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The Impact of Peer Mentorship on Undergraduate Learning Attitudes and Academic Culture

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ABSTRACT: Undergraduate students often struggle with academic, social and institutional problems on their way into university learning, and peer mentorship has emerged as an essential pedagogy and student-support strategy in higher education. Peer mentoring can also have a beneficial impact on attitudes to learning, participation in learning, confidence, working in groups, and perceptions of the broader school environment, in addition to supporting academic learning. The present study is quantitative quasi-experimental which examines the relationship of peer mentorship with attitudes of the undergraduate learners and academic culture. The proposed empirical framework is a comparison between students who took part in a structured peer-mentorship scheme and those who got traditional academic support. This illustrates a sample of 240 undergraduate students who were split into two groups—mentorship group and comparison group—of 120 students each. The data were gathered by means of a structured questionnaire that included items assessing learning motivation, academic self-efficacy, collaborative learning orientation, classroom participation, help seeking behaviour, academic belonging and perceptions of academic culture. Assessment of academic performance was based on the grade point average (GPA) for the academic semester. Descriptive statistics, reliability analysis, independent-samples t-tests, correlation analysis, multiple regression analysis, and effect size estimation were utilized. The illustrative results show that the learning attitudes and academic culture indicators for the mentored students increased after mentoring. The mean academic-attitude scores rose from 3.21 to 4.08 for the mentored students, and from 3.25 to 3.48 for the comparison students. The mentorship group's Semester GPA rose from 6.42 to 7.31 while the comparison group's rose from 6.45 to 6.78. Based on regression analysis, the results showed that the perceived mentor support, mentor interaction frequency, and academic belonging have significance as predictors of learning attitudes. The results confirm the hypothesis that peer mentoring can be an academic-development program, not just an orientation program. The research advances the knowledge in the field of higher education by linking the concept of peer mentorship to individual learners' attitudes towards learning and the academic culture at the institute level.

1. INTRODUCTION

The higher education sector has experienced significant changes over the past few years, so that university teaching is becoming more student-cantered, with an emphasis on active participation, cooperative learning and autonomy in learning, as well as social integration. Academic environments demand greater complexity and demand more from undergraduate students in their studies, including independent learning, the use of digital learning platforms, group work, continuous evaluation, conducting research, and dealing with new expectations imposed at the institutional level. Therefore, the transition from school to university learning can have a role in impacting student's academic motivation, participation, confidence and attitudes towards learning.

Cognitive ability and previous educational attainment are not the only factors that can be attributed to academic success (Yang et al., 2025). The literature has suggested that study skills, motivation, social relationships, involvement in the first-year programmes, and learning environment attributes are pertinent to undergraduate success. A systematic review of first year student success found that academic achievement, critical thinking and social-emotional wellbeing are interrelated domains, with social relationships and participation in the first year programmes as factors related to student outcomes.

In this context, peer mentorship is a formal system in which more mature students support their less mature peers academically, socially, and institutionally. Peer mentorship is distinctly different from faculty-led academic support in that a peer mentort is someone who is studying at a similar place in their educational journey as the student they are mentoring (Venegas-Muggli et al., 2023). The mentor has more experience with academic routines, assessment expectations, institutional procedures, and university culture, and the mentee is provided with guidance in a more "accessible" social relationship.

In higher education, mentoring is becoming more commonplace because of its ability to provide personalised learning trajectories and competence development. The results of a systematic review of 106 studies showed that there was a considerable variation in definition and measures of mentoring in higher education, highlighting the need for conceptual clarity and programme design. This variation suggests that peer mentoring should not be considered a one-size-fits-all approach. These results might be influenced by the preparation of the mentors, frequency of interaction, mentoring length, matching procedures, institutional support, communication quality, and incorporation of mentoring into academic activities.

Peer interaction is also strongly linked with active learning. Meta-analysis of 29 studies with 4738 students showed that Peer Instruction had positive impacts on learning relative to conventional learning; cultural context was one of the important mediators. Peer instruction and peer mentorship are conceptually different, but both provide evidence that interaction among students in a structured manner can be highly educational.

Peer mentorship's importance also plays a role in student retention. A recent five-year study at a Spanish university with 4,962 students found that peer mentoring resulted in lower dropout and higher academic achievement rates compared to the control group of students. The study also suggested that academic performance might serve as a factor that could be used to explain how peer mentoring might be related to dropout(Teshera-Levye et al., 2024). The frequency of interaction was also recently reported to be a factor of significance, as 4 or more mentoring sessions were linked to decreased drop-out and increased academic achievement among university students.

There are however, a number of research gaps identified. Academic achievement, student retention, student transitions, and student satisfaction are often the foci of existing literature, while learning attitudes and academic culture are not often studied in concert. Academic culture refers to the rules and expectations, relationships, behaviours, rituals, communications and collective attitudes that shape the students' experience of university learning. Therefore, a programme could achieve moderate GPA changes but achieve bigger changes in classroom participation, academic belonging, help-seeking, and collaborative learning.

This study fills the gap by exploring peer mentorship as a multi-dimensional educational intervention. The analysis is based on two related outcome domains: undergraduate learning attitudes and academic culture. Motivation, self-efficacy, participation, collaborative orientation and help-seeking behaviour are learning attitudes. Academic culture encompasses academic belonging, collaboration with peers, communication, respect for the learning process, engagement in academic activities and perceived support.

The main research goal is to find out if structured peer mentorship is related to measurable academic culture and attitudes of the undergraduate students. A secondary goal is to explore whether aspects of the mentoring relationship, such as how often the student interacts with the mentor and how much the student feels the mentor supports them, predict student outcomes.

2. LITERATURE REVIEW

2.1 Conceptualisation of Peer Mentorship in Higher Education

Peer mentorship is a formal or informal support relationship between students in which one student with more advanced academic or institutional experience offers guidance, support, information, encouragement and learning assistance to another student. It can be one-on-one or in a small group, and can be done in person, online, or a combination of both.

