



Peer-Led Learning Networks and Their Influence on Academic Confidence

Dr. Sophia Bennett

Associate Professor, Department of Higher Education and Learning Sciences
The University of Melbourne, Australia

Abstract

Academic confidence plays an important role in how university students approach difficult tasks, respond to feedback, seek assistance, participate in collaborative learning, and persist when they experience academic setbacks. Although formal instruction remains central to higher education, students also construct substantial portions of their academic experience through interaction with classmates, senior students, peer mentors, tutors, and informal study communities. This paper examines the role of peer-led learning networks as structured environments for strengthening academic confidence in higher education. Rather than conceptualizing peer support as an informal supplement to teaching, the study develops a Peer-Led Academic Confidence Network Framework (PLAC-NF) that integrates reciprocal explanation, low-stakes practice, formative peer feedback, social belonging, help-seeking, reflective learning, and trained peer leadership.

A conceptual-methodological research design was adopted, combining structured synthesis of scholarship on peer-assisted learning, peer tutoring, mentoring, social capital, academic self-efficacy, and collaborative learning with a scenario-based analytical comparison. The proposed framework distinguishes five confidence-support dimensions: task confidence, help-seeking confidence, feedback-use confidence, academic belonging, and persistence confidence. Twelve hypothetical higher-education learning scenarios were examined under conventional independent-learning and structured peer-network configurations. Scenario-based scores indicate substantially stronger support across all five dimensions under the peer-led model, with the largest conceptual difference observed in academic belonging and help-seeking. A staged network-participation model further illustrates how confidence may develop through orientation, repeated peer practice, reciprocal feedback, leadership responsibility, and reflective consolidation.

These scores are illustrative framework values and should not be interpreted as data from real participants. The literature nevertheless provides empirical support for several mechanisms incorporated into the framework, including peer mentoring, supportive learning environments, network formation, pedagogically trained tutors, and reciprocal learning. The paper concludes that peer-led learning networks can complement faculty-led instruction by creating psychologically safer opportunities for students to explain ideas, make mistakes, receive feedback, observe comparable peers succeeding, and develop greater ownership of academic learning. Effective implementation, however, requires peer-leader training, clearly bounded responsibilities, faculty oversight, inclusive participation structures, and systematic evaluation.



Keywords: peer-led learning; academic confidence; academic self-efficacy; peer mentoring; peer-assisted learning; collaborative learning; student engagement; academic belonging; higher education; peer networks

1. Introduction

Academic success in higher education depends on more than subject knowledge. Students must also believe that they are capable of understanding difficult material, completing academic tasks, asking for assistance, interpreting feedback, communicating ideas, and recovering from setbacks. These beliefs are closely related to academic self-efficacy and confidence. When students judge themselves as capable of performing required academic behaviors, they are more likely to engage with challenging learning activities and sustain effort. Conversely, uncertainty about one's academic competence can reduce participation even when the student possesses the intellectual capacity to succeed. Contemporary research continues to identify self-efficacy as an important component of academic engagement, achievement, and educational persistence.

One important source of academic confidence is the social environment in which learning occurs. Higher education has traditionally emphasized interactions between instructors and students, but learners also develop understanding through conversations with classmates, group problem solving, peer explanations, mentoring relationships, peer review, and informal study networks. Topping's foundational review established peer tutoring as an important higher-education learning strategy, while later scholarship has increasingly conceptualized peer learning as reciprocal rather than simply a stronger student transmitting information to a weaker student. Peer-led environments can enable students to articulate reasoning, compare strategies, observe how others approach difficult tasks, and test incomplete ideas before higher-stakes evaluation.

The concept of a learning network extends beyond a single tutor–tutee relationship. A network may include peer leaders, first-year students, senior students, classmates, study-group members, teaching assistants, and faculty members connected through repeated learning interactions. Brouwer and colleagues' research on university social capital found relationships between students' social resources, self-efficacy, and study success, while their later network research examined how peer relationships develop alongside academic performance within higher-education learning communities. These findings suggest that the educational value of peer interaction depends not simply on whether students are placed in groups, but on how relationships and participation opportunities are structured over time.

