

# ***The Effect of Peer Relationship on Academic Performance in High School Students***

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**Abstract:** Due to the singleness of high school students' contact with social groups and the onerous nature of learning tasks, peer relationships have become one of the most important interpersonal relationships among high school students. Moreover, peer relationships have been proven to have a certain impact on their academic performance. Based on this fact, this study mainly explains three indicators of peer relationship: the number of friends, friends' academic performance, and the quality of friendship. The interrelationship and internal impact mechanisms of peer relationships on the academic performance of high school students were also discussed. A cluster sampling method was used to collect a sample of 165 high school students. The Friendship Quality Scale was used to measure the quality of friendship among high school students. Furthermore, the present study explored the interaction between peer relationships and academic performance among high school students. According to the research results, we find that Peer relationships among high school students have a significant impact on academic performance. The better peer relationships are, the better the students' academic performance is. The author suggests that good peer relationships should be used in students' daily study life, which does good to their physical and mental fitness.

**Keywords:** peer relationships, academic performance, friendship, teenagers

## **1. Introduction**

The high school stage is an important period for students' lifelong development. During this period, students' physiology and psychology is undergoing dramatic changes, gradually transitioning from immaturity to maturity. During this period, teenagers' learning tasks have significantly increased, students' school hours have lengthened, thus they spend far more time interacting with peers than their parents and family. In other words, campus Life makes the transition of their social interaction objects from elders to peers. Therefore, peer relationships play a crucial role in the development of students' mental health and academic performance at this stage. For junior high school students, the target audience is no longer just parents and family, but more classmates and partners of their own age. Many studies have shown that peer relationships have a profound impact on students' socialization, personality development, and academic performance.

Students in the secondary school stage often face greater pressure to enter higher education, and their performance has become an important criterion to measure their abilities. The academic

performance of high school students is related to their future development prospects, which determines whether they can successfully enter higher education. As the Chinese saying goes, “What’s near cinnabar goes red, and what’s next to ink turns black “ This fully reflects the important role of peer relationships in students’ future development. This article will take high school students as the research object, combining the number of friends, friend scores, and friendship quality as impact factors to deeply explore the role of peer relationships on academic performance. This study will provide theoretical basis for further effectively integrating peer relationships among high school students into teaching.

## **2. Literature Review**

### **2.1. Peer Relations**

Peer relationship refers to a mutual assistance and collaborative relationship formed during communication and communication between people of the same or similar ages [1-3]. Peer relationship can be measured in two dimensions: friendship and peer acceptance. Friendship is a two-way emotional expression that reflects the emotional connection between two individuals, while peer acceptance is one-way, reflecting the group’s attitude towards the individual [4].

Due to the limitations of students’ development level and educational environment, peer relationships have become an important way for them to socialize and obtain external information, which plays an irreplaceable role in their growth. Chinese teaching methods have not fully integrated peer relationships into students’ learning, and classroom passive indoctrination is still the main method. However, about the education methods in Western countries, group cooperation, group discussion, and other collective learning activities have become very common. Some studies have found that traditional education models in China pay more attention to the output process of knowledge, namely, teaching methods, while foreign education models pay more attention to communication and interaction with students. Students can devote themselves to practice based on the knowledge taught by teachers.

### **2.2. The Role of Peer Relationships**

#### **2.2.1. The Effect of Peer Relationships on Academic Performance**

Research has proven that peer relationships have a direct impact on students’ academic performance [5]. Good peer relationships can make students’ learning outcomes more outstanding [6]. In Wang Wei’s research, using a peer rating scale, participants were asked to rate each person based on their preferences, and a hierarchical evaluation method was used to measure peer relationships. In this study, the correlation coefficient between peer relationship and academic performance is 0.373 ( $p < 0.01$ ), indicating that there is a significant positive correlation between peer relationship and academic performance of junior high school students, and it is significant at the 0.01 level. On the contrary, academic performance also has a reverse effect on peer relationships. Previous studies have found that peer relationships are more likely to exist among students with similar academic performance [7,8]. It is precisely because students’ attitudes towards learning processes and expectations of learning outcomes are similar that they exhibit similar academic performance, and similar learning attitudes and expectations can lead to more emotional resonance among students, which could create peer relationships between students. In addition, in China’s education system, academic achievement, as an important measure of students’ abilities and attitudes, also has a negative impact on peer relationships. Students seem to be more inclined to interact with classmates with excellent academic performance, while students with medium and poor academic performance are more likely to experience peer rejection. Long periods of neglect and rejection can cause immeasurable harm to