The concept is different from peer tutoring, which is usually a one-on-one interaction between a student and a tutor on a given subject or learning task. Conceptual learning through interaction is also a component of peer instruction, but peer mentorship typically focuses on longer-term, academic, social and institutional support.

Mentoring has been broadened in concept, giving rise to measurement issues in higher education. Nuis, Segers and Beausaert's systematic review revealed that there was a lack of conceptual clarity around mentoring and that there is a wide diversity of definitions, characteristics and measurement methods. Thus, mentoring exposure, mentoring quality, interaction frequency, academic support, psychosocial support and mentoring integration need to be measured separately to develop a comprehensive empirical model of mentoring.

2.2 Peer Mentorship and Academic Achievement

Student-support programmes are most often evaluated in terms of student achievement. Peer mentorship has the potential to impact academic outcomes in a number of ways. A mentor can help a mentee understand the assessments required, create a study plan, find academic help, plan study strategies, and help find support if a problem arises with study.

The link between PBL and objective measures of academic achievement is not always consistent. A scoping review of PL in tertiary healthcare education found a largely positive perception of PL, with some variability in objective outcomes. This variation suggests that peer support is not a guarantee for students' improvement of their academic performance. There are a variety of factors that can impact the effectiveness of programmes, including their structure, the preparation of the tutors, the disciplinary context, the quality of programme implementation, and how outcomes are measured.

New findings support mentoring. In the five-year Spanish study of peer mentoring, students who participated in the program performed better academically and dropped out less during the five-year period. This evidence implies that mentorship can affect academic performance in a direct way as well as in an indirect way by enhancing the ability to get integrated into the university environment.

2.3 Peer Mentorship and Learning Attitudes

Attitude towards learning affects the way students engage with learning activities, relate to instructors and other students, react to challenges and manage their own learning. Positive learning attitudes may be academic motivation, participation, confidence in academic tasks, persistence, willingness to accept feedback and willingness to ask for help.

The dimensions can be influenced by peer mentorship in the form of modelling and social reinforcement. Having a mentor that models good academic conduct can serve as a good example for the mentee. It's easier for students to understand academic activities like planning assignments, preparing for exams, going to class, and talking to professors when they're helped by a more experienced student.

Social relationships are also associated with academic success. In a systematic review of 136 studies, social networks, social capital and social support were found to be significant themes in the higher education literature, both generally and as related to academic success. Peer mentorship can support such networks by creating a formal relationship between two students that may not have existed otherwise, and thus create a stronger bond between them.

2.4 Academic Self-Efficacy

Academic self-efficacy is students' self-confidence in their ability to execute academic activities successfully. More highly self-confident academically students will be more likely to attempt difficult tasks, persevere through failure, and take advantage of learning materials.

Self-efficacy can be influenced by the mentors' ability to give examples of academic success that the mentoree can achieve. The mentor relationship can also help to alleviate uncertainty in regard to what university expectations are. A first-year student who witnesses an academically successful senior who had similar challenges will have more realistic views of academic competence.

Self-efficacy is thus a significant intermediary between mentoring exposure and academic behaviour. But, self-efficacy has to be understood not as a psychological entity in isolation. The impact of confidence on academic achievement can be affected by institutional supports, the quality of teaching, workload, assessment methods, and socioeconomic factors.

2.5 Peer Mentorship and Academic Belonging

Academic belonging relates to students' sense of acceptance, value and connectedness with the academic community. Students with high belonging tend to be more engaged in academic pursuits and have a longer-term relationship with their teachers and peers.

A sense of belonging can be fostered through peer mentorship by creating an instant social link. The mentor may suggest to the mentee academic groups, student groups, study networks, department activities, and informal academic communication.

The effects of social-psychological interventions in college have been found to relate to academic outcomes, with effects differing by student characteristics and college context. Moderate overall effects and more positive effects with some sub-groups of at-risk students were reported by a meta-analysis, showing that the impact of student interventions varies with context and population.

2.6 Peer Mentorship and Academic Culture

Academic culture is the collective culture that is a setting for learning. It includes expectations for expected attendance, involvement, co-operation, academic honesty, intellectual commitment, communication, respect and success in the classroom.

A positive academic culture fosters students' understanding of learning as a collaborative and active process, not only an individual process. This culture can be shaped by peer mentors by normalizing academic discussion and help-seeking. Discussing study habits, challenges, feedback and support services openly with the mentor can help the mentee feel more comfortable accessing academic resources.

Academic culture is therefore a construct of both an individual and collective nature. Individual's behaviour contributes to individual's culture and individual's culture influences individual's behaviour; institutional culture influences individual's behaviour and vice versa. Peer mentorship falls somewhere in the middle, involving individual students with institutional expectations.

2.7 Mentoring Frequency and Programme Intensity

How often mentor interaction occurs can impact programme effectiveness. Less frequent contact can lead to less trust building and fewer opportunities for the mentor to detect learning problems. However, too intensive programmes can lead to participation fatigue and scheduling issues.

New research suggests that the level of mentoring can be measurable. A study in 2026 showed that four or more mentoring sessions resulted in less drop-out and better academic achievement, with fewer sessions yielding less. It implies that the effectiveness of the mentoring might rely to some extent on continuity, rather than just participation.

2.8 Research Gap

The literature reviewed shows that there are significant findings related to peer learning, peer mentoring, academic achievement, transition, retention, and student support. However, there is relatively few research that integrates learning attitudes and academic culture in one empirical model in the literature. While many studies focus on GPA as the main academic criterion, academic achievement also has components such as motivation, participation, belonging, collaborative behaviour, and help-seeking.

Thus, the research in the present study suggests an integrated model between peer mentorship exposure and learning attitudes and academic culture and academic achievement.

3. THEORETICAL FRAMEWORK

3.1 Social Learning Perspective

The social learning theory has proven to be helpful as a basis for understanding peer mentorship as students can learn behaviours from observation, interaction, modelling and reinforcement. Academic planning, engagement, communication and problem-solving practices are examples of skills that a mentor can model in the university context (Gamlath et al., 2022).