Recent intervention research also provides direct support for the relationship between structured peer support and confidence. Sedigh and colleagues' randomized controlled study of operating-room students reported improvements in self-confidence and academic progress following peer mentoring, while Yao and Wu's 2025 mixed-methods study found positive changes in career decision-making self-efficacy among nursing students participating in structured peer mentoring. Evidence from near-peer teaching reviews has likewise described supportive environments, peer role modeling, and increased confidence among learners and peer teachers.

However, peer-led learning should not be romanticized as automatically effective. Unstructured groups can reproduce exclusion, misinformation, unequal participation, dominance by confident students, and dependence on inaccurate peer explanations. Lin and colleagues' 2025 study is particularly



relevant because it found that pedagogical training improved tutors' teaching approaches, learner satisfaction, and academic confidence, highlighting the need to prepare peer leaders rather than selecting them only on the basis of academic achievement. The present paper therefore develops a structured model in which peer-led networks complement rather than replace faculty instruction. Its central proposition is that academic confidence grows most reliably when students experience reciprocal explanation, manageable challenge, credible feedback, social belonging, observable peer success, and repeated opportunities for meaningful participation.

2. Objectives of the Study

2.1 Development of a Peer-Led Academic Confidence Framework

The first objective is to develop a structured conceptual framework explaining how peer-led learning networks may influence academic confidence. The model integrates cognitive, social, motivational, and behavioral pathways rather than treating confidence as the product of tutoring alone.

2.2 Identification of Confidence-Building Mechanisms

The second objective is to examine the mechanisms through which peer interactions may strengthen students' confidence. Particular attention is given to reciprocal explanation, vicarious learning, formative feedback, low-stakes practice, help-seeking, academic belonging, leadership responsibility, and reflection.

2.3 Evaluation of Structured Peer-Network Design

The third objective is to compare conventional independent-learning arrangements with a structured peer-led network through transparent scenario analysis. The comparison evaluates the quality of confidence-supporting learning design, not actual student achievement or experimentally observed psychological change.

3. Review of Literature

3.1 Peer-Assisted Learning and Reciprocal Knowledge Construction

Peer-assisted learning encompasses educational arrangements in which students actively assist other students in developing knowledge, skills, strategies, or understanding. Topping's review established that peer tutoring can take multiple forms depending on student level, role reciprocity, group size, curricular integration, and training. Later work emphasizes that effective peer learning is not simply inexpensive substitute teaching; it creates opportunities for learners to explain, question, evaluate, and reorganize knowledge through social interaction.

Boud, Cohen, and Sampson similarly conceptualized peer learning as learning “from and with” other students rather than a one-directional instructional arrangement. From this perspective, both the student explaining a concept and the student receiving the explanation may benefit. Explainers must organize their reasoning, identify gaps in their understanding, respond to questions, and translate abstract knowledge into accessible language.

Systematic reviews and meta-analyses provide evidence that peer teaching can achieve academic outcomes comparable with, and in some contexts stronger than, conventional instruction. Zhang and



Maconochie's meta-analysis of 13 studies involving 2,003 medical students found an overall tendency toward improvements in clinical knowledge and skills, although heterogeneity and variation across studies required cautious interpretation. Zhang and colleagues' broader systematic review and meta-analysis of health-professions education also reported benefits for procedural skills and broadly comparable theoretical knowledge outcomes. These findings support the use of peer learning as a complementary strategy while also reinforcing the importance of program design.

3.2 Peer Networks, Academic Self-Efficacy, and Belonging

Academic confidence is not produced exclusively through individual achievement. Students interpret their own capabilities partly through social comparison, feedback, encouragement, observation, and participation within learning communities. Brouwer and colleagues found that social capital among first-year university students was associated with self-efficacy and study success, providing an important connection between academic networks and students' beliefs about their capabilities.

