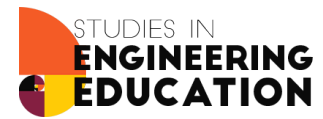


“You are a Machine Here, You Work Here, You Perform”: Queer Students’ Perceptions of Domain-Specific Climates in Engineering Doctoral Education



EMPIRICAL
RESEARCH

JULIE L. ALDRIDGE

SO YOON YOON

JOSEPH ROY

NICOLE M. ELSE-QUEST

**Author affiliations can be found in the back matter of this article*

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ABSTRACT

Background: Negative, unwelcoming experiences among queer students in engineering education contribute to the loss of talent in the innovation workforce. Yet, research on such experiences often relies on broad notions of “climate,” limiting its usefulness for identifying institutional levers for change. Based on organizational science, this study employs the integrative climate framework, which identifies domain-specific climates—diversity, authenticity, psychosocial safety, psychological safety, mastery, and performance climate—that shape student outcomes, promote in/equality, and may be especially relevant to students from diverse historically-excluded groups.

Purpose: Centering the voices of queer students in engineering doctoral programs and applying the integrative climate framework, we explored how students interpreted signals of domain-specific climates associated with retention, commitment, and satisfaction students perceived in their departments.

Approach: We conducted unstructured qualitative interviews with 11 queer students enrolled in engineering doctoral programs at universities throughout the U.S. Interviews elicited informants’ descriptions of what they noticed happening or was permitted in their departments. We analyzed transcripts using a framework-guided, deductive thematic approach focused on psychological (i.e., individual-level) climate.

Results: Informants’ accounts revealed meaning-level themes across six domain-specific climates, in which departmental signals were interpreted as prioritizing productivity and competition over learning and wellbeing, normalizing distress, and rendering voice and vulnerability risky. For queer doctoral students, these interpretations often carried heightened consequences, shaping identity management, uncertainty about available support, and decisions around concealment or disclosure.

Conclusions: By foregrounding students’ psychological climate perceptions, this study demonstrates how a domain-specific climate approach illuminates institutional dynamics that may be obscured in broader climate framings. Centering queer students as informants highlights how students from historically-excluded groups can offer distinctive insight

CORRESPONDING AUTHOR:

Nicole M. Else-Quest

University of California, Los Angeles, US

elsequest@seis.ucla.edu

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into how departmental signals around safety, authenticity, performance, and support are interpreted and navigated. Findings suggest that domain-specific climates provide actionable insight for improving equity, inclusion, and student persistence in engineering doctoral programs.

Scholars estimate that the U.S. has lost tens of thousands of queer and trans¹ individuals from the innovation workforce in large part due to negative experiences in science, technology, engineering, and mathematics (STEM) education, training, and careers (e.g., [Freeman, 2020](#)). Existing research on educational experiences indicates that STEM departments are perceived as hostile to queer and trans students ([Bilimoria & Stewart, 2009](#); [Hughes, 2018](#); [Marosi et al., 2025](#)). Yet, beyond imprecise and narrow characterizations of educational contexts as negative or “chilly,” the perspectives and experiences of queer and trans students in STEM receive little research attention ([Cech et al., 2017](#); [Freeman, 2020](#); [Reggiani et al., 2024](#)). Careful research attention to student accounts of STEM departments’ *domain-specific climates*—i.e., perceptions of departmental policies, practices, and procedures relevant to specific strategic outcomes—can provide valuable insights to education leaders. Thus, to promote institutional changes and strengthen student outcomes, scholars and administrators need research that (1) examines domain-specific climates within STEM fields and (2) captures more holistic and nuanced perspectives from queer students. In this qualitative study, we focused on the experiences of queer doctoral students within the STEM field of engineering, seeking to understand how queer students perceive and understand the domain-specific climates of their engineering departments.

QUEER STUDENTS’ EXPERIENCES IN STEM

The experiences of queer students have received limited and narrow research attention, which perpetuates their minoritization and exclusion and contributes to the loss of STEM talent. Consistent with observations that STEM education research tends to take up issues of diversity and inclusion regarding women and racially-minoritized students but ignores other social identities (e.g., [Riley et al., 2014](#)), the literature generally overlooks queer and trans students as underrepresented populations ([Freeman, 2020](#)). For example, in their qualitative study of engineering graduate students’ experiences of discrimination, Bahnson et al. (2022) focused their analyses on sexist and racist bias but shelved any connections to heterosexism even among their queer participants. Likewise, they exclusively sampled cisgender students, reasoning that nonbinary and transgender students’ discrimination experiences were beyond the scope of the study. For researchers aiming to examine the experiences of queer students in STEM, major obstacles exist, such as the omission of sexual identity and orientation measures from nationally-representative data sets and a lack of federal research funds targeting queer participation in STEM ([Freeman, 2020](#); [Rankin & Garvey, 2015](#)).

Of the scant available research on the experiences of queer students in STEM, the predominant focus is on patterns of exclusion, disadvantage, and discrimination ([Reggiani et al., 2024](#)). For example, a recent systematic review of research on queer and trans individuals’ experiences in STEM learning and working environments found three major themes within the sample of 24 eligible studies ([Marosi et al., 2025](#)). Those themes coalesced around experiences of exclusion and harassment based on gender and sexual identities and perpetuated within STEM cultures characterized as unwelcoming and hostile. Marosi et al. (2025) critiqued the literature as narrowly framing the experiences of queer and trans individuals in STEM as those of “vulnerable victims.” Studies within the STEM domain of doctoral engineering—the focus of the current study—tend to adopt that narrow framing.

¹ In the interest of clarity and readability, in this paper we use the term “queer” to refer collectively to the queer-spectrum of sexual identities, including but not limited to lesbian, gay, bisexual, asexual, pansexual, and queer. Similarly, we use the term “trans” to refer collectively to the trans-spectrum of gender identities, including but not limited to transgender, nonbinary, genderqueer, and genderfluid.

For example, Stout and Wright (2016) examined sense of fit and found that, relative to their heterosexual and cisgender peers, queer and trans computer engineering graduate students felt a lower sense of belonging. Likewise, in a qualitative study of 17 queer students in undergraduate and graduate engineering, Cech and Waidzunas (2011) described themes of oppression, disadvantage, and devaluation emphasizing heteronormativity. In a larger survey study of engineering undergraduates, Cech and Rothwell (2018) found that, compared to their heterosexual and cisgender peers, queer and trans students were less likely to report feeling accepted, included, valued, or respected in their academic and work contexts. These students also perceived their engineering programs more negatively, reporting greater awareness of negative treatment toward queer and trans students and agreeing more strongly with statements that “LGBTQ students face veiled hostility” and “Some faculty and students seem condescending toward people who are LGBTQ” (p. 606). Yang (2024)’s autoethnography as a gay, Asian-American engineering doctoral student also presents themes of heteronormativity with descriptions of negative experiences such as subtle changes in topic, long silences, and a lack of engagement when he tried to discuss his life as a gay man with a colleague. Research that names and affirms student experiences of exclusion and harassment is crucial; however, it cannot account for the full, nuanced human experience in engineering.

A more expansive and holistic approach is needed to capture the nuanced experiences of queer students in engineering. In their systematic review, Marosi et al. (2025) called for a research shift away from deficit-based approaches that narrowly frame queer experiences as wholly negative. Moreover, holding institutions accountable for the prevalence of these negative experiences requires moving beyond a primary focus on individual characteristics. Greater attention must be directed toward the contexts, structures, and practices that shape queer students’ experiences. To hold institutions responsible for cultivating an environment in which those negative experiences are prevalent, a research shift away from individual-level phenomena is essential. Especially with regards to studies involving queer and trans populations in engineering education, Haverkamp et al. (2021) called for a research paradigm shift toward a critical analysis of gender and more nuanced investigation of complex institutional processes and power structures. In other words, there is a need for research on *climates*—i.e., institutional policies, practices, and procedures, as perceived and understood by students—that contribute to or create the conditions for queer students’ complex experiences of exclusion and inclusion.

AN ORGANIZATIONAL SCIENCE APPROACH TO CLIMATES

The metaphor of climate is frequently offered as an explanation for the disproportionately lower representation of queer individuals (e.g., Cech & Rothwell, 2018; Cech & Waidzunas, 2011; Marosi et al., 2025) and members of other historically-excluded groups (e.g., Cross et al., 2018; Davis et al., 2023; Dutta, 2015; Kim & Kim, 2023; Pawley et al., 2016) in engineering and other STEM fields. Originally coined in 1982 by Hall and Sandler to describe a wide range of inhospitable faculty and student behaviors toward women in STEM, “chilly climate” is now ubiquitous in the literature on broadening participation. Likewise, research on “campus climate” has been an important source of data concerning queer and trans experiences at universities (e.g., Garvey & Rankin, 2015; Garvey et al., 2017; Rankin et al., 2019). However, the meteorological metaphor is often so under-theorized and imprecisely conceptualized that its utility and meaning are limited for campus leaders (Hart & Fellabaum, 2008). Critics maintain that in higher education research “climate” functions mainly as a heuristic characterizing a general environment (Abrica et al., 2023). In turn, such research may undermine efforts to precisely identify the institutional barriers or supports to improve student outcomes and broaden participation.

