



Academic Belonging and Intellectual Risk-Taking Among First-Generation Learners

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Abstract

First-generation learners enter higher education with substantial academic potential but may encounter institutional cultures, expectations, terminology, and participation norms that are less familiar because they cannot necessarily draw on parental experience of college systems. These conditions can influence not only persistence and academic achievement but also whether students feel sufficiently accepted to engage in intellectually vulnerable forms of learning. The present study examines academic belonging as a potential enabling condition for intellectual risk-taking among first-generation learners. Intellectual risk-taking is conceptualized as learning-oriented behavior undertaken despite uncertainty or the possibility of making an error, appearing less competent, receiving criticism, or exposing incomplete understanding. Examples include answering difficult questions without certainty, proposing unconventional interpretations, challenging an argument respectfully, and requesting clarification, approaching instructors for assistance, and revising a position after receiving evidence.

A structured integrative review and conceptual analytical methodology was used to synthesize contemporary research on first-generation college students, sense of belonging, academic engagement, help-seeking, classroom climate, social-class mismatch, and academic risk-taking. National evidence indicates that first-generation students can experience lower belonging than continuing-generation peers in particular four-year college contexts, while daily-diary research shows that belonging is associated with emotional and behavioral engagement and that first-generation students may be particularly responsive to day-to-day changes in belonging. Research on academic risk-taking further demonstrates that classroom context matters: Hübner and Pfof found that seminar-group differences accounted for approximately 11.0% to 16.3% of variation in students' academic risk-taking.

The paper proposes that belonging may facilitate intellectual risk-taking by reducing belonging uncertainty, fear of negative evaluation, ambiguity about academic norms, and perceived social cost of error while strengthening help-seeking, participation, self-efficacy, and willingness to learn publicly. The study concludes that institutions seeking equitable first-generation student success should treat belonging and intellectual participation as connected educational outcomes rather than separate student-support concerns.

Keywords: Academic belonging; first-generation learners; intellectual risk-taking; academic risk-taking; student engagement; help-seeking; classroom climate; higher education; psychological safety; educational equity



1. Introduction

Higher education increasingly recognizes that access to college does not automatically guarantee equal access to the social, cultural, and academic conditions necessary for successful participation. First-generation learners, commonly understood as students whose parents have not completed a four-year college degree, often enter university without the same direct family familiarity with faculty interaction, academic terminology, office hours, institutional expectations, hidden curricula, and informal strategies for navigating higher education. Research has repeatedly cautioned against interpreting these differences as individual deficiencies. Ives and Castillo-Montoya's systematic review showed that deficit-oriented interpretations can obscure the knowledge and lived experience first-generation students bring to academic learning. The more productive question is therefore not whether first-generation learners possess sufficient capacity to succeed, but whether academic environments make participation, inquiry, experimentation, and assistance equally available to them.

Academic belonging is central to this question because learning is partly a social activity. Belonging describes more than having friends on campus; within an academic setting it includes feeling accepted, respected, recognized as a legitimate learner, and able to participate without continually questioning whether one fits the institution or classroom. In a national U.S. study, Gopalan and Brady found that first-generation students at four-year colleges reported lower belonging than continuing-generation students, although patterns varied across institutional contexts. Earlier research by Ostrove and Long also demonstrated that social-class background was related to students' sense of belonging and college adjustment, reinforcing the argument that belonging can be shaped by structural and cultural conditions rather than personality alone.

For first-generation students, however, the perceived social cost of these behaviors may be especially important. Stephens and colleagues showed that the independence-oriented norms common within American universities can create cultural mismatch for students whose prior socialization has emphasized interdependence, thereby influencing academic performance. White and Canning further examined academic help-seeking among first-generation college students, drawing attention to the fact that requesting assistance is itself a behavior that can be inhibited when students are uncertain about institutional expectations or the social meaning attached to asking for help. Intellectual participation should therefore be understood as socially situated: students may possess curiosity and ability while remaining reluctant to expose uncertainty in environments where error appears to threaten competence or membership.

