and self-efficacy, and academic performance.

2. Theory and literature review

2.1 Conceptualizing sense of belonging

Sense of belonging is a basic human emotion (Maslow, 1962), and an important aspect of individual wellness and the ability to thrive. Specifically, a sense of belonging is the experience of personal involvement in a system (e.g., a university) or environment (e.g., a classroom), where individuals feel themselves to be an integral part of that system or environment (Strayhorn, 2012a). For example, student sense of belonging at the beginning of an introductory chemistry course predicted performance in the course and later retention (Fink et al., 2020) and the resilience of students on board a sailing vessel during a challenging experiential learning course (Scarf et al., 2016). Conversely, low sense of belonging can correlate with poor performance, low motivation and engagement, and greater attrition (Strayhorn, 2012a). It is also seen as a dynamic dimension of relatedness, a key aspect of human motivation associated with an individual's ability to thrive (Deci & Ryan, 2012).

While the idea of sense of belonging resonates intuitively, it is a highly multivalent construct. It is a cognitive, affective, and behavioral experience (Hagerty et al., 1996). Rosenberg and McCullough (1981) identified seminally five dimensions of sense of belonging or 'mattering': (1) attention (e.g., one is noticed); (2) importance (e.g., one is cared for); (3) ego extension (others share in our successes and failures); (4) dependence (e.g., one is needed, valued); and (5) appreciated (e.g., one feels respected). In the decades since this seminal research, others have also categorized the dimensions in different ways (Allen et al., 2021; Gibson et al., 2004; Gillen-O'Neel, 2021). For instance, Allen et al. (2021) distinguishes between trait and state belongingness – the former a "core psychological need" and the latter more "situation-specific". In their view, state belongingness is more malleable—and can be more easily addressed with low-cost or targeted interventions (Allen et al., 2021). Sense of belonging is also captured in different ways, including through a student's willingness to participate in class or respond to a question posed by the instructor (Gillen-O'Neel, 2021). As such, sense of belonging is closely related to indicators of social and psychological functioning, such as self-efficacy (Erb & Drysdale, 2017) and anxiety (Hagerty et al., 1996, 2002).

While it is possible to parse out the different dimensions of sense of belonging, it is important to note their temporal and spatial variation (Baldwin & Keefer, 2020). Belonging is a capacious topic, and different elements of this concept may be more salient with different groups, in different contexts, at different times. Temporally, the importance of sense of belonging may vary according to phase of life or even across a single day – it is especially heightened in late adolescence and in contexts where we are a 'newcomer to an otherwise established group' (Strayhorn, 2012, p. 20). Spatially, individuals from a 'majority' and 'minority' may respectively value different dimensions of sense of belonging. For instance, Vaccaro and Newman (2022, p. 6) found that while all college students in their sample valued 'being comfortable' and 'fitting in', minority students also highly valued "safety and respect', privileged students valued 'familiarity', 'fun' and 'friend[liness]", and students with disabilities valued the ability to 'self-advocate'. Thus, any research on sense of belonging needs to operationalize the concept in a *multidimensional* manner (to capture different preferences) and capture an individual's context (to reveal those different preferences).

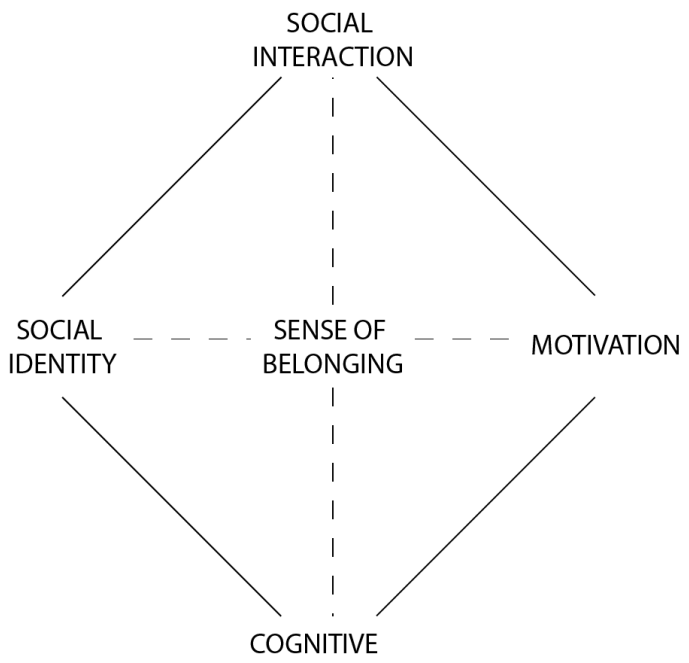
2.2 Explaining sense of belonging

The tendency in current literature is to focus on small clusters of explanatory factors and test their relevance. Factors that appear to affect a student's sense of belonging include *external* factors such as the composition of the larger study population (Maestas et al., 2007) and characteristics of their instructors (Freeman et al., 2007); and *internal* factors such as a student's gender identity (Rainey et al., 2018; Stout et al., 2013), parent's academic background (Gillen-O'Neel, 2021), race or ethnicity (Duran et al., 2020; Hussain & Jones, 2021), sexual orientation (Henning et al., 2019; L. C. Wilson & Liss, 2022), or disability status (Kim & Zhu, 2023; Vaccaro et al., 2015). In these latter cases, students likely feel either minoritized (e.g., "I am the only Hispanic here"), aware of a negative stereotype about their identity (e.g. "everybody thinks women are bad at math"), or both.

Putting it all together, (Vaccaro & Newman, 2022, p. 17) state that the 'development process of belonging' is shaped by and interwoven with 'social identity' and 'influenced by the 'campus environment, relationships, and involvement opportunities as well as a need to master the student role and achieve academic success'. One way though to parse these factors is to view belonging through the lens of 'self-categorization theory' (SCT; Turner, 1999) and identify more clearly the role of individual identity and environmental interaction. According to SCT, individuals possess both a *personal identity* ('I'), formed by a suite of features that is specific to the individual, and a *social identity* ('we'), which is collective and includes

information about the groups to which they belong—or from which they are excluded. Thus, there is no one self but rather a series of operative 'selves'. Further, the relative salience of these identities or selves may vary based on context.[7] For example, if your social identity includes being a member of a football team's fan base, this aspect of your identity is likely to be most salient when that team is playing a rival team.

We can consider belonging in higher education from the perspective of SCT: a student navigates their institutional environment as an individual, with a specific academic, family, and cultural background, but they also have a social identity that involves their own concept of group identity ("To which groups do I belong? From which groups am I excluded?") as well as how they interact with others. In this work, we divide an extensive array of variables, all posited to impact a student's sense of belonging, into four broad themes—two personal (academic motivation, cognitive appraisal) and two social (social identity, social interaction). We illustrate this in Figure 1.



[7] As Trepte and Loy (2017) state:

Self-categorization theory posits that, depending on the relative salience or importance of a certain situation for social or personal identity, an individual's behavior is driven either by social or personal identity processes. Both identities can, however, be salient at the same time and trigger behavior that is motivated by a dynamic interplay of both."

A student's ***social identity*** is a complex concept, encompassing person-based, relational, group-based, and collective identities (Brewer, 2001). A person's social identity can involve their race/ethnicity, gender, social class/socioeconomic status, sexual orientation, (dis)abilities, and their generation in higher education (i.e., whether their parents attended higher education) as well as their study program and cohort (Strayhorn, 2018; Vaccaro & Newman, 2022; Whitcomb et al., 2023). Recent research on social identity and sense of belonging in higher education has highlighted the importance of community and engagement in fostering a sense of belonging (Masika & Jones, 2016). This can be particularly relevant for marginalized groups, such as autistic students, who face additional challenges in navigating social expectations and biases (Pesonen et al., 2023). The role of ethnicity in shaping students' sense of belonging has also been explored, with findings indicating differential experiences and outcomes (Cureton & Gravestock, 2019). However, we emphasize that social identity is not meant to be described as consisting of *one* identifiable characteristic—a student is not simply White, *or* First-Generation Higher Education ('College'), *or* Female. Rather, a White, First-Generation, Female student has a social identity that is distinct from, for example, a White, First-Generation, Male student.

The second key aspect of sense of belonging is what we have coined as ***social interaction***. This can include, but not exclusively students' social relationships with their peers and their teachers and the social environment on campus. There are several components to social interaction including opportunities and learning environment. These interactions can be in formal settings such as in the classroom or in informal settings such as social events. For instance, Glass et al. (2017) found in a study of 1463 students that academic teachers' 'out-of-class' interactions with students and engagement 'in-class' with cultural variation strengthened the sense of belonging. The importance of informal social interactions is also clear from research on gender and sexuality. For instance, LGBT (Lesbian, Gay, Bisexual, Transgender) students once reaching university may feel they have a network of likeminded individuals that could allow them to feel included, which allows them to express their sexuality. Vaccaro and Newman (2022) find though in their research on LGBP students (Lesbian, Gay, Bisexual and Pansexual) that casual interactions were not sufficient to belonging, instead more *authentic* relationships and time to develop a comfort with their sexual identity and outness was crucial. Thus, being accepted and recognized in an ongoing manner is an important step to feeling a sense belonging, and arguably for all students.

Students vary with respect to various ***motivational*** constructs. Research consistently demonstrates a strong relationship between sense of belonging and motivation—whether the motivation is *intrinsic* (e.g., a desire to learn new things) or *extrinsic* (e.g., grade pressure from teachers, parents, or peers; Pedler et al., 2022; Pekrun et al., 2011). Motivational constructs that have been related to student sense of belonging include self-efficacy, perceptions of stress, exam anxiety, and whether a student perceives what they are learning as personally relevant. For example, some have suggested a positive association between school belonging and academic motivation (Goodenow, 1993), and belonging may mediate the relationship between motivation and academic success (Faircloth & Hamm, 2005).

The fourth cluster of factors is also personal. Here we refer to the role of ***cognitive appraisal,*** which is understood as a 'process through which the person evaluates whether a particular encounter with the environment is relevant to his or her well-being, and if so, in what ways' (Folkman et al., 1986). Patterns of cognitive appraisal may influence how a student will, or is willing to take the steps, to experience a sense of belonging. It may be influenced by a myriad of factors such as risk aversion, past experiences with groups, perceptions of stress, and the nature of social media use. For example, students vary in their willingness to take risks, with women *on average* being more risk-averse than men (Booth et al., 2014; Friedl et al., 2020). Since speaking up in class involves taking a risk—potentially exposing a lack of understanding, for example—more risk-averse students will be less likely to participate. Individuals also vary in their perceptions of stress—specifically, whether they see stress as potentially positive or always negative (Jamieson et al., 2013; Parker et al., 2023). How one interprets natural stress levels—due to, for example, sharing ideas with strangers in a large class—could dictate their willingness to participate. Similarly, social media use can either promote or undermine an individual's sense of belonging (Arslan et al., 2022).

While it is possible to separate each cluster of factors, it is also important to recognize that they may intersect and be partly dependent. For instance, it is important for students to feel they fit in. A common way for students to do so is through participation in clubs or organizations. Minority students may though feel excluded or feel a sense of loneliness in these social situations as these situations may remind them of their loneliness (Vaccaro & Newman, 2022). Conversely, students that come from privileged backgrounds may experience an easier transition due to having similar experiences and feeling comfortable in their social surroundings. Therefore, there is an inherent link between students' social identities and their social interactions. In similar way the interactions with their teachers and having a sense of

shared experiences (i.e., having lecturers who both look like them and who have dealt with social issues and prejudices) may especially for minority and female students improve their sense of belonging. Wilson (2022) finds for example that the academic climate and opportunities to learn mediate the effects of student background on sense of belonging and performance.

Likewise, there is also an important link between social interaction and motivation in that socially minded students may openly seek social interactions, which may have more positive experiences, which in turn would improve their sense of belonging. On the other hand, students may not have the same desire to connect with others. This would result in less meaningful and personal relationships and increase their feelings of loneliness and so-called otherness.