By contrast, organizational science approaches to climates—which are commonly deployed in research on workplace organizations but not in educational ones—can significantly advance research on the experiences and insights of queer students across STEM disciplines. An organizational science approach is crucial to connecting the effects of marginalization and exclusion to the institutional processes, practices, and procedures that produce inequalities, rather

than focusing on individual experiences as barriers for historically-excluded groups (Smith, 2012). To this point, “taking an organizational perspective also moves away from two common discourses about marginalized student populations, as either deficient or resilient individuals (i.e., victims or heroes), and adds a new discourse about institutional responsibility to ensure the success of all students” (Pitcher et al., 2018, p. 120). This perspective assumes that students perceive specific climates that contribute to their organizational commitment and satisfaction and ultimately impact their attrition or retention to degree completion (Schneider et al., 2017; Schulte et al., 2006).

Using an organizational science approach, we focus on psychological climate, in other words, individuals’ cognitive interpretations of organizational policies, practices, and interactions, which are distinct from shared or group perceptions of organizational climate (Hellriegel & Slocum, 1974; James & Jones, 1974; Schneider, 2000). These interpretations reflect sense-making about organizational structures, processes, and events, rather than affective reactions or personal evaluations of experience (Baltes et al., 2009; James & Jones, 1974; Parker et al., 2003; Schneider et al., 2011).

To explore psychological climate in doctoral engineering departments, we sought queer students’ individual perceptions of what happens in their departments, e.g., typical interactions, routines, and behaviors of department members including other doctoral students, staff, and faculty (Ostroff et al., 2012). This approach follows Marosi et al.’s (2025) recommendation to move beyond deficit-based approaches that depict queer students in STEM as mere victims, drawing instead from their situated knowledge and expanding the literature on queer students in doctoral engineering. To examine their psychological climate perceptions, we use the integrative climate framework (Else-Quest & Aldridge, 2026).

THEORETICAL FOUNDATION

THE INTEGRATIVE CLIMATE FRAMEWORK

The integrative climate framework (Else-Quest & Aldridge, 2026) draws upon contemporary climate research within organizational science, which focuses on specific strategic goals or internal processes and conceptualizes climates as *domain-specific* (i.e., climates for something) (Ehrhart & Schneider, 2016; Reichers & Schneider, 1990). This focus on domain-specific climates has significantly improved the validity of climate research and the understanding of the contexts in which climates occur (Ehrhart et al., 2014). Importantly, results from studies of domain-specific climates have practical implications, indicating relevant policies, practices, and procedures that may serve as interventions to enhance outcomes and performance in strategic areas (Patterson et al., 2005; Schneider et al., 2017). Our interest here is in the domain-specific climates relevant to the broader strategic outcome of engineering doctoral student retention to degree completion.

Synthesizing the organizational science literature on domain-specific climates, the integrative climate framework examines how multiple specific climates associated with satisfaction, organizational commitment, and retention or attrition can promote in/equality, making them especially relevant for students from diverse historically-excluded groups in doctoral engineering education (outlined in Table 1). That is, it identifies how climates cultivate equity/inequity, inclusion/exclusion, empowerment/disempowerment, and belonging/isolation, all of which contribute to student satisfaction, retention, and degree completion, particularly but not exclusively among students from diverse historically-excluded groups (i.e., including but not limited to queer students).

While organizational science has identified these domain-specific climates as contributing to members’ satisfaction, organizational commitment, and retention or attrition, minimal research has explored these climates with engineering (or STEM) doctoral student populations or queer samples (Else-Quest & Aldridge, 2026; Yoon et al., 2024). Therefore, to capture perspectives that are noticeably absent from the literature on domain-specific climates in engineering doctoral education, we sought queer students as informants about the climates present in doctoral engineering departments. Queer students are uniquely positioned to perceive and make sense of the departmental policies, practices, and procedures that promote equity/inequity, inclusion/

exclusion, empowerment/disempowerment, and belonging/isolation. That is, consistent with social constructionist and standpoint epistemologies, queer students have an epistemic advantage as members of a historically-excluded group (Sprague, 2016). The integrative climate framework groups domain-specific climates into three clusters, described next.

Climates Pertaining to Social Identities

Two domain-specific climates directly pertain to perceptions about which social identities fit or belong in the department. *Diversity climate* refers to members' perceptions about the extent to which their organization values diversity, as evident in the organization's formal structure, informal values, and social integration of members of historically-excluded groups (McKay et al., 2007; Perry & Li, 2019). This climate encompasses the perceived "attitude" about which behaviors are appropriate and about the meaning of diversity within the organization (Dwertmann et al., 2016). The presence or absence of specific diversity practices does not reflect diversity climate, as the mere presence of a practice, such as training, says nothing about the diversity messages that members derive from that practice (Nishii et al., 2008). Across a range of organizations, diversity climate has been positively associated with members' organizational commitment, organizational identification, job satisfaction, and intention to stay (Avery & McKay, 2010; Boehm et al., 2014). The presence of a strong diversity climate does not necessarily prevent negative personal dynamics and behaviors, but it does promote reporting such problems (Leslie & Gelfand, 2008).

However, diversity climate cannot capture the dilemma faced by some members of historically-excluded groups between the desire to be authentic versus the need to downplay their marginalized social identities. Meeting that need, *authenticity climate* refers to perceptions of the extent to which an organization encourages and provides a safe environment for members to express their true or authentic selves at work (Ostermeier et al., 2022). Theorizing on this climate draws from research on defining the self in terms of unique traits, valued roles, and social group membership and how that facilitates a sense of identification with or belonging to an organization (e.g., Ashforth & Mael, 1989; Ashforth et al., 2008). In a recent study on authenticity climate and the psychological experience of social uncertainty during decisions about self-disclosure, Wang et al. (2025) examined Black employees' perceptions of whether to act in accordance with their true selves by sharing aspects of their social identities at work. Authenticity climate can facilitate affirmation and inclusion by enhancing members' social certainty in expressing their true selves, and it is linked to a range of outcomes including greater job satisfaction and lower job burnout (Grandey et al., 2012; Ostermeier et al., 2022).

Climates Providing Student Support

Two domain-specific climates regard the perceptions about the department's provision of support to students. One, *psychosocial safety climate* refers to the perceptions of organizational policies, practices, and procedures for protecting psychological health and safety from organizational risks and stressors (Dollard et al., 2012; Law et al., 2011). This climate is committed to stress prevention, prioritizing members' wellbeing over productivity (Dollard & Bakker, 2010; Edmondson & Lei, 2014). Empirical research in organizational science has found that psychosocial safety climate can buffer the impact of high work demands and stress and predict job satisfaction, performance, and organizational commitment, and is inversely associated with fatigue and exhaustion, workplace bullying and harassment, and psychological distress (Amoadu et al., 2024; Dollard et al., 2012; Garrick et al., 2014).

Two, *psychological safety climate* describes members' beliefs about whether it is safe to engage in interpersonal risk-taking in the organization (Edmondson & Lei, 2014; Newman et al., 2017). In a psychologically safe environment, members feel that their peers respect each other's competence, have positive intentions for one another, and can engage in constructive conflict or confrontation (Edmondson, 1999). This climate is also essential for speaking up, such as reporting problems with one's lab supervisor or advocating for fair and transparent grading policies. A meta-analysis revealed that psychological safety climate is associated with voice behavior (i.e., the discretionary

citizenship behavior of making suggestions for improvement to current practices and policies) and feeling safe to speak up or voice opinions (Frazier et al., 2017).

Climates Defining Student Success

Two climates empower students by setting standards for success and indicating how they are evaluated, capturing student perceptions of the criteria for success and failure emphasized through departmental policies, practices, and procedures. *Mastery climate* regards how an organization values, supports, and rewards members' efforts, cooperation, learning, mastery, and development of skills (Ames, 1992; Roberts, 2012). Members are motivated to learn through supporting and helping each other and by facilitating the development of peer norms that encourage each other's efforts (Ames & Ames, 1984; Černe et al., 2014). Mastery climate also attends to structures that support effort and cooperation, emphasize learning and mastery of skills, and focus on self-development and building competence (Ames, 1992). By contrast, *performance climate* emphasizes normative ability, social comparison, and competition, whereby only the highest achievers are acknowledged as successful, and members are overwhelmed with comparisons such as being grouped by ability (Černe et al., 2014).

Mastery and performance climates are interactive and often exist simultaneously (Buch et al., 2017). For example, a recent longitudinal study (Nerstad et al., 2020) of engineers and technologists found that mastery climate was positively associated with basic psychological need satisfaction (e.g., autonomy, relatedness, and competence); by contrast, performance climate was negatively associated with those constructs. Organizational science literature tends to find that mastery climate is linked to favorable or adaptive outcomes (e.g., cooperation, helping behaviors, knowledge sharing, work engagement, job satisfaction, trust, creativity, reduced turnover, high-quality work, high work effort, job embeddedness, and enhanced mental health; Černe et al., 2014, 2017; Nerstad et al., 2019), and performance climate is associated with unfavorable or maladaptive outcomes (e.g., knowledge hiding, distrust, job burnout, emotional and behavioral problems like depression, turnover intention, and work alienation; Kopperud et al., 2020; Lee, 2023; Stornes & Bru, 2011).

PURPOSE

Centering the experiences of queer students in engineering doctoral programs and applying the integrative climate framework, we aimed to investigate which domain-specific climates associated with member retention, commitment, and satisfaction students perceived in their departments.

RESEARCH DESIGN

The current analysis draws on qualitative interviews with 11 engineering doctoral students who participated in a broader multi-year, mixed-methods, multi-disciplinary, collaborative project on climates in doctoral engineering departments (Yoon et al., 2024). The study protocol and contact materials were deemed exempt from the Institutional Review Board by the Office of Responsible Research Practices at The Ohio State University.