The present study consequently proposes a relational model in which academic belonging reduces the perceived interpersonal cost of intellectual risk. When students experience the classroom as a place in which questions, uncertainty, alternative interpretations, and mistakes are legitimate parts of learning; they may become more willing to participate before possessing a fully polished answer. Daily evidence supports the broader belonging–engagement connection: Gillen-O'Neel found that higher belonging was associated with stronger emotional and behavioral engagement at both person and day levels, with first-generation students especially sensitive to daily fluctuations in belonging for certain engagement outcomes. This paper develops that connection further by examining intellectual risk-taking as a specific form of academic engagement requiring both cognitive willingness and interpersonal safety.



2. Objectives of the Study

2.1 To Examine Academic Belonging Among First-Generation Learners

The first objective is to examine academic belonging as a multidimensional educational experience involving acceptance, legitimacy, interpersonal recognition, classroom inclusion, faculty accessibility, peer connection, and confidence that temporary difficulty does not indicate that a student does not belong. The analysis considers how first-generation status may interact with institutional norms and unfamiliar academic expectations rather than assuming that all first-generation learners share an identical experience. Walton and colleagues' large multisite belonging experiment demonstrates precisely this contextual principle: the effectiveness of belonging interventions varied according to whether students' local identity groups had meaningful opportunities to belong within their institutional environments.

2.2 To Analyze Intellectual Risk-Taking as Learning-Oriented Engagement

The second objective is to examine intellectual risk-taking as a productive educational behavior rather than reckless risk. Relevant behaviors include attempting difficult problems, giving an uncertain answer, asking a question whose answer may appear obvious to others, challenging an interpretation respectfully, seeking assistance, experimenting with unfamiliar methods, acknowledging misunderstanding, and changing one's position after receiving stronger evidence. Research on academic risk-taking indicates that these behaviors contain a perceived possibility of error or competence loss, yet can support deeper learning and active engagement.

2.3 To Develop a Belonging–Risk-Taking Pathway for Higher Education

The third objective is to develop a conceptual pathway explaining how belonging may encourage intellectual participation among first-generation students. The proposed pathway treats belonging as an educational resource capable of lowering perceived threat, normalizing uncertainty, supporting help-seeking, improving engagement, and increasing willingness to participate in academically challenging interactions.

3. Review of Literature

3.1 First-Generation Status, Cultural Mismatch, and Belonging

Research concerning first-generation students has increasingly shifted away from a simple deficit model toward examination of the relationship between students and institutional structures. Stephens, Fryberg, Markus, Johnson, and Covarrubias demonstrated that universities frequently communicate independent norms emphasizing self-expression, personal choice, and individual agency. Such norms can align more readily with the experiences of continuing-generation students while producing a cultural mismatch for some first-generation students from more interdependent backgrounds. This mismatch does not imply lower ability; rather, it illustrates how institutional norms can privilege particular forms of social and academic behavior.

National belonging research adds an important institutional dimension. Gopalan and Brady found that first-generation and underrepresented racial-minority students reported lower belonging than comparison groups at four-year colleges, while the pattern differed at two-year institutions. This



variation demonstrates that first-generation status should not be interpreted as a fixed psychological disadvantage. Institutional context matters.

Intervention studies provide stronger causal evidence that belonging-related experiences can influence outcomes. Murphy and colleagues evaluated a customized belonging intervention at a broad-access university and reported improved retention among socially disadvantaged students. Walton and colleagues later conducted a large randomized experiment involving 26,911 students across 22 institutions. A brief pre-matriculation belonging intervention increased first-year full-time completion among historically lower-persisting groups when the institutional context provided genuine opportunities to belong. The implication is important: psychological messages about belonging cannot compensate for environments that remain exclusionary.

3.2 Belonging, Engagement, and Help-Seeking

Belonging is consistently connected with student engagement. Gillen-O'Neel's daily study followed 280 first- and continuing-generation college students and found that belonging was associated with emotional and behavioral engagement both between students and within individual students across days. First-generation learners were especially sensitive to daily belonging fluctuations in feelings toward school and in-class engagement. This finding supports a dynamic view of belonging: it can change across encounters, classrooms, instructors, and academic events.