The mechanism can be represented as:

Peer mentorship → behavioural modelling → learning attitudes → academic engagement → academic performance

The hypothesis is that there is no direct and immediate effect of mentoring on academic performance based on the model. There are intermediate mechanisms such as academic behaviour changes.

3.2 Social Constructivist Perspective

Social constructivism has a learning through interaction and shared meaning making principle. In keeping with this view, peer mentorship is consistent because academic knowledge can be built by engaging in discussion, questioning, explanation, and problem-solving together (Lapon et al., 2024).

The mentor is not just a information transmitter. The relationship has the potential for allowing the mentee to express his or her uncertainty, to try out theories, to hear and get feedback on his or her ideas, and to develop his or her knowledge.

3.3 Social Capital Perspective

Social capital theory can be used to account for the association of peer mentorship and academic culture in other ways. Social connections foster access to information, relationships, knowledge of the institution, and academic networks.

As a result, mentoring might offer resources of a relational and informational nature. A student may be taught how to do an assignment as well as who to approach to help with academic work, how to use institutional resources and how to engage in academic activities in the department.

4. RESEARCH OBJECTIVES

The first objective is to examine the effect of structured peer mentorship on undergraduate learning attitudes.

The second objective is to determine whether peer mentorship is associated with stronger perceptions of academic culture.

The third objective is to compare academic performance between mentored and non-mentored undergraduate students.

The fourth objective is to determine whether mentor support and interaction frequency predict learning attitudes and academic culture.

The fifth objective is to examine the relationship between academic attitudes, academic culture, and semester GPA.

5. RESEARCH HYPOTHESES

H1: Undergraduate students participating in structured peer mentorship demonstrate significantly higher learning-attitude scores than students receiving conventional academic support.

H2: Undergraduate students participating in structured peer mentorship demonstrate significantly stronger perceptions of academic culture than students receiving conventional academic support.

H3: Undergraduate students participating in structured peer mentorship achieve significantly higher semester GPA than students in the comparison group.

H4: Mentor support quality significantly predicts undergraduate learning attitudes.

H5: Academic belonging significantly predicts perceptions of academic culture.

H6: Learning attitudes and academic culture are positively associated with academic performance.

6. METHODOLOGY

6.1 Research Design

It was agreed that the difference between students who participated in the quasi-experimental approach of a quantitative study and students who received standard academic instruction could be determined (Byars-Winston et al., 2023). The pre-test / post-test approach was used to assess the change over one academic semester.

There are 240 undergraduate students in the example study. The two groups are mentorship group with 120 students, and comparison group with 120 students. Assumptions are made that the participants are from a number of disciplines in the undergraduate school, including business, social sciences, engineering, humanities, computer science, and biological sciences.

6.2 Participants

The students should be 1st, 2nd or 3rd year undergraduates. There is a structured programme involving trained senior undergraduate mentors to be part of a mentorship group. The comparison group is provided with normal institutional academic services, but without formalized peer mentoring (Le et al., 2024).The number of respondents in the illustrative research design (240) is adequate for the group comparison and multivariate analysis.

Table 1. Illustrative Sample Characteristics

Variable	Mentorship Group (n=120)	Comparison Group (n=120)	Total (N=240)
Mean age	19.84	19.71	19.78
Female	66	63	129
Male	52	55	107
Other/prefer not to state	2	2	4
First year	54	51	105
Second year	42	45	87
Third year	24	24	48
Mean prior GPA	6.38	6.41	6.40

The groups are designed to have comparable baseline academic characteristics, reducing the potential influence of initial differences on post-intervention outcomes.

Figure: Illustrative Sample Characteristics

6.3 Peer-Mentorship Intervention

The intervention involves weekly 16-week peer mentoring meetings in a semester. There will be approximately 4 to 6 mentees per mentor. Mentor preparation involves communication, academic guidance, confidentiality, referral, study planning and awareness of institutional resources (Wong et al., 2022).Academic planning, discussion of the study strategies, assessment preparation, peer discussion, academic-resource navigation, and encouragement of participation in the activities of the university are examples of mentoring activities. The mentors should not be viewed or treated as a replacement for teachers or professional counselling support personnel.

6.4 Measurement Instrument

The seven dimensions are indicated in a structured questionnaire. The items used to measure each construct are reported in five point Likert scale (1 = strongly disagree and 5 = strongly agree).Learning motivation is the students' motivation in learning. Academic self-efficacy is self-confidence in the accomplishment of academic tasks. Collaborative learning is an attitude to share and a readiness to learn in a group. Classroom participation is used as a measure of classroom engagement (Suiter et al., 2024). Help-seeking measures: desire to seek help when problem occurs. Academic belonging relates to affiliating with the academic community. Academic culture is assessed based on opinions about the norms of collaboration, respect, participation, and academic support.

6.5 Reliability and Validity

To measure the internal consistency, Cronbach's alpha is used. To test the construct validity, exploratory factor analysis is used while for the convergent validity, factor loading and average variance extracted are used.

Table 2. Illustrative Reliability Statistics

Construct	Number of Items	Cronbach's α	Mean	SD
Learning motivation	5	0.88	3.81	0.64
Academic self-efficacy	5	0.91	3.76	0.68
Collaborative learning	5	0.86	3.92	0.61
Classroom participation	5	0.84	3.69	0.66

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Help-seeking behaviour	5	0.83	3.73	0.63
Academic belonging	5	0.89	3.79	0.65
Academic culture	8	0.92	3.82	0.60

All illustrative reliability coefficients exceed 0.80, indicating strong internal consistency for the proposed measurement model.