their physical and mental health which may in turn promote the occurrence of problematic behaviors. Some scholars have found that adolescents who are often rejected by peers are more likely to have bad behavior, and individuals with these bad behaviors are more likely to have group effects that affect academic performance [9].

High school students are at a critical stage in their lives, during which their outlook on life and values are basically formed. In secondary school, communication between students and their peers will increase significantly. Good peer relationships can promote the physical and mental development of adolescents and improve learning outcomes, while poor peer relationships can promote the occurrence of problematic behavior among students. If we can correctly grasp the impact of peer relationships on their academic performance and learning outcomes, it will be more conducive to making full use of peer relationships in the learning process of high school students, thereby improving learning outcomes.

### **2.2.2. The Role of Peer Relationships in Emotional Regulation**

Peer relationships have also been shown to play an important role in emotional regulation in adolescents. Peer relationships are the main source of adolescents' sense of security and emotional support. During adolescence, adolescents experience significant changes in their physical and mental development, and students' emotions can become volatile and introverted. Compared to parents and teachers, their topics with peers will increase significantly, and there will be more contact between men and women. If they do not receive peer recognition and guidance for a long time, it will increase the probability of occurrence of adverse emotions such as depression and anxiety.

Douva and Adelson demonstrated as early as 1966 that good peer relationships can alleviate negative emotions such as anxiety and fear in adolescents. Poor peer relationships can lead to long-term poor psychological status among adolescents [10]. Academic emotions often affect students' learning outcomes and academic performance through self-efficacy, self-regulation, and other ways. Academic performance can be seen as a function of expectations, control, and evaluation of academic outcomes. If students have a high sense of subjective control and value for academic tasks, they are more likely to stimulate positive academic emotions, while on the contrary, they will generate negative academic emotions. According to the control value theory, students with positive academic emotions are more likely to achieve satisfactory academic performance than students with negative emotions. Therefore, peer relationships can help students achieve higher academic performance by enabling them to obtain more positive academic emotions and eliminating negative academic emotions.

### **2.2.3. The Role of Peer Relationships in Student Behavior Development**

As an individual, human beings cannot exist separately from society, and they are interdependent with the social environment. By establishing peer relationships, students can form their own values and behavioral norms, and complete the process of individual socialization. Harris put forward the theory of group socialization in 1995, explaining the process of children's socialization. Harris believes that the process of children acquiring behavior within and outside the family is not simultaneous. Within the family, children's code of conduct is strengthened, often manifested as clear rewards and punishments. However, outside the family, when children perform well, they are generally not praised for it, but if they do something wrong, they will be ridiculed by their peers. Therefore, Harris believes that peer relationships have a greater impact on children's behavior than family environments.

According to Maslow's basic needs theory, human basic needs are divided into five levels according to the degree of closeness and order of occurrence of the relationship with human survival:

physiological needs, security needs, belonging needs, self-esteem needs, and self-realization needs. Among them, peer relationships mainly provide the need for belonging. Research has shown that peer relationships have a direct impact on students' current development and future social adaptability. Zou Hong, a domestic scholar, proposed that peer relationships can provide adolescents with a sense of security and play an important role in their construction of personality and self-understanding.