Help-seeking provides an especially relevant bridge between belonging and intellectual risk. Asking for assistance requires a learner to acknowledge incomplete understanding and to trust that the disclosure will lead to support rather than embarrassment. White and Canning's 2023 study directly examined active help-seeking among first-generation college students and emphasized the need to understand how these learners perceive and use academic assistance. Stephens, Hamedani, and Destin also found that a difference-education intervention increased first-generation students' tendency to use college resources, including meeting with professors, and improved academic outcomes. These findings suggest that institutions can make academically vulnerable behaviors easier when they explicitly communicate how to navigate resources and normalize differences in students' backgrounds.

Belonging can therefore influence participation by altering interpretation. A difficult seminar question can be perceived either as an opportunity to think publicly or as a test of whether one deserves to be present. The same request for assistance can be interpreted either as responsible learning or as evidence of inadequacy. Academic belonging may shift these interpretations toward participation.

3.3 Intellectual Risk-Taking and Classroom Context

Academic risk-taking is increasingly recognized as a distinct form of behavioral engagement in higher education. Hübner and Pfof define it as learning-beneficial behavior undertaken with uncertainty concerning the outcome, such as contributing an answer despite uncertainty about its correctness. Their subsequent study of 381 university students nested in 38 seminars found significant seminar-level differences in academic risk-taking, with group context accounting for between 11.0% and 16.3% of observed variance. Reproduction-oriented teaching appeared to discourage risk-taking.

The finding is significant because it challenges the assumption that intellectual courage is simply a stable personality trait. If students' willingness to take academic risks changes across seminar contexts,



then instructors, peers, assessment norms, error climate, and classroom relationships can influence whether students speak or remain silent.

Dachner and colleagues similarly argued that intellectual risk-taking involves trying new approaches, asking questions, and acting despite possible mistakes or feelings of inadequacy. For first-generation learners, this risk may interact with uncertainty about institutional rules and concerns about appearing academically unprepared. The literature therefore supports investigating belonging not merely as an outcome of university participation but as a possible antecedent of intellectually adventurous behavior.

4. Research Methodology

4.1 Research Design

The study adopted a structured integrative review and conceptual analytical design. This approach was selected because no original participant dataset was supplied and because the topic requires integration of research traditions that are usually examined separately: first-generation student experience, belonging, academic engagement, help-seeking, cultural mismatch, and academic risk-taking.

Peer-reviewed literature available through March 10, 2020 was considered, with particular attention to systematic reviews, longitudinal and daily-diary studies, randomized belonging interventions, experimental first-generation research, and empirical studies of academic risk-taking. The analysis did not generate artificial student responses, grades, belonging scores, or risk-taking outcomes.

4.2 Conceptual Variables and Evidence Mapping

Table 1. Analytical Framework for Academic Belonging and Intellectual Risk-Taking

Construct	Operational Interpretation	Observable Academic Expression	Proposed Relationship
Academic belonging	Feeling accepted and legitimate within the learning community	Comfort participating, approaching faculty, identifying with the institution	Foundational enabling condition
Belonging uncertainty	Doubt about whether difficulty indicates non-membership	Withdrawal, monitoring rejection cues, silence	Potential inhibitor
Intellectual risk-taking	Learning behavior undertaken despite uncertainty or possible error	Uncertain answers, novel ideas, challenging questions	Primary behavioral outcome
Active help-seeking	Deliberately requesting academic assistance	Office-hour use, asking questions, seeking clarification	Form of intellectual vulnerability
Faculty accessibility	Perception that instructors are available and respectful	Consultation, feedback seeking, discussion	Belonging-supportive mechanism



4.3 Analytical Procedure and Research Ethics

Evidence was synthesized through a relational mechanism approach. Rather than asking whether first-generation students inherently take fewer intellectual risks, the analysis examined conditions that can raise or lower the perceived cost of academic uncertainty. Belonging was treated as a contextual and psychological resource; intellectual risk-taking was treated as a learning behavior; and help-seeking, classroom participation, faculty interaction, and error acceptance were interpreted as observable connecting mechanisms.

Because the present study does not report original human-subject research or identifiable student records, new institutional ethics approval was not applicable to the manuscript. A future empirical test of the framework should use validated belonging and academic-risk-taking measures, preregistered hypotheses where appropriate, transparent demographic reporting, and safeguards against framing first-generation status as a deficit category.