Peer networks may influence confidence through several pathways. First, students encounter vicarious experiences when they observe comparable peers solving problems, recovering from mistakes, or successfully completing tasks. Second, peer explanations can convert difficult content into language that is socially and cognitively closer to the learner's current understanding. Third, reciprocal interactions can normalize uncertainty. Students may discover that questions they considered evidence of personal weakness are common among their classmates.

Belonging represents an additional mechanism. Seery and colleagues describe peer mentors as both academic links and sources of social and emotional support, and review evidence connecting peer mentoring with greater university integration, community, and supportive social networks. Research on near-peer teaching similarly reports that learners can perceive peer-led environments as safer and more supportive while viewing senior students as attainable role models. Academic confidence can therefore be understood partly as a relational outcome: students become more willing to participate when they perceive themselves as legitimate members of the learning community.

3.3 Structured Peer Leadership and the Remaining Research Gap

The effectiveness of peer learning depends heavily on implementation. Students who perform well academically are not automatically skilled facilitators. Peer leaders may need training in questioning strategies, inclusive communication, feedback, misconception correction, group facilitation, boundaries, referral procedures, and the distinction between supporting learning and simply providing answers.

Lin and colleagues' 2025 research demonstrates the relevance of pedagogical preparation. Their mixed-methods study found that trained peer tutors used improved instructional strategies and that learners reported greater satisfaction and academic confidence. Bermingham, Boylan, and Ryan's evidence-based 4C's model likewise treats successful peer-assisted learning as a deliberately designed educational process rather than an informal arrangement.

The remaining research gap concerns the movement from isolated peer tutoring episodes toward sustained peer-led learning networks. Much existing research examines dyadic mentoring, a specific course, a clinical skill, or a discrete tutoring program. Less attention has been given to an integrated confidence-building architecture combining trained leaders, recurring small-group learning, reciprocal



feedback, help-seeking, academic belonging, reflection, and faculty scaffolding. The present study addresses this conceptual gap through the Peer-Led Academic Confidence Network Framework

4. Research Methodology

4.1 Research Design

The paper employs a conceptual-methodological research design combining structured literature synthesis with scenario-based analytical modeling. It does not report an intervention conducted with real university students.

The research process was organized around literature concerning peer-assisted learning, peer mentoring, near-peer teaching, collaborative learning, academic self-efficacy, social capital, academic belonging, student engagement, and learning-community networks. Priority was placed on peer-reviewed studies, systematic reviews, meta-analyses, and contemporary higher-education research.

4.2 Analytical Framework

The proposed Peer-Led Academic Confidence Network Framework (PLAC-NF) contains five principal dimensions:

Table 1. PLAC-NF Academic Confidence Dimen

Dimension	Operational Meaning	Peer-Network Mechanism	Expected Educational Function
Task confidence	Belief in one's ability to attempt and complete academic work	Guided problem solving and repeated practice	Greater willingness to attempt difficult tasks
Help-seeking confidence	Willingness to request clarification without excessive fear of judgment	Accessible peer leaders and normalized questioning	Earlier identification of learning difficulty
Feedback-use confidence	Confidence in interpreting and acting on feedback	Reciprocal peer review and dialogue	More active revision and self-correction
Academic belonging	Perception of legitimate membership in the learning community	Stable group relationships and mutual support	Greater participation and connection
Persistence confidence	Belief that difficulties can be managed over time	Peer modeling, reflection, and visible progress	Sustained effort following setbacks

The table distinguishes academic confidence from general positive emotion. Confidence in this framework must relate to identifiable academic behaviors such as attempting tasks, seeking assistance, using feedback, participating in academic communities, and persisting through challenge.



4.3 Scenario Construction

Twelve hypothetical higher-education learning scenarios were developed. They represented common contexts including:

- first-year transition;
- quantitative problem solving;
- academic writing;
- seminar participation;
- laboratory preparation;
- project-based learning;
- exam revision;
- research-method training;
- formative peer review;
- interdisciplinary teamwork;
- capstone preparation; and
- senior-student peer leadership.

Configuration A: Conventional Independent Learning

Students primarily study independently and rely on scheduled faculty contact, conventional feedback, and individual academic-support services.