### **2.3. Factors Affecting Peer Relationships**

#### **2.3.1. Family Education and Income Level**

The level of family education is also an important factor in promoting the development of friendship. Research has found that students from well-educated families have higher friendship quality, while children from disadvantaged families are less likely to receive high-quality and high-value friendships. On the contrary, they are more likely to be rejected by peers, and therefore tend to be marginalized in groups [11].

#### **2.3.2. Similarity Between Habits and Interests**

Studies have found that students of the same race or living closer to each other are more likely to become friends [12]. Because their values and lifestyle are similar, and they are more likely to have common topics and emotional resonance. Previous studies have found that students who experience immigration generally have a higher rate of academic failure. Interests and hobbies are crucial for students to establish peer relationships.

#### **2.3.3. Family Upbringing Mode**

The model of parents' education of students fully reflects their parents' upbringing concepts, which directly determines family relationships and patterns of coexistence. Students' family education provides strong emotional conditions for the establishment of peer relationships. Research has shown that many of the qualities formed in early family life among adolescents can be brought into peer relationships. Students who are often rejected by their peers often have problems with their family interaction patterns, manifested as poor intimacy and communication skills among family members. Students from families with democratic educational models are more friendly to their peers and show a more popular tendency among peers.

In summary, peer relationships play a very important role in the physical and mental development of adolescents during their growth. This study, from the perspective of high school students, explores the impact and predictive role of peer relationships on high school students' academic performance.

### **2.4. Measurement of Peer Relationships**

To study and measure peer relationships, questionnaires and social measurement methods (also known as interview methods) are commonly used [13]. The peer relationship in this study is measured by the number of friends, their academic performance, and the quality of friendship (whether the two parties have gained positive value in the friendship).

This study adopted the Friendship Quality Questionnaire (FQQ) developed by William Bukowski for measurement.

### 3. Research Design

#### 3.1. Subjects

This study adopts the overall sampling method and takes four classes as subjects in the third year of a high school in Harbin. A total of 180 questionnaires were distributed and 166 were recovered. After eliminating invalid questionnaires, the remaining number of valid questionnaires was 165, with an effective rate of 99.3%. The basic information of the subjects is shown in the table 1 below:

Table 1: Demographic variables of the sample.

Variable	attribute	Number of people	proportion
Gender	male	72	43.6%
	female	93	56.4%
Only child	yes	135	81.8%
	no	30	18.2%
Divorce of parents	yes	13	7.9%
	no	152	92.1%

#### 3.2. Research Tools

##### 3.2.1. Basic Situation Investigation

There are three variables summarized in the basic situation survey, namely, the gender of the student, whether the child is an only child, and whether the parents are divorced. Considering that shortly after entering high school in the first and second year of senior high school, their peer relationships and academic status are still unstable, and there is still a risk of change, this study only conducts a questionnaire survey on senior three students.

##### 3.2.2. Peer Nomination

Provide students with a list of classes and ask them to identify an unlimited number of friends they associate with more closely. Divide the number of times each student has been mentioned by the total number of students in the class to obtain a positive nomination ratio, which calculates the number of friends and the popularity of the student in the class.

##### 3.2.3. Academic Achievements

The evaluation results of high school students' academic performance are mainly reflected through scores, and the scoring form can more accurately reflect the differences in students' academic performance. In the subjects studied by high school students, the scores of mathematics, Chinese, and foreign languages occupy the main position. Therefore, in this study, the average scores of students in the three subjects of Chinese, mathematics, and English in the midterm exam of the current semester are calculated as the performance criteria. The midterm exam is a standardized exam with unified propositions from the university and has research value for horizontal comparison.

### 3.2.4. Friendship Quality Questionnaire

The Friendship Quality Questionnaire (FQQ) developed by William Bukowski was used to measure the quality of friendship, including five dimensions: companionship, consistency, help, safety, and intimacy. It included 20 topics, such as “I often do interesting things with my friends”, “When my friends are in a bad mood, I also feel low”, and “When I am with my friends, I feel very happy”. The scale is a five-point scale, with a score of 1 indicating complete disagreement and 5 indicating complete agreement. The subjects were asked to respond according to the actual situation. The higher the total score, the higher the level of friendship quality.