Finally, it is important to recall our caveat regarding feedback loops. While many studies have linked belonging to performance in a linear fashion (e.g., Cwik & Singh, 2022; Fink et al., 2020; Murphy & Zirkel, 2015), Edwards et al. (2022) recently provided evidence of a *recursive feedback loop*, whereby low sense of belonging predicts low performance, which in turns leads to a lower sense of belonging, and so on. Their work confirms what others have claimed (Binning et al., 2020; Strayhorn, 2012; Walton & Carr, 2011) – namely, that sense of belonging is malleable and thus subject to change. Critically, and helpfully, the dynamic nature of student sense of belonging suggests that thoughtful pedagogical choices can promote student belonging and subsequently catalyze other desired academic outcomes in a transformational direction. Consequently, many psycho-social interventions that focus specifically on promoting student sense of belonging have been tested in various contexts, which we discuss in section 5.[8]

2.3 Sense of belonging in law schools

Regarding legal education, there have been numerous studies investigating law students' mental health, and to a certain extent sense of belonging, in the United States and Australia. Nearly all of these studies suggest law students struggle with psychological distress, which has been measured at up to three times that of the general population in a specific survey (Skead et al., 2018). Studies have suggested, amongst other things, that law students who are female and from a minority have lower levels of sense of belonging (Bodamer, 2020; Daramy et al., 2021; Lawlor, 2023).

[8] *Note: need to cover som SEM/Senese of Belonging Studies in specific higher education fields: e.g. medicine, engineering.*

We surveyed the existing literature on law schools that examined sense belonging. We used Google Scholar with the search: '"sense of belonging" OR "belongingness" AND "legal education" OR "law students". From this we identified fifty articles, and from that we narrowed it down to 23 articles that addressed sense of belonging substantively. These are set out in Table 1. We list country of research, the level (national, regional, or faculty-level study), the method, sample size (if the study is empirical), and summarize the main findings.

Table 1. Survey of sense of belonging research in legal education

Authors	**Country Type (Institutional level)**	**Level**	**Method**	**Sample Size (n)**	**Main findings**
Iijima (1998)	USA	National	Reflective analysis		Law schools need to acknowledge their responsibility in addressing dysfunction among students, graduates, and practitioners and work towards reducing its causes
Russell (2001)	USA	National	Reflective analysis		Lack of diversity in law school
Sheldon and Krieger (2007)	USA	Regional	Quantitative Survey *Descriptive statistics/ regression analysis*	n = 234	Law-school experience was associated with troubling increases in extrinsic values and declines in self-determined motivation. *Note that it does not explicitly mention sense of belonging.*
Galloway et al. (2011)	Australia	Study Program	Literature review		Law students have high rates of psychological distress and depression. Argues that a change in curriculum and way of teaching is needed.
Baron and Corbin (2012)	Australia	National	Literature review		Important to focus on and foster a sense of belonging to the professional community
Field and Duffy (2012)	Australia	Faculty	Literature review		Suggest that a change in curriculum that introduces students to alternative dispute resolution, non-adversarial justice, resilience, and the positive role of lawyers in society is needed to tackle the well-being of law students.
Field and Duffy (2020)	Australia	Course	Qualitative *Case study*	*300 Students took the course	Looking at the implementation of a course "QUT Law School - Lawyering and Dispute Resolution" to address the decline in law student psychological well-being
Field et al. (2013)	Australia	National	Anecdotal		Argues that developing a professional identity will enhance law students' engagement, transition, and well-being

Skead and Rogers (2014)	Australia	Faculty	Quantitative *Survey*	n = 206	Negative correlation with stress and anxiety
Austin (2017)	USA	National	Report		Provide recommendations to tackle the legal profession's mental health and substance use problems.
Heath et al. (2017)	Australia	Faculty	Qualitative *Interviews*	n=61	Looks at the importance of legal academic workforce to challenge traditional perceptions of what it means to "feel like a lawyer."
Bodamer (2020)	USA		Quantitative *Descriptive statistics/ regression analysis*	n= 2527	Race and gender matter in how students experience sense of belonging in law school. Has a negative effect.
Quintanilla and Erman (2020)	USA	National	Literature review		Summarize studies that shows that legal education increased levels of depression, anxiety, stress, mental illness, and alcohol abuse.
Skead et al. (2020)	Australia	Regional	Quantitative *Descriptive statistics and coding open answers*	n= 225	Confirmed that law students experience more negative than positive emotional well-being than the general public
Daramy et al. (2021)	UK	Faculty	Qualitative *Case Study*	*25 Participated in the scheme	Highlights challenges for Black, Asian and Minority Ethnic (BAME) students in a legal field that lacks diversity. Examines how an advocate scheme can help to tackle these problems.
Murray et al. (2022)	Australia	Faculty	Qualitative & quantitative *Survey. Coding open answers*	n= 63	Looking at the effect the Pledge had on student sense of belonging. Identified three key facets of belonging: identity, community, and boundaries
Grant (2022)	USA		Literature review		Belongingness is critical to a student's success in law school.
Jones et al. (2023)	UK	Faculty	Quantitative & qualitative *Survey answers* *Descriptive statistics*	n=74	Argues that the global pandemic provides opportunities to develop new understandings and challenge potentially harmful norms that existed in the pre-pandemic law school.
Lawlor (2023)	USA	National	Qualitative and Quantitative *Survey answers*	*9 law schools	identifies three strategies to support vulnerable students and minimize attrition in law schools: (A) providing accessible support to students, (B) incorporating important lessons in academic success programming,

			Descriptive statistics		and (C) intentionally building a caring community.
Moore & Drisceoil (2023)			Literature review		Examine the relationships between transition to law school, wellbeing, and concepts like confidence, community, and belonging
Moriarty & O'Boyle (2023)	Irland	Provincial	Qualitative *Case study*	*	Case study: emphasizes the importance of focusing on belonging to support learning and development in law schools
Skipper & Fay (2023)	UK	Faculty	Quantitative *Survey Descriptive Statistics Regression Analysis*	n= 95	Law students had a lower sense of belonging and wellbeing than psychology students, but both showed similar levels of stress.
Teixeira de Sousa (2023)	USA	Faculty	Reflective analysis		Argues for a relational teaching approach as part of professional legal education.

Half of the papers are non-empirical in their research design, a feature of most legal education research. For instance, Field and Duffy (2012) examine how an implementation of a specific course can help to improve student sense of belonging, but it does not directly measure students' sense of belonging after the implementation. Similarly, many explore the literature on sense of belonging and related concerns and advocate for greater attention to the subject or specific interventions (Iijima, 1998; Russell, 2001; Teixeira de Sousa, 2023), the latter of which is relevant for our third research question.

Nonetheless, the remaining half of the studies use quantitative or qualitative methods to measure the degree of sense of belonging and its possible causes, as well as its effects on academic success and wellbeing. Bodamer (2020) specifically investigated the intersectionality of race and gender on sense of belonging and found that white female students had a lower sense of belonging, which was even lower for women of color. Minority students – but also white women – experienced bias from both faculty members and fellow students, which then had a negative effect on their sense of belonging. As to social interaction, (Skead et al., 2020) shows that face-to-face contact in a law program may increase belongingness but, paradoxically, also competitiveness in the classroom.

The research also suggests that sense of belonging is lower in law school than other academic and professional programs. At one Australian law university, 63.1% of students reported a strong sense of belongingness to the university generally but only 39.2 % felt a strong sense of belongingness to their law school cohort. (Skead & Rogers, 2014). Skipper and Fay

(2023) found that law students had a lower sense of belonging than psychology students as law students. Law students had an average score of 3.31 (SD = 0.67), while psychology students had an average score of 3.57 (SD = 0.58) on a 5-point agreement scale measuring 20 items.[9]

With regards to the effects of sense of belonging, most studies showed that students who feel a greater sense of belonging to their year group and institution generally have lower levels of stress, anxiety and depression (Skead & Rogers, 2014). Moreover, Skipper and Fay (2023) found that a higher sense of belonging significantly predicted higher mental wellbeing, accounting for 36 per cent of the variation in mental wellbeing.

However, there is an important limitation in our search of the literature, as we only searched in Google Scholar for articles written in English. Contributions from other languages are not captured or included. This includes an already-mentioned quantitative study in Norwegian. Jensen (1995) measured students' sense of belonging at the law faculty at the University of Oslo and found that 60.6% (n=729) had some sense of belonging, 19.3% felt they had a high sense of belonging, and 20.1% (n=242) felt they did not have a sense of belonging at all. There have not been other studies on sense of belonging in law schools in Norway, but some in the sciences (Bolland et al., 2023; Costello et al., 2018) (Costello et al., 2023, Bolland et al., 2023) and somewhat tangentially, political science (Ballen et al., 2018) at the University of Bergen. Costello et al. (2018) found a lower sense of belonging in women and first-generation college students, relative to their male and continuing-generation peers in natural-sciences higher education, and Ballen et al. (2018) document striking differences in participation between men and women in a large political sciences course.

2.4 Theoretical foundations for testing

Drawing together the above literature, and our four-fold understanding of its potential causes, we make the following general hypotheses.

H1 – Social identity: Minority, female, newer students will experience a lower sense of belonging than their respective peers.

H2: Social interaction. Students that encounter more active and sensitive engagement by their teachers in their learning or develop more social bonds with other students at the faculty will experience a greater sense of belonging.

[9] One example item from the scale was "I felt that I am a member of my school." Others were: “The professors here respect me.”and I feel awkward in situations at [college] in which I am the only person of my ethnic group.”

H3: Academic motivation. Students that are highly motivated by the content and design of the study program will experience a higher sense of belonging.

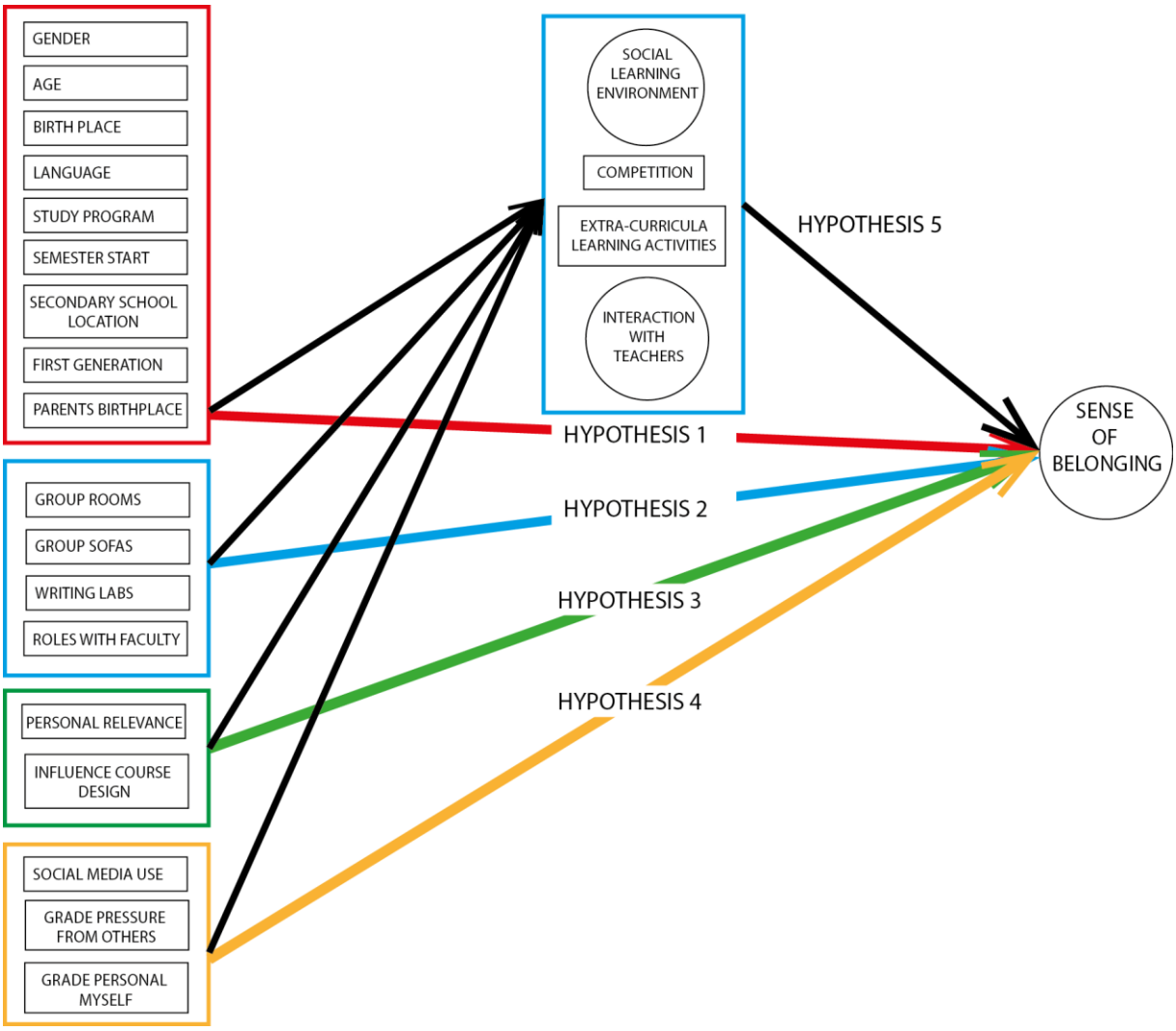
H4: Cognitive appraisal. Students that develop healthy wellbeing habits are better able to adapt to different environments and experience a better sense of belonging.