Configuration B: Structured Peer-Led Learning Network

Students participate in recurring small groups facilitated by trained peer leaders, with faculty-defined academic boundaries, collaborative problem solving, reciprocal feedback, reflection, and referral pathways.

4.4 Scoring and Ethical Position

Each configuration was assigned a score from 0 to 100 across the five PLAC-NF dimensions. Scores reflected how strongly the hypothetical design supported the relevant confidence mechanism.

The numerical analysis is therefore a design simulation.

It does not constitute:

- student survey data;
- psychological test results;
- an intervention trial;
- measured learning gains; or
- statistical evidence of causality.

5. Analysis

5.1 Comparative Confidence-Support Profile

The scenario analysis produced a clear difference between learning arrangements that rely predominantly on independent study and those that deliberately create structured peer interaction.



Table 2. Scenario-Based Comparison of Academic-Confidence Support

Confidence Dimension	Conventional Independent Learning	Structured Peer-Led Network	Difference
Task confidence	54	86	+32
Help-seeking confidence	49	84	+35
Feedback-use confidence	52	88	+36
Academic belonging	47	90	+43
Persistence confidence	58	85	+27
Mean score	52.0	86.6	+34.6

Note: Values are scenario-generated design scores and not empirical measurements of students.

The largest modeled difference appears in academic belonging. This is consistent with the conceptual logic of the framework because independent learning can provide intellectual autonomy but relatively few structured opportunities for stable peer connection. Peer mentoring research has repeatedly identified social integration, supportive networks, and relational connection as important features of effective programs.

5.2 Mechanisms of Confidence Development

The literature suggests that the relationship between peer interaction and confidence is not a single direct pathway.

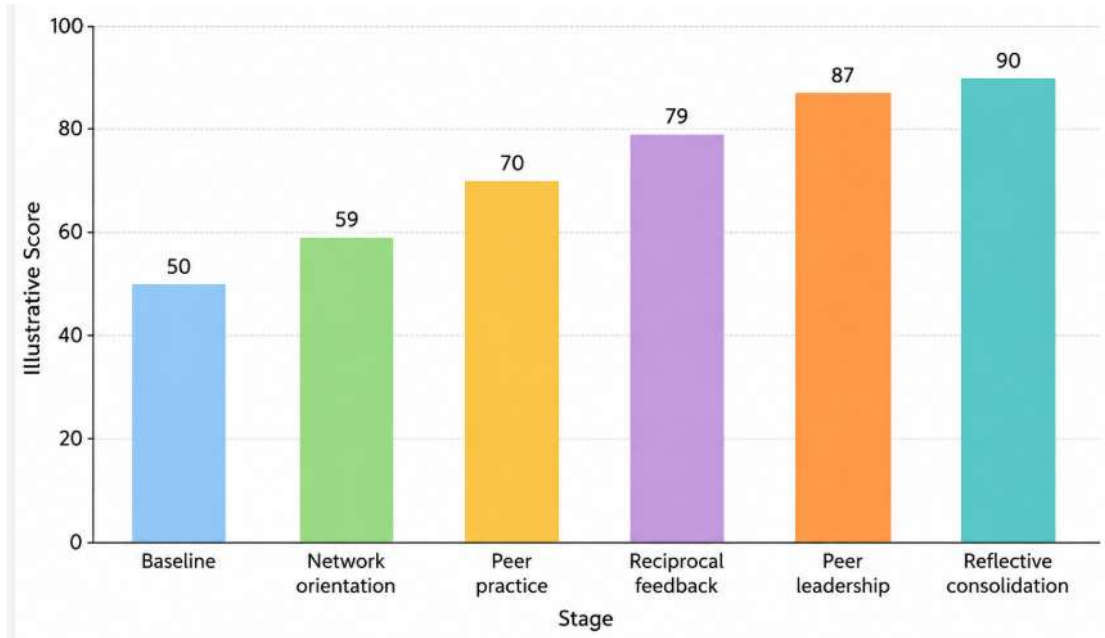
A student may initially join a network with low confidence. During peer practice, that learner sees classmates expressing similar uncertainty. A peer leader models a manageable problem-solving strategy. The student then attempts a related task in a low-stakes setting, receives corrective feedback, and successfully revises the solution. This sequence combines vicarious experience, social reassurance, practice, feedback, and eventual mastery.

