

Research on the Influence of College Students' Psychological Capital on Academic Achievement

Xilin Zhang and Raja Azrul Hisham Raja Ahmad

Abstract – This study aims to explore the influence of college students' psychological capital on their academic achievements, and pays attention to the intermediary role of subjective well-being. Through a questionnaire survey in five top universities in China, a total of 399 valid samples were collected, and the four dimensions of psychological capital-self-efficacy, hope, resilience and optimism-and their relationship with academic achievement were deeply analysed by using the methods of correlation analysis and regression analysis. The results show that the four dimensions of psychological capital are positively correlated with academic achievement and subjective well-being, indicating that psychological capital not only directly affects academic achievement, but also indirectly promotes the improvement of academic achievement by enhancing students' subjective well-being. In addition, regression analysis further confirmed the intermediary role of subjective well-being between psychological capital and academic achievement, and provided a theoretical basis for the application of psychological capital promotion measures in educational practice. The research emphasizes that colleges and universities should pay attention to the cultivation of students' psychological capital and the promotion of subjective well-being in the process of education, so as to promote students' all-round development and academic success. This study provides a new perspective for understanding the psychological mechanism of college students' academic achievements and scientific guidance for colleges and universities to formulate effective educational intervention strategies.

Keywords – Psychological capital; Academic achievement; Subjective well-being

I. INTRODUCTION

In today's fast-developing society, college students are facing unprecedented challenges and pressures, which not only come from the heavy academic work, but also include employment competition, interpersonal relationship handling and personal development. In this context, college students' mental health and psychological capital have been widely concerned. Psychological capital, as a new concept, refers to the positive resources of individuals at the psychological level, including self-efficacy, hope, resilience and optimism (Kim, Kim & Park, 2023). These psychological resources are considered to be the key factors that affect individuals' adaptation and coping with challenges and achieving goals. Therefore, studying the influence of college students' psychological capital on academic achievement is not only helpful to understand the internal mechanism of college students' mental health, but also of great significance to promote students' all-round development and improve the quality of education.

Academic achievement, as an important indicator to measure students' learning effect, has always been a hot topic in educational research. Traditional research often pays attention to external factors such as students' intelligence factors, learning strategies and teaching methods, while ignoring the role of students' internal psychological state. However, more and more evidence show that psychological capital is one of the important factors affecting academic achievement (Şengönül, 2022). For example, students with high self-efficacy are more likely to set challenging goals, adopt effective learning strategies and persevere when encountering difficulties. Similarly, optimistic students can often face setbacks in their studies with a positive attitude, thus maintaining high learning motivation and efficiency. In addition, hope and resilience are also indispensable psychological resources for students in the face of academic pressure and challenges.

At present, college students generally face great academic pressure and psychological pressure. In this context, discussing the influence of psychological capital on academic achievement is not only helpful to reveal the psychological mechanism of college students' academic achievement, but also has important practical significance for guiding college students' mental health education and academic guidance (Song, Ai & Fu, 2021). By improving students' psychological capital, they can better cope with academic pressure and improve their learning efficiency, so as to maximize their academic achievements. In addition, the cultivation and promotion of psychological capital is also an important part of mental health education in colleges and universities, which plays an important role in promoting the all-round development of students and improving the quality of education.

However, at present, the research on the relationship between college students' psychological capital and academic achievement is still insufficient. On the one hand, as a multi-dimensional concept, how each dimension of psychological capital affects academic achievement independently or jointly needs further discussion. On the other hand, college students in different disciplines and grades may have differences in psychological capital and academic achievement, and how these differences affect the relationship between psychological capital and academic achievement needs more empirical research to verify. In addition, the cultivation and promotion of psychological capital is a long-term process, which requires the joint efforts of universities, families and society. Therefore, this study aims to explore the influence of college students' psychological capital on academic achievement through empirical research, and provide scientific basis for college students' mental health education and academic guidance.

To sum up, the research on the influence of college students' psychological capital on academic achievement has important theoretical value and practical significance.