### 3.3. Research Procedures

Before issuing the questionnaire, the class teacher was informed of the purpose and process of the survey, and that the survey had nothing to do with students’ school performance and would not have an impact on their school performance. The questionnaire is distributed in the classrooms of each class and is uniformly distributed by the class teacher during the noon self-study time. In order to avoid situations where students’ vanity, coping, and other psychological factors may lead to untrue questionnaire results, students have been repeatedly informed when distributing the questionnaire that this survey is for academic use only and does not involve specific individuals, and students’ answers will be kept strictly confidential. The duration of the test was ten minutes, and the questionnaire was withdrawn immediately after the end of the time.

## 4. Research results

### 4.1. Relationship Between Friendship Quality and Academic Performance

In this study, 165 students from a senior high school in Harbin, Heilongjiang Province, were selected as a sample. According to the value distribution of friendship quality, friendship quality was grouped and statistically analyzed, and the corresponding average academic performance for each group was calculated. The threshold values for each group’s scores are: G1: [90,100], G2: [80,90], G3: [70,80], G4: [60,70], G5: [0,60]. The average academic performance of each group is shown in Figure 1:

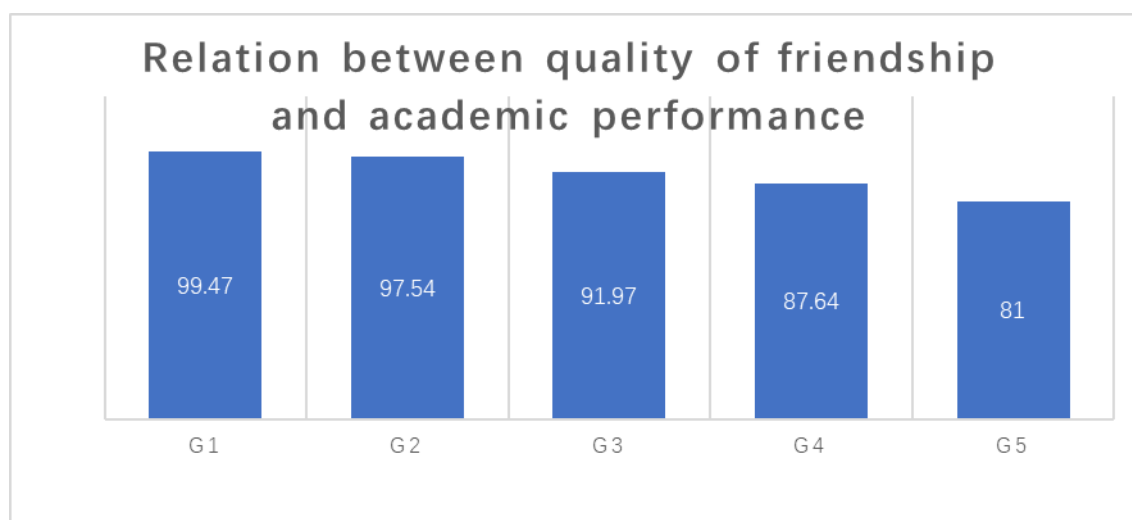


Figure 1: Relation between quality of friendship and academic performance.

From the figure 1, we can see that there is a basically positive correlation between the quality of friendship and academic performance, and students with higher quality of friendship usually have better academic performance.