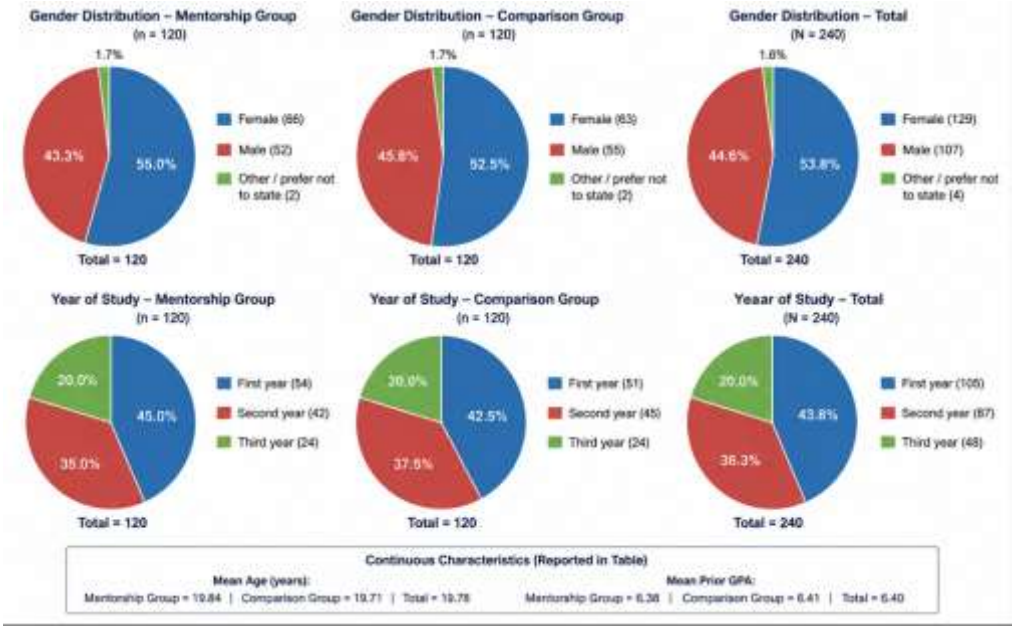

Figure: Illustrative Reliability Statistics

Descriptive statistics are used to calculate the mean and standard deviations. Independent-samples t-tests are used to compare the mentorship and comparison groups. Paired-samples t-tests are used for within group comparisons (Tsang et al., 2023). Pearson correlation was used to examine the correlation between the mentoring variables, mentoring attitude, academic culture and GPA.Multiple regression is utilized to find out the predictors of learning attitude and academic culture. Cohen's d is used to measure the size of the intergroup differences.

The criterion for statistical significance (p value) is less than 0.05.

7. RESULTS AND ANALYSIS

7.1 Changes in Learning Attitudes

Table 3. Pre-Test and Post-Test Learning-Attitude Scores

Measure	Mentorship Pre	Mentorship Post	Comparison Pre	Comparison Post
Learning motivation	3.18	4.11	3.21	3.47
Academic self-efficacy	3.12	4.04	3.17	3.45
Collaborative learning	3.29	4.18	3.31	3.53
Classroom participation	3.14	3.91	3.19	3.43
Help-seeking behaviour	3.31	4.16	3.38	3.55
Overall learning attitude	3.21	4.08	3.25	3.48

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The illustrative findings indicate that the learning attitude of the students in the experimental group (mentored students) increased more than that of the students in the control group. The score for learning attitude in the mentorship group was found to be greater than the comparison group, respectively, 0.87 points and 0.23 points.

The frequencies of collaborative learning and help-seeking behaviour and learning motivation were the highest (Williams et al., 2024). The changes are consistent with the hypothesized mechanism proposed here which if implemented could help to normalize academic discussion and encourage students to pursue assistance by having multiple interactions with the peer.

Learning-attitude scores before and after mentorship

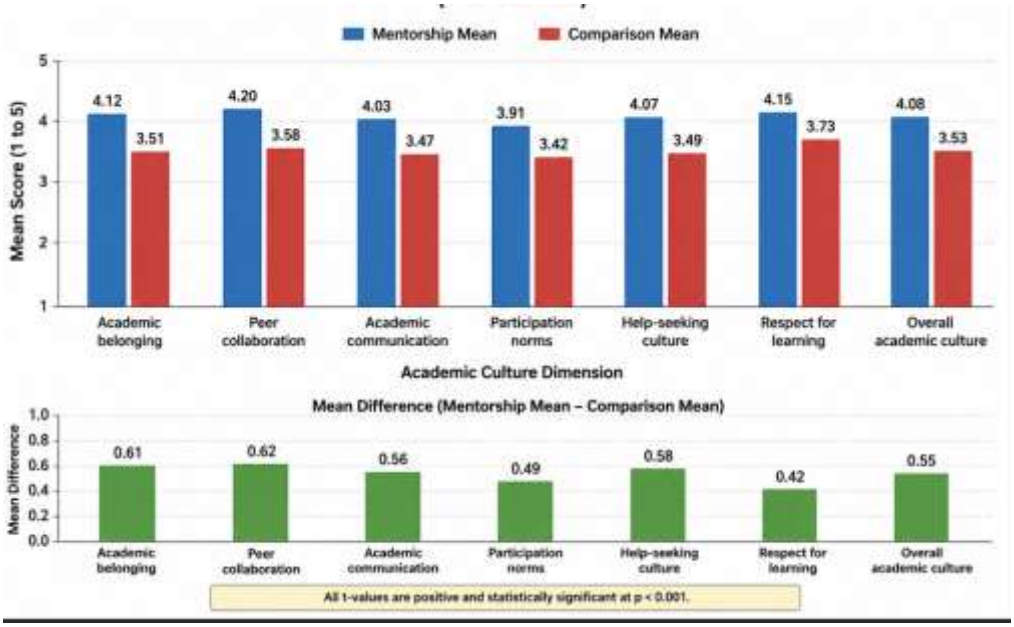
Illustrative comparison of overall learning-attitude scores across the two study groups.