By 'minority students' in the first hypothesis, we mean students that may have a non-dominant ethnicity, language or national background, sexual orientation, or gender identity, come from a family without higher education, or participate in a smaller study program within a faculty or other institutional environment.

However, as discussed above, social identity, academic motivation, and cognitive appraisal may influence how students experience their social interaction with others. This is highly plausible as social interaction is a cluster of dynamics that interfaces with an individual's engagement – both objectively and phenomenologically – with others, thus grounding a sense of belonging in a particular context. Thus, social identity, academic motivation, and cognitive/behavioural routines may have both *direct* and *indirect effects* on sense of belonging, with the latter coming from their influence on social interaction. This is displayed in Figure 2. We therefore hypothesize in addition that:

H5: Mediating social interaction: A student's experience of social interaction is affected by their social identity, academic motivation, and cognitive behavioral routines.

Figure 2. Research model including theoretical framework and hypotheses.



Note. Square shapes represent measured variables; circles represent latent variables. The black lines indicate the mediating pathway, while the colored arrows representative of the direct pathways to sense of belonging. The red outline represents the social identity variables; blue are social interaction variables; green are motivation variables and orange are cognitive appraisal variables.

3. Methods

3.1 Survey design and sample

In September 2023, we distributed a survey on sense of belonging and the learning environment to all students at the Faculty of Law, University of Oslo. Designed over the course of a year by an interdisciplinary and academic-student research team with theory gathering, item development, cognitive labs, and piloting with student, it sought to provide both a deeper understanding of the psycho-social and physical learning environment and potential interventions. Approval was given by the University of Oslo for collection of limited personal data after an application to Sikt (Norwegian Agency for Shared Services in Education and

Research) was approved. Participants gave consent for us to use the data from the survey and collect some data (including grades) from a central register (FS).

The survey was based on several previous surveys conducted both in Norway and abroad. The previous surveys were also designed for either the natural sciences or more generic student evaluations of higher education institutes (see especially Ballen et. al (2019)).

A total of 624 of 2585 students from 10 study programs completed the survey, which is 24.1% of the total student body at the law faculty. The distribution of the respondents mostly matched that of the student body. Most respondents were enrolled in the predominant 5-year combined Bachelor/Master of Laws that qualifies graduates for legal practice (see Table 2). The other programs cover criminology (single year, bachelor, and master), sociology of law (master level), e-governance (master level), as well three international-oriented Master of Law (LLMs) and an interdisciplinary master's degree in human rights which are taught in English.

Table 2. Distribution of student respondents according to study program

Study Program	***Student population***	***Respondents***	***Proportion***
Master of Law (5-year)	2171	499	22.98%
Criminology (1-year)	30	8	26.66%
Criminology (Bachelor)	136	34	25.00%
Criminology (Master)	48	21	43.75%
Sociology of Law (Master)	16	5	31.25%
e-Governance (Master)	21	7	33.33%
Theory & Practice of Human Rights (MA)	61	21	34.43%
Information and Communication Technology Law (LLM)	31	9	29.03%
Maritime Law (LLM)	17	5	29.41%
Public International Law (LLM)	54	13	24.07%
Total	**2585**	**622**	**24.06%**

As to other background features, these are listed in Table 3 under social identity. About 75% of the respondents were female and 25% male, which is only slightly different than the population of the law faculty, which consists of 70% female and 30% male students. There were two students that did not respond and three chose other. Due to the small number of other responses, we could not use them for modelling as it is well below the 5% threshold needed for variables without resulting in type 1 errors. For that reason, we had to represent them as missing (see limitations of our study). The average age of the respondents were 24 years (SD = 5), with the data being highly positively skewed (4.11). Most respondents were born in Norway (84%),

23% of them were born in Oslo and 30% in the surrounding regions of Akershus, Buskerud and Østfold (previously Viken). A vast majority of students completed their secondary education in Norway (90.4%), while 91.7% of students speak Norwegian often. This data aligns with the population statistics provided by the faculty about the makeup of the faculty. We also included a variable on whether students were 'first generation college', meaning both parents did not have higher education. The proportion of such first-generation students was 16%, while 24.2% had a parent with one degree and 59% had parents who both had higher education.

To adhere to the laws of data protection, we utilized a nationality measure developed by the Norwegian Statistics Bureau (SSB) instead of directly asking students about their racial or ethnic background. This measure asks whether students had parents and grandparents born in Norway, which can reflect at least a student's cultural capital even if it doesn't indicate skin color or other features of ethnicity – which have been a focus in Anglo-American sense of belonging research. 65.5% (n = 409) of respondents had two parents and two grandparents born in Norway; 15.4% (n = 96) had one parent or grandparent born overseas/abroad, while 17.8% had both parents and grandparents born overseas.

3.2 Variables

Sense of belonging is a challenging construct to measure *given its multivalent nature.* Nonetheless, the construct of sense of belonging was operationalized with eight indicators (Table 3): (1) a direct question on sense of belonging (2) four indicators that capture a minimum level of sense of belonging – 'accepted', 'valued', and not 'neglected' or 'lonely'; (3) and three indicators that capture more dynamic aspects – 'contributions valued', not 'excluded', and 'comfortable speaking in class'. Some of these items were based on previous work by Murphy and Zirkel (2015) and have been evaluated for reliability and construct validity (Costello et al., 2023). The indicator 'comfortable speaking in class' was tested separately, as the variation in student responses to this question was much greater than the variation in the answers to the other indicators of sense of belonging.

In relation to the independent variables, we designed a survey instrument to measure a broad range of students' perceptions of their learning environment, including interaction with academic staff and fellow students, as well as information on grade pressure, exam anxiety,

perceptions of stress, and self-mastery. The main constructs that we focus on in this study are those relevant to our clusters of explanatory factors: see Table 3.[10]

Table 3: List of dependent and independent variables

Variable Name	Code	Operationalization of variable	Measured indicators for latent construct variables	Mean	SD
		Endogenous variables - *Outcome*			
Sense of belonging (latent)	SOB	Strongly disagree = 1 – Strongly agree = 5	• I feel accepted • I feel valued • I feel a sense of belonging • I feel my contributions are valued by fellow students • I feel lonely • I feel excluded	4.00 3.73 3.61 3.80 3.86 3.64	0.89 0.95 1.12 0.86 1.01 1.17
Comfort speaking in class	SOB5	Strongly disagree = 1 – Strongly agree = 5	I feel comfortable speaking in class	3.37	1.19
		Social Identity			
Gender	GEND	Female = 0 Male = 1 Other/did not answer = NA*		0.25	0.43
Age	AGE	18 - 99		23.91	5.38
Birthplace	BP	Norway = 0 Abroad = 1		0.16	0.36
Language	LANG	Norwegian = 0 Other = 1		0.08	0.28
Study Program	SP	Master of Laws = 0; Other study programs = 1		0.20	0.40
Semester Start	SS	First year = 0 Other years = 1		0.70	0.46
Secondary School Location	SSL	Norway = 0 Abroad = 1		0.09	0.29
First Generation Higher Ed	FG	Parents had no higher ed = 0 One parent or both = 1		0.84	0.37
Parents Birthplace	PB	Norway all = 0 One parent/grandparent or None = 1		0.34	0.47
		Social Interaction			
Competition	COMP	Strongly disagree = 1 – Strongly agree = 5	I feel that there is unhealthy competition among fellow students	3.35	1.23
Social Learning Environment (Latent)	SLE	Strongly disagree = 1 – Strongly agree = 5	• I work well with my fellow students • I often attend events organised by student associations • I often meet my fellow students outside of the faculty • I feel that my fellow students do not share information	4.07 3.20 3.51 3.54	0.81 1.34 1.28 1.12
Interaction with Teachers (Latent)	ILSL	Strongly disagree = 1 – Strongly agree = 5	I feel that lecturers and seminar leaders ... • Find time to respond to students • Provide a safe environment to collaborate with fellow students • Provide adequate feedback on my assessments	 4.08 3.85 3.43	 0.78 0.85 0.92

[10] Further research will focus on the relationships with and causes of constructs such as exam anxiety and self-mastery.

			• Encourage participation in their courses • Value my contributions • Acknowledge diversity (e.g., gender, ethnicity, disability, political opinion)	3.97 3.8 3.93	0.81 0.85 0.91
Grade pressure from others	GPO	Count of external pressures: 0-5	This grade pressure comes from: • Fellow students • Teachers • Employers • Family and friends • Others	1.77	1.15
Extra-curricular Learning Activities	OLA	Count of Extra-curricular activities: 0-9	Activities: • Colloquium • Moot and/or negotiations competitions • Externships (e.g., self-organised at a study relevant organisation) • Prison and/or court visits • Research seminars • Legal Hackathon • Foreign exchanges at other universities • Revision lecture by law firm • Conducted interviews for a course/thesis	2.29	1.24
Role with faculty	RF	Role at faculty = 0 None = 1	• Learning/Teaching Assistant • Research Assistant • Library/Info Centre • Assistant/Student IT/CELL • Leadership role in student organisations at the faculty	0.26	0.44
Writing lab use	WL	Never =1 Daily =5	How often do you use these spaces on average?	3.12	0.93
Group room use	GPRM	Never =1 Daily =5: Group room	How often do you use these spaces on average?	2.36	1.03
Group sofa use	GPSO	Never =1 Daily =5: Group sofa	How often do you use these spaces on average?	1.68	0.90
		Academic Motivation			
Personal Relevance	PR	Strongly disagree = 1 – Strongly agree = 5 (SUMMED)	• I can pursue topics that interest me • I apply my everyday experiences in class • What I learn can be used in my future career	12.02	1.78
Grade Pressure - Myself	GPM	Myself = 1 No Myself = 0	• This grade pressure comes from myself	0.78	0.42
Participation in Learning Design			• I have the ability to influence course design	2.77	0.98
		Cognitive Appraisal			
Social Media Use	SoMe	Rarely = 1 – Constantly = 5	How often do you use social media?	4.10	0.78

For *social interaction*, we include variables that involve contact with academic staff or the faculty as a whole, namely quality of interaction with teachers with six indicators (ILSL) and employment at the faculty (RF). We likewise include variables that relate to interaction with students, including information sharing and degree of social meeting (SLE), competitive culture

(COMP), use of group rooms (GPRM), group sofas (GSOF) and the writing lab (WL). The remaining variables involve interaction with a heterogenous groups, including staff, students, and employers. These are involvement in extra-curricular activities (OLA) and grade pressure from others (GPO). For instance, 72% of students experienced grade pressure from employers and 62% from other students, and only 17% experienced it from staff.