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Exploring the relationship between psychological capital and academic achievement can not only enrich the theoretical system in the field of mental health and education, but also provide strong support for college students' mental health education and academic guidance. In the future, with the deepening of research, psychological capital is expected to become an important resource to promote college students' academic achievements and personal development.

II. LITERATURE REVIEW

Psychological Capital and Academic Achievement

Psychological capital is a relatively new concept, which originated from the study of positive organizational behaviour, aiming to explore how the positive resources of individuals at the psychological level affect their work performance and organizational effectiveness. The concept of psychological capital was first put forward by Luthans and others in 2004. They defined it as the positive development state of individuals at the psychological level, including four core dimensions: Self-Efficacy, Hope, Resilience and optimality. The research and application fields of psychological capital are very extensive. It is not only valued in organizational behaviour and human resource management, but also applied in education, health and personal development (Wink, Tomkunas & LaRusso, 2024). Research shows that psychological capital has a positive correlation with individual's job performance, innovative behaviour, career satisfaction, leadership and organizational commitment. In addition, psychological capital is also considered as a resource that can be cultivated and promoted. Through training and intervention measures, the level of individual psychological capital can be effectively improved, thus promoting their personal and professional development. In the field of education, the study of psychological capital pays special attention to its influence on students' learning motivation, academic achievement and mental health. For example, students with high psychological capital are more likely to adopt active learning strategies and show greater adaptability and resilience in the face of academic challenges (Dubovi & Sheu, 2022). Therefore, psychological capital is regarded as an important psychological resource to improve students' academic achievements and promote their all-round development.

Academic achievement refers to the knowledge and skills acquired by students in the process of education, as well as the comprehensive embodiment of their abilities and achievements in the process of learning (Obeidat, Haimed & AlKhaza'leh, 2024). It is one of the important indicators to measure students' learning effect and education quality. It is usually evaluated by examination scores, GPA, course completion and academic competition results. Academic achievement is not only reflected in students' cognitive development, including the improvement of cognitive abilities such as memory, understanding, analysis, evaluation and creation, but also reflected in the mastery of subject knowledge, which involves the understanding and application of basic knowledge and the in-depth understanding of advanced

concepts and theories. In addition, academic achievement also involves the acquisition of various skills, such as critical thinking, problem-solving ability, communication skills and teamwork ability (Halim, Mohd Shahali & H Iksan, 2023). Emotional factors such as students' learning motivation, self-efficacy, learning interest and attitude also have an important impact on their academic achievements. Positive emotional attitude can promote students' learning engagement and academic performance. At the same time, academic achievements are also influenced by social and cultural factors, including family background, socio-economic status, cultural values and educational opportunities, which can provide or limit students' academic achievements. Educators and researchers have been exploring the factors that affect academic achievement in order to improve the quality of education and students' academic performance. These factors include teaching methods, learning environment, personal factors, psychological capital, family and community support and so on. Improving academic achievement usually requires many efforts, including improving teaching methods, creating a good learning environment, providing personalized learning support, and strengthening cooperation between families and schools. These measures can promote the all-round development of students and improve the overall quality of education. The influence of psychological capital on academic achievement is mainly manifested in the following dimensions:

Self-Efficacy

Self-efficacy is an individual's belief in his ability to complete a specific task. This concept was put forward by psychologist Albert Bandura, and it involves the individual's confidence and evaluation of his ability to successfully perform a specific behaviour to achieve the expected results. The formation and development of self-efficacy is a complicated process, which is influenced by many factors such as personal experience, substitute experience, verbal persuasion and emotional state (Wu & Wan, 2023). Personal experience, that is, the experience of success through direct participation in an activity, is the most effective way to improve self-efficacy, because successful experience enhances the confidence of individuals in their own abilities. Substitution experience refers to observing the influence of other people's behaviour and results on individual self-efficacy. When people similar to themselves successfully complete tasks, individuals may improve their belief in their own abilities. Oral persuasion, that is, the encouragement and support of others, can improve the individual's sense of self-efficacy, and positive feedback and suggestions can enhance the individual's confidence in their own abilities. Emotional state will also affect self-efficacy, and positive emotional state and good physiological conditions can enhance individuals' belief in their own abilities. Self-efficacy has different manifestations in different fields and situations. It can be a specific field, such as academic self-efficacy, sports self-efficacy or professional self-efficacy, or it can be more extensive, affecting individual activities in many fields. In the field of education, self-efficacy is closely related to students' learning motivation, learning strategies, academic