5. Analysis

5.1 Academic Belonging as a Condition for Intellectual Exposure

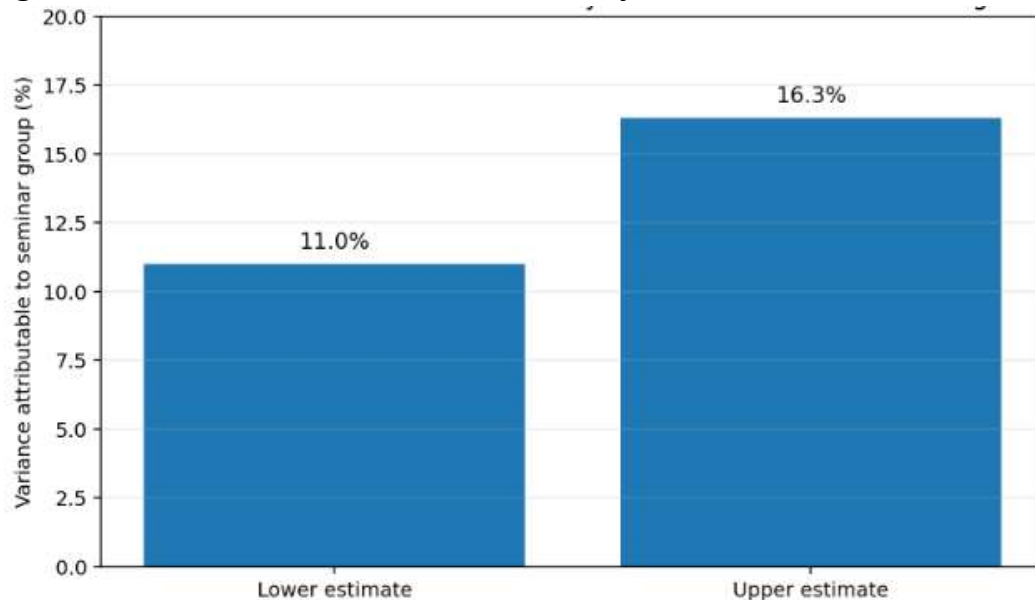
Intellectual risk involves exposure. A student who speaks publicly exposes an idea to evaluation. A student who asks for clarification exposes incomplete knowledge. A student who visits an instructor exposes a need for assistance. A student who challenges an argument exposes an alternative position to disagreement. These behaviors become less costly when the academic environment communicates that incomplete understanding is expected during learning and that membership does not depend on immediate correctness.

This interpretation is consistent with daily belonging research. Gillen-O'Neel found that when students experienced higher-than-usual belonging on a particular day, their emotional and behavioral engagement also tended to be higher than usual. First-generation students showed particular sensitivity in in-class engagement and feelings toward school. Belonging may therefore function not merely as a stable background attitude but as a daily participation resource.

5.2 Classroom Context and Variation in Academic Risk-Taking

The strongest direct quantitative evidence for the contextual nature of academic risk-taking comes from Hübner and Pfof. Their study involved 381 university students nested within 38 seminars and instructors. Seminar-group differences accounted for approximately 11.0% to 16.3% of the variance in students' academic risk-taking.

Figure 1. Seminar-Level Variance in University Students' Academic Risk-Taking



Interpretation: A nontrivial proportion of academic risk-taking varied with seminar context rather than solely between individual students. This supports the view that instructors and classroom cultures can influence whether students are willing to expose uncertainty, attempt difficult contributions, and learn through error.

5.3 Proposed Belonging–Risk-Taking Mechanism

The literature supports the following conceptual mechanism:

Institutional and Classroom Inclusion

- Academic Belonging
- Reduced Belonging Uncertainty and Fear of Negative Evaluation
- Greater Willingness to Reveal Incomplete Understanding
- Question Asking, Help-Seeking, Idea Sharing, and Challenging Tasks
- Greater Intellectual Risk-Taking
- Deeper Academic Engagement and Learning Opportunities

The proposed pathway should not be interpreted as a proven causal sequence in first-generation populations because direct longitudinal studies jointly measuring first-generation status, academic belonging, and intellectual risk-taking remain limited. Instead, it represents an evidence-grounded theoretical synthesis. The research gap itself is therefore important: belonging and first-generation engagement is well studied, and academic risk-taking is becoming better operationalized, but their direct intersection requires further empirical testing.