RESEARCHERS' ORIENTATION & METHODS

Researchers, not data, tell the stories of their research and those stories align with the researchers' views of the world, including their paradigmatic orientations and their choice of theory and method (Bernard, 2018). Paradigmatically, this study is guided by symbolic interactionism, which assumes individuals interpret their environment and construct social reality through everyday interactions that create shared meanings within social groups, as originally conceptualized by George Herbert Mead (Blumer, 1969). Symbols are uniquely human and refer to any social object (e.g., a physical object, a gesture, or a word) that represents or stands in place of something else (Williams et al., 2008). For decades, climate etiology has viewed climate formation and function as a symbolic interactionist process by which people attach meaning and make sense of the thousands of

events, practices, procedures, and behavioral interactions they encounter at work (Ashforth, 1985; Beus et al., 2023; Schneider & Reichers, 1983). As a result, symbolic interactionist theory makes explicit that climates arise through exchanges between people in groups.

RECRUITMENT

We recruited research participants from a pool of respondents to an anonymous online survey of doctoral engineering students attending in-person programs in the United States (Yoon et al., 2024). The survey included a link to an online form for potential interviewees to indicate they were interested and provide us with an email address. We then emailed prospective participants with a survey to provide basic socio-demographic data (e.g., gender identity, sexual identity, race/ethnicity) and enrollment data (e.g., engineering discipline and institution), which we used to construct our sample.

Across the social sciences, research participants may be referred to as respondents, subjects, or informants, depending upon discipline and research design. For this study, we recruited *specialized informants*, or informants who have particular competence in some cultural domain and can describe what they think the researcher needs to know about that domain (Bernard et al., 2017). This study's specialized informants were engineering doctoral students who, using our socio-demographic survey, reported their sexual identity on the queer spectrum.

SAMPLE

We used criterion sampling, which is a form of nonprobability sampling best used to provide information about specific members of the research population that are intrinsically interesting or important for the study; as such, criterion sampling is particularly useful in studies of hard-to-reach populations (Bernard et al., 2017; Henry, 2009). Individuals marginalized based on sexual identity are recognized as a hard-to-reach population, and extra effort is often required to engage them in research (Barbour, 2018).

Consistent with our study purpose, we sought a sample that could provide depth and insight rather than representativeness; we did not seek a defined number of informants (Chamberlain & Hodgetts, 2018). As Bernard and Ryan (2010) note, in "purposeful sampling, you simply decide the purpose you want informants to serve and you take what you can get" (p. 365). Thus, with this sampling strategy, resulting case numbers are typically small (Hesse-Biber, 2007; Wutich & Bernard, 2023). This study's resulting sample of 11 cases is homogenous with respect to the selected criteria (i.e., engineering doctoral students and queer identities) but heterogeneous in other respects (i.e., engineering discipline, university, U.S. region, race/ethnicity, and gender identity). No two informants were located in the same engineering department within a university.

DATA COLLECTION METHOD

Symbolic interactionism guided our research design, including the choice of methods for data collection and analysis. In this study, how the members make sense of and meaning from their interactions in their departments is the basis for a qualitative understanding of each research participant's perceptions of the presence of domain-specific climates present in their department. Our qualitative data collection approach also needed to have the potential to capture perceptions of various climates without intentionally leading informants to talk about any specific one. We sought to discover what was noticed by or important to each informant; therefore, we chose to conduct unstructured interviews.

Unstructured interviewing originated in anthropology and sociology as a technique to elicit people's social realities (Brinkmann, 2020). Feminist sociologist Ann Oakley (1981) pioneered this interview method as a more conversational and sharing approach to invite intimacy and break down the power hierarchy between researcher and subject prevalent in more traditional data collection techniques (McHugh, 2020; Oliver, 2023). The unstructured interview approach aligns with our symbolic interactionist orientation because the data collection process itself is considered a social

interaction with the researcher taking on a more egalitarian position. The researcher is positioned as a learner valuing the research participant's unique account of their social reality in their own terms. Symbolic interactionism rejects the idea of a disembodied researcher with a value-neutral perspective and allows for the agency inherent in human behavior (Williams et al., 2008). In addition, this approach is noted as a way to understand complex behavior without pressuring or prying into sensitive areas an individual may be reluctant to discuss openly (Punch, 2005).

We also chose to conduct unstructured interviews with students to avoid making any of the climates seem relevant or salient to the informant (e.g., by suggesting it through a direct probe). Structured approaches tend to increase the likelihood that participants will respond to parameters set by the researchers rather than revealing the themes they regard as interesting or important (Symon & Cassell, 2012). On the other hand, unstructured interviews impose the least amount of control over the informants' responses while keeping them on the topic of describing the lived experience of interest: in this study, that experience is *their perceptions of what they noticed happening or was permitted in their departments* (Bernard & Ryan, 2010; Bernard et al., 2017). The basic rule, then, is to get the informant on the topic of interest and "get out of the way" (Bernard, 2018, p.168). This type of interview is excellent for allowing people to open up and express themselves in their own terms and at their own pace, thereby increasing richness and novelty (Bernard, 2018; Bernard et al., 2017; Symon & Cassell, 2012). By giving the informant more control of the topics discussed, the researcher gains greater in-depth material. For this study, rich, contextual data are essential to understanding how informants interpret the events, practices, procedures, and behaviors they encounter and is the basis of this study's symbolic interactionist view.

Importantly, data from unstructured interviews are not comparable across informants (Bernard & Ryan, 2010), which is also appropriate to our study aims. Given our interest in psychological climate perceptions, which cannot be aggregated (e.g., to collectively describe a climate within a department), it was logical to collect individual-level data that would not be used for group comparisons (Parker et al., 2003; Schneider et al., 2011). Thus, while we sought to identify patterns or themes within our qualitative data, our goal was not to characterize informants' experiences as representative of organizational climates in doctoral engineering in the U.S. Instead, we aimed to leverage those lived experiences to explore how climates may be perceived by queer doctoral students and, in turn, identify opportunities for organizational change.

A potential concern in qualitative research involving hard-to-reach research populations is the researcher's positionality relative to the sample, which includes disciplinary or institutional roles in organizational science research (Chamberlain & Hodgetts, 2018). The unstructured interviews were conducted by the first author (JLA), who has never been an engineering doctoral student, positioning her as an outsider to doctoral engineering contexts. However, our unstructured interview approach also positions the interviewer as a learner, for whom outsider status may facilitate naïve questioning and an interpretative position (Savvides et al., 2014). In addition, outsiders may be more trustworthy when discussing sensitive or confidential information (Chamberlain & Hodgetts, 2018).

In total, 11 interviews each lasting 45 to 90 minutes, were conducted via password-protected Zoom in October and November of 2023. JLA obtained informed consent prior to the start of the interview and read a short statement about consent recorded at the beginning of each interview, as required by the University's Office of Responsible Research Practices policy. Interviews tended to begin by asking the informant to talk about how they decided on their program and what stage they were at in their doctoral education. Informants did not uniformly respond to the interview icebreaker asking about doctoral stage; therefore, we do not include it as an informant demographic.

Informants were asked to describe a typical day in their life as a doctoral student and talk about any events, practices, and interactions in their departments they viewed as helpful or supportive. From there, without encouragement or suggestion from JLA, the informants tended to describe hinderances, share stories about negative experiences and interactions, and talk about their disappointment with what was allowed or discouraged in their departments. Some informants

talked about their daily lives as engineering doctoral students and interactions in their departments in context of their queer identities, others did not. A few informants occasionally digressed into detailed descriptions about the technical aspects of their work and were guided back on topic by prompts asking how that work was supported by their departments and the people around them.

Each informant received a follow-up email thanking them for their time with a \$50 gift card incentive along with a list of support resources, such as the Crisis Text Line, guidance on reporting workplace harassment, and stress coping strategies. Interviews were recorded, and audio recordings were professionally transcribed verbatim. JLA verified the accuracy of all transcriptions.

DATA ANALYSIS METHOD

We utilized a framework-guided, deductive analytic approach to examine informants' psychological climate perceptions through the lens of the integrative climate framework (Else-Quest & Aldridge, 2026). Drawing on theoretical thematic analysis as articulated by Braun and Clarke (2006) and further clarified in their work on analytic specificity and thematic meaning (Braun & Clarke, 2022; Clarke & Braun, 2013), our analytic strategy was designed to support a detailed, theory-informed analysis by identifying meaning-level themes within informants' accounts, rather than inductively generating themes from the data. A meaning-level theme is an interpretive analytic statement that captures what participants' accounts *mean* about a phenomenon, rather than merely a summary of what they discussed (Braun & Clarke, 2022).

While Braun and Clarke (2022) emphasize that thematic analysis can be applied flexibly across epistemologies and paradigms, they also underscore the importance of specifying analytic purpose and products, particularly the distinction between descriptive topics and interpretive themes. Consistent with this guidance, our analysis focused on developing themes as analytic statements of meaning to capture how informants individually made sense of departmental policies, practices, and interactions within each climate domain, rather than organizing findings as topical summaries. From this perspective, analytic attention centers on sensemaking, rather than prevalence, and focuses on how informants understood what was noticed, permitted, or discouraged within their departments (Braun & Clarke, 2022).