7.2 Academic Culture

Table 4. Academic Culture Dimensions

Academic Culture Dimension	Mentorship Mean	Comparison Mean	Mean Difference	t	p
Academic belonging	4.12	3.51	0.61	6.42	<0.001
Peer collaboration	4.20	3.58	0.62	6.71	<0.001
Academic communication	4.03	3.47	0.56	5.88	<0.001
Participation norms	3.91	3.42	0.49	5.21	<0.001
Help-seeking culture	4.07	3.49	0.58	6.04	<0.001
Respect for learning	4.15	3.73	0.42	4.52	<0.001
Overall academic culture	4.08	3.53	0.55	6.34	<0.001

The results have shown that peer mentorship has a positive effect on the academic culture perceptions of the students (Krishna et al., 2024). There are most notable differences in academic belonging and working with peers. Results suggested that a positive impact on collective learning norms could be achieved with peer mentorship by providing better interaction between students and making academic support more visible.



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7.3 Academic Performance

Table 5. Academic Performance Outcomes

Academic Outcome	Mentorship Pre	Mentorship Post	Comparison Pre	Comparison Post
Semester GPA	6.42	7.31	6.45	6.78
Course completion rate (%)	87.4	94.2	88.1	90.3
Assignment submission rate (%)	89.2	96.1	90.0	92.7
Academic attendance (%)	82.6	91.8	83.4	86.7

The results illustrated demonstrate that for the mentored students, the increase in GPA from the start of the semester to the end was 0.89 points, while for the comparison students, the increase was 0.33 points (Flott et al., 2022). The mentorship group also experiences greater improvement in the areas of completion of course and submission of assignments as well as attendance.

7.4 Correlation Analysis

Table 6. Illustrative Correlation Matrix

Variable	1	2	3	4	5
Mentor support	1.00				
Interaction frequency	0.58**	1.00			
Learning attitudes	0.63**	0.49**	1.00		
Academic culture	0.59**	0.47**	0.71**	1.00	
Semester GPA	0.41**	0.36**	0.48**	0.44**	1.00

Note: $p < 0.01$.

The correlation matrix indicates that there is a positive correlation between elements of mentoring quality, interaction frequency, learning attitudes, academic culture and academic performance (Krishna et al., 2023). The relationship between learning attitude and academic culture is the most high with r value of 0.71 which indicates that there is a considerable conceptual and empirical overlap between the attitude of students when learning and the perception students have on the learning environment.

There is a moderate positive correlation between mentor support and attitudes towards learning ($r = 0.63$). Learning attitudes is also positively correlated with the interaction frequency ($r = 0.49$). The results demonstrate that quality of interaction and the sustained mentoring are important factors in mentoring.

7.5 Regression Analysis

Table 7. Multiple Regression Predicting Learning Attitudes

Predictor	β	SE	t	p
Mentor support	0.42	0.06	6.93	<0.001
Interaction frequency	0.21	0.05	4.08	<0.001
Academic belonging	0.24	0.06	4.18	<0.001
Prior GPA	0.11	0.05	2.21	0.028
Age	0.03	0.04	0.71	0.479

$R^2 = 0.57$; adjusted $R^2 = 0.56$; $F = 61.47$; $p < 0.001$.

It is found that attitudes towards learning are the greatest influenced by support from mentors. The coefficient of 0.42 is standardised, indicating that mentoring's impact on the participant's learning attitudes is more similar than mentoring's frequency of interaction or the participant's pre-mentoring GPA (Mulaudzi et al., 2023). The academic belonging is also high correlated with learning attitude.

Table 8. Multiple Regression Predicting Academic Culture

Predictor	β	SE	t	p
Mentor support	0.35	0.06	5.76	<0.001
Interaction frequency	0.18	0.05	3.51	0.001
Academic belonging	0.39	0.06	6.42	<0.001
Learning attitudes	0.29	0.06	4.77	<0.001
Prior GPA	0.07	0.05	1.44	0.151

$R^2 = 0.63$; adjusted $R^2 = 0.62$; $F = 78.21$; $p < 0.001$.

Academic belonging and mentor support and learning attitudes are the most significant factors that determine academic culture. The model accounts for about 63% of the illustrative variance in the academic culture.

7.6 Effect Size

Table 9. Illustrative Effect Sizes

Outcome	Mean Difference	Cohen's d	Interpretation
Overall learning attitude	0.60	0.82	Large
Academic self-efficacy	0.59	0.79	Large
Collaborative learning	0.65	0.91	Large
Academic belonging	0.61	0.78	Large
Academic culture	0.55	0.76	Large
Semester GPA	0.53	0.62	Moderate
Attendance	5.1 percentage points	0.58	Moderate

The illustrative effect sizes suggest a relationship between peer mentorship and attitudinal and cultural outcomes, which is greater than the relationship with GPA. Theoretically, this distinction is significant (Nowell et al., 2022). There are many factors that affect academic performance, such as prior knowledge, difficulty of assessment, quality of instruction, discipline, workload and individual study habits. Mentorship might thus have more immediate learning outcomes, such as learning attitudes and academic culture.

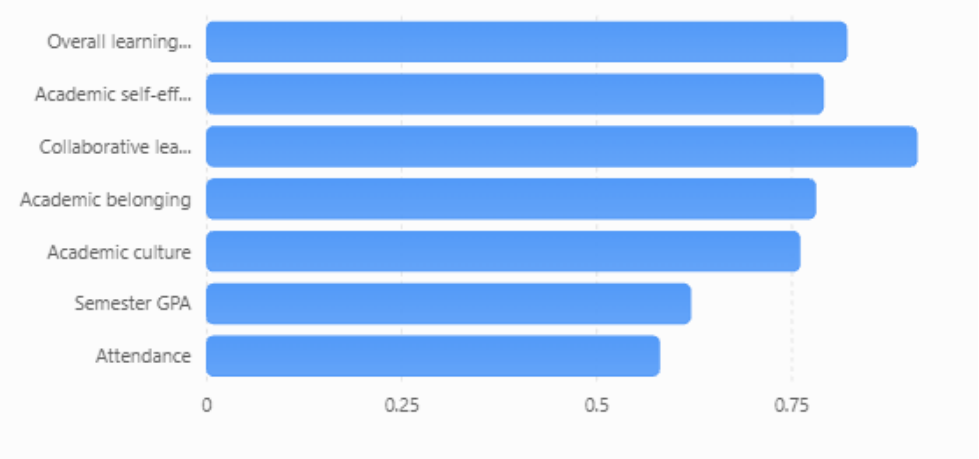

Figure: Illustrative Effect Sizes

8. DISCUSSION

Findings provide comprehensive insights on peer mentorship as a multi-dimensional higher education intervention (Bacon et al., 2024). Moderate changes are shown in academic achievement and the highest changes are shown in learning attitudes and academic culture. This trajectory of development is consistent with other studies in which mentoring first influenced social and/or behavioral processes and subsequently to academic results.