For *academic motivation*, we included variables on the personal relevance of the study program (PR), whether students felt they could influence learning design (LD), and whether they experienced grade pressure from themselves (GPM). For cognitive appraisal, we had only one variable in our dataset: social media use. This was somewhat revealing as 505 of students answered that they use social media *constantly*. Earlier research has shown that proactive rather than reactive social media use is correlated with improved mental wellbeing and sense of belonging for law students (N. K. Skead et al., 2018). We also included a variable concerning whether students see stress as potentially positive; we will include this metric in a later iteration of the analysis. In addition, it might be more plausible to see grade pressure from others and grade pressure from oneself as indicators of cognitive appraisal.

3.3 Concurrent Mixed Methods

Our survey design yielded rich quantitative and qualitative data. We chose to employ a concurrent mixed-methods (Creswell et al., 2003; Warfa, 2016) process to better understand sense of belonging in our study population. A quantitative approach with constrained-choice data allows us to analyze an extensive amount of data and drawing from established metrics allows us to compare our findings with those of other studies. A qualitative approach, with unsupervised topic modelling of free text answers, allows us to analyze whether student answers cohere with both our *a priori* hypotheses and the patterns observed and found in the quantitative data. In this way, qualitative methods are used for both confirmation of quantitative results and compensation for potential weaknesses in our interpretation of theory (Small, 2011).

3.5 Quantitative methods

We analyzed quantitatively the survey data using descriptive statistics, correlation analysis, exploratory factor analysis, confirmatory factor analysis and structural equation modelling (SEM; Schreiber et al., 2006). Analysis was conducted in R (R Core Team, 2023) using several packages including lavaan (CFA and SEM modelling; Rosseel, 2012) and psych packages (EFA/PCA; Revelle, 2018).

Descriptive statistics were conducted first to determine the univariate trends of the data including central tendencies (i.e., mean, standard deviation, median) and description of the distribution of responses (i.e., skewness and kurtosis, quantile-quantile plot). We conducted correlation analysis, specifically Kendall's rank correlation, to assess the strength of the associations between variables. Correlation analysis was also conducted to determine potential multicollinearity that could reduce the power of the SEM models (Schreiber et al., 2006). During this stage we determined the reliability (i.e., internal consistency) of the items within the three constructs using both omega and Chronbach's alpha as recommended by (Agbo, 2010; Hayes & Coutts, 2020). While alpha is more commonly used it has several methodological assumptions including uncorrelated errors and unidimensionality. Also, many items can produce high alpha coefficients (Agbo, 2010). To test construct validity, we used both exploratory factor analysis and confirmatory factor analysis. We did not split the sample to conduct cross validation tests due to having items that have already been validated and the unlikelihood of the extreme negative impact of sampling bias. Our sample potentially has sampling bias, but we have evidence that the respondents resemble the law faculty population.

3.4.1 SEM Design

The main analytical approach we used for this article was SEM, which is a latent variable modelling technique that combines both regression analysis and factor analysis (Byrne, 2011).[11] While regression analysis has one measured outcome variable (e.g., feeling of being 'valued'), SEM can include multiple outcome variables that can be either directly measured or latent variables. With measured variables we mean a directly observable variable, whereas latent variables (LV) are related to constructs that cannot be directly observed and that can only be inferred with multiple observable variables (Proust-Lima et al., 2019). There are two parts of SEMs: a measurement part (like CFA) and a structural model (e.g., unidirectional or regression paths). SEM also utilizes covariance and variance matrices. We have presented both the correlation matrix and covariance matrix used in our models in the supplementary material for future analyses and potential reproduction of our results.

Figure 3 shows the design of the SEM. We measure the direct effects of all 23 independent variables on sense of belonging – the red lines. We also measure indirect effects of 19 of the independent variables on four mediating social interaction variables: competitive

[11] One crucial aspect of SEM is that it is a confirmatory approach, meaning it can be used in some circumstances to make inferences, but should generally not be used (unless conducting exploratory SEM) in an exploratory way. This allows SEM to test theoretical models and frameworks, while controlling for many variables, especially mediation models.

culture, social learning environment, interaction with teachers, and extra-curricular activities. We hypothesize, given the literature, that these four social interaction variables can be influenced by the other independent variables (see section 2.3/2.4). For example, a student's experience of their social learning environment (e.g., whether they can work well with other students) may be influenced by whether they engage in extra-curricular activities or feel grade pressure from others. Thus, we can determine how the exogenous variables affect sense of belonging through these mediating factors.

Moreover, we conducted four models, but we will present two in the main part of our paper (please refer to the other two models in the supplementary material). Our main model included six of the sense of belonging variables while a secondary model just included comfort speaking in class. As mentioned, the variable 'neglected' was excluded. In addition, we replicated both models for a sub-sample of the 5-year Master of Law students. This is because this course has a very distinct learning environment that is also in Norwegian, and the only way to measure meaningfully the effect of our international-inflected variables (language, birthplace, nationality, senior school location) was in a program that was in Norwegian. After each model, model fit parameters are assessed to determine the model with the best fit. Model fit helps to determine how well a model can reproduce the measured data (Hu & Bentler, 1999).

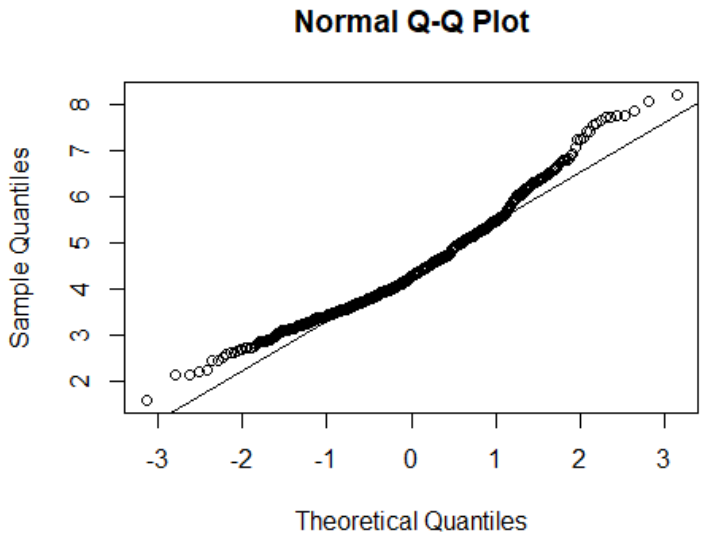
3.4.2 Data checking

There are many assumptions needed to be satisfied when conducting structural equation modelling. Several methods and tests were conducted to ensure these assumptions were satisfied. One of the more important assumptions is item and multivariate normality. In the survey, we predominantly used 5-point ordinal scales and binary items, meaning that the majority of the items do not satisfy the assumption of normality, as well as the main assumption that data is at least interval level. The skewness values for our 5-point scale items ranged from -1.10 to 0.07 and the kurtosis values ranged from -0.95 (SE = 0.05) to 2.10 (SE = 0.03). These values fall though in the acceptable range outlined by Brown (2006).

However, for the continuous level variables, students age had a skewness of 4.11 and a kurtosis of 27.59 (SE = 0.22), which is well outside of the limits (skewness = -3 to +3; kurtosis -10 to +10). Rather than applying non-linear transformations (i.e., natural log), which would have increased the complexity for interpretation, we used the robust maximum likelihood estimator for both CFA and SEM. To assess multivariate normality, we plotted our items on a Q-Q plot (Figure 4) and conducted a Mardia normality test. Based on the Mardia test the p-value was 0.00, which means we have to reject the null hypothesis that indicates the variables follow a

multivariate normal distribution. It is then more than likely that our data does not follow a multivariate normal distribution.

Figure 4. Normal Q-Q Plot



The maximum proportion of missing values is 3.04%. Based on the nature of our data, we can only assume that our data is missing at random rather than missing completely at random. To handle this, we decided to use full information maximum likelihood to deal with the missing values. This method is effective with small number of missing values (<5%; #REF#).

Our total sample size is 624, which satisfies the minimum sample size recommended by Kline (2008). Our ratio of sample size to measured parameters for our most complex model is exactly 5:1, which is at the very limit for SEM. We got to this level based on reducing some more complex models that were initially developed (see Supplementary Material). Several items were removed due to low factor loadings (<0.7; we have had to keep some items that were slightly lower than those limits due to limited number of items per construct).

Table 4: Reliability measures of the latent constructs

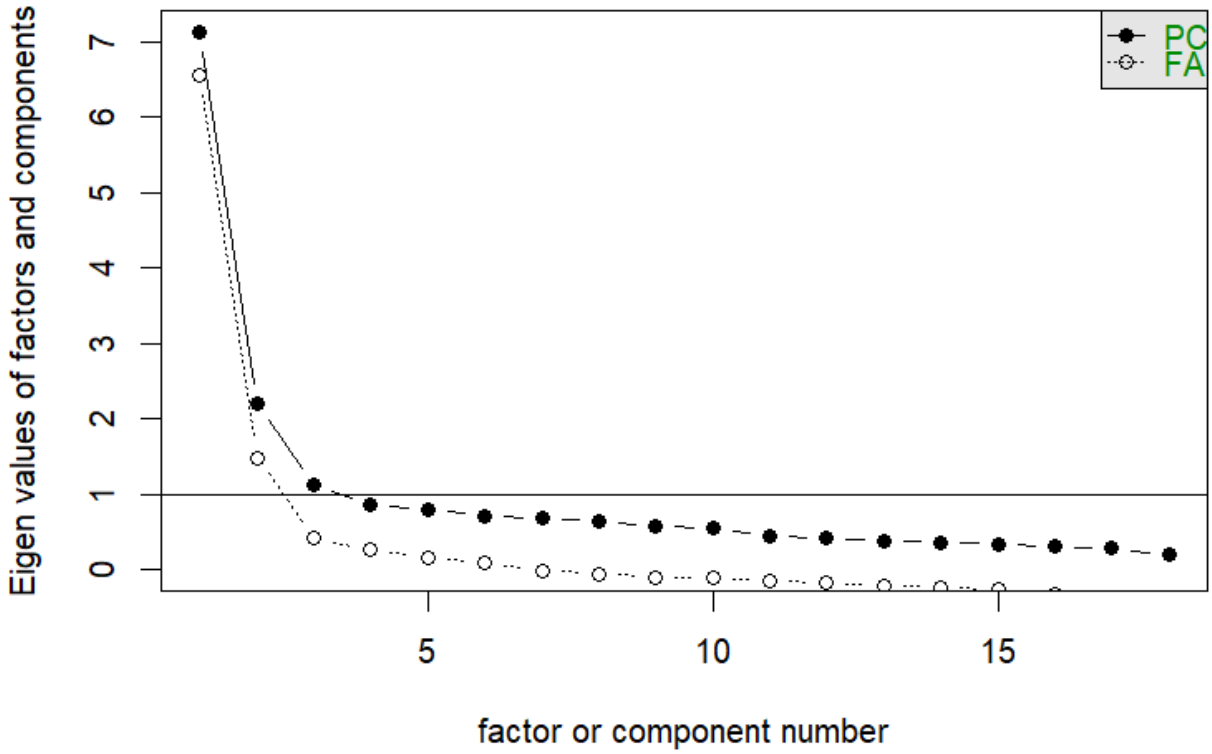
Variable	Alpha	Omega
ILSL	0.83 [0.81, 0.85]	0.84 [0.82, 0.86]
SLE	0.68 [0.63, 0.71]	0.76 [0.73, 0.79]
SOB	0.89 [0.88, 0.91]	0.92 [0.91, 0.93]

Another important assumption that is required for SEM is item reliability. As mentioned previously, the majority of items were from previous surveys that have been tested for reliability

and validity. We assessed constructs internal consistency for sense of belonging (SOB), interaction with lecturers and seminar leaders (ILSL) and social learning environment (SLE) using both Chronbach's Alpha and Omega. While Chronbach's Alpha is more commonly used, it has a series of limitations. Omega while less used, has several advntages including being more appropriate for ordinal categorical data. The reliability values for the three constructs are shown in table 4. Rather than conducting cross-validation techniques commonly used, which also have some issues (#REF#), *we have conducted treeSEMs as a way to validate our structural equation models. [*Need currently being assessed]*.