CLIMATE	STUDENTS' INDIVIDUAL PERCEPTIONS	RELEVANCE TO EQUALITY & RETENTION
Climates Pertaining to Social Identities		
Diversity Climate	Extent to which the department values diversity & works to eliminate bias	Emphasis on fairness & elimination of bias fosters belonging, satisfaction, & commitment
Authenticity Climate	Department's encouragement & provision of a safe environment for students to express authentic selves	Encouragement of free & safe expression fosters belonging & satisfaction
Climates Providing Student Support		
Psychosocial Safety Climate	Department's support & commitment to students' psychological wellbeing & the prevention of distress due to graduate school demands & stress	Support for student stress management & wellbeing fosters inclusion, belonging, satisfaction, wellbeing, & commitment
Psychological Safety Climate	Department's response to risk-taking behaviors, such as taking initiative, making mistakes, or speaking up about problems or concerns	Safety to take risks without fear of rejection, retaliation, or ridicule fosters learning, equity, voice behavior, & inclusion
Climates Defining Student Success		
Mastery Climate	Extent to which the department values effort, sharing, & collaboration, emphasizes learning & skill development	Affirmation of effort & development fosters learning, cooperation, satisfaction, wellbeing, & inclusion
Performance Climate	Extent to which competition with, comparison to, & recognition from others are department's standards for student success	Emphasis on competition & comparison fosters exclusion, burnout, & attrition

Table 1 The integrative climate framework identifies domain-specific climates contributing to student satisfaction, organizational commitment, and retention or attrition, and promoting in/equality.

The codebook consisted of six domain-specific climates in our framework, with composite definitions for each climate synthesized from the organizational science literature. Transcripts were coded by authors JLA and NEQ using the cutting-and-sorting technique (Bernard & Ryan, 2010). Both semantic codes (i.e., explicit utterances) and latent codes (i.e., underlying meanings shaping informants' interpretations) were employed to examine how informants' accounts aligned with and elaborated on the climates (Bingham et al., 2024; Bingham & Witkowski, 2022; Braun & Clarke, 2006).

Using separate data matrices, JLA and NEQ compared their initial interpretative coding to identify areas of convergence and divergence (Bernard et al., 2017). Apparent discrepancies were resolved through discussion to achieve interpretive consensus, consistent with qualitative best practices (Creswell & Creswell, 2018; Guest et al., 2020). Analytic trustworthiness was further supported through rich description and bias clarification (Creswell & Creswell, 2018).

Analysis centered on informants' descriptions of what they noticed happening in their departments—including typical interactions, routines, and behaviors of faculty, staff, administrators, and other doctoral students—and how these experiences were interpreted as consequential for departmental climates (Ostroff et al., 2012). Presented in the Results, these accounts form the basis for the meaning-level themes and illustrate how informants actively navigated and responded to institutional signals in ways shaped by power, risk, and identity. In keeping with this analytic orientation, each domain-specific climate subsection opens with an interpretive thematic statement that articulates what the climate meant to the informants and how it functioned in their sensemaking (Braun & Clarke, 2022). Quotations are presented as evidence supporting these interpretations.

RESULTS

SAMPLE CHARACTERISTICS

To protect informant privacy and confidentiality, specific intersectional identities are not described, and a pseudonym table is not feasible. The 11 informants' sexual identities spanned lesbian, gay, bisexual, queer, questioning/unsure, and asexual. Two of the informants self-identified as genderfluid or nonbinary. They were located at universities throughout the U.S. and represented seven engineering disciplines: aerospace (2), architectural (1), chemical (2), civil (1), computer (2), electrical (2), and mechanical (1). There were nine women and two men. Ten were U.S. citizens. Two informants identified as Asian American, one as Mexican or Chicano/a, one as Puerto Rican, and seven as White. No individuals in the recruitment pool identified themselves as having a disability.

CLIMATES PERTAINING TO SOCIAL IDENTITIES

Diversity Climate: Compliance-Oriented, Performative Commitments to Diversity

Informants described interpreting their departments' diversity related policies and practices as narrow and largely performative, emphasizing compliance or risk management rather than substantive inclusion. Across accounts, students understood diversity initiatives as limited in scope, often focused on gender or race alone, and as disconnected from broader questions of belonging or equity for queer doctoral students. Informants perceived hiring and recruitment practices as signaling these priorities. For example, Informant #11, a woman serving on a male-dominated faculty search committee, described how diversity considerations were subordinated to traditional markers of research productivity:

What I noticed is that the priority of every single professor on the committee was research. There was one candidate that was a lot younger. She was female. She was very into a lot of different diverse activities...and seemed like she would be a really good teacher, but they turned her down because of lack of experience.

Similarly, diversity-related trainings were perceived as minimal and procedural rather than meaningful. As Informant #6 explained:

We get assigned just online training on discrimination policies and harassment. They're just recordings. You do it online and you answer a quiz...I wish it would be more explicit and wider in scope, but that's what there is there.

Informants also questioned the sincerity of departmental commitments to diversity. Informant #6 remarked, "diversity, I guess there is that commitment," while Informant #1 described resistance to deeper engagement: "Once you start talking about diversity, there will be some people that don't like it. They just don't want to get in trouble basically. They don't want drama." Several informants interpreted their departments' approaches as recognizing only certain forms of difference, with Informant #6 summarizing the prevailing attitude as "diversity beyond race is not diversity."

Authenticity Climate: Identity Constraint and Concealment

Informants' accounts indicated that they perceived departmental norms and interactions as constraining the expression of their "whole selves," and described strategic self-monitoring, identity regulation, and, in some cases, concealment. Rather than experiencing departments as spaces that encouraged expression of the "whole self," students described making careful calculations about what personal information could be safely shared.

Informants commonly described withholding personal details to avoid discomfort or dismissal, which they understood as interfering with relationship building and professional connection. As Informant #8 explained:

I don't share personal information, so it's hard to connect professionally too whenever you have a wall up, I think. I hold a lot in terms of what's going on in my personal life back and also some of my interests. I just know that they won't really be listened to.

One informant in chemical engineering interpreted these constraints as discipline specific, describing identity restriction as part of what it meant to belong in that field:

I know it's not the healthiest environment because you have to change, you have to restrict what you do, what you say. I practice enough that it's easier to do it, but it's not that healthy. I think chemical engineers...they don't like to deal with drama, they don't like to deal with emotions, basically.

Informants also described how expressing queer identities in particular was perceived as socially risky. Informant #6 noted:

That's one thing [that] makes me separate my work from my personal life, because I'm so comfortable with my personal life that if I go to work and just talk about being gay, about the things that I do, about what I think, it's uncomfortable for a lot of people.

In some cases, these perceptions led to active concealment. One informant described deflecting questions about relationships: "I have to hide. Whenever they ask me if I have a girlfriend...what did I do on the weekend? It's like, oh, not much..." Informants also noted that the presence of international peers—some from countries where queerness is criminalized—added additional layers of caution. As Informant #6 reflected:

When I hear things like that and especially coming from countries from where women die every day from violent crimes, from gender related crimes, it's like, 'I don't think I want to talk to you.' That's the thing that makes it hard.

These accounts indicate that informants perceived concealment and self-monitoring as necessary strategies for navigating departmental norms, shaping authenticity climate perceptions with particular consequences for queer doctoral students.

Psychosocial Safety Climate: Normalizing Distress and Burnout

Informants perceived departmental expectations, workloads, and responses to stress in ways that shaped their perceptions of psychosocial safety climate, signaling that psychological wellbeing was secondary to productivity and personal endurance. Informants described chronic stress, shifting deadlines, and heavy workloads as normalized features of doctoral life, with little indication that psychological health was institutionally protected or prioritized.

Students described struggling to balance research demands with learning and exam preparation. As Informant #9 explained, “I am trying to do research, but I’m also, I’m actively trying to learn as well. I don’t feel proficient in the areas I want to do research in.” This pressure contributed to burnout and loss of personal identity. Informant #9 reflected, “Who am I? I’m just working all the time. Just a robot.” Support for stress management was often perceived as informal and peer-based rather than institutional, with Informant #3 noting, “I don’t think the department infrastructure is that great.”

Some informants described dismissive responses when they attempted to express distress. Informant #8 recalled that their advisor responded to disclosures of stress by saying that “it stresses her out that I’m stressed.” Others described an expectation to endure without complaint, summed up by Informant #4 as “grin and bear it,” and by Informant #10 as “suck it up...everyone has done it at some point.”

For queer doctoral students, these perceptions compounded existing stressors by limiting safe avenues for support. Ultimately, informants were prompted to manage stress privately or through self-developed peer networks, which reinforced interpretations that vulnerability was incompatible with success.

Psychological Safety Climate: Silence, Inaction, and the Cost of Speaking Up

Informants described interpretations of departmental responses to disagreement and reporting as signaling whether it was safe for them to speak up; such responses shaped a psychological safety climate marked by caution, silence, and perceived risk. Informants described fear of negative consequences for voicing concerns, including reluctance to disagree with advisors, difficulty saying “no,” and apprehension about being perceived as problematic.

Informants also described challenges in raising issues related to cultural insensitivity or fairness. Informant #8 recounted repeated attempts to address discomfort with an advisor, only to be dismissed:

It was an arduous conversation to have over and over again with my advisor, trying to teach her, ‘Hey, this is not really culturally sensitive. I don’t really feel super comfortable with this.’ She was like, ‘Too bad. Just change the way that you describe it a little bit... just tweak it a little, if you feel like it.’

Several informants described retaliation or institutional inaction after reporting misconduct, particularly sexual harassment. Informant #2 stated, “I don’t think anybody has ever brought it [unwanted touching] before. I think I’m the first one to,” while Informant #10 noted, “he just got tenure...no one’s ever actually been vocal about any of these issues.” Peer responses were often framed as endurance strategies, with one informant describing the prevailing advice as “just suck it up and get out.” Informant #10 rationalized the department’s lack of response to their complaint about unwanted touching, “I think there were just a lot of trying to excuse it... ‘it’s just a cultural thing. He doesn’t realize it,’ or something like that.”