Sedigh and colleagues' intervention provides empirical support for the broader proposition that structured peer mentoring can coincide with improved self-confidence and academic progress. Near-peer nursing research also highlights role modeling and supportive environments, while Lin and colleagues demonstrate that trained tutoring can strengthen learner confidence.

5.3 Confidence Development across Network Participation

A second scenario analysis modeled how confidence-support opportunities might accumulate as students move through a structured peer-learning cycle.

Graph 1. Scenario-Based Confidence Progression across Network Participation



6. Discussion

6.1 Peer Learning as a Confidence-Building Environment

The principal implication of the study is that peer-led learning networks can influence confidence by changing the social conditions under which competence is developed.

Traditional academic settings often concentrate visible evaluation in examinations, graded assignments, presentations, and instructor feedback. Students who are uncertain about their ability may consequently avoid exposing incomplete understanding. Structured peer groups introduce an intermediate learning space between solitary study and formal evaluation.

Topping's work and subsequent reviews suggest that peer learning can support both cognitive achievement and affective outcomes when it is systematically designed. Recent empirical research additionally indicates that structured mentoring can improve self-confidence in particular educational contexts.

Academic confidence, however, should not be interpreted as an objective in isolation. Overconfidence unsupported by competence is not educationally desirable. Peer-led networks should therefore combine encouragement with accurate feedback and explicit academic standards.

6.2 Belonging, Help-Seeking, and Persistence

The analysis identifies belonging as a particularly important pathway.

Students may possess sufficient cognitive ability while remaining reluctant to participate because they do not feel socially legitimate within the discipline or institution. Peer networks can provide repeated evidence that academic membership is not restricted to students who immediately understand everything. Within a distant or highly evaluative environment, requesting help may be interpreted by the learner as exposing incompetence. In a reciprocal peer-learning culture, asking and answering questions become ordinary academic behaviors.



Brouwer and colleagues' work demonstrates that peer relationships and social resources are connected with important university outcomes, including self-efficacy and academic performance. Seery and colleagues likewise describe peer mentoring as creating supportive networks and institutional connection.

6.3 Conditions Required for Effective Peer-Led Networks

The strongest argument emerging from contemporary research is not that universities should simply increase the number of student tutors. Effective peer-led networks require institutional design.

First, peer leaders require training. Academic competence alone is an insufficient selection criterion. Lin and colleagues demonstrate the value of pedagogical preparation for peer tutors, including improved learner engagement and academic confidence.

The present study remains limited by its conceptual methodology. The scenario scores are illustrative and require empirical validation. Future research should compare structured peer-network participants with appropriate comparison groups using validated academic self-efficacy instruments, longitudinal network measures, attendance records, achievement indicators, belonging scales, help-seeking behavior, and qualitative interviews. Such studies should also examine whether effects differ according to discipline, year level, first-generation status, international-student status, online versus face-to-face participation, and degree of peer-leader training.

7. Conclusion

Peer-led learning networks offer a promising mechanism for strengthening academic confidence by embedding learning within recurring relationships of explanation, practice, feedback, observation, and mutual support. Their potential value extends beyond improved access to academic help. Well-designed peer networks can allow students to experience themselves as active contributors to academic communities, normalize uncertainty, strengthen willingness to seek assistance, and provide repeated opportunities to convert partial understanding into successful performance.

The study therefore does not recommend replacing faculty-led education with peer teaching. Instead, it proposes a layered educational architecture in which trained peer leaders operate within clearly defined boundaries and under appropriate academic oversight. When peer interaction is intentionally designed rather than left to chance, learning networks can transform academic confidence from an individual psychological resource into a socially supported educational capacity. Future longitudinal and experimental research should test the proposed framework across diverse disciplines and student populations and determine which network structures produce the most equitable and durable improvements in confidence, engagement, and academic persistence.

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