achievements and career development. Students with high self-efficacy are more likely to set challenging goals, adopt effective learning strategies and persevere when encountering difficulties. In addition, self-efficacy is also related to individual mental health and happiness. Individuals with high self-efficacy are usually more able to cope with stress, experience less anxiety and depression, and are more likely to achieve personal goals. In the workplace, self-efficacy is also related to job performance, career satisfaction and leadership effectiveness. In order to improve the individual's sense of self-efficacy, various strategies can be adopted, including providing opportunities for successful experience, setting positive examples, providing positive feedback and support, and teaching effective emotional adjustment skills. These methods can help individuals build and strengthen their belief in their own abilities, thus promoting their success and growth in various fields.

Hope

Hope is one of the core dimensions of psychological capital, which goes beyond simple optimism and involves the individual's expectation of future positive results and the path to realize these results. This expectation is not only an emotional state, but also a cognitive process, which includes three key components: goal setting, path finding and motivation maintenance. Individuals' high level of hope means that they can clearly set goals and actively seek strategies to achieve them, and they can maintain their motivation even in adversity (Luthans & Broad, 2022). This dynamic process of hope enables individuals to maintain positive attitudes and actions in the face of challenges and obstacles. In the fields of education and career development, the power of hope is particularly important. Students and employees with high hopes are more likely to set challenging goals and show higher persistence and resilience in the process of pursuing these goals. They tend to take the initiative and actively seek solutions to problems, rather than passively waiting for the situation to improve. In addition, in the face of failure, individuals with high hopes can recover from setbacks more quickly, readjust their strategies and move on. The cultivation and promotion of hope is a continuous process, which can be realized in many ways. For example, educators can encourage students to set specific and achievable goals, teach them effective strategies to achieve these goals, and provide continuous feedback and support to enhance students' sense of hope. In the workplace, leaders can provide opportunities for employees to grow and develop by clearly communicating the goals of the organization, and motivate employees through positive feedback and recognition, thus improving the hope level of the team.

Resilience

Resilience, as a key component of psychological capital, refers to the ability of individuals to recover, adapt and even grow in the face of challenges, adversity or pressure. It is different from simple resistance or rigidity, but a dynamic process, which involves the psychological

and behavioural responses of individuals when they encounter difficulties (Urhahne & Wijnia, 2023). Individuals with high resilience can actively cope with the uncertainties and changes in their lives. They can effectively manage stress, recover quickly from failures and setbacks, learn from them, and enhance their coping strategies. In the education and workplace environment, the importance of resilience is self-evident. In the process of pursuing academic and career goals, students and employees will inevitably encounter various challenges, such as failed exams, project delays or interpersonal conflicts. Under these circumstances, resilience has become an important driving force for their continuous progress. Highly resilient individuals can not only maintain a positive attitude, but also flexibly adjust their behaviours and strategies to adapt to the changing environment. They usually show a stronger sense of self-efficacy and believe that they can control and influence the results, which helps them maintain motivation and hope in adversity. Cultivating resilience is a multi-faceted process, which requires individual efforts in cognitive, emotional and behavioural levels. On the cognitive level, individuals can change their views on adversity through positive thinking patterns, such as re-evaluation and cognitive reconstruction, thus reducing the impact of negative emotions. On the emotional level, effective emotional adjustment skills, such as self-consolation and seeking social support, can help individuals to relieve stress and anxiety. On the behavioural level, individuals can enhance their adaptability by setting practical goals, taking actions and making continuous efforts.