We also measured the association between the various indicators used in our analysis to identify multicollinearity. Kendall's tau correlation suggested all the sense of belonging variables were positively correlated between each other ranging from 0.26 to 0.71. We also estimated the covariance matrix (please see Supplementary Material) of all indicators for the structural equation models. Exploratory factor analysis suggested two latent variables based on and principal component analysis of the three latent variables suggested three latent variables (see Figure 5). However, during this stage, two items were removed (neglected and comfort speaking) from the latent variable due to the low communality in the theoretically established variables. The strength of the variables on the proposed latent variables ranged from 0.67 to 0.91 when the two items were removed.

Figure 5. Explanatory Factor Analysis

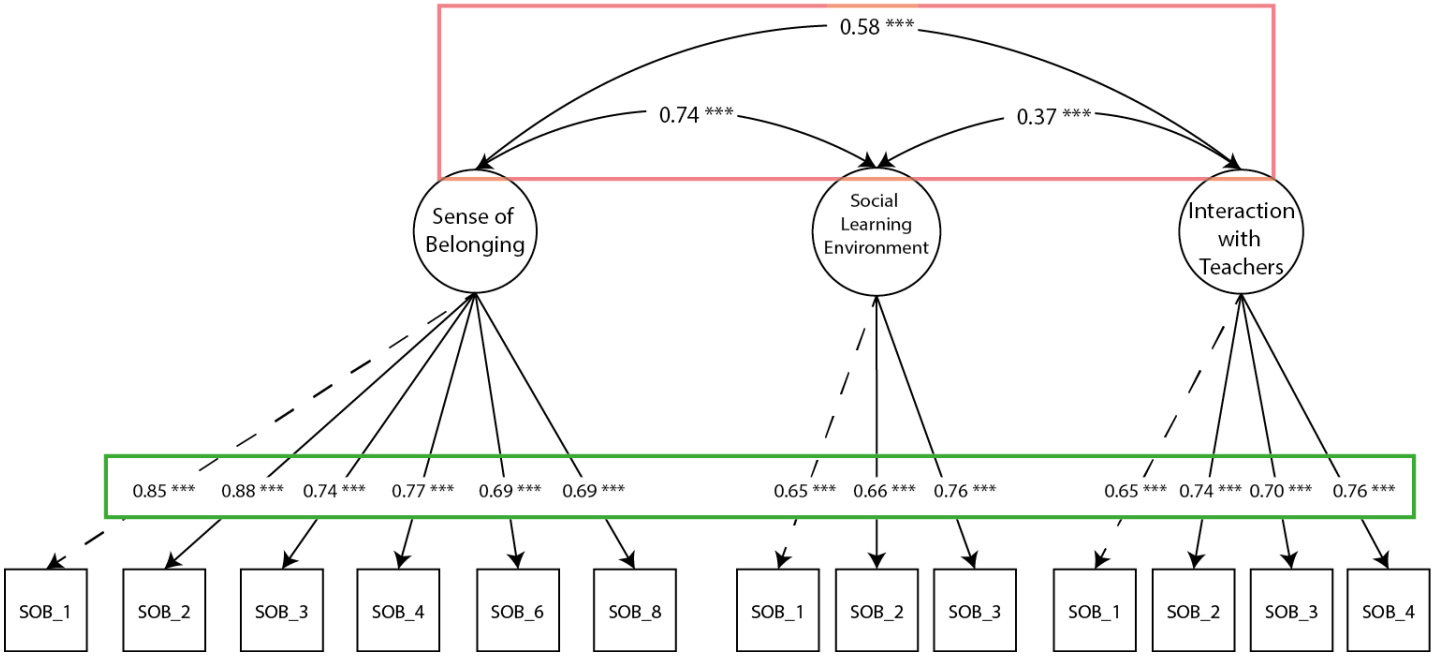


Confirmatory factor analysis was used to confirm the proposed model from EFA and ascertain construct validity. See Figure 6. The CFA model was based on our theoretically defined constructs and the results from the EFA. The model with three latent variables had relatively good fit (χ^2 = 233.86, df = 62, p-value = 0.00; CFI = 0.94; TLI 0.92; RMSEA = 0.07 [0.07, 0.09]; SRMR = 0.05). The chi-square test was statistically significant and RMSEA and SRMR are below acceptable limits (RMSEA < 0.08, SRMR < 0.05), however CFI and TLI are below the normally accepted limit of 0.95. Factor loadings should be above 0.7 to be considered acceptable. The standardized factor loadings for sense of belonging (SOB) ranged from 0.69 to 0.85, for social learning environment the factor loadings ranged from 0.65 to 0.76 and for interactions with teachers were from 0.65 to 0.76. These latter values were below the accepted levels, which indicates low internal construct validity for social learning environment and interaction with teachers. However, for this study's purpose, we used these items to test our theory as fewer items in each construct would result in erratic standard errors.[12] All factor loadings were statistically significant, as were the correlations between the latent variables. The correlation between sense of belonging and social learning environment was high and positive (0.74, p = 0.00), while there was positive and moderate relation to interactions with teachers

[12] *Rationale to be discussed.*

(0.58, p = 0.00). The relationship between social learning environment and interaction with teachers was moderate and positive.

Figure 6. Latent Variable Analysis



3.5 Qualitative methods

We analyzed qualitatively responses to the open-ended question on sense of belonging. As this aspect of the survey was primarily driven by exploratory concerns, we did not have *a priori* categories or themes. Thus, we used an inductive "cut and sort" technique (Pope et al., 2000; Ryan & Bernard, 2003) to explore the data, identify emergent themes and associated categories, and ultimately assign student responses to these categories (and broader themes). While this technique has been used effectively in other mixed methods studies to understand psychosocial phenomena (Zumbrunn et al., 2014), we acknowledge that cutting and sorting can lead to an overly reductive interpretation of the data (Ayres et al., 2003; Chowdhury, 2015).

For each question, we began by randomly ordering the student responses and working with random samples to establish an initial codebook. Specifically, we submitted two 4000-character samples to our institution's private generative artificial intelligence (GAI) tool, UiO GPT (*GPT UiO – UiOs Privacy Friendly GPT Chat - University of Oslo*, n.d.), and requested a summary of emergent categories from the student responses. This process yielded two independent lists that were similar enough to suggest a third list was unnecessary and to warrant

human (SC) curation into the initial codebook. We then used this initial codebook to sort comments from a third set of randomly generated student responses. This process warranted some adjustments to the codebook, leading to the final codebook for each set of data.

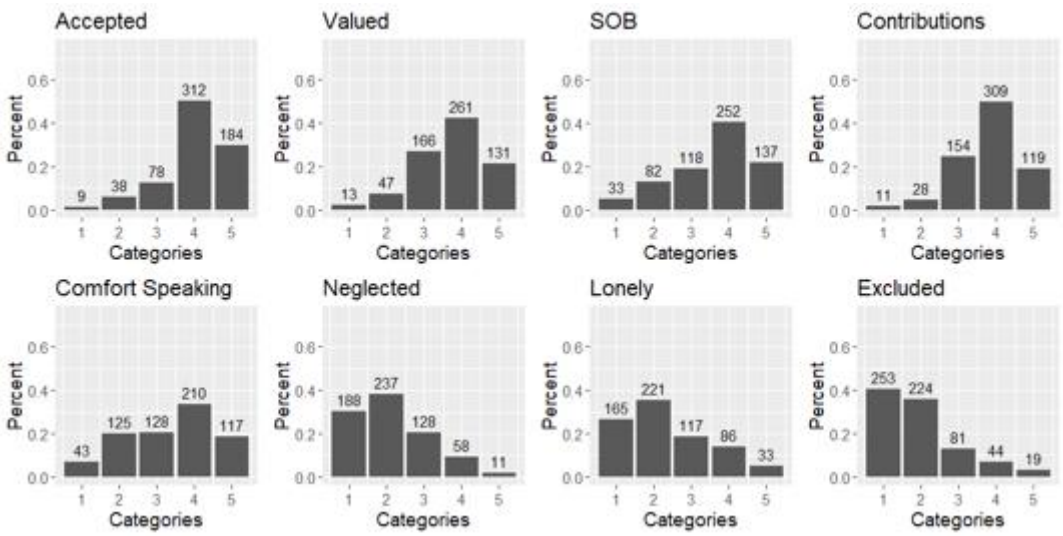
This final codebook (Table 5) consists of several categories of factors belonging to four major themes: environmental, organizational, personal, and social. We also included an "other" category for miscellaneous comments that could not be categorized easily into the final categories. Under the *environmental* theme, four categories emerged: inclusive/exclusive environments; (dis)respect for diversity; (un)friendly atmosphere; competition and academic pressure; and (lack of) active and/or inclusive teaching. Two categories were assigned to the *organizational* theme: extracurricular engagement; and academic structures. Similarly, two categories were assigned to the *personal* theme: feeling (in)adequate, mastery of content; importance of being on campus, attending courses. Finally, categories in the *social* theme are: social connections (with peers, with lecturers etc.); group dynamics; and COVID-19 impacts.

4. Results

4.1 Descriptive statistics

Figure 7 shows the descriptive statistics on the degree of sense of belonging. When asked directly about their sense of belonging (3rd item), a total of 63% of the students (n=389) agreed or strongly agreed that they experienced a sense of belonging at the faculty. A fifth neither disagreed nor agreed (19%, n=118) while another fifth (18%, n=115) disagreed or strongly disagreed.

Figure 7. Sense of Belonging



Turning to the other variables, we also see variation. On one hand, only 52% agreed that they felt comfortable speaking in class 52%, 20% neither agreed or disagreed, while 27% strongly disagreed or disagreed. This was the lowest score for the sense of belonging indicators. On the other hand, a clear majority of students disagreed or strongly disagreed with the statements that they felt excluded (76%), while roughly two-thirds of students agreed or strongly agreed with the statements that they felt accepted (63%) and valued (63%), that their contributions were valued (69%), and that they were neither neglected (68%) nor lonely (62%).