#### 4.2. The Impact of the Number of Friends on Academic Performance

The number of friends for each group's scores is: G1: [6,10], G2: [4,5], G3: [2,3], G4: [0,1]. The average academic performance of each group is shown in Figure 2:

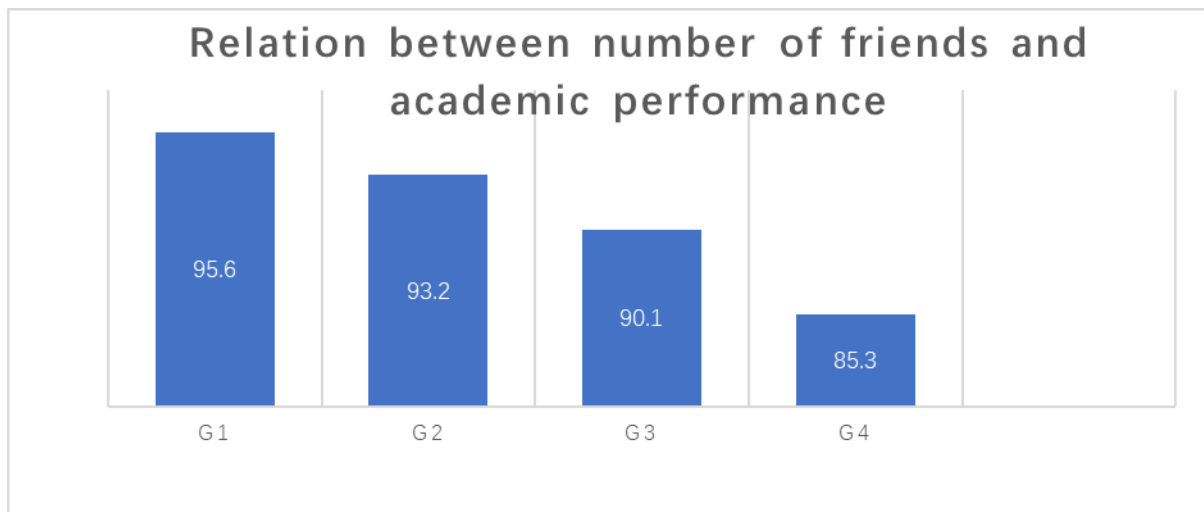


Figure 2: Relation between number of friends and academic performance.

From the figure 2, we can see that students who have more friends often have better academic performance.

#### 4.3. The Impact of Friend Performance on Academic Performance

The friends' academic performance for each group's scores is: G1: [0,80], G2: [80,100], G3: [100,120], G4: [120,150]. The average academic performance of each group is shown in Figure 3:

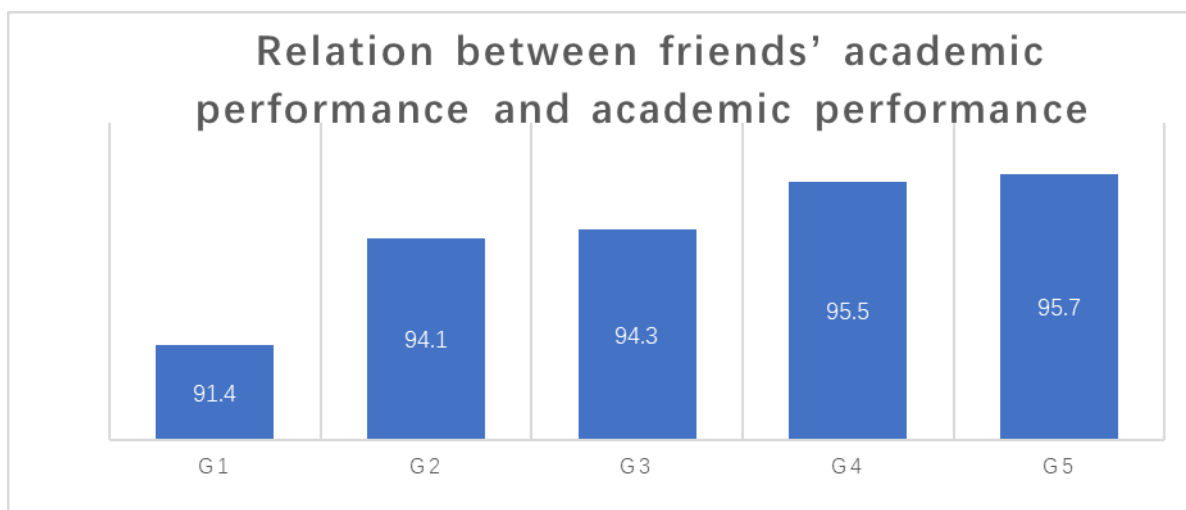


Figure 3: Relation between friends' academic performance and academic performance.