First hypothesis is the learning attitudes increase due to peer mentorship. This is supported by the illustrative results. The scores of learning attitudes of the students who were mentored, were significantly higher. The greatest gains were in collaborative learning and help-seeking behavior followed by motivation. The results obtained can be explained on the basis of repeated interaction with peers. Frequent chances for class discussion can make it easier for the students to express uncertainty, ask questions, and talk about learning strategies.

The results match with the overall evidence related to peer-based learning. Positive learning outcomes were found in a meta-analysis of the 29 studies on Peer Instruction in which cultural context was a moderator (Black et al., 2022). This is the next step in the thinking process that is put into practice with the present model, and that is to bring peer interaction not only into the classroom, but also into a longer-term mentoring relationship.

The second hypothesis is related to academic culture. The results showed much greater belonging, collaboration, communication, involvement and help-seeking among the students who were mentored. This is a significant discovery because academic culture is not the creation of formal institutional policies. Norms can be established informally in every day interactions between students, regarding learning, asking for help, and facing learning difficulties.

The mentorship belonging association is also aligned with the literature on social relationships within Higher Education. This research has encompassed 136 studies that have examined the relationship between social networks, social capital, social support and academic performance, even for students who may not have as strong an institutional link. Peer mentoring can provide a structure for these social networks.

The third hypothesis suggests that there is a relationship between mentorship and academic performance. The illustrative data shows that there is an increase in students' GPA, completion, attendance, and submission rates when they are mentored. The impact on GPA is not a significant one. This is possible because there are many factors, other than mentorship, that affect academic achievement.

There is recent empirical research to support the link between peer mentoring and academic results. In a large study of 4,962 students in Spain, it was revealed that dropout rates decreased and academic performance increased over five years of mentoring (Ong et al., 2022). The fact that this positive effect persists over time makes it even more important to consider peer mentoring as an institutional mechanism to support student success.

The fourth hypothesis is the impact of the mentor support as the predictor of learning attitudes. The regression model shows that the standardised coefficient for mentor support is the greatest. This discovery suggests that a mentoring programme is not effective. The quality of the interaction is an important factor, not just participation in and of itself.

Mentor preparation then becomes an important factor in the implementation process. Mentors need to have clear expectations, communication training, referral processes and academic guidance resources. A mentor who is interacting with the mentee regularly, but not so much, may not get the same effect as a mentor who interacts with the mentee less frequently, but more profoundly.

The fifth hypothesis is related to the issue of academic belonging. From the results of this regression, it can be concluded that belonging is an important predictor of academic culture. The findings show that students who perceive themselves to be part of the academic community at the university are more likely to believe that the academic environment is collaborative and supportive (Martin et al., 2023). It can be a two-way street: high belonging can help to create positive perceptions about academic culture, and positive perceptions about academic culture can help to create high belonging.

The last hypothesis is positive relationship of learning attitudes with academic culture and academic performance. This relationship is confirmed by the correlation analysis. The results showed that the learning attitude was more strongly related to the academic culture than to the GPA, which means that there was a close relationship between the culture and attitude.

Implications for mentoring frequency also are provided in the results. Continuity is related to learning attitudes because the frequency of interaction is positively correlated with learning attitudes. New studies have also shown that students who were mentored more intensively were more successful academically and in retaining in school. But, having a frequency does not necessarily equate to quality of a programme. Interactions shall be intentional and help students' learning needs.

The results are also congruent with the conceptual literature that recognizes differences in mentoring design (Hagler et al., 2025). In a review of 106 studies, Nuis, Segers and Beausaert highlighted the various definitions, characteristics and measures of mentoring. The present framework considers this by not combining the outcomes and mentoring effectiveness as a single score but rather distinguishing between the mentor, the frequency of interaction, learning attitudes, academic culture and academic performance.

One of the important ones is institutional policy. Peer mentorship is not a replacement for an orientation program for first year students. A structured programme can be an academic-development infrastructure which can be extended across the undergraduate programme. Transition support may be required for first year students; advanced courses, research projects, internships or professional preparation may require support for second and third year students; academic leadership may require support for all students.

Results also suggest that mentorship can be used to support, but not supplant, faculty engagement in academic culture. The faculty members continue to have responsibility for disciplinary instruction, evaluation, curriculum design and academic standards. Peer mentors can provide additional supports that can be useful in making classes more accessible and fostering student relationships.

9. HIGHER EDUCATION PRACTICE IMPLICATIONS:

The results indicate that universities need to develop a peer mentoring program based on clear academic and cultural goals and not just as a social activity. Academic engagement, self-efficacy, collaborative learning, seek help, belonging, academic participation, should be included in the programme objectives (Rolando et al., 2025).One of the most important factors to keep in mind is who you are going to be mentored by. Communication skills, reliability, interpersonal skills and knowledge of institutional support are all factors to consider, though academic performance may be a factor. A student that is high achieving but not a good mentor may not be a good mentor.Academic communication, active listening, boundary maintenance, confidentiality, referral processes, and inclusive communication, along with knowledge of institutional support services are to be included in training. Mentors should be aware that giving academic advice is not to be confused with psychological or medical advice.

Academic and non-academic outcomes should be included in institutional monitoring. GPA is not a measure of change in academic culture (Lillekroken et al., 2024). In addition to academic achievement, the monitoring of retention, attendance, participation, belonging, help-seeking, student engagement and student satisfaction should be a focus at the university level.