6. Discussion

6.1 Belonging Is an Academic Condition, Not Merely a Social Outcome

Universities often discuss belonging in relation to orientation programs, friendships, campus activities, and student well-being. These dimensions are important, but the present analysis indicates that



belonging also has an academic function. Students need to feel sufficiently legitimate within an intellectual community to expose unfinished thinking.

This issue can be especially consequential for first-generation learners. Unfamiliarity with implicit academic conventions may make it harder to determine whether asking basic questions is expected, whether disagreement with an instructor is acceptable, whether office hours are intended for struggling students or all students, and whether mistakes during class discussion will damage how others perceive competence. White and Canning's research on help-seeking demonstrates why such behaviors deserve specific investigation among first-generation students.

Institutional interventions can reduce some of this ambiguity. Stephens, Hamedani, and Destin found that explicitly teaching students how social-class background shapes college experience increased first-generation students' resource-seeking and improved academic performance. Belonging-focused support should therefore include explicit academic navigation rather than relying only on general messages of welcome.

6.2 Productive Intellectual Risk Requires an Error-Tolerant Learning Climate

Universities cannot encourage genuine critical thinking while simultaneously creating classroom cultures in which only polished certainty is rewarded. Intellectual risk-taking requires the possibility of error. Hübner and Pfof's findings that academic risk-taking differs across seminars and that reproduction-oriented teaching may discourage such behavior provide empirical support for this argument.

Instructors can create a more productive error climate by responding respectfully to incomplete answers, distinguishing conceptual mistakes from personal ability, demonstrating revision of their own reasoning, giving students sufficient thinking time, and rewarding evidence-based exploration rather than only immediate correctness. Such practices do not lower academic standards. Instead, they can make rigorous participation possible before students have mastered every concept.

For first-generation students, this distinction is particularly relevant because silence can be mistaken for low motivation when it may instead reflect high perceived interpersonal risk. An academically inclusive environment does not require every student to speak constantly. It ensures that students who wish to question, test, revise, and challenge ideas do not experience uncertainty as evidence that they are outsiders.

6.3 Institutional Implications for First-Generation Student Success

Large-scale intervention research suggests that belonging efforts work best when psychological messages correspond with real opportunities for inclusion. Walton and colleagues found that their brief belonging intervention improved first-year completion particularly for historically lower-persisting groups when the surrounding institutional context afforded those groups opportunities to belong. A welcoming message cannot substitute for inaccessible faculty, exclusionary peer cultures, unclear academic expectations, or punitive responses to mistakes.

Institutions should therefore examine belonging at the level where intellectual participation actually occurs: classrooms, laboratories, seminars, advising relationships, office hours, collaborative projects, and assessment environments. Faculty development can help instructors recognize that



participation norms that seem obvious to continuing-generation students may be unfamiliar to learners without family experience of higher education.

The goal should not be to make first-generation learners behave identically to continuing-generation peers. Ives and Castillo-Montoya caution against approaches that define first-generation students primarily through comparison with supposedly normative learners. Higher-quality pedagogy instead recognizes their existing knowledge and experiences while making academic expectations sufficiently transparent that all students can decide when and how to participate intellectually.

7. Conclusion

Academic belonging and intellectual risk-taking should be understood as closely connected dimensions of equitable higher education. First-generation learners do not merely need access to classrooms; they require environments in which they can participate as legitimate knowledge contributors while still learning the unfamiliar conventions of university life. National, longitudinal, experimental, and daily-diary evidence indicates that belonging is related to engagement, persistence, resource use, and adjustment, while research on academic risk-taking demonstrates that willingness to expose uncertainty varies meaningfully across classroom contexts.

For first-generation students, institutions should make participation rules explicit, normalize help-seeking, create accessible faculty relationships, recognize diverse forms of knowledge, and develop classroom cultures where thoughtful uncertainty is treated as part of scholarship rather than evidence of inadequacy. Future research should directly measure academic belonging and intellectual risk-taking longitudinally among first-generation and continuing-generation learners, examine classroom-level moderators, and test whether belonging-supportive teaching produces sustained increases in help-seeking, challenging-task selection, idea generation, and intellectual participation.

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