Informant #6 described an incident during a lecture where the professor made a joke about the suicide of a well-known engineer who was gay complaining how now “those people” were now all over campus and expected special treatment. The student reported it expecting that the professor would be made to apologize for ridiculing suicide, or that the department would send an email acknowledging that jokes about suicide were inappropriate because there had been several

suicides on campus recently. Instead, the department took no action, leading the informant to conclude that speaking up about problems in the future would be pointless.

These accounts reflect perceptions of a psychological safety climate in which silence was interpreted as safer than voice, with heightened consequences for queer students navigating bias, harassment, and power asymmetries.

CLIMATES DEFINING STUDENT SUCCESS

Mastery Climate: Endurance Over Development

Informants described interpreting departmental expectations in ways that emphasized independent endurance over support for learning and skill development. A few informants described collaboration and encouragement, but most interpreted departmental norms as valuing self-sufficiency and persistence over mentorship.

Informants described limited scaffolding from advisors and faculty. As Informant #2 explained, “They want you to somehow get to the answer on your own—which has academic merit—but I’m just asking to pull me up the stairs a little bit.” Others described inaccessible faculty and contradictory messaging about support. Informant #6 stated:

...it’s all so shady and doubled faced...because you talk to all these advisors, and they are the best ever. They will support you...once you are in the lab, you either never see them, or you have the hardest time ever.

Informants typically interpreted a need to rely on peers for guidance, which sometimes created negative consequences. Informant #8 felt pressured as a TA to “don’t give anybody feedback,” while another informant described damaged lab equipment resulting from insufficient instruction. Several informants described being discouraged from pursuing internships and interpreted this discouragement as a departmental signal that short time-to-degree metrics and the retention of graduate labor for funded projects were prioritized over students’ professional development.

Performance Climate: Comparison, Competition, and Conditional Recognition

Informants described making sense of departmental recognition practices, evaluation criteria, and peer comparison in ways that linked worth and belonging to visible productivity and competitive success. Informants described recognition practices that highlighted awards and outputs, often benefiting the same individuals repeatedly. As Informant #4 explained, “the only celebration...is when some of our students win.” Informant #8 perceived that the same group of students got all of the recognition at the awards ceremony each year. “I feel like I’m a really high-performing student, and so I’m like, I guess I’ll just do it because I’m motivated in my own brain, not because I’ll get an award.” Informant #7 described grading norms that centered comparison: “This sets the A. This is the 100%, and everybody else is judged by how close they were to that.”

Informants also described sustained pressure to prioritize productivity above all else. As in the words of Informant #10, the perceived expectation was to “push, push, push” on projects despite other responsibilities such as exams because that had been the standard for faculty when they were doctoral students. Finally, the felt pressure for high productivity and performance was summarized by Informant #6’s statement, “you are a machine here, you work here, you perform.” And for queer doctoral students these performance-oriented norms reinforced a sense of conditional belonging tied to output rather than development.

DISCUSSION

Queer students in engineering doctoral departments shared accounts that reflected their psychological climate perceptions across the domain-specific climates in our integrative climate framework, often interpreting departmental conditions as unsupportive of student development or wellbeing. Our findings demonstrate how examining queer students’ psychological climate perceptions can provide valuable insights into how institutional contexts are understood, navigated, and become consequential within doctoral engineering departments.

Centering the voices of queer students conferred an epistemic advantage for our study, providing unique perspectives on domain-specific climates. Informants' diversity climate perceptions tended to reflect limited and superficial diversity efforts by their departments, targeted solely at racial diversity and motivated by compliance and avoidance of getting "in trouble." When amplifying queer voices, other researchers have also noted perceptions of narrow and frequently performative diversity efforts in STEM (Cech & Rothwell, 2018; Freeman, 2020).

Likewise, some informants in our study reported feeling unable to express their true selves, which involved emotional labor, social disconnection, and sexual identity concealment, suggesting weak authenticity climates in their departments. The felt need to conceal one's sexual identity—an experience that may be less visible in studies that do not center on queer students—threatens student wellbeing and is an aspect of a weak authenticity climate. Given Ostermeier et al.'s (2022) conclusion that a strong authenticity climate enhances wellbeing, our findings point to broader issues of institutional support for the wellbeing of students from historically-excluded groups. Thus, while our study design does not support comparative analyses or generalizable claims, the findings highlight unique perspectives that queer students may have on domain-specific climates.

Queer students' climate insights may be especially illuminating when considered alongside disparities in specific student outcomes, such as harassment and mental health. A strong psychological safety climate may be especially salient in queer students' accounts, as this climate has been strongly associated with voice behavior (Frazier et al., 2017) as well as equity and inclusion (Else-Quest & Aldridge, 2026). Many informants in our sample described being ignored or perceiving risk of retaliation when voicing concerns or reporting misconduct such as sexual harassment, which is experienced disproportionately by queer students (Witcomb & Cooper, 2024).

Similarly, queer students may be especially supported by a strong psychosocial safety climate. Psychosocial safety climate has been identified as relevant to addressing the broader mental health crisis in higher education, which disproportionately impacts queer students (Pagliaccio, 2025) and contributes to attrition among engineering graduate students (Bork & Mondisa, 2022). In our study, informants often described contexts with a productivity-first emphasis that provided little support for stress management or mental health. This pattern parallels research linking a weak psychosocial safety climate to employee burnout and emotional exhaustion (Amoadu et al., 2024; Dollard et al., 2012).

Moreover, while some informants experienced collaboration and support, the dominant narrative around student success was of inaccessibility, isolation, and lack of mentorship—a narrative that is likely most salient for students from historically-excluded groups. These findings mirror those of Černe et al. (2014) and Nerstad et al. (2020), who found that mastery climate is key to belonging but is often absent in competitive fields such as engineering. And, echoing research on the negative impacts of performance climate (e.g., Kopperud et al., 2020; Lee, 2023), our informants described competitive, comparison-driven environments emphasizing awards and outperforming peers, sometimes at the expense of wellbeing or collaboration. While performance-oriented climates have been associated with exclusion, burnout, and attrition in prior research, this climate may be especially salient in queer students' accounts, whose situated knowledge reflects their shared history of exclusion.

STUDY STRENGTHS

This study extends the innovative contribution of the integrative climate framework (Else-Quest & Aldridge, 2026) with its application of domain-specific climates to the context of engineering doctoral education and queer student experiences. Our work responds to and aligns with recent calls (e.g., Haverkamp et al., 2021; Marosi et al., 2025) for more nuanced and expansive approaches to research on diversity and inclusion in STEM. We employed deductive coding based on a well-defined theoretical framework and strengthened trustworthiness through strategies such as rich description and bias clarification.

By centering the voices of queer students, the study addresses a significant gap in doctoral engineering education research. We intentionally frame queer students' experiences with an

organizational lens and holistic approach, rather than with an individual-level lens and deficit approach. Prior research has primarily emphasized individual-level exclusion, largely portraying queer students only as victims of bias, harassment, and chilly environments (e.g., [Cech & Rothwell, 2018](#); [Cech & Waidzunus, 2011](#)). Critically, these studies have documented a lower sense of belonging, perceptions of veiled hostility, and reduced access to mentoring or resources. Notwithstanding the significance of naming those problems and amplifying student voices, this study widens the lens to the level of the organization, placing responsibility for those experiences on the institution and its leadership while also affirming the epistemic advantage of queer students. And, aligning with Marosi et al.'s (2025) call for a more holistic analysis of queer experiences in STEM education, we expanded our scope of inquiry to capture six domain-specific climates that promote in/equality and are relevant to student satisfaction, retention, and degree completion. Thus, rather than focusing solely on individual experiences of discrimination as a queer person, this study uncovers how queer students' perceptions of institutional policies, practices, and procedures contribute to their nuanced experiences. For example, rather than simply stating that students felt isolated, this study identifies authenticity climate as a potential lever to discourage isolation and improve student experiences.

In contributing evidence of six domain-specific, theory-grounded climates from organizational science, our study departs from existing research in higher education that focuses on broad concepts like "campus climate." The granularity in our study provides practical direction for departments to design interventions, going beyond vague calls for inclusive environments. For example, consistent with prior findings (e.g., [Cech et al., 2017](#); [Freeman, 2020](#)), informants in this study reported emotional distress, marginalization, and mental health burdens. But our study goes further by connecting these experiences to specific climates that may alleviate or exacerbate such conditions—namely, psychosocial safety climate and performance climate—which can be used to guide changes to departmental practices. Likewise, in line with Hughes (2018) and Reggiani et al. (2024), our participants described concerns about voicing issues (e.g., sexual harassment). Yet, in describing student perceptions that it is too risky to speak up or report problems or that one's complaints will be ignored, our study offers clearer direction for leadership intervention on departmental procedures to promote the psychological safety climate necessary for such interpersonal risk-taking.

While none of these climates are exclusively supportive for queer students, they appear particularly salient, unique, or impactful for them. That is, these domain-specific climates are relevant to improving outcomes for *all* engineering doctoral students, especially those who identify as queer.

STUDY LIMITATIONS

Importantly, given our small and non-generalizable sample, our findings are best understood as indicative rather than representative of broader queer experiences in doctoral engineering programs. Informants volunteered from a pool of prior survey respondents ([Yoon et al., 2024](#)), which may have resulted in a sample with stronger positive or negative perceptions or a greater motivation to talk about their experiences. This recruitment strategy also tends to over-represent students who are out or open about their sexual identity. And, although our sample represents diverse sexual identities and racial/ethnic backgrounds, we were unable to recruit students who identified as trans or as having a disability. Finally, the integrative climate framework does not represent the entirety of domain-specific climates identified by organizational science research. There may be additional domain-specific climates in the literature associated with outcomes relevant to doctoral engineering student success.