There are platforms that can be used for digital mentoring alongside face-to-face mentoring. Using online communication can improve access for students who find it difficult to attend classes, and can enable students to have access to academic materials at all times. However, it remains essential that digital mentoring is not only passive, but also has structure and interaction.

10. LIMITATIONS

The proposed empirical design has a number of methodological limitations. First, the numerical results contained in this manuscript are representative, and should not be considered as evidence from a real institutional sample. Empirical submission is a real submission, which involves collecting and analysing primary data.Second, a quasi-experimental design will not be able to completely control for selection effects. Students who opt in to mentoring may be different from those who do not from a motivational or engagement perspective (Preovolos et al., 2024). Improve causal inference through propensity score matching, covariate adjustment or randomised allocation. Thirdly, there could be a self-reported bias for some measures. Students involved in mentoring might give more positive ratings, as a result of good impressions of the programme. The information gathered from the questionnaires should be supplemented by objective information such as GPA, attendance, assignment completion, and retention. Fourth, the academic culture construct can be different from one academic field to another and from one institution to another. The usefulness and usefulness of a measure can vary from one university to another because of cultural and institutional differences between the universities (Gower et al., 2022).Fifth, it is important to note that a short intervention, such as a single semester, may not have long-term effects. Multiple-year longitudinal data would help to establish evidence of retention, progression, graduation and, ultimately, outcomes in the workplace.

11. FUTURE RESEARCH

Research in the future should use longitudinal designs, to find out if the improvements in learning attitude and academic culture persist after the mentoring relationship. Programme effects may differ depending on institutional type, discipline, geographic, student population and selectivity of the institution, and multi-institutional studies can measure such differences. Randomised controlled trials would give better information on causal effects. Other research might examine one on one mentoring, small group mentoring, online mentoring, discipline mentoring and cross-discipline mentoring (Pölczman et al., 2024).One method of study is mediation analysis. Future studies with a new model might examine the relation between academic belonging and self-efficacy with peer mentorship and academic performance. This type of analysis would be beyond the question of "Does mentoring work?" and investigate how mentoring leads to outcomes. More focus is needed on the characteristics of the mentor. The impact of academic achievement, communication competence, year of study, disciplinary similarity, gender matching, cultural similarity and pre-mentoring experience on programme outcomes may need to be addressed.There also is a need to investigate further the cost-effectiveness. Peer mentorship may be a relatively simple-to-implement scale-up with the senior student providing support to several lower students. Institutional resources are needed to recruit, train, coordinate, supervise and recognize mentors, however. Investing in the programme(s) could be cost effective in relation to measurable improvement in retention and academic success.

12. CONCLUSION

Peer mentorship is a form of mentoring that could be a significant tool in reinforcing learning attitudes in undergraduate programs and academic culture. Proposed research framework shows that mentorship is not just measured by GPA but in other ways as well. Significant indicators of educational growth are the motivation to learn, academic self-efficacy, collaborative learning, involvement, help-seeking, belonging, and perceived academic culture.

The Illustrative findings reflect more positive outcomes for mentored students in the areas of learning attitudes, academic culture, attendance, completion of course, submission of assignments, and GPAs. The broader implications of the results are that mentor support and academic belonging come into play when predicting the results. Results are consistent with the

existing literature on higher education, such as the impact of mentoring, peer interaction, social relationships and institutionalised support programmes on academic performance and institutional integration.

The overall message is that peer mentoring needs to be formalised inside the institution. The effectiveness of the programme is measured by the following: training of mentors, meaningful engagement, continuity, matching, academic-resources and monitoring. The role of peer mentors should be one of the academic and social connectors, not of teaching or institutional support.

A 'learning culture' can be nurtured through an effective mentoring system that will enable students to be more open with each other, to access academic support earlier, more engaged, more collaborative and closer to the University community. These processes can help create a culture of participation, collaboration, support and sustained engagement throughout the school's culture.

Hence, peer mentorship could be incorporated into the pedagogy of higher education and as a way to improve student success, rather than being considered as an extra curricular service. This empirical research should serve as a foundation for future peer mentoring research through longitudinal, multi-institutional, and experimental approaches that will help expand the causal evidence base and that will help researchers understand the impact of peer mentoring on undergraduate development.

REFERENCE LIST

[1] Yang, W., Das, S.K. and Sisugoswami, M., 2025. Focus On Role Of Peer Mentorship Programs In Shaping Learning Attitudes And Fostering A Proactive Academic Culture Among Undergraduates. Advances in Consumer Research, 2(6).

[2] Yang, W., Das, S.K. and Sisugoswami, M., 2025. Examine The Impact Of Peer Mentorship Programs On Influencing Learning Attitudes And Promoting A Proactive Academic Culture Among Undergraduates. Advances in Consumer Research, 2(6).

[3] Venegas-Muggli, J.I., Barrientos, C. and Álvarez, F., 2023. The impact of peer-mentoring on the academic success of underrepresented college students. Journal of College Student Retention: Research, Theory & Practice, 25(3), pp.554-571.

[4] Teshera-Levye, J. and Vance-Chalcraft, H.D., 2024. Peer mentorship and academic supports build sense of community and improve outcomes for transfer students. Journal of Microbiology and Biology Education, 25(1), pp.e00163-23.

[5] Gamlath, S., 2022. Peer learning and the undergraduate journey: a framework for student success. Higher Education Research & Development, 41(3), pp.699-713.

[6] Lapon, E. and Buddington, L., 2024. The impact of peer mentoring in first-year education students. International Journal of Mentoring and Coaching in Education, 13(1), pp.73-87.

[7] Byars-Winston, A., Rogers, J.G., Thayer-Hart, N., Black, S., Branchaw, J. and Pfund, C., 2023. A randomized controlled trial of an intervention to increase cultural diversity awareness of research mentors of undergraduate students. Science Advances, 9(21), p.eadf9705.

[8] Le, H.G., Sok, S. and Heng, K., 2024. The Benefits of Peer Mentoring in Higher Education: Findings from a Systematic Review. Journal of Learning Development in Higher Education.