4.2 SEM

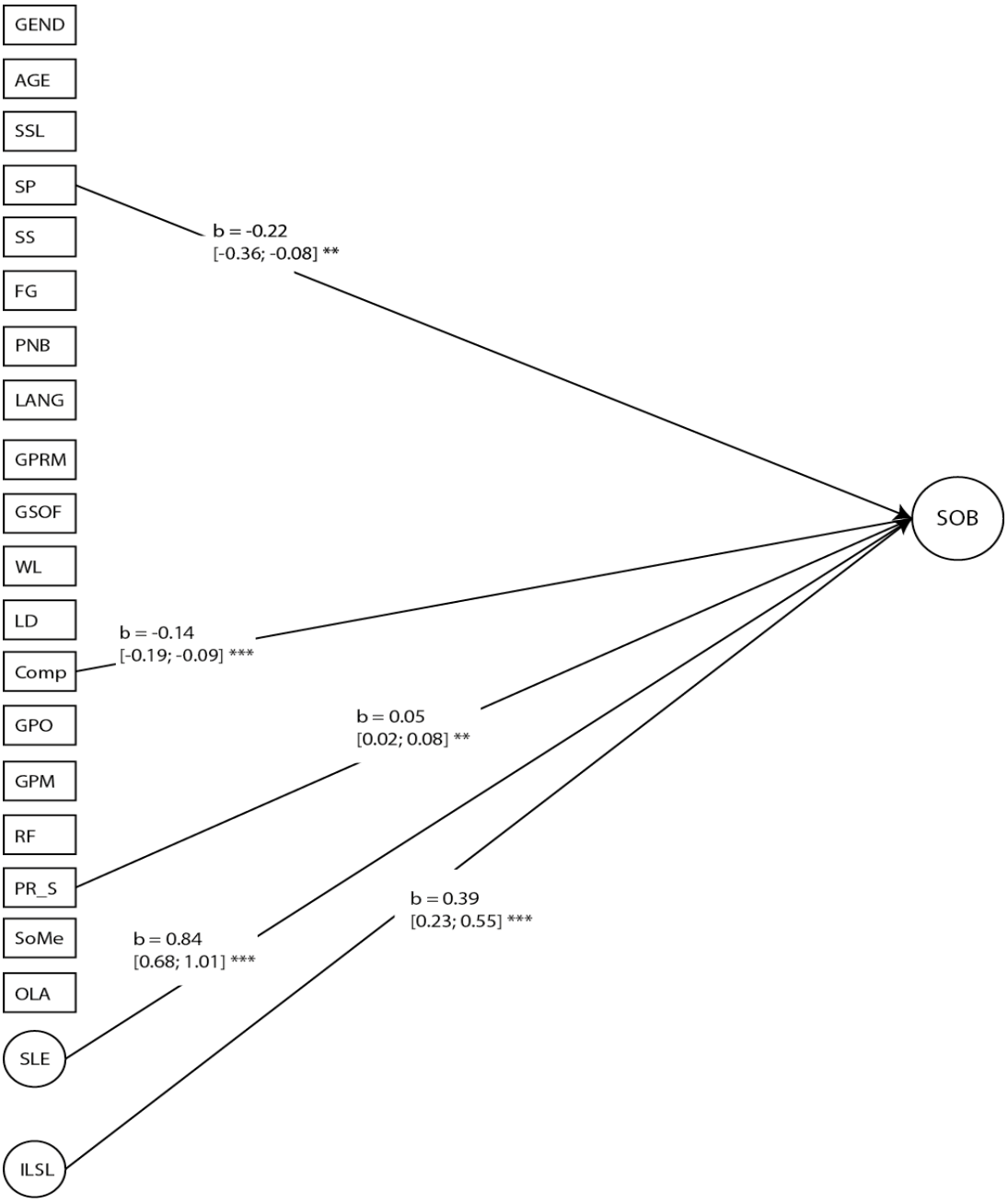
In this paper we will be presenting two models for comparison. The first model treats all independent variables as exogenous, while the second model is based on our theoretical framework with mediating factors as presented in section 2.4. We report the overall results for both, and then discuss in particular the direct and indirect effects for the second model. We then discuss briefly results for the outcome of participation in class and a sub-sample of the Master of Laws.

4.2.1 Exogenous Model (Model 1)

The first model presented had all social identity, motivation and social interaction variables as *exogenous* variables regressing onto the sense of belonging latent variable. This model was intended to represent a regression-like model in which it would test our second research question as to which variables directly affect students' perception of sense of belonging. However, as indicated by the model fit parameters this model had poor model fit. RMSEA is 0.06 [0.6; 0.07]90%CI, SRMR is 0.09, CFI is 0.82, TLI is 0.80, Chi-square is 973.28 (df = 302; p-value = 0.00), BIC is 17133.38, and AIC is 16920.53.

The results of this model are shown in Figure 8. Here *b* represents unstandardized regression coefficients. Values inside the square brackets represent the lower (left) and upper (right) 95% confidence interval. As can be seen, the statistically significant variables principally concern *social interaction*: perceived interaction with teachers (ILSL), social learning environment (SLE) and competitive culture (Comp), with all coefficients having the expected sign direction, for instance higher level of SLE would result in a higher perceived level of sense of belonging. It contributes to almost a unit difference in the 5-point scale for the sense of belonging answers. However, one *social identity* variable is important (SP – study program: Master of Law students felt greater sense of belonging), as is one *academic motivation* variable (personal relevance of study PRS).

Figure 8. Model with all variables as exogenous variables.

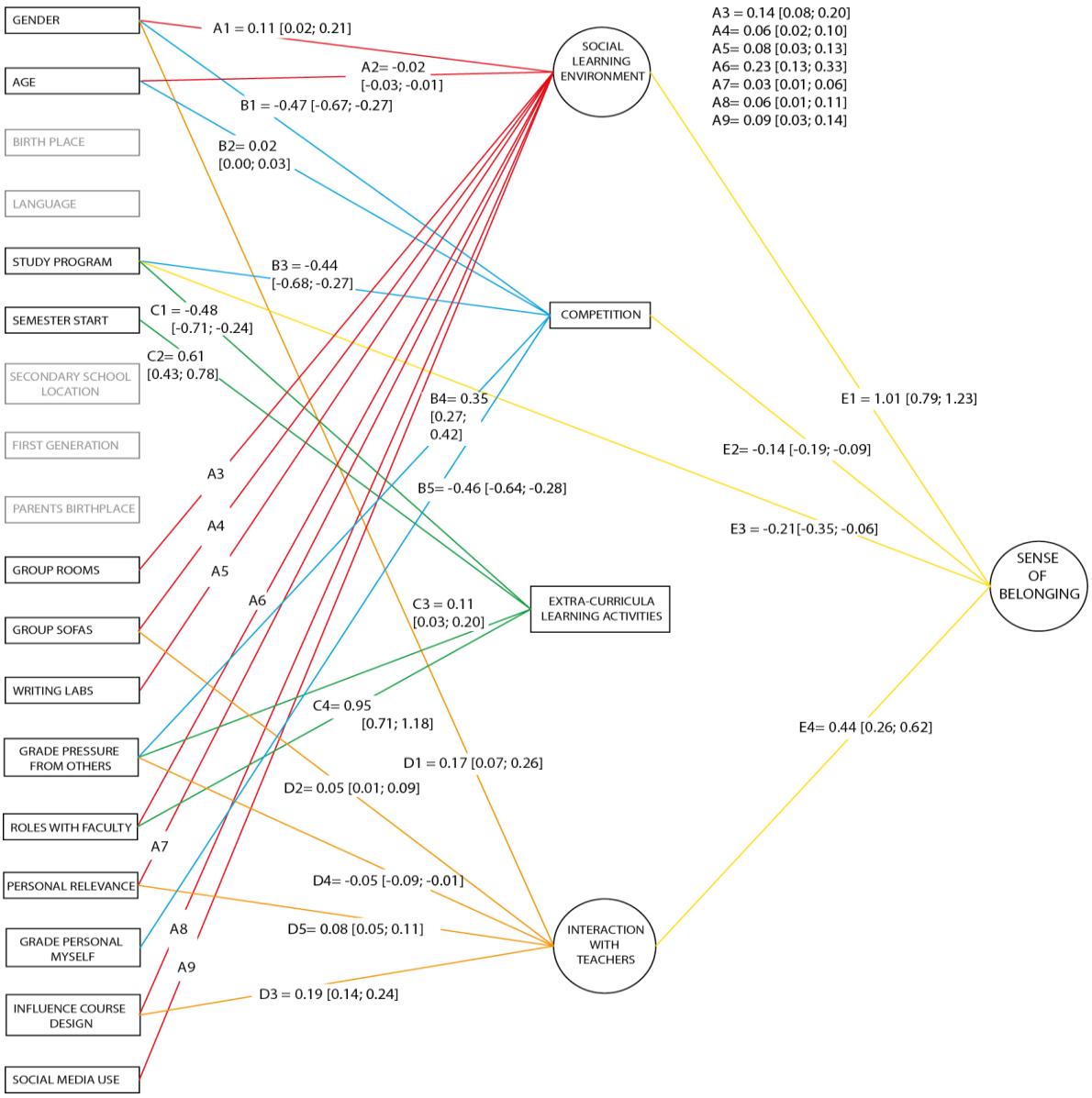


4.2.2 Mediation model (Model 2)

The second model with mediating variables tested had a slightly better fit with corrected RMSEA below 0.06 (0.05 [0.05; 0.06] 90%CI) and SRMR of 0.05, both indicating moderate fit, however TLI and CFI are below the 0.9 threshold with a CFI of 0.89 and TLI of 0.86, both of which indicate poor fit. The overall model fit chi-square value is 766.16 (df = 299; p-value

= 0.00), AIC is 21395.67, and BIC is 21938.65. While the chi-square value suggests model 2 has better fit than model 1, AIC and BIC are both higher in model 2 than in model 1, suggesting an overall poorer fit. The results of this model are shown in Figure 8. It shows several significant relationships between the exogenous variables, mediating variables, and sense of belonging.

Figure 9. Model with all exogenous and mediating variables



Notes.: All the coefficients are unstandardized, values in the square brackets are 95% confidence intervals for the coefficients and rectangle shapes are measured variables and circle shapes are latent variables.

As to ***direct effects***, in our mediation model social learning environment, the degree of competition amongst fellow students, interaction with lecturers and seminar leaders, and study program are statistically significant. Social learning environment has a relatively strong effect

on sense of belonging. A 1-unit improvement in this factor (on a scale of 1 to 5 for the answers from 'strongly disagree' to 'strongly agree'), while controlling for other variables, results in a 1.01 unit-increase in student's perception of sense of belonging. Thus, students that answered that they work well with fellow students, often attend events organized by student associations, often meet my fellow students outside of the faculty, and feel that their fellow students share information were more likely to experience a better sense of belonging. To put it simply, if we compare a student who answered with a 3 on all these social environment indicators (i.e., neither agree or disagree) with a student who answered with a straight 4 (agree), the model predicts that the latter student will have a 1-unit higher level of sense of belonging than the former (for example, a 5-average instead of a 4-average).

Interaction with teachers also has a positive and statistically significant impact on sense of belonging (0.44 [0.26;0.62]). This result means that a 1-unit increase in satisfaction with engagement with teachers contributes to almost a half-unit increase in sense of belonging. As expected, and in accord with results on social learning environment, competition among fellow students (-0.14 [-0.19; -0.09]) has a somewhat negative influence on sense of belonging. Finally, students outside the Master of Law experience slightly less sense of belonging (-0.21 [-0.35; -0.06]).

Turning to ***indirect effects***, we examine the independent influences on the three mediating variables above that were found to have a direct effect on the sense of belonging.

Variables	Direct	Indirect	Total Effect
	Social Learning Environment (SLE)		
Age	-0.03 [-0.04; -0.02]	-0.03 [-0.04; -0.01]	-0.01 [-0.03;-0.00]
Gender	0.11 [0.02; 0.21]	0.12 [0.01; 0.22]	0.07 [-0.05; 0.19]
Group Rooms	0.14 [0.08; 0.20]	0.14 [0.08; 0.21]	0.13 [0.06; 0.19]
Group Sofas	0.06 [0.02; 0.10]	0.06 [0.02; 0.11]	0.03 [-0.02; 0.09]
Writing Lab	0.08 [0.03; 0.13]	0.08 [0.03; 0.13]	0.02 [-0.04; 0.09]
Roles with Faculty	0.23 [0.13; 0.33]	0.24 [0.12; 0.35]	0.21 [0.09; 0.33]
Personal Relevance	0.03 [0.01; 0.06]	0.04 [0.01; 0.07]	0.07 [0.03; 0.11]
Influence Course Design	0.06 [0.01; 0.11]	0.06 [0.01; 0.11]	0.02 [-0.04; 0.09]
Social Media Use	0.09 [0.03; 0.14]	0.09 [0.03; 0.15]	0.06 [-0.00; 0.13]
	Interaction with Teachers		
Gender	0.17 [0.07; 0.26]	0.07 [0.02; 0.12]	0.03 [-0.09; 0.15]
Group Sofas	0.05 [0.01; 0.09]	0.02 [0.00; 0.04]	-0.01 [-0.06; 0.04]
Grade Pressure from Others	-0.05 [-0.09; -0.01]	-0.02 [-0.04; -0.00]	-0.07 [-0.12;-0.01]
Personal Relevance	0.08 [0.05; 0.11]	0.03 [0.02; 0.05]	0.07 [0.03; 0.10]

Influence Course Design	0.19 [0.14; 0.24]	0.08 [0.04; 0.12]	0.04 [-0.02; 0.11]
		Competition	
Age	0.02 [0.00; 0.04]	-0.00 [-0.01; 0.00]	0.01 [-0.00; 0.02]
Gender	-0.52 [-0.73; -0.31]	0.07 [0.04; 0.11]	0.03 [-0.09; 0.14]
Study Program	-0.56 [-0.80; -0.32]	0.08 [0.03; 0.12]	-0.13 [-0.27; 0.02]
Grade Pressure from Others	0.45 [0.38; 0.52]	-0.06 [-0.09; -0.04]	-0.11 [-0.16; -0.06]
Grade Pressure from Myself	-0.34 [-0.53; -0.15]	0.05 [0.02; 0.08]	-0.02 [-0.14; 0.11]

First, there are several variables that have their effects mediated by *social learning environment.* Two of these concern social identity: gender and age. Male students had a slightly better perception of the social learning environment, with a coefficient of 0.11 [0.02; 0.21]. What then is the mediated effect on sense of belonging? When controlling for gender, we know from above that a 1-unit increase in social learning environment results in a 1.01 unit increase in students' perceived sense of belonging. If we then multiply the two coefficients against each other, we can calculate that for every 0.11 positive increase in the perception of the social learning environment from female to male students, there was a 0.12 [0.01; 0.22] unit increase in perceived sense of belonging. Thus, while the direct effect of gender on perceived sense of belonging was statistically insignificant, its indirect effect though social learning environment was statistically significant. Likewise, the indirect effect of age on social learning environment was found to be statistically significant, though its magnitude is small (-0.02 [-0.03; -0.01]). As age increases, there is -0.03 [-0.04; -0.02] of a unit decrease in sense of belonging.