Optimism

Optimism refers to the psychological state in which individuals hold positive expectations and beliefs about future events. This state not only affects individual emotional experience, but also profoundly affects their behaviour and decision-making process. Optimists tend to believe that they can influence the future through their own efforts, which makes them more likely to take active and positive actions when facing challenges and difficulties. The concept of optimism has a long history in the field of psychology, which is closely related to individual happiness, resilience and success. Research shows that optimistic people are more able to maintain a positive attitude in the face of pressure and adversity, which helps them to better cope with the challenges in life. They tend to regard failure as temporary, specific and external, rather than permanent, universal and internal, which helps them recover from setbacks and move on (Buchanan & Greig, 2021). Optimism is also a valuable resource in organizations and workplaces. Optimistic employees are more likely to show higher job satisfaction, lower work pressure and higher job performance. They are more positive about their work, more willing to accept new challenges and play an active role in the team. In addition, optimistic leaders can stimulate the enthusiasm of team members and improve the overall performance of the team. Cultivating an optimistic attitude can be achieved in many ways, including cognitive behavioural therapy, mindfulness practice and the intervention of positive psychology. These

methods are designed to help individuals identify and change negative thinking patterns and develop more positive and realistic thinking modes. For example, by practicing gratitude, setting achievable goals and celebrating small successes, individuals can gradually establish an optimistic attitude. Optimism is an important part of psychological capital, which provides individuals with a psychological advantage and helps them succeed in their personal and professional lives. By understanding and cultivating optimism, individuals can better cope with the challenges in life and achieve higher happiness and satisfaction.

According to the research of the above four dimensions, therefore, the following assumptions can be put forward:

H1: College students' psychological capital has a positive impact on academic achievement.

Psychological Capital and Subjective Well-being

Subjective well-being refers to an individual's subjective evaluation of his life satisfaction and emotional state, which is an internal and individualized psychological experience. This evaluation usually includes the overall satisfaction with the quality of life, the frequency of positive emotions and the lack or low frequency of negative emotions (Munir, Faiza, Jamal, Daud & Iqbal, 2023). Subjective well-being is not only related to material conditions, but also closely related to individual psychological state, social relations, personal values and goal pursuit. In psychological research, subjective well-being is considered as a multi-dimensional concept, covering emotional balance, life satisfaction and psychological well-being. Emotional balance refers to the ratio of positive emotions to negative emotions experienced by individuals, while life satisfaction involves satisfaction with all aspects of personal life, such as work, health, family and socialization. Psychological well-being is more focused on individual self-realization and personal growth. There are many factors affecting subjective well-being, including personal characteristics, social support, cultural background and life events. For example, people with high self-esteem, optimism and gratitude tend to report higher subjective well-being. Social support, such as the positive interaction between family, friends and community, is also an important factor to enhance happiness. In addition, cultural background and values will also affect the definition and pursuit of happiness.

Meng, Ling & Wu (2022) systematically examined 55 studies by means of meta-analysis, covering 27,741 China samples, and revealed a moderately high positive correlation between psychological capital and subjective well-being. The study not only confirms that the dimensions of psychological capital-self-efficacy, optimism, resilience and hope-have a significant positive effect on improving individual's positive emotions and satisfaction, but also finds that this relationship is regulated by the age stage, region and article publishing type of the subjects. In particular, they found that with the increase of age, the influence of psychological capital on subjective well-being became more and more significant, and the

samples in the northern region showed a closer relationship between psychological capital and subjective well-being than those in the southern region. In addition, the study also points out that the psychological capital reported in the master's thesis has a higher correlation with subjective well-being, which may imply the existence of publishing bias. These findings provide a valuable perspective for understanding how psychological capital affects happiness in different cultural and demographic backgrounds, and provide a direction for future positive psychology research and intervention practice. Zhang, Liu & Yuan (2022) discussed the influence of psychological capital on students' subjective well-being in medical vocational colleges. Through a questionnaire survey in a medical college in Shandong Province, they collected 604 valid questionnaires, and used the Positive Psychological Capital Scale (PPQ) and the Overall Well-being Scale (GWB) to evaluate students' psychological capital and subjective well-being. The results show that the dimensions of psychological capital-self-efficacy, resilience, hope and optimism-are significantly positively correlated with subjective well-being, indicating that psychological capital is indeed an important factor affecting medical students' well-being. Further, through regression analysis, it is found that although self-efficacy cannot be used as a predictor of subjective well-being, resilience, hope and optimism, and the total score of psychological capital can positively predict subjective well-being, and this prediction effect is statistically significant. These findings emphasize the importance of cultivating psychological capital among students in medical vocational colleges, and point out that students' subjective well-being can be effectively promoted by enhancing their resilience, optimism and hope. The research provides theoretical basis and practical guidance for mental health education and intervention of medical college students. Therefore, the following assumptions can be made:

H2: College students' psychological capital has a positive impact on subjective well-being.

The Intermediary Role of Subjective Well-being

In the research, the mediating role of subjective well-being is a key research point. Psychological capital, including self-efficacy, hope, optimism and resilience, is considered as an important psychological resource to promote students' positive academic performance. However, how psychological capital specifically affects academic achievement and the role of subjective well-being in this process have aroused researchers' interest. It is pointed out that psychological capital has a positive impact on college students' subjective well-being, and subjective well-being, as an individual's overall evaluation of quality of life, covers two important components: cognition and emotion (Wingard, Kijima, Yang-Yoshihara & Sun, 2022). When students' self-efficacy, hope, optimism and resilience are improved, they tend to experience a higher level of positive emotions and life satisfaction, thus enhancing their subjective well-being. This improved subjective well-being not only affects students' emotional state, but also further affects their academic behaviour and cognitive process.

Specifically, subjective well-being may enhance students' positive emotions and sense of self-worth, promote their learning motivation and participation, and thus improve their academic achievements. In addition, students with high subjective well-being are more likely to have positive interpersonal relationships and better stress management skills, which will also help them succeed in their studies. Therefore, subjective well-being plays an intermediary role between psychological capital and academic achievement, connecting students' psychological state and academic performance, and provides a new perspective and intervention way for improving college students' academic achievement.

Zhang, Li & Liu (2022) deeply discussed the influence of college students' psychological capital on their academic achievements, and paid special attention to the mediating role of subjective well-being. This paper makes an empirical analysis of 339 questionnaires by structural equation model (SEM). The results show that psychological capital has a significant positive impact on academic achievement, and subjective well-being plays a partial mediating role in this impact. Firstly, the study analyses the direct influence of four core dimensions of psychological capital-self-efficacy, optimism, hope and resilience-on academic achievement. Then, the researcher investigated the positive effect of psychological capital on subjective well-being and the positive effect of subjective well-being on academic achievement. Through stepwise regression analysis, it is found that psychological capital can not only directly improve academic achievement, but also indirectly improve academic achievement by improving students' subjective well-being. The innovation of this study lies in bringing psychological capital, subjective well-being and academic achievement into a unified research framework, revealing the internal mechanism of psychological capital to improve students' academic achievement by improving their positive emotions and life satisfaction. The research results provide a new perspective for the field of higher education, emphasize the importance of cultivating psychological capital and improving subjective well-being in college students' education, and provide practical guidance for promoting students' all-round development and improving the quality of education. Therefore, the following assumptions can be made:

H3: Subjective well-being has a positive impact on academic achievement.

H4: Subjective well-being plays an intermediary role between psychological capital and academic achievement.

Conceptual Framework

According to the above research on various variables and their relationships, we can draw a specific conceptual framework as shown in Figure 1:

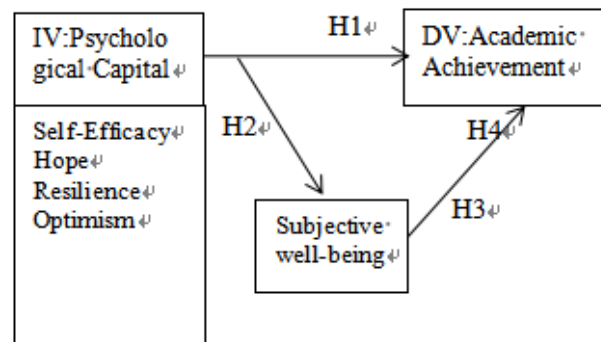


Figure 1. Conceptual Framework

III. METHOD

Population and Sample Selection

In this study, the purpose is to explore how psychological capital affects the academic achievements of college students in China. In order to ensure the wide applicability and representativeness of the research results, samples were selected from five top universities in China. These universities were selected because of their excellent academic reputation and extensive student groups. They are: Peking University, Tsinghua University, Zhejiang University, Shanghai Jiaotong University and Wuhan University. From these five universities, the stratified random sampling method is adopted to ensure that students of every subject and grade have the opportunity to be included to collect data about their psychological capital and academic achievements.

TABLE I: DISTRIBUTION OF SAMPLE SCHOOLS AND NUMBER OF STUDENT

School	Number of students
Peking University	45000
Tsinghua University	38000
Zhejiang University	58000
Shanghai Jiao Tong University	43000
Wuhan University	58000
Total	242000

Source: Developed for this research

The sample size required for this study can be obtained from the following sampling estimation formula:

Among them:

N represents the sample size.

N represents the population being studied.

E stands for marginal error

Sample size with accuracy level of 5%, in which the confidence level is 95%, $P = 0.5$:

$$n = \frac{242000}{1 + 242000 \times (0.05)^2} \approx 399$$

A total of 399 valid questionnaires were collected. Through this well-designed sampling strategy, the diversity and representativeness of the samples were ensured, which will help to improve the reliability and effectiveness of the research results. The research results will provide valuable

insights for higher education in China, and may have an impact on educational practice around the world.

Reliability and Validity Test

Reliability Test

Reliability test is an important link to ensure the reliability of questionnaire survey data. Cronbach's Alpha coefficient is used to evaluate the internal consistency of the questionnaire, and the three main constructs involved include psychological capital, subjective well-being and academic achievement. The results show that the Cronbach's Alpha coefficient of psychological capital is 0.846, which indicates that the construct has high internal consistency and the measurement results are stable and reliable. Cronbach's Alpha coefficient of subjective well-being is 0.862, which still shows a good level of reliability, indicating that these items can effectively and consistently reflect students' subjective well-being. Cronbach's Alpha coefficient of academic achievement construct is 0.835, which also proves that the measurement tool of this construct has high reliability. Overall, Cronbach's Alpha coefficient of all the constructs in this study exceeded 0.7, which is generally considered as good, indicating that the questionnaire as a whole has a high reliability. These reliability test results provide a solid reliability foundation for this study and ensure the effectiveness of the follow-up analysis. Future research can consider increasing measurement items or further optimizing existing items to improve the reliability and validity of the questionnaire. At the same time, exploratory or confirmatory factor analysis can be used to verify the dimensional structure of the construct and the fitness of the measurement model, so as to ensure the effectiveness of the research tools and provide more accurate data for subsequent research.

TABLE 2: QUESTIONNAIRE RELIABILITY ANALYSIS

	Cronbach's Alpha	Number of terms
Psychological Capital	0.846	20
Subjective well-being	0.862	5
Academic Achievement	0.835	5

Source: Developed for this research

Validity Test

Validity test is the key step to verify whether the questionnaire can effectively measure the research construct. In this study, Kaiser-Meyer-Olkin measurement sampling appropriateness test and Bartlett's sphericity test were used to evaluate the validity of the questionnaire. KMO test is an index to measure whether the common variance between variables is enough for factor analysis, and its value is between 0 and 1. Generally speaking, a KMO value greater than 0.6 is considered suitable for factor analysis. In this study, the KMO values of psychological capital, subjective well-being and academic achievement are 0.834, 0.818 and 0.791 respectively, which are far higher than the threshold value of 0.6, indicating that the variables of these constructs have high common

variance, which is suitable for factor analysis and ensures the validity of the questionnaire.

Bartlett's sphericity test is used to detect whether the correlation between variables is significant, so as to determine whether the data is suitable for factor analysis. If the Significance level (