RECOMMENDATIONS

This study applies an organizational science approach to climate to better understand the institutional conditions shaping the experiences of queer doctoral students in engineering. Rather than treating climate as a vague or metaphorical descriptor, we draw on our integrative climate framework ([Else-Quest & Aldridge, 2026](#)), which approaches climate as a set of domain-specific,

institutional-level constructs that influence student organizational commitment, and ultimately, retention or attrition. This framework is especially relevant for historically-excluded groups, as it highlights how climates can promote or hinder equity, inclusion, empowerment, and belonging. Queer students in our sample generally perceived their doctoral engineering departments as unsupportive of student development or wellbeing. Future research should extend the integrative climate framework and center the voices of students from historically-excluded groups, who are uniquely positioned to identify institutional barriers and supports (Sprague, 2016).

To build upon these findings, inform policy decisions, and track progress, engineering college leadership must implement regular climate assessments using validated tools grounded in organizational science (Ehrhart et al., 2014; Schneider et al., 2017). While our study examined perceptions of psychological climate, which captures individual interpretations and experiences, leaders need tools to carefully assess the shared or collective phenomenon of organizational climate. The effectiveness of targeted interventions aimed at improving specific climate domains and outcomes can then be evaluated (Ehrhart & Schneider, 2016).

Assessment of domain-specific climates grounded in organizational science will help move the engineering education field beyond deficit-based climate narratives and toward institutional accountability and transformation (Pitcher et al., 2018; Smith, 2012). An organizational science approach can identify the most effective levers for changing engineering department climate. Future work can address how to sustain positive climates over time through leadership and faculty turnover, to contribute to enduring institutional change and expanded participation in engineering.

DATA ACCESSIBILITY STATEMENT

Given the identifiable content within the interviews and the authors' agreement to maintain the privacy and confidentiality of the informants, as described in the informed consent procedures and study protocol, the interview data used in this report are not publicly available. Clarifications are welcome and can be directed to the corresponding author.

ETHICS AND CONSENT

The study protocol and contact materials were deemed exempt from the Institutional Review Board by the Office of Responsible Research Practices at The Ohio State University.

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COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR CONTRIBUTIONS

JLA: Conceptualization, formal analysis, funding acquisition, investigation, methodology, project administration, writing – original draft preparation, writing – review & editing.

SY: Funding acquisition, writing – review & editing.

JR: Funding acquisition, project administration, writing – review & editing.

NMEQ: Conceptualization, formal analysis, funding acquisition, methodology, project administration, writing – original draft preparation, writing – review & editing.

AUTHOR AFFILIATIONS

Julie L. Aldridge  orcid.org/0000-0001-6655-5971

The Ohio State University, US

So Yoon Yoon  orcid.org/0000-0003-1868-1054

University of Cincinnati, US

Joseph Roy  orcid.org/0000-0003-1828-5860

American Society for Engineering Education, US

Nicole M. Else-Quest  orcid.org/0000-0002-4177-2395

University of California, Los Angeles, US

REFERENCES

- Abrica, E. J., Hatch-Tocaimaza, D., & Rios-Aguilar, C.** (2023). On the impossibilities of advancing racial justice in higher education research through reliance on the campus climate heuristic. *Journal of Diversity in Higher Education*, 16(2), 144–156. <https://doi.org/10.1037/dhe0000323>
- Ames, C.** (1992). Achievement goals and the classroom motivational climate. In J. L. Meece & D. H. Schunk (Eds.), *Student perceptions in the classroom* (pp. 327–348). Lawrence Erlbaum Associates. <https://www.routledge.com/Student-Perceptions-in-the-Classroom/Schunk-Meece/p/book/9780805809824>
- Ames, C., & Ames, R.** (1984). Systems of student and teacher motivation: Toward a qualitative definition. *Journal of Educational Psychology*, 76(4), 535–556. <https://doi.org/10.1037/0022-0663.76.4.535>
- Amodu, M., Ansah, E. W., & Sarfo, J. O.** (2024). Preventing workplace mistreatment and improving workers' mental health: A scoping review of the impact of psychosocial safety climate. *BMC Psychology*, 12(1). <https://doi.org/10.1186/s40359-024-01675-z>
- Ashforth, B. E.** (1985). Climate formation: Issues and extensions. *The Academy of Management Review*, 10(4), 837–847. <https://doi.org/10.2307/258051>
- Ashforth, B. E., Harrison, S. H., & Corley, K. G.** (2008). Identification in organizations: An examination of four fundamental questions. *Journal of Management*, 34(3), 325–374. <https://doi.org/10.1177/0149206308316059>
- Ashforth, B. E., & Mael, F.** (1989). Social identity theory and the organization. *The Academy of Management Review*, 14(1), 20. <https://doi.org/10.2307/258189>
- Avery, D. R., & McKay, P. F.** (2010). Doing diversity right: An empirically based approach to effective diversity management. *International Review of Industrial and Organizational Psychology*, 25, 227–252. <https://doi.org/10.1002/9780470661628.ch6>
- Bahnson, M., Satterfield, D., Wyer, M., & Kirn, A.** (2022). Interacting with ruling relations: Engineering graduate student experiences of discrimination. *Studies in Engineering Education*, 3(1), 53–78. <https://doi.org/10.21061/see.76>
- Baltes, B. B., Zhdanova, L. S., & Parker, C. P.** (2009). Psychological climate: A comparison of organizational and individual level referents. *Human Relations*, 62(5), 669–700. <https://doi.org/10.1177/0018726709103454>
- Barbour, R.** (2018). Quality of data collection. In U. Flick (Ed.), *The SAGE handbook of qualitative data collection* (pp. 217–230). Sage. <https://doi.org/10.4135/9781526416070.n14>
- Bernard, H. R.** (2018). *Research methods in anthropology: Qualitative and quantitative Approaches*, 6th ed. Rowman & Littlefield.
- Bernard, H. R., & Ryan, G. W.** (2010). *Analyzing qualitative data: Systematic approaches*. Sage.
- Bernard, H. R., Wutich, A., & Ryan, G. W.** (2017). *Analyzing qualitative data: Systematic approaches* (2nd ed). Sage.
- Beus, J. M., Smith, J. H., & Taylor, E. C.** (2023). Integrating organizational climate theory: A domain-independent explanation for climate formation and function. *Journal of Applied Psychology*, 108(12), 2018–2039. <https://doi.org/10.1037/apl0001117>

- Bilimoria, D., & Stewart, A. J.** (2009). "Don't ask, don't tell": The academic climate for lesbian, gay, bisexual, and transgender faculty in science and engineering. *NWSA Journal*, 21(2), 85–103. <https://doi.org/10.1353/ff.2009.a316151>
- Bingham, A. J., Mitchell, R., & Carter, D. S.** (2024). *A practical guide to theoretical frameworks for social science research*. <https://doi.org/10.4324/9781003261759>
- Bingham, A. J., & Witkowsky, P.** (2022). Deductive and inductive approaches to qualitative data analysis. In C. Vanover, P. Mihos, & J. Saldaña (Eds.), *Analyzing and interpreting qualitative data: After the interview* (pp. 133–146). Sage.
- Blumer, H.** (1969). *Symbolic Interactionism: Perspective and Method*. Prentice-Hall.
- Boehm, S. A., Dwertmann, D. J., Kunze, F., Michaelis, B., Parks, K. M., & McDonald, D. P.** (2014). Expanding insights on the diversity climate–performance link: The role of workgroup discrimination and group size. *Human Resource Management*, 53(3), 379–402. <https://doi.org/10.1002/hrm.21589>
- Bork, S. J., & Mondisa, J.** (2022). Engineering graduate students' mental health: A scoping literature review. *Journal of Engineering Education*, 111, 665–702. <https://doi.org/10.1002/jee.20465>
- Braun, V., & Clarke, V.** (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Braun, V., & Clarke, V.** (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, 9(1), 3–26. <https://doi.org/10.1037/qpq0000196>
- Brinkmann, S.** (2020). Unstructured and semi-structured interviewing. In P. Leavy (Ed.), *The Oxford handbook of qualitative research*, 2nd ed. Oxford. <https://doi.org/10.1093/oxfordhb/9780190847388.013.22>
- Buch, R., Nerstad, C. G. L., & Säfvenbom, R.** (2017). The interactive roles of mastery climate and performance climate in predicting intrinsic motivation. *Scandinavian Journal of Medicine & Science in Sports*, 27(2), 245–253. <https://doi.org/10.1111/sms.12634>
- Cech, E. A., & Rothwell, W.** (2018). LGBTQ inequality in engineering education. *Journal of Engineering Education*, 107(4), 583–610. <https://doi.org/10.1002/jee.20239>
- Cech, E. A., & Waidzunus, T. J.** (2011). Navigating the heteronormativity of engineering: The experiences of lesbian, gay, and bisexual students. *Engineering Studies*, 3(1), 1–24. <https://doi.org/10.1080/19378629.2010.545065>
- Cech, E., Waidzunus, T., & Farrell, S.** (2017). The inequality of LGBTQ students in U.S. engineering education: Report on a study of eight engineering programs. *2017 ASEE Annual Conference & Exposition Proceedings*. <https://doi.org/10.18260/1-2--28981>
- Černe, M., Hernaes, T., Dysvik, A., & Škerlavaj, M.** (2017). The role of multilevel synergistic interplay among team mastery climate, knowledge hiding, and job characteristics in stimulating innovative work behavior. *Human Resource Management Journal*, 27(2), 281–299. <https://doi.org/10.1111/1748-8583.12132>
- Černe, M., Nerstad, C. G., Dysvik, A., & Škerlavaj, M.** (2014). What goes around comes around: Knowledge hiding, perceived motivational climate, and creativity. *Academy of Management Journal*, 57(1), 172–192. <https://doi.org/10.5465/amj.2012.0122>
- Chamberlain, K., & Hodgetts, D.** (2018). Collecting qualitative data with hard-to-reach groups. In U. Flick (Ed.), *The SAGE handbook of qualitative data collection* (pp. 668–685). Sage. <https://doi.org/10.4135/9781526416070.n42>
- Clarke, V., & Braun, V.** (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist*, 26(2), 120–123.
- Creswell, J. W., & Creswell, J. D.** (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*, 5th ed. Sage.
- Cross, K., Mendenhall, R., Amos, J., Clancy, K., Imoukhuede, P., & Cromley, J.** (2018). Intersecting identities of women in engineering. *Proceedings of the ASEE Annual Conference & Exposition*. Salt Lake City. <https://doi.org/10.18260/1-2--30711>
- Davis, S. C., Nolen, S. B., Cheon, N., Moise, E., & Hamilton, E. W.** (2023). Engineering climate for marginalized groups: Connections to peer relations and engineering identity. *Journal of Engineering Education*, 112(2), 284–315. <https://doi.org/10.1002/jee.20515>
- Dollard, M. F., & Bakker, A. B.** (2010). Psychosocial safety climate as a precursor to conducive work environments, psychological health problems, and employee engagement. *Journal of Occupational and Organizational Psychology*, 83(3), 579–599. <https://doi.org/10.1348/096317909x470690>
- Dollard, M. F., Tuckey, M. R., & Dormann, C.** (2012). Psychosocial safety climate moderates the job demand–resource interaction in predicting workgroup distress. *Accident Analysis & Prevention*, 45, 694–704. <https://doi.org/10.1016/j.aap.2011.09.042>
- Dutta, M. J.** (2015). Decolonizing communication for social change: A culture-centered approach. *Communication Theory*, 25(2), 123–143. <https://doi.org/10.1111/comt.12067>