However, some exogenous social interaction variables played a large role. Students who had a formal role at the faculty experienced a better social learning environment (0.24 [0.12; 0.35] and by extension greater sense of belonging. This applied likewise to those who more actively used group rooms (0.14 [0.08; 0.21]), group sofas 0.06 [0.02; 0.10] and the writing lab (0.08 [0.03; 0.13]). For academic motivation, some variables were significant but their influence muted. If there is a 1-unit increase in students' agreement with influencing course design, this results in 0.06 [0.01; 0.11] improvement in the social learning environment; with a slightly lower coefficient for personal relevance of the study program [0.01; 0.07]. Interestingly though, there was a slight positive indirect effect of social media use and social learning environment (0.09 [0.03; 0.15]).

Second, a similar number, but slightly different set of variables, impacted *interaction with teachers.* These were gender (0.17 [0.07; 0.26], group sofas (0.05 [0.01; 0.09]), influencing

course design (0.19 [0.14; 0.24]), grade pressure from others (-0.05 [-0.09; -0.01]) and personal relevance (0.08 [0.05; 0.11]). As interaction with teachers had 0.44-unit impact on sense of belonging. Thus, for example, the indirect effects of gender and interaction with teachers on sense of belonging is 0.07 [0.02; 0.12]. This is similarly small for the remaining variables of group sofas (0.02 [0.00; 0.04]), influence on course design 0.08 [0.04; 0.12], grade pressure from others (-0.02 [-0.04; -0.00]), and personal relevance (0.03 [0.02; 0.05]).

Finally, several exogenous variables directly affect students' perception of the degree of *competitive culture at the faculty*. These were age (0.02 [0.00; 0.04]), gender (-0.52 [-0.73; -0.31]), study program (-0.56 [-0.80; -0.32]), grade pressure from others (0.45 [0.38; 0.52] and grade pressure from themselves (-0.34 [-0.53; -0.15]). The large coefficients here deserve some mention. It is very clear that male students feel significantly less competition in the student culture than female students, as do students outside the Master of Law program. Interestingly, students who felt pressure from others experienced higher levels of competition, while students who felt grade pressure from themselves experienced a much less competitive environment. At the same time, as the direct effect of a competitive culture on sense of belonging was -0.14 ([-0.19; -0.09]), the mediating effects of these exogenous variables on sense of belonging is partly diminished. Thus, the indirect effect of age and competitive culture on sense of belonging was relatively small (-0.00 [-0.01; 0.00], although it is larger for gender (0.07 [0.04; 0.11]), non-Master of Laws' students (-0.08[0.03; 0.12]), grade pressure from others (0.45[0.38; 0.52]) and grade pressure from oneself (-0.34[-0.53; -0.15]).

4.2.3 Comfort speaking in class (model 3)

We also conducted a similar model for comfort speaking in class and found similar results but with some notable exceptions. The principal reason for not combining comfort speaking in class with model 2 was due to the limited sample size to include so many variables. The principal finding with model 3 is that there are a greater number of direct effects. On one hand, some factors remain present although their influence lesser: i.e., social learning environment (0.56 [0.22; 0.90]) and interaction with teachers (0.74[0.42; 1.06]). On the other hand, two variables disappear: competition and study program. Instead, we see five other factors. Male students are more likely to feel comfortable speaking in class (0.40 [0.21; 0.60]) as are students who are not completed secondary school education abroad (0.47 [0.09; 0.84]), participate in extra-curricular activities (0.10 [0.02; 0.18]), find greater study relevance (0.07 [0.02; 0.13]), while students who use more social media (-0.12 [-0.23; -0.01]) or feel grade pressure from others (-0.16 [-0.24; -0.07]) may feel less comfortable speaking in class.

4.2.4 Master of Laws sub-sample

We also conducted a mediation model for a sub-sample for Master of Law students. We were particularly interested in whether students with a different language background and national origin experienced sense of belonging differently. Contrary to expectations we did not find a difference with these social identity variables. Thus, the findings from the main sample as social identity appear to be the same – namely that (1) males experience a better learning environment, less competition, and more comfort in speaking in class; (2) older students experience a slightly better social learning environment and slightly less competition; and (3) Master of Laws students feel more sense of belonging but also more competition compared to other study programs.

4.3 Qualitative Results

A total of 222 students responded to the question: 'What factors influence your sense of belonging in your study program?'.

Among our four factors discussed above, s*ocial interaction* seems to be especially salient in these voluntary responses. A summary of qualitative findings (Table 5) indicates that the most-used category of student comments was "social connections," with 102 responses being assigned to this category. Some of these comments indicated that social interactions, or a lack thereof, were barriers to forming a sense of belonging at the faculty. For example, one respondent noted "People are very 'protective' of their study group in the sense that they do not accept new members. I have asked several groups to join, but they have said "then we will be too many" (they were 3 already, some were 4)." Another commented "I understand that the teachers can't make friends with the students, but I think it would be easier to ask questions etc. if you feel that you know them a little and that they know you."

Most comments in this category indicated positive social interactions, however, with statements such as, 'I was lucky enough to get an incredibly nice group during the buddy week that I participate with both at school and outside. In addition, I have met nice people on courses. The people in the associations are also incredibly welcoming no matter how much/little you engage, and I therefore think the associations also contribute greatly to a nice community. I personally have not been that active, but still met so many nice people!' Another student shared, 'The most important is the relationship with my fellow students at the faculty. Relationships with teachers are also important. Participation in student unions and at their events is the last, important factor.'

Table 5. Codebook for qualitative assessment of open-ended responses to the prompt "..."

Category	Number (of 222)	Description	Example comment
Social connections (with peers, with lecturers etc.)	97	The respondent mentions anything positive or negative about how their social interactions influence their sense of belonging at the faculty.	There should be more opportunities to ask lecturers questions. There should also be mentors at each academic year, who are responsible for correcting assignments and guiding the student in further choices on the programme. Furthermore, the faculty should arrange for more group assignments and oral assignments, which means that different students must collaborate. We should also have compulsory practical training at the faculty at the end of the programme in a group with several students, because then you can bond across the 4th and 5th year.
Inclusive/exclusive environments, (dis)respect for diversity	45	The respondent indicates that the environment they encounter is inclusive or not, or they indicate a general respect or disrespect for diversity at the faculty.	I think there's a lot of events that have to do with alcohol, and for someone who doesn't drink it's easy to fall outside.
Extracurricular engagement	35	The respondent mentions the importance of extracurricular offerings to promoting or preventing a sense of belonging.	That there are parties for everyone at DJ...
Group work and group dynamics	28	The respondent suggests that group work itself, or how groups function, impacts sense of belonging at the faculty.	... lectures... can be very monotonous. Group work is also nice, like what we had in JUS3220
(lack of) active and/or inclusive teaching	27	The respondent speaks to the role of active or inclusive teaching methods in impacting sense of belonging.	Lectures are not a suitable place to get to know people because they are not conversation-based.
(Un)friendly atmosphere	18	The respondent indicates that the environment at the faculty is friendly and welcoming (or not).	If you can use the university for more than just studies. Nothing about the faculty that resembles a place to just be, relax or mingle. No physical bulletin boards, social meeting places (sofa groups, rooms for relaxation, etc.) or leisure activities (table tennis, board games, etc.)
Competition and academic pressure	14	The respondent mentions academic pressure or a culture of intense competition at the faculty.	Poor social environment and extremely little room for trial and error. Everyone is extremely straightforward and doesn't dare say wrong
Academic structures	12	The respondent cites factors such as course schedules or other administrative decisions as impacting sense of belonging.	The fact that the subjects have no weekly structure and that the course periods are so scattered and short means that one does not really get the opportunity to know the others in the class.
Importance of being on campus, attending courses	8	The repondent indicates that being physically present on campus or in classes impacts sense of belonging.	Det viktigste er å dra til fakultetet daglig for å møte medstudenter og lese pensum.
Feeling (in)adequate, mastery of content	7	The respondent suggests that identification with the subject matter, or subject mastery, impacts sense of belonging.	The monotonous and stereotypical law student is very "present" here. In addition, many students are very dedicated and spread a sense that they identify with the study and live for the course of study. Everything here is also so "big and great" and grandiose, ever since the first day. Easy to feel a bit of an "imposter syndrome"
COVID-19 impacts	6	The respondent indicates that COVID-19 had an impact on sense of belonging.	For those of us who started during corona, the whole cohort didn't get to have a joint introduction (or anything like a buddy week). It has made it difficult to know who you are with, and difficult to get to know many peers.

48 student comments were assigned to the *inclusive/exclusive environments* category, which also involves social interactions. Most in this category spoke to feelings of exclusion, with one

simply stating, “fellow students are not inclusive” and another sharing that “I experience law school as elitist, and that is a factor that affects whether I feel a sense of belonging in the study program.” And one student noted that “everyone in the program is pretty uniform. There's not very much acceptance of things that are a little different.” But a few felt the environment was *inclusive* and respectful of diversity. For example, “I find my cohort to be very socially upbeat, and like we always have room for one more in the group. Have found my kind of people who are inclusive and fun.”

The *extracurricular engagement* category described 42 responses, with many students specifically pointing to events arranged by student organizations. For example, ‘Involvement in student associations and professional fellowship in teaching, social fellowship with fellow students’ and ‘Good (student) associations. Great difference in sense of belonging in the general environment at the faculty and in association life.’ Some reflections on the student unions were more nuanced, such as “When it comes to the student unions' activities, I find it varying whether they are inclusive and for all, or closed and for a particular environment.” And a few students indicated that there should be more social events arranged by the faculty. Again, social interactions seem to inform much of what students report as impacting their sense of belonging.

The next two most frequently used categories involved pedagogy at the law school, but the associated student comments concern pro-social or anti-social dimensions of teaching: group work and group dynamics (28 responses); and (a lack of) active and/or inclusive teaching (30 responses). Many respondents decried the reliance on lecture-based instruction, while advocating for more group work and inclusive-teaching strategies that encourage broad participation. For example, one student wrote ‘Lectures are not a suitable place to get to know people because they are not conversation-based,’ and another spoke of ‘little sense of belonging in the semesters where both lectures and courses are of the traditional kind, with little encouragement or expectation of active participation.’ This same respondent noted ‘a greater degree of belonging when faculty/teachers organize teaching in other ways than the traditional lectures/courses. For example, by arranging debates, panel discussions, conversations, etc.’ Similarly, another wrote ‘I also think it's nice that course leaders arrange for collaboration in new courses, so that you have the opportunity to get to know others also later in the study.’ Others addressed group dynamics more directly: ‘I think everyone’s left to their own, even if lecturers tell us to collaborate. This often doesn’t materialize and the faculty could feel more “united” in a sense’

Two of our other factors of belonging—social identity and academic motivation—were identified in these open responses less frequently. Some students mentioned, for example, being non-Norwegian, or in a "non-traditional" age group for a law student as barriers to belonging. Others spoke about the *de-motivating* aspects of intense competition. And there were no comments that clearly could be identified as directly relating to the cognitive appraisal dimensions of belonging.