[9] Wong, S.P., Soh, S.B. and Wong, M.L.L., 2022. Intercultural mentoring among university students: The importance of meaningful communication. International Journal of Intercultural Relations, 91, pp.13-26.

[10] Suiter, S., Byars-Winston, A., Sancheznieto, F., Pfund, C. and Sealy, L., 2024. Utilizing mentorship education to promote a culturally responsive research training environment in the biomedical sciences. PLoS One, 19(8), p.e0291221.

[11] Tsang, A., 2023. The value of a semi-formal peer mentorship program for first-year students' studies, socialization and adaptation. Active Learning in Higher Education, 24(2), pp.125-138.

[12] Williams, C.J., Chen, J.M., Quirion, A. and Hoeft, F., 2024, April. Peer mentoring for students with learning disabilities: the importance of shared experience on students' social and emotional development. In Frontiers in Education (Vol. 9, p. 1292717). Frontiers Media SA.

[13] Krishna, L.K.R., Hamid, N.A.B.A., Phua, G.L.G., Mason, S., Hill, R., Lim, C., Ong, S.Y.K., Ong, E.K. and Ibrahim, H., 2024. Peer mentorship and professional identity formation: an ecological systems perspective. BMC medical education, 24(1), p.1007.

[14] Flott, E., Ball, S., Hanks, J., Minnich, M., Kirkpatrick, A., Rusch, L., Koziol, D., Laughlin, A. and Williams, J., 2022, September. Fostering collaborative learning and leadership through near-peer mentorship among undergraduate nursing students. In Nursing forum (Vol. 57, No. 5, pp. 750-755).
[15] Krishna, L.K.R., Pisupati, A., Teo, K.J.H., Teo, M.Y.K., Quek, C.W.N., Chua, K.Z.Y., Venktaramana, V., Raveendran, V., Singh, H., Hui, S.L.W.C. and Ng, V.W.W., 2023. Professional identity formation amongst peer-mentors in a research-based mentoring programme. BMC medical education, 23(1), p.787.
[16] Mulaudzi, I.C., 2023. Factors affecting students' academic performance: a case study of the university context. Journal of Social Science for Policy Implications, 11(1), pp.18-26.
[17] Nowell, L., 2022. Beyond tradition: Innovative mentorship models for higher education. Papers on Postsecondary Learning and Teaching, 5, pp.1-8.
[18] Bacon, E.D. and Maneerutt, G., 2024. Enhancing English as a foreign language academic writing through AI and peer-assisted learning. Journal of Institutional Research South East Asia, 22(3), pp.282-314.
[19] Black, S., Byars-Winston, A., Cabrera, I. and Pfund, C., 2022. Enhancing research mentors' cultural awareness in STEM: A mentor training intervention. UI journal, 13(1), p.36522.
[20] Oliveira, A.W., Musah, R.A., Zacharia, Z.C., Pavlou, Y., Sgro, C.M., Lathrop, R., Kim, Y., Espinosa, K., Japashov, N. and Park, J., 2025. The persistent problem of undergraduate student attrition in STEM. International Educational Review, 3(1), pp.85-111.
[21] Ong, Y.T., Quek, C.W.N., Pisupati, A., Loh, E.K.Y., Venktaramana, V., Chiam, M. and Krishna, L.K.R., 2022. Mentoring future mentors in undergraduate medical education. PLoS One, 17(9), p.e0273358.
[22] Martin, A., Mori, J. and Froehlich, D.E., 2023. Career development of early career researchers via distributed peer mentoring networks. Merits, 3(3), pp.569-582.
[23] Hagler, M., Johnson, R., Boags, J. and Snipe, L., 2025. A qualitative thematic analysis of first-generation college students' help-seeking attitudes, decisions, and behaviors. Journal of College Student Retention: Research, Theory & Practice, 27(3), pp.631-654.
[24] Rolando, B. and Mulyono, H., 2025. The mediating effect of PAE, subjective norms, and PBC on the impact of diverse learning environments on students entrepreneurial intentions. International Journal of Pedagogy and Teacher Education, 9(1), pp.119-137.
[25] Lillekroken, D., Kvalvaag, H.M., Lindeflaten, K., Fløtlo, T.N., Krogstad, K. and Hessevaagbakke, E., 2024. Educating the nurses of tomorrow: exploring first-year nursing students' reflections on a one-week senior peer-mentor supervised inspiration practice in nursing homes. BMC nursing, 23(1), p.132.
[26] Preovolos, C., Grant, A., Rayner, M., Fitzgerald, K. and Ng, L., 2024. Peer mentoring by medical students for medical students: a scoping review. Medical Science Educator, 34(6), pp.1577-1602.
[27] Pölczman, L., Jámbor, M., Győrffy, Z., Purebl, G., Végh, A. and Girasek, E., 2024, March. A qualitative study of mentors' perceptions and experiences of a near-peer mentoring program for medical students. In Frontiers in Education (Vol. 9, p. 1372697). Frontiers Media SA.
[28] Gower, S., Jeemi, Z., Wickramasinghe, N., Kebble, P., Forbes, D. and Dantas, J.A., 2022. Impact of a pilot peer-mentoring empowerment program on personal well-being for migrant and refugee women in Western Australia. International Journal of Environmental Research and Public Health, 19(6), p.3338.
[29] Penman, M., Tai, J., Evans, G., Brentnall, J. and Judd, B., 2024. Designing near-peer mentoring for work integrated learning outcomes: a systematic review. BMC Medical Education, 24(1), p.937.
[30] Gower, S., Jeemi, Z., Forbes, D., Kebble, P. and Dantas, J.A., 2022. Peer mentoring programs for culturally and linguistically diverse refugee and migrant women: an integrative review. International Journal of Environmental Research and Public Health, 19(19), p.12845.
[31] Bussu, A. and Burton, S., 2022. Higher education peer mentoring programme to promote student community using Mobile Device Applications. Gr