- Dwertmann, D. J., Nishii, L. H., & van Knippenberg, D.** (2016). Disentangling the fairness & discrimination and synergy perspectives on diversity climate. *Journal of Management*, 42(5), 1136–1168. <https://doi.org/10.1177/0149206316630380>
- Edmondson, A.** (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350–383. <https://doi.org/10.2307/2666999>
- Edmondson, A. C., & Lei, Z.** (2014). Psychological safety: The history, renaissance, and future of an interpersonal construct. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1), 23–43. <https://doi.org/10.1146/annurev-orgpsych-031413-091305>
- Ehrhart, M. G., & Schneider, B.** (2016). Organizational climate and culture. *Oxford Research Encyclopedia of Psychology*. <https://doi.org/10.1093/acrefore/9780190236557.013.3>
- Ehrhart, M. G., Schneider, B., & Macey, W. H.** (2014). *Organizational climate and culture: An introduction to theory, research, and Practice*. Routledge.
- Else-Quest, N. M., & Aldridge, J. L.** (2026). Reorienting to organizational climate in engineering doctoral education: An integrative framework and meta-synthesis. *AERA Open*, 12. <https://doi.org/10.1177/23328584261441566>
- Frazier, M. L., Fainshmidt, S., Klinger, R. L., Pezeshkan, A., & Vracheva, V.** (2017). Psychological safety: A meta-analytic review and extension. *Personnel Psychology*, 70(1), 113–165. <https://doi.org/10.1111/peps.12183>
- Freeman, J. B.** (2020). Measuring and resolving LGBTQ disparities in STEM. *Policy Insights from the Behavioral and Brain Sciences*, 7(2), 141–148. <https://doi.org/10.1177/2372732220943232>
- Garrick, A., Mak, A. S., Cathcart, S., Winwood, P. C., Bakker, A. B., & Lushington, K.** (2014). Psychosocial safety climate moderating the effects of daily job demands and recovery on fatigue and work engagement. *Journal of Occupational and Organizational Psychology*, 87(4), 694–714. <https://doi.org/10.1111/joop.12069>
- Garvey, J. C., & Rankin, S. R.** (2015). Making the grade? Classroom climate for LGBTQ students across gender conformity. *Journal of Student Affairs Research and Practice*, 52(2), 190–203. <https://doi.org/10.1080/19496591.2015.1019764>
- Garvey, J. C., Sanders, L. A., & Flint, M. A.** (2017). Generational perceptions of campus climate among LGBTQ undergraduates. *Journal of College Student Development*, 58(6), 795–817. <https://doi.org/10.1353/csd.2017.0065>
- Grandey, A., Foo, S. C., Groth, M., & Goodwin, R. E.** (2012). Free to be you and me: A climate of authenticity alleviates burnout from emotional labor. *Journal of Occupational Health Psychology*, 17(1), 1–14. <https://doi.org/10.1037/a0025102>
- Guest, G., Namey, E., & Chen, M.** (2020). A simple method to assess and report thematic saturation in qualitative research. *PLOS ONE* 15(5), Article e0232076. <https://doi.org/10.1371/journal.pone.0232076>
- Hall, R. M., & Sandler, B. R.** (1982, January). *The classroom climate: A chilly one for women?* ERIC. <https://eric.ed.gov/?id=ED215628>
- Hart, J., & Fellabaum, J.** (2008). Analyzing campus climate studies: Seeking to define and understand. *Journal of Diversity in Higher Education*, 1(4), 222–234. <https://doi.org/10.1037/a0013627>
- Haverkamp, A., Bothwell, M., Montfort, D., & Driskill, Q.** (2021). Calling for a paradigm shift in the study of gender in engineering education. *Studies in Engineering Education*, 1(2), 55–70. <https://doi.org/10.21061/see.34>
- Hellriegel, D., & Slocum, J. W.** (1974). Organizational climate: Measures, research and contingencies. *Academy of Management Journal*, 17(2), 255–280. <https://doi.org/10.2307/254979>
- Henry, G. T.** (2009). Practical sampling. In L. Bickman & D. J. Rog (Eds.), *Practical sampling*, 2nd ed (pp. 77–105). Sage. <https://doi.org/10.4135/9781483348858.n3>
- Hesse-Biber, S. N.** (2007). The practice of feminist in-depth interviewing. In S. N. Hesse-Biber & P. Leavy (Eds.), *Feminist research practice: A primer* (pp. 111–148). Sage. <https://doi.org/10.4135/9781412984270.n5>
- Hughes, B. E.** (2018). Coming out in STEM: Factors affecting retention of sexual minority STEM students. *Science Advances*, 4(3). <https://doi.org/10.1126/sciadv.aao6373>
- James, L. R., & Jones, A. P.** (1974). Organizational climate: A review of theory and research. *Psychological Bulletin*, 81(12), 1096–1112. <https://doi.org/10.1037/h0037511>
- Kim, T., & Kim, D.** (2023). Chilly climate perceived by female engineering undergraduates: An exploratory study using concept mapping. *Frontiers in Psychology*, 14, 1145795. <https://doi.org/10.3389/fpsyg.2023.1145795>
- Kopperud, K. H., Nerstad, C. G., & Dysvik, A.** (2020). Should I stay or should I go? the role of motivational climate and work-home spillover for turnover intentions. *Frontiers in Psychology*, 11, 1107. <https://doi.org/10.3389/fpsyg.2020.01107>