5. Discussion

In this paper, we posed the following questions: (1) to what extent do students experience a sense of belonging; 2) what explains its variation; and 3) how can it be improved? In the following section we discuss and answer each question.

5.1 Variation in sense of belonging (RQ1)

As the degree of the sense of belonging of students at the law faculty, we see two clear patterns. First, at a general level, there is a strong variation among students. Three-fifths of students feel a moderate to strong degree of sense of belonging, while a fifth do not. In-between we find a group of students that feel that they are accepted and not excluded but are much less likely to feel a sense of belonging when asked specifically about that.

In this respect, these numbers are somewhat similar to other legal education studies. In Skead and Rogers' (2014) study of law students in Western Australia, precisely the same proportion (63.1%) agreed that they felt a sense of belonging. Although, this survey was based on a 4-point scale with no category for neither agree nor disagree. Likewise, when we observe Jensen's (1995) survey of the law faculty in a similar functional manner, we find similar results. She found that 19.3% of students reported had a large degree of belonging (in our survey 22% strongly agreed) while 20.1% (242) felt they did not have a sense of belonging (18% in our survey). Jensen though used a 3-point scale: In her survey, 60.6% (n=729) answered that they had a certain degree of belonging which crosses our two categories of agreed and neither agreed nor disagreed.[13] The largest study of law students sense of belonging is by Bodamer (2020) with a sample of 2527 from seventeen law schools. However, a 6-point scale was used and the full detailed results are not reported. Nonetheless, the overall distribution of the results is similar with a slight positive skew towards experiencing a sense of belonging.

[13] Note though that her survey was only about the third and fourth year of a master's in jurisprudence.

Secondly, examining the different constructs of sense of belonging, we can also observe another interesting pattern. The students were more positive when it came to experiencing constructs that concerned basic respect and inclusion. A large proportion believed that they felt accepted (80%), that their contribution was valued by fellow students (69%) and that they were not excluded (77%) or felt insignificant (68%). Thus, only a fifth to a little over a third of students felt very foundational forms of inclusion. However, when we asked about somewhat stronger forms of belonging, the answers changed somewhat: 63% of students felt valued, 62% were not lonely, and only 52% were comfortable with oral participation. Thus, some students may feel basic but not strong forms of sense of belonging. This suggests that there might be two categories of students who reported not agreeing that they had a sense of belonging: those that felt some more basic forms of belonging (e.g., acceptance) and those that felt no forms of belonging at all.

5.2 Explaining sense of belonging – the role of social interaction (RQ2)

Turning to explanation, the quantitative and qualitative analysis suggests that certain social interaction constructs – teacher and student interaction and sense of competition – are particularly, and directly, powerful in explaining this variation. The academic and social climate appears to be central for law students' sense of belonging.

It was clear from both the quantitative and qualitive responses that students' perception of their social learning environment (SLE), sense of competition (Comp), and interaction with their teachers (ILSL) had a significant impact on their sense of belonging. Our SEM models showed a direct positive impact of these social learning environment indicators on sense of belonging. In addition, it was also an important mediator for many other social interaction variables. These include faculty role, use of group spaces and writing lab, and grade pressure from others. These findings are backed up by the qualitative findings, which show a strong student focus on their interactions with students and staff and the value of group spaces.

These results conform with the few studies that have included some social interaction variables. Glass et al. (2017) found that academic teachers' 'out-of-class' interactions with students and engagement 'in-class' with cultural variation strengthened the sense of belonging. In many respects, these findings are self-explanatory as these mediating variables capture students' lived experiences of their social and academic community at the university. Moreover, our results give caution to a commonly-expressed ideas that strongly competitive environments foster academic success. We find that a competitive environment can have a negative impact on their

sense of belonging and thus potentially academic success, although we note that this effect is smaller than for social learning environment and the interaction with teachers and seminar leaders. The strength of these relationships clearly indicates the importance of a supportive and inclusive social environment for a variety of students to improve their overall sense of belonging at a faculty.

At the same time, we find that this climate mediates some of the other theorized explanations. These indirect effects come from social identity (gender, age), academic motivation (personal relevance of study, influence on course design, grade pressure from myself), and partly cognitive appraisal (social media use). Surprisingly, social identity factors such as first-generation college, nationality, and language did not make a difference, though we note that we lacked a variable for ethnicity and sexual orientation. This might suggest that class and language are less important for sense of belonging in this Norwegian context or that it might play out in other psycho-social variables such as exam anxiety (Ballen, 2019). In any case, it shows that attention might be best first directed at systematic improvement of general inclusivity from both students and staff. Although, we note the consistent findings of gender (especially in relation to participation in class) require attention (Meeuwisse et al., 2010), and further research is needed on social identity indicators such as ethnicity, sexual orientation, and gender identity.

5.3 Implications (RQ3)

While there is clearly room for improving the conditions to support belonging at this institution, we are encouraged by the fact that many of the factors identified are malleable and further, there is evidence that they can be changed through low-effort pedagogical interventions. Several of these interventions focus on factors that contribute to a student's sense of belonging, such as perceptions of stress, approaches to challenges, or how a student sees themselves in relation to their peers.

Our results—qualitative and quantitative—indicate that competition at the law school is influencing a sense of belonging. While we cannot be sure why this connection exists, it may be operationalized by how a student responds to setbacks or stress. Some compelling psycho-social interventions focus on *student mindset* and how a student responds to challenges. The premise of these interventions is that students can transition from a *fixed mindset*, in which intelligence is immutable, to a *growth mindset*, in which they see intelligence as something that can be improved with effort (Broda et al., 2018; Dweck, 2006). Indeed, our variables on grade pressure – from others and myself – could be equally understood as cognitive appraisal

variables. For instance, the former enhanced feelings of competitiveness and the latter dampened them.

Implementation of an ecological belonging intervention to tackle such mindsets has been shown to reduce performance gaps between women and men in physics (Binning cite) and between underrepresented minority students and their counterparts (Hammarlund et al., 2022). In this scenario, students engage in a short in-class activity where they are intended to internalize that course-related challenges are normal, temporary, and surmountable—in other words, they realize that many of their classmates are probably experiencing similar challenges, challenges they may encounter are not due to individual deficits, and they can succeed through effort, seeking help, and using appropriate resources. Similar messages encountered through a five-minute online video increased sense of belonging in first-year students in an intervention group, but not in two control--i.e., placebo and "business as usual"--groups (Strayhorn, 2023). In another promising mindset intervention (Blackwell et al., 2007) , students are introduced to the concept that intelligence can be improved, through practice, by embracing intellectual challenges (i.e., "hard work makes you smarter").

There are also cognitive reappraisal exercises that can help students reframe their feelings of arousal, i.e., stress or anxiety. In one example with compelling results (Jamieson et al., 2016), students engage in a brief intervention in which they are led to see the arousal they are feeling as something potentially positive and performance-enhancing. In our sample, we have an indicator of student's attitude towards stress (with 50% indicating that they could see it positively) and we will further test its effects on sense of belonging.

Another option (more developed, with theory) is the interpretation account of appraisal theory. Performance may suffer because of misled self-appraisal, for example when normal symptoms of stress or test anxiety-induced physiological arousal are interpreted as a sign of potential failure (Jamieson et al., 2016). Several variants of reappraisal interventions have been tested, including one in which students are led through an exercise in which they are encouraged to view anxiety as excitement, essentially preparing them to perform well on the upcoming evaluation. In one example, students in the reappraisal-condition classroom expressed less anxiety and dramatically outperformed those in a placebo classroom (Jamieson et al., 2016).

Many students referred to pedagogical choices that decreased their sense of belonging at the law school. They specifically referred to traditional, didactic-style lecturing that did not encourage participation or interaction with other students. This is supported by similar studies

drawing a connection between active learning, in which students are engaged in a variety of techniques—often but not always involving interaction with peers—that allow them to construct their own knowledge (cite Driessen et al., 202X) and sense of belonging (cite Xu and others). In active learning, the instructor is a facilitator rather than a "sage on the stage," and there is compelling evidence that active learning better supports learning, positive affect, and inclusion (Freeman et al., 2014, etc). Thus, it is reasonable to assume that a shift to more active learning at the law school would increase the students' sense of belonging (and possibly performance).

Integrating active learning does not have to be an onerous chore. There are simple strategies instructors can employ to encourage group discussion, solicit input from a diversity of voices, and increase student engagement in their own learning (Tanner paper, others). Example strategies include use of "think-pair-share" or a classroom-response application (e.g. PollEv or Kahoot) that involves some group discussion. To be sure, it is also possible to transform a course completely to active learning, using large-scale pedagogical shifts to, e.g., Team-Based Learning (*Michaelson cite*), Cooperative Learning (*cite*), or some variant of the "flipped classroom" approach (cite).

Likewise, strategies to improve social relationships between students – including role of student organisations, orientation week, group spaces, extra-curricular activities, and faculty roles – should be clearly examined. Many of the free text answers were focused on concrete suggestions for group and social spaces. This was also one of the key findings of Skead and Rogers (2014, that the quantity and quality of social interactions between students improved sense of belonging. In our study, it is notable that having a role at the faculty has a strong impact on social learning environment. Thus, a focus on measures that help students more deeply integrate should be examined.

These are just some of the implications. There is also a wealth of research on strategies for improving participation in class and hleping students feel comfortable (Ballen et. al. 2018). Strategies that improve the personal relevance of the study and possibility to influence it would also be important. It confirms some choices at the faculty over the last few years to involve students in choices over the type of elective subjects and profiles. Strategies that tackle grade pressure and anxiety, especially from fellow students and employers. Earlier strategies with focus on grade pressure from faculty appear to have worked.

6. Conclusion

This study developed a faculty-wide concurrent mixed methods survey in a Norwegian setting to understand the nature and causes of law students experience of a sense of belonging. We did so on the basis of a more polyvalent approach to theory, setting out and testing four potential explanations – social identity, social interaction, academic motivation, and cognitive appraisal. We also sought to capture the dynamic nature of the relationships by testing the possibility of certain mediating social interaction variables which focus on the meeting places for students in their learning environment.

We analysed the variation in responses (over a third of students did not feel a sense of belonging) with structural equation modelling of 23 independent variables, while 222 open responses were subjected to unsupervised thematic analysis through ChatGPT assistance and human interpretation. The analysis suggests that certain social interaction constructs – teacher-student interaction, social learning environment, and sense of competition – are particularly and directly powerful in explaining this variation. In other words, the academic and social climate is central, and deserves greater attention in the literature.

At the same time, we find that this climate mediates some of the other theorized explanations including social identity (gender, age), academic motivation (personal relevance of study, influence on course design), social interaction (use of writing lab, group rooms and group sofas, faculty employment, grade pressure from others) and partly cognitive appraisal (social media use). In addition, gender is an important determinant of whether students feel comfortable participating in class. These findings are backed up by the qualitative findings, which show a strong student focus on their interactions with students and staff and the value of group spaces. Students suggest several interventions and the direct and indirect findings on academic and social climate point towards research-based interventions for improvement for those that experience a poor sense of belonging.

Nonetheless, there were several empirical limitations of our research. The first significant limitation that affects both qualitative and quantitative approaches was selection bias. We were unable to randomly select groups of students to conduct the survey due to privacy concerns. However, we believe we achieved a relatively representative sample due to the manner in which we marketed the survey to very different student groups digitally and physically. Second, the number of cognitive appraisal variables was limited, although the grade pressure variables an be understood to be in this category. Moreover, we will test in a further iteration, the relaitonship

of students to positive notions of stress. Skead and Rogers (2014) have found that other cogntive appriasal variables, such as whether law students they engaged in physical exercise, maintained close relationships, or had a proactive relationship to social media helped them in their outlook on seneof beloning. . In further research, we plan to examine effects of learning design and experiential learning – especially given qualitative responses; examine the effects of sense of belonging on other variables, especially exam anxiety, self-mastery and self-efficacy; and examine effects of new interventions.

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