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ARTICLE

A study of the correlation between friendship quality and students' academic achievement

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Abstract: Peers within the school environment, especially friends, play an important role in the academic success and overall learning process of children. This study examined the association between friendship quality and academic achievement, including students engagement and their grade. A total of 318 students (171 male, 144 female and 3 others), aged 11-17 from middle and high schools, participated in our research. Friendship Quality Scale (FQS), developed by Bukowski (1994), was studied for peer relationship in 5 sub-scales, while academic achievement was measured by Student Engagement in School (SES) by Lam et al. (2014), and Teacher Engagement Report Form-New (TERF-N) designed by Hart (2011) and students' academic grade. Data was collected using paper-based questionnaires and the evaluation by the class teacher of students' engagement and the average grade from the last semester. As a result, 58% of the students had high quality of friendship, indicating good characteristics of companionship, mutual help, closeness, security and lower level of conflict, which are good examples of high-quality friendship. Majority of the students were academically successful, and they also demonstrated high performance and reported good engagement in both self and teacher assessed engagement. Girls obtained higher score in both FQS and academic grade. The correlation result revealed that friendship quality was correlated at positive moderate level with achievement, and supportive and close friendship enhanced academic performance, while conflict predicted negative outcomes.

Keyword: *adolescence, peer relationship,conflict, help, closeness, student engagement;*

INTRODUCTION

Adolescence is a developmental stage during which individuals begin recognising their psychological characteristics and traits in order to better understand themselves and their place in the society. During this stage, adolescents engage in peer communication to satisfy their social needs and regulate their emotions. Personal growth takes various forms, including the development of leadership skills, the pursuit of social recognition, and the formation of friendships, all of which motivate students' behaviour [1].

Adolescents' need for self-awareness and self-esteem is often conflicting. There are also differences in the self-esteem dimensions, such as academics, sports, appearance, social relationships, and moral behaviour. As children undergo transition into adolescence, they experience numerous changes (e.g., physical and developmental)

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that can negatively impact their mental health, leading to depression and anxiety, they experience numerous changes (e.g., physical and developmental) that can negatively impact their mental health, leading to depression and anxiety, thereby reducing overall life satisfaction [2]. Mental health issues among adolescents were associated with negative outcomes, such as poor academic performance, risky behaviour, and suicidal ideation [3]. Furthermore, lack of belonging to a group in adolescence has been shown to be a risk factor for current and future problems, such as loneliness, suicide, mental health problems, antisocial behaviour, and crime [4]. Peers within the school environment, especially friends, play an important role in the academic success and overall learning process [5]. Students who are engaged well and academically successful tend to form friendship with peers who are equally dedicated as them to their studies. On the other hand, students with lower level of achievement tend to seek out friends who are similarly passive, less successful, and interfere with their academic activities [6]. Compared with adolescents without friends, children with at least one friend perform better academically [7]. As children develop from adolescence into adulthood, friendship gradually evolve into more intimate, supportive, and mutually beneficial relationship. During this stage, friends begin to value honesty and intimacy more, and they start to feel more confident and are able to express themselves openly. Friendship is developed through conversation among girls, while it is shared through activities for boys [8]. In addition, adolescent girls are likely to establish closer same-sex friendship than boys. Adolescents increasingly tend to rely on their friends rather than their parents [9] in order to develop their self-awareness, self-esteem, and cope with problems and difficulties [10]. Friendship in adolescence is considered to play a central role in development, facilitating social interaction as well as preventing negative influences. In addition, it is associated with reduced depression, suicidal ideation, and anxiety. Having friends has been identified as an important factor in successful development, as researchers have found that it has a positive impact on many factors, including social well-being, academic achievement [11], liking school, active engagement, and success in school, and being in good terms with classmates.