- Law, R., Dollard, M. F., Tuckey, M. R., & Dormann, C.** (2011). Psychosocial safety climate as a lead indicator of workplace bullying and harassment, job resources, psychological health and employee engagement. *Accident Analysis & Prevention*, 43(5), 1782–1793. <https://doi.org/10.1016/j.aap.2011.04.010>
- Lee, C.** (2023). Coming out in the university workplace: A case study of LGBTQ+ staff visibility. *Higher Education*, 85(5), 1181–1199. <https://doi.org/10.1007/s10734-022-00884-y>
- Leslie, L. M., & Gelfand, M. J.** (2008). The who and when of internal gender discrimination claims: An interactional model. *Organizational Behavior and Human Decision Processes*, 107(2), 123–140. <https://doi.org/10.1016/j.obhdp.2008.02.004>
- Marosi, N. K. M., Avraamidou, L., & López López, M.** (2025). Queer individuals' experiences in STEM learning and working environments. *Studies in Science Education*, 61(1), 1–39. <https://doi.org/10.1080/03057267.2024.2313903>
- McHugh, M. C.** (2020). Feminist qualitative research: Toward transformation of science and society. In P. Leavy (Ed.), *The Oxford Handbook of Qualitative Research*, 2nd ed. Oxford. <https://doi.org/10.1093/oxfordhb/9780199811755.013.014>
- McKay, P. F., Avery, D. R., Tonidandel, S., Morris, M. A., Hernandez, M., & Hebl, M. R.** (2007). Racial differences in employee retention: Are diversity climate perceptions the key? *Personnel Psychology*, 60(1), 35–62. <https://doi.org/10.1111/j.1744-6570.2007.00064.x>
- Nerstad, C. G., Wong, S. I., & Richardsen, A. M.** (2019). Can engagement go awry and lead to burnout? The moderating role of the perceived motivational climate. *International Journal of Environmental Research and Public Health*, 16(11), 1979. <https://doi.org/10.3390/ijerph16111979>
- Nerstad, C. G. L., Caniëls, M. C. J., Roberts, G. C., & Richardsen, A. M.** (2020). Perceived motivational climates and employee energy: The mediating role of basic psychological needs. *Frontiers in Psychology*, 11, 1509. <https://doi.org/10.3389/fpsyg.2020.01509>
- Newman, A., Donohue, R., & Eva, N.** (2017). Psychological safety: A systematic review of the literature. *Human Resource Management Review*, 27(3), 521–535. <https://doi.org/10.1016/j.hrmr.2017.01.001>
- Nishii, L. H., Lepak, D. P., & Schneider, B.** (2008). Employee attributions of the “why” of HR practices: Their effects on employee attitudes and behaviors, and customer satisfaction. *Personnel Psychology*, 61(3), 503–545. <https://doi.org/10.1111/j.1744-6570.2008.00121.x>
- Oakley, A.** (1981). Interviewing women: A contradiction in terms? In H. Roberts (Ed.), *Doing Feminist Research* (pp. 30–61). Routledge.
- Oliver, S.** (2023). Ann Oakley: New learning and global influence from working across conventional boundaries. *London Review of Education*, 21(1), Article 11. <https://doi.org/10.14324/LRE.21.1.11>
- Ostermeier, K., Cooper, D., & Caldas, M.** (2022). Can I be who I am? Psychological authenticity climate and employee outcomes. *Human Performance*, 35(1), 1–30. <https://doi.org/10.1080/08959285.2021.1998060>
- Ostroff, C., Kinicki, A. J., & Muhammad, R. S.** (2012). Organizational culture and climate. *Handbook of Psychology*, 2nd ed. <https://doi.org/10.1002/9781118133880.hop212024>
- Pagliaccio, D.** (2025). Mental health disparities among sexual and gender minority students in higher education. *Journal of American College Health*, 73(5), 1951–1962. <https://doi.org/10.1080/07448481.2024.2404944>
- Parker, C. P., Baltes, B. B., Young, S. A., Huff, J. W., Altmann, R. A., LaCost, H. A., & Roberts, J. E.** (2003). Relationships between psychological climate perceptions and work outcomes: A meta-analytic review. *Journal of Organizational Behavior*, 24(4), 389–416. <https://doi.org/10.1002/job.198>
- Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., Robinson, D. L., & Wallace, A. M.** (2005). Validating the organizational climate measure: Links to managerial practices, productivity and innovation. *Journal of Organizational Behavior*, 26(4), 379–408. <https://doi.org/10.1002/job.312>
- Pawley, A. L., Schimpf, C., & Nelson, L.** (2016). Gender in engineering education research: A content analysis of research in *JEE*, 1998–2012. *Journal of Engineering Education*, 105(3), 508–528. <https://doi.org/10.1002/jee.20128>
- Perry, E. L., & Li, A.** (2019). Diversity climate in organizations. In D. D. Bergh (Ed.), *Oxford research encyclopedia of business and management*. Oxford. <https://doi.org/10.1093/acrefore/9780190224851.013.45>
- Pitcher, E. N., Camacho, T. P., Renn, K. A., & Woodford, M. R.** (2018). Affirming policies, programs, and supportive services: Using an organizational perspective to understand LGBTQ+ college student success. *Journal of Diversity in Higher Education*, 11(2), 117–132. <https://doi.org/10.1037/dhe0000048>
- Punch, K.** (2005). *Introduction to Social Research: Quantitative and Qualitative Approaches*, 2nd ed. Sage.

- Rankin, S., & Garvey, J. (2015). Identifying, quantifying, and operationalizing queer-spectrum and trans-spectrum students: Assessment and research in student affairs. *New Directions for Student Services*, 152, 73–84. <https://doi.org/10.1002/ss.20146>
- Rankin, S., Garvey, J. C., & Duran, A. (2019). A retrospective of LGBT issues on US college campuses: 1990–2020. *International Sociology*, 34(4), 435–454. <https://doi.org/10.1177/0268580919851429>
- Reggiani, M., Gagnon, J. D., & Lunn, R. J. (2024). LGBT + academics' and PhD students' experiences of visibility in STEM: More than raising the Rainbow Flag. *Higher Education*, 87(1), 69–87. <https://doi.org/10.1007/s10734-023-00993-2>
- Reichers, A. E., & Schneider, B. (1990). Climate and culture: An evolution of constructs. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 5–39). Jossey-Bass.
- Riley, D., Slaton, A. E., & Pawley, A. L. (2014). Social justice and inclusion: Women and minorities in engineering. In A. Johri & B. M. Olds (Eds.), *Cambridge Handbook of Engineering Education Research* (pp. 335–356). Cambridge.
- Roberts, G. C. (2012). Motivation in sport and exercise from an achievement goal theory perspective: After 30 years, where are we? *Advances in Motivation in Sport and Exercise*, 5–58. <https://doi.org/10.5040/9781492595182.ch-001>
- Savvides, N., Al-Youssef, J., Colin, M., & Garrido, C. (2014). Journeys into inner/outer space: Reflections on the methodological challenges of negotiating insider/outsider status in international educational research. *Research in Comparative and International Education*, 9(4), 412–425. <https://doi.org/10.2304/rcie.2014.9.4.412>
- Schneider, B. (2000). The psychological life of organizations. In N. M. Ashkanasy, C. P. M. Wilderom, & M. F. Peterson (Eds.), *Handbook of organizational culture & climate* (pp. xvii–xxi). Sage.
- Schneider, B., Ehrhart, M. G., & Macey, W. H. (2011). Perspectives on organizational climate and culture. In S. Zedeck (Ed.), *APA Handbook of Industrial and Organizational Psychology, Vol 1: Building and Developing the Organization* (pp. 373–414). American Psychological Association. <https://doi.org/10.1037/12169-012>
- Schneider, B., González-Romá, V., Ostroff, C., & West, M. A. (2017). Organizational climate and culture: Reflections on the history of the constructs in the *Journal of Applied Psychology*. *Journal of Applied Psychology*, 102(3), 468–482. <https://doi.org/10.1037/apl0000090>
- Schneider, B., & Reichers, A. E. (1983). On the etiology of climates. *Personnel Psychology*, 36(1), 19–39. <https://doi.org/10.1111/j.1744-6570.1983.tb00500.x>
- Schulte, M., Ostroff, C., & Kinicki, A. J. (2006). Organizational climate systems and psychological climate perceptions: A cross-level study of climate-satisfaction relationships. *Journal of Occupational and Organizational Psychology*, 79(4), 645–671. <https://doi.org/10.1348/096317905x72119>
- Smith, D. G. (2012). Diversity: A bridge to the future? In M. N. Bastedo (Ed.), *The organization of higher education: Managing colleges for a new era* (pp. 225–255). Johns Hopkins University Press.
- Sprague, J. (2016). *Feminist methodologies for critical researchers: Bridging differences*, 2nd ed. Rowman & Littlefield. <https://doi.org/10.5040/9798216405252>
- Stornes, T., & Bru, E. (2011). Perceived motivational climates and self-reported emotional and behavioural problems among Norwegian secondary school students. *School Psychology International*, 32(4), 425–438. <https://doi.org/10.1177/0143034310397280>
- Stout, J. G., & Wright, H. M. (2016). Lesbian, gay, bisexual, transgender, and queer students' sense of belonging in computing: An intersectional approach. *Computing in Science & Engineering*, 18(3), 24–30. <https://doi.org/10.1109/mcse.2016.45>
- Symon, G., & Cassell, C. (2012). *Qualitative organizational research: Core methods and current challenges*. Sage. <https://doi.org/10.4135/9781526435620>
- Wang, C., Ku, G., Smith, A. N., Edwards, B., Scott, E., & Galinsky, A. D. (2025). Increasing Black employees' social identity affirmation and organizational involvement: Reducing social uncertainty through organizational and individual strategies. *Organization Science*, 36(20), 809–837. <https://doi.org/10.1287/orsc.2020.14659>
- Witcomb, G. L., & Cooper, C. (2024). 'Show us a kiss!': The everyday sexual harassment experiences of female lesbian, bisexual, and queer students. *Violence Against Women*, 30(11), 3055–3076. <https://doi.org/10.1177/10778012231166399>
- Williams, J., Schwalbe, M., Godwin, S., Holden, D., Schrock, D., Thompson, S., & Wolkomir, M. (2008). Symbolic interactionism. In *The SAGE Encyclopedia of Qualitative Research Methods*. Sage. <https://doi.org/10.4135/9781412963909.n442>
- Wutich, A., & Bernard, H. R. (2023). Non-probability sampling. In A. Ruth, A. Wutich, & H. R. Bernard (Eds.), *The Handbook of Teaching Qualitative and Mixed Research Methods: A Step-by-Step Guide for Instructors* (pp. 24–27). Taylor and Francis. <https://doi.org/10.4324/9781003213277-7>

- Yang, J. A.** (2024). Engineer, Asian, and Gay AF: Counterstory as means for methodological activism and intersectional healing in engineering education. *Studies in Engineering Education*, 5(1), 73–97. <https://doi.org/10.21061/see.123>
- Yoon, S. Y., Aldridge, J., Else-Quest, N. M., & Roy, J.** (2024). Development of a climate survey for engineering doctoral students from an intersectional approach: First-round validity evidence. *2024 ASEE Annual Conference & Exhibition*. <https://peer.asee.org/47175>

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