As we can see from Figure 3, there is a basically positive correlation between friends' academic performance and academic performance, and students with higher academic performance from friends usually have better academic performance.

## 5. Discussion

This study examines the relationship between peer relationships and academic performance among high school students and elaborates on their impact on academic performance from three perspectives: the quality of friends, the quality of friendships, and the number of friends. Overall, this study found that the quality of friendship, the number of friends, and the academic achievement of friends are positively correlated with the academic performance of high school students. Those results are consistent with the assumptions of the present study. In other words, peer relationships have a significant impact on students' academic performance during high school. Wdntzel discovered in his experiments that good peer relationships can have a positive impact on students' peer relationships. The peer relationship of high school students is relatively simple, except for the friendship and emotional communication in life, most of them are academic cooperation and competition. In the critical period of learning and development, high school students need not only help and support in learning, but also certain competition to stimulate their learning motivation.

This study found that the friendship quality of female students is generally higher than that of male students, which is consistent with the findings of most researchers, that is, female students generally have higher peer ratings than male students [14]. The author speculates that the differences in the quality of friendship between men and women are mainly caused by gender characteristics and differences. Compared to boys, girls appear earlier in puberty and mature more psychologically and physically than boys.

And girls are more willing to talk and listen, communicate with peers to obtain emotional comfort. Therefore, girls are more likely to engage in group communication activities and obtain emotional support from friendships. Boys, due to their naturally introverted personality, are more willing to keep their worries at heart and refuse to talk to others. Therefore, they rarely have deep emotional exchanges with either the opposite sex or the same sex, and they gain less emotional value in friendship.

In addition, research has found that there is also a gender difference in the impact of friend achievement on high school students' academic performance. The positive predictive effect of friends' academic performance on girls' academic performance is stronger. In the study, if a girl's friends perform better in academic performance, she has a greater probability of achieving good academic performance. The correlation between boys' academic performance and their friends' academic performance is not as significant as that of girls. A study comparing the physical and calculus scores of female students and their friendship groups has found that the scores of female friends have a significant impact on their academic performance. The author speculates that girls may be better at using the learning resources around them to benefit from friends with better grades.

### 5.1. The Limitation of This Study and Its Future Prospects

Firstly, this study only sampled students in the third grade of senior high school for investigation, and the research on the impact of peer relationships on academic performance of the entire high school student group is still one-sided. Senior three students are at the most stressful learning stage in high school, and their physiology and psychology are under tremendous pressure to enter higher education. Therefore, high school students have very limited time to invest in friendship, and there is a possibility that they cannot correctly view and measure friendship.



Secondly this study only investigated the predictive effect of peer relationships on students' academic performance. Peer relationships and academic performance may interact and predict each other, rather than just have a one-way impact. At the same time, other studies have proven that some intermediary factors participate in the relationship between the two. Intermediary factors include peer rejection, parent-child or teacher-student relationships, etc. The influencing factors of academic performance are complex and diverse, and it is not accurate to use peer relationships alone to explain changes in academic performance.

Thirdly, in the basic situation survey, this study investigated the family situation and gender of students but did not take into account the growth environment of students, such as exploring the differences in peer relationships between urban and rural students.

## 6. Conclusion

Peer relationships among high school students have a significant impact on academic performance, and good peer relationships have a positive impact on students' academic performance. Overall, there are significant gender differences in peer relationships. Girls generally have higher peer relationships than boys.

The impact of peer relationships on girls' academic performance is generally higher than that of boys. Peer relationships among students have a positive predictive effect on their academic performance. Overall, this study provides preliminary evidence to explore the mechanism of peer relationship and academic performance. The shortcomings of this study and future research directions were also discussed.

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