Literature review

Learning is a process through which students acquire new skills, knowledge, and habits. Academic success not only shapes students' social status and self-actualisation, but also reflects their motivation and engagement in school. Students with higher academic achievement tend to hold positive attitudes toward homework [12], invest more time in academic tasks [13], and engage in school-related interactions with academically motivated peers. This social reinforcement of academic norms is consistent with Ryan's [6] socialisation framework, which posits that peer groups actively shape adolescents' motivation, engagement, and achievement. To explain the mechanisms underlying these patterns, the present study is grounded in three complementary theoretical perspectives.

Sullivan's Interpersonal Theory of Psychiatry (1953) [as cited in 10] posits that close, reciprocal peer relationships are essential for healthy psychological development during adolescence. Sullivan argued that intimate friendship characterised by mutual understanding, trust, and self-disclosure enable adolescents to develop self-esteem, empathy, and social competence. In the academic context, such high-quality friendship may reduce anxiety, increase a sense of belonging, and thereby create conditions conducive to sustained learning and engagement. The present study directly operationalises Sullivan's constructs through the Friendship Quality Scale subscales of closeness, security, and help. Friendship that includes prosocial traits, intimacy, and low conflict can be

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described as high-quality, while conflicted or poor-quality peer relationships carry negative consequences for both psychological development and academic performance.

Vygotsky's Socio-cultural Theory (1978) further underscores the role of social interaction in cognitive development. According to Vygotsky, learning is fundamentally a social process mediated by language and collaborative activity with more capable peers. Within this framework, friendship serves not merely as a source of emotional support but also as a cognitive scaffolding: friends discuss academic content, co-regulate learning strategies, and motivate each another within the zone of proximal development. High-quality friendship, characterised by helpfulness and low conflict, s therefore expected to create optimal conditions for peer-mediated learning, directly linking friendship quality to academic achievement and engagement outcomes measured in this study.

These two frameworks are complemented by Fredricks and colleagues' [14] tripartite model of student engagement, which classifies engagement into three interdependent components: behavioural (participation in academic, social, and extracurricular activities), emotional (affective responses to teachers, classmates, and school), and cognitive (depth of effort and strategic investment in learning). This model provides the operational lens for measuring academic engagement in the present study. Sullivan's theory speaks most directly to the emotional and behavioural dimensions, including belonging, security, and school participation, while Vygotsky's framework illuminates the cognitive dimension, explaining how peer collaboration and co-regulation within friendship, support deeper academic processing. Skinner et al. [15] further demonstrated that engagement across all three dimensions is closely tied to the quality of students' social relationships, reinforcing the theoretical bridge between friendship quality and engagement.

Having friends has been identified as a positive factor in social well-being, school liking, active engagement, and academic achievement [11]. Students who are engaged and academically successful tend to form friendship with equally dedicated peers, whereas lower-achieving students more often seek out similarly passive social circles [6]. Adolescent girls are more likely to establish close same-sex friendship than boys [8], and adolescents increasingly rely on peers rather than parents for emotional support and self-esteem development [9, 10]. Together, these theoretical perspectives and empirical findings suggest that friendship quality operates as both a psychosocial and cognitive resource that reinforces student engagement and academic performance, as examined in the present study.

MATERIALS AND METHODS

Participants

The study involved a total of 353 students aged 11 to 17 from middle and high schools. After applying inclusion criteria, 318 valid cases were analysed (171 males, 144 females, 3 identifying as other). The majority of participants reported having a close friend in the same class (83%) and maintaining friendship for 1–2 years (35%). Because the number of participants identifying as "other" gender was insufficient for statistical analysis (n = 3), gender-related analyses were conducted including only male and female participants.

Study Design

The independent variables in the study were friendship quality, gender, and duration of friendship, while the dependent variable was academic achievement.

Measures

The **Friendship Quality Scale (FQS)** was initially developed by Berndt and Perry in 1983 and later revised by Bukowski, Hoza, and Boivin at Concordia University in 1994 [16]. The FQS consists

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of 23 items measuring five dimensions: companionship, conflict, help, security, and closeness. Participants rated each item on a 5-point Likert scale (1 = not at all true, 5 = really true). For scoring, items 2, 7, 12, 14, and 17 were reverse-coded. Levels of friendship quality were determined based on whether participants' scores were above or below the sample mean. The FQS has been widely used internationally and is considered culturally generalisable, making it suitable for this study.

The **Student Engagement in School (SES)** was developed by Lam in 2011 in collaboration with international researchers, validated for reliability, and published in 2014 [17]. The SES comprises 33 items assessing three dimensions: emotional, behavioural, and cognitive engagement. Participants responded using a 5-point Likert scale (emotional and behavioural: 1 = strongly disagree, 5 = strongly agree; cognitive: 1 = never, 5 = always). Items 5, 14, 15, and 16 were reverse-coded. Engagement levels were determined based on whether the participants' scores were above or below the sample mean.

The **Teacher Engagement Report Form – New (TERF-N)** is a concise adaptation of the TERF-O developed by Hart, Stewart, and Jimerson at the University of California in 2011 [18]. The scale consists of 10 items covering emotional engagement *(items 1–3)*, behavioral engagement *(items 4–7)*, and cognitive engagement *(items 8–10)*. Teachers rated students' engagement on a 5-point Likert scale *(1 = strongly disagree, 5 = strongly agree)*. Although teacher-rated engagement is a common global practice, combining it with students' self-reported engagement provides a more comprehensive and reliable measure of engagement and achievement [17].

Reliability and Normality

The reliability of the Friendship Quality Scale (FQS), Student Engagement in Schools (SES), and Teacher Engagement Report Form-New (TERF-N) were each found to be sufficient (α_{FQS} =.836; α_{SES} =.849; $\alpha_{TERF\text{-}N}$ =.898) and suitable for use in the study. The One-Sample Kolmogorov-Smirnov test in FQS, SES and TERF-N resulted p_{FQS} =.000; p_{SES} =.027; $p_{TERF\text{-}N}$ =.000, respectively. Therefore, non-parametric statistical analyses were used to examine the data.

RESULTS AND DISCUSSION

Students' engagement. In the study, 62% of the participants reported good engagement in the school environment, with girls showing higher engagement than boys, U = 10559.00, p = .028.

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The results showed that participants reported a high level of emotional engagement (e.g., enjoying learning, liking school) and behavioural engagement (e.g., being diligence, extracurricular participation), while cognitive engagement (e.g., approaching academic content in a creative and comprehensible manner) was relatively low *(shown in Figure 1).*

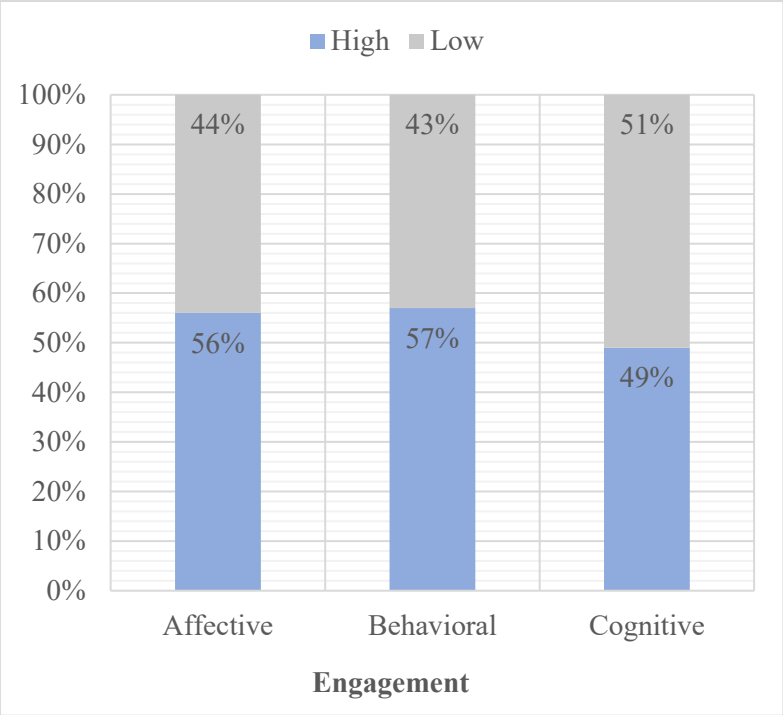

Figure 1. Students' engagement in school subscales.

Teacher engagement report. According to teacher reports, the majority of students demonstrated good levels of engagement. Students who had maintained a close friendship for more than one year were evaluated as having higher engagement, $H_{(5)} = 12.16$, $p = .033$. With respect to age, 15-year-old students tended to report greater enjoyment of school and more positive attitudes toward learning, whereas 11-year-old students were described as more diligent and hardworking, more frequently involved in extracurricular activities, and approaching lessons in a more creative manner.

Academic grade. Most students received an A grade. For analytical purposes, academic performance was grouped into above-average (A or B) and below-average (C or D) categories. A large proportion of students achieved higher grades, while the remaining students received lower grades. Girls achieved significantly higher academic grades than boys, $U = 8765.00$, $p < .001$, Mean Rank $_{Girls} = 184.12$, Mean Rank $_{Boys} = 138.32$.

The table shows the following:

- Students with good academic performance (A, B) are mostly friends with peers who also have good academic performance.
- Students with lower academic performance (C, D) have friends who perform well, but they more often have friends with similar academic performance.
- The majority of students are friends either with peers of the same academic level or with those who perform better academically *(see Table 1).*

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Table 1. Comparison of academic grade between students and their friends.

	Grade	Students close friend's grade				
		A	B	C	D	F
Students grade	A	76%	18.7%	1.3%	2%	0.7%
	B	54%	31.7%	5.6%	2.4%	1.6%
	C; D	48.8%	36.6%	4.9%	2.4%	0%

Students with higher academic performance rated their own engagement positively (Mean Rank $_{GPA\_high}$ = 167.55, Mean Rank $_{GPA\_low}$ = 106.63), as did their teachers (Mean Rank $_{GPA\_high}$ = 171.33, Mean Rank $_{GPA\_low}$ = 81.76). A Friedman test revealed significant differences across students' self-assessments, teacher assessments, and GPA, $\chi^2(2) = 618.05$, $p < .001$. Mean ranks showed that students rated their engagement highest (Mean Rank = 2.97), followed by GPA intermediate (Mean Rank = 2.03), and teacher ratings lowest (Mean Rank = 1.00).

Table 2. Comparison between student self reported and teacher-rated engagement.

	Assessment	Students engagement self-assessment scale		GPA	
		High	Low	High	Low
Teachers Engagement Report Form-New scale	High	64.1%	35.9%	93.2%	6.8%
	Low	51.2%	48.8%	69%	31%

Post-hoc Wilcoxon signed-rank tests with Bonferroni correction confirmed that students' self-assessed engagement was significantly higher than both teacher assessment (Mean Rank = 159.50, $p < .001$) and GPA (Mean Rank = 163.23, $p < .001$), and teacher assessments were significantly lower than GPA (Mean Rank = 159.50, $p < .001$). The persistent discrepancy between student self-ratings and teacher-rated engagement may reflect a self-enhancement bias or difference in the behavioural indicators each rater attends to. From a practical standpoint, this discrepancy underscores the importance of combining multiple informants when assessing adolescent engagement.

Academic achievement. In this study, student achievement was defined as high performance across three measures simultaneously: self-reported engagement, teacher-assessed engagement, and academic grades, reflecting students who are actively engaged, recognised by teachers, and achieve strong academic outcomes.

Based on engagement and grades, students were classified as: Successful (high on all three measures; n = 147, 46.2%), Unsuccessful (low on all three measures; n = 14, 4.4%), and Conflicted (inconsistent across measures; n = 157, 49.4%). The high proportion of students with conflicted performance is a notable finding. *"Conflicted performance"* refers to students whose outcomes are *inconsistent* across the three measures, which are self-assessed engagement, teacher-assessed engagement, and GPA. These students cannot be classified as "successful" because they perform poorly on at least one measure, yet they cannot be classified as "unsuccessful" because they perform well on at least one measure. So, this group captures students with inconsistent or conflicting performance - strong in some areas but weak in others. They are the third category alongside clearly successful and clearly unsuccessful students.

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A Kruskal–Wallis H test confirmed significant differences across achievement groups for all key variables: TERF-N, $H_{(2)} = 76.465$, $p = 0.000$; GPA, $H_{(2)} = 68.919$, $p < .001$; and SES, $H_{(2)} = 134.863$, $p < .001$.

Academic achievement differs by gender, with girls performing academically successful, $U = 9106$, $p < .001$. Most students reported good engagement at school, with girls showing higher levels than boys *(shown in Figure 2)*. Emotional and behavioural engagement were generally strong, while cognitive engagement was lower. Teachers' reports aligned with students' self-reports, indicating that students with long-term friendship showed higher engagement.

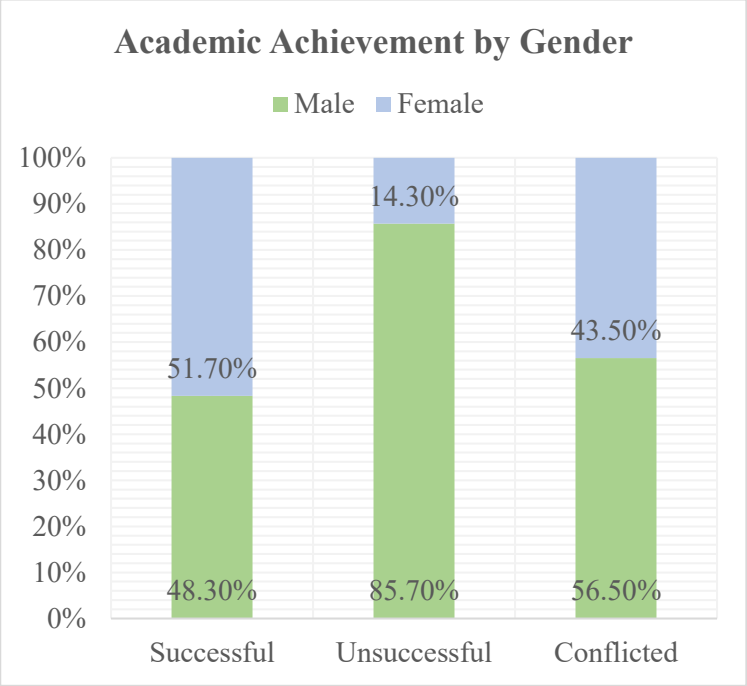

Figure 2. Gender differences across academic achievement groups.

Academic performance was generally high, and students tended to be friends with peers of similar or better academic achievement. Students' self-rated engagement was higher than teacher assessments, but corresponded with academic performance. Based on engagement and grades, students were classified as successful, unsuccessful, or conflicted, with many showing inconsistent performance across measures. Girls were more likely to be classified in the successful group.

Friendship Quality. Overall, 58% of students reported a high quality of friendship. Across subscales, students scored highest on companionship, help, security, and closeness, with lower scores on the conflict subscale, indicating generally positive peer relationships.

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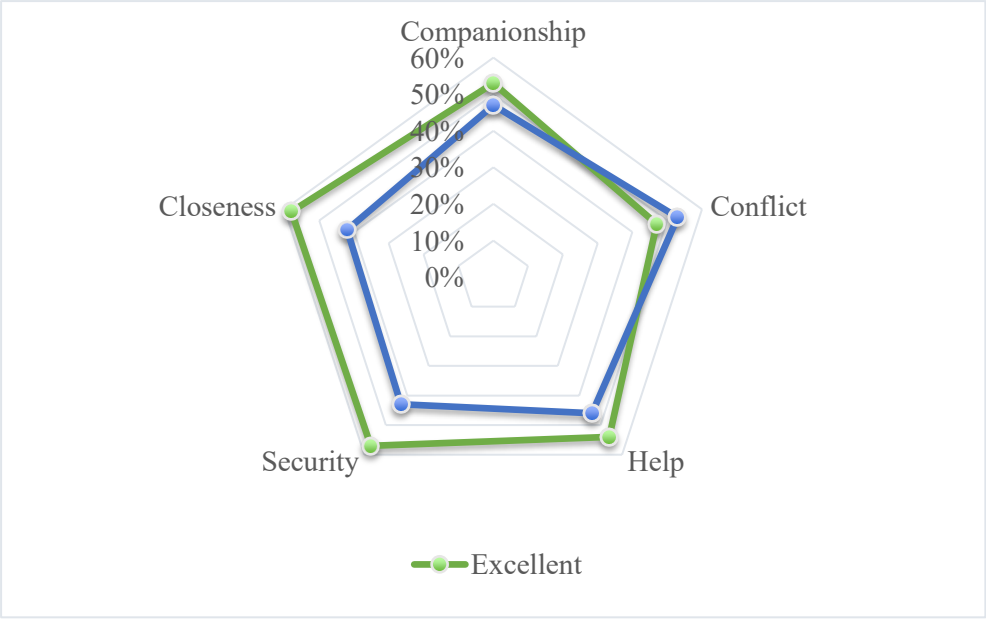

Figure 3. Friendship quality subscales.

Gender differences in friendship quality were examined using Mann–Whitney U tests. Significant differences were found for conflict, help ($U = 8921.00$, $p < .001$), security ($U = 9927.00$, $p = .003$), and closeness ($U = 7219.00$, $p < .001$), whereas, no significant difference was found in companionship ($U = 11142.50$, $p = .140$). Girls reported higher levels of helpfulness, security, and closeness, while boys scored higher on conflict. This finding aligns with established gender-differentiated socialisation patterns in which girls are socialised toward relational intimacy and boys toward status and conflict-oriented peer norms [8].

Most participants formed friendships with same-gender peers. Significant differences in overall friendship quality ($U = 8594.50$, $p < .001$) and subscales of conflict, help, security, and closeness were found based on friend gender, with friendship involving girls characterised by greater supportiveness and closeness, and those involving boys by higher conflict. Adolescents who primarily met their best friends in person (rather than online) reported higher companionship ($U = 3174.00$, $p < .001$), and those with friendship lasting more than five years showed significantly higher scores in companionship ($H(2) = 34.40$, $p < .001$), security ($H(2) = 12.80$, $p = .025$), and closeness ($H(2) = 11.15$, $p = .048$). Meanwhile, children who had been friends for only 1–3 months reported lower levels of conflict.

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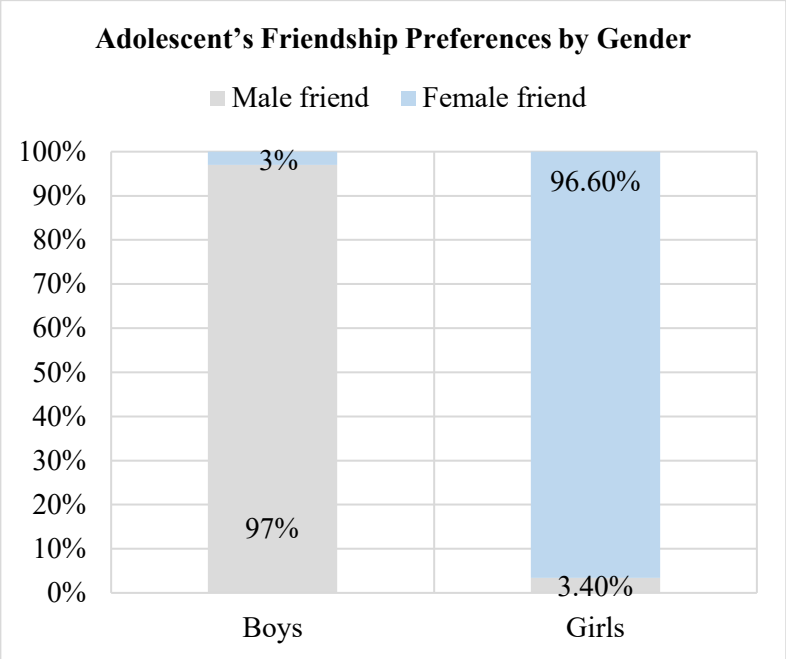

Figure 3. Gender composition of friends among adolescents.

Developmental differences were also observed. For 11-year-olds, the defining characteristic of friendship was having a friend who helps them, whereas for 17-year-olds, friendship was more strongly associated with having a friend who understands them. In other words, the current findings provide empirical support that aspects of friendship quality, such as supportive behaviors, are integral to children's perception of what constitutes a meaningful friendship. This developmental shift mirrors Sullivan's theoretical progression from need-based to intimacy-based friendship ideals across adolescence.

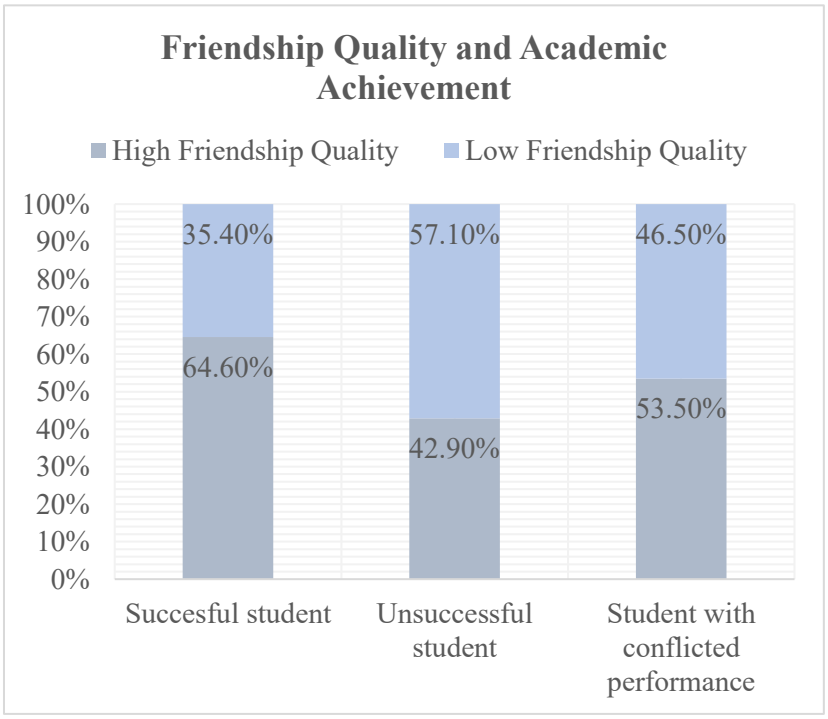

Figure 4. Friendship quality and academic achievement.

A Kruskal–Wallis H test examining differences in friendship quality across the three achievement groups, yielded a statistically significant result, H(2) = 6.930,

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p = .031. Students classified as successful tended to report high-quality friendship, whereas students classified as unsuccessful reported lower friendship quality.

Results of the correlation between friendship quality and academic achievement

The correlation between academic achievement and friendship quality was examined using Pearson's correlation. Academic achievement was classified into *high and low achievement groups* for the analysis. The results indicated a positive moderate correlation between friendship quality and academic achievement at the 0.01 significance level (r = .303, n = 161, p < .001).

Analysis of the five subscales of friendship quality in relation to academic achievement indicated a weak negative correlation for conflict, and weak positive correlations for help and intimacy *(Table 3).*

Table 3. Correlation between academic achievement and friendship quality subscales.

	Conflict	Help	Closeness
r	-.273**	.290**	.261**
p value	.000	.000	.001

**: Correlation is significant at the 0.01 level (2-tailed).

Help and closeness of friendship are important in order to support students' academic achievement conflict. Specifically, a one-unit increase in conflict between friends was associated with a decrease of .273 in academic achievement. In contrast, higher levels of support and intimacy were linked to improvements in academic achievement by .290 and .261, respectively. These findings suggest that reducing and solving conflicts among friends, while fostering mutual support, perceived encouragement, and intimacy, may be effective in enhancing students' academic achievement.

Friendship quality was associated with students' academic achievement. Students with higher achievement reported higher-quality friendship, while lower-achieving students reported lower friendship quality. Correlation analyses indicated a moderate positive relationship between overall friendship quality and academic achievement. Specifically, conflict within friendship was negatively associated with achievement, whereas support and closeness were positively related. These findings suggest that fostering supportive, intimate friendship and reducing conflict may contribute to better academic outcomes.

Vygotsky's Socio-cultural Theory offers a complementary explanation, which found that students who maintained long-term friendship were rated as more engaged by teachers, and this aligns with the notion that sustained peer relationship provides the stable scaffolding necessary for cognitive co-regulation over time. Taken together, these patterns underscore the importance of not only quantifying friendship quality, but qualitatively understanding how students experience and utilise their peer relationships as resources for learning.

CONCLUSIONS

The findings of this study emphasise the important role of friendship quality in adolescents' academic engagement and achievement. Most Mongolian adolescents reported high-quality friendships, characterised by companionship, support, security, and closeness, with relatively low levels of conflict. Gender differences were observed, with girls reporting higher levels of support, security, and closeness, while boys experienced more conflict. Friendship was generally formed with peers of the same gender, and face-to-face and longer-lasting friendship was associated with higher-quality friendship. Age differences also influenced perceptions of friendship,

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with younger adolescents emphasising instrumental support and older adolescents valuing understanding and emotional closeness. These findings are consistent with the research suggesting that supportive and intimate friendship contribute to adolescents' social and psychological development [10].

Friendship quality was positively associated with academic achievement. Students with higher achievement reported stronger, more supportive, and closer friendships, whereas students with lower achievement experienced more conflict in their peer relationships. Analyses of the subscales of friendship quality showed that conflict was negatively related to academic performance, while help and closeness were positively associated. These results align with the theoretical propositions of Sullivan and Vygotsky: intimate and supportive friendship provide the psychological security, cognitive scaffolding, and social capital that enable students to engage more fully with their learning. These results support prior findings that high-quality friendship can enhance students' learning outcomes and overall engagement [7, 11].

In terms of engagement, girls demonstrated higher engagement in schools than boys, both in self-reports and teacher assessments. Students who maintained long-term friendship were perceived by teachers as more engaged, highlighting the role of peer relationships in supporting academic involvement and motivation. Academic achievement and engagement were closely intertwined, with higher-achieving students showing greater consistency across self-reports, teacher evaluations, and overall performance. These findings reflect the interplay between peer relationships and academic development, emphasising that friendship not only provides social support but also promotes motivation, persistence, and positive attitudes toward learning.

Overall, this study demonstrates that high-quality friendship, marked by companionship, help, security, closeness, and low conflict, plays an important role in promoting adolescents' academic success. Consistent with Sullivan's Interpersonal Theory, Vygotsky's Socio-cultural Theory, and the present findings confirm that friendship quality operates simultaneously as a psychological, cognitive, and social resource for academic development. Fostering supportive and meaningful peer relationships may therefore be an effective approach to enhancing students' educational outcomes and performance. Future research would benefit from incorporating qualitative methods, such as interviews or focus groups, to more richly capture students' subjective experiences of peer relationships and their perceived influence on academic motivation and achievement.

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Ethical Approval

There are no ethical issues with the publication of this article.

Author Contribution

The authors confirm contribution to the paper as follows: SB conceptualisation, data collection, formal analysis and writing original draft. KhB Conceptualisation, supervision, methodology, writing review and editing. All authors reviewed the results and approved the final version of the article.

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Conflict of Interest

The authors declare no conflict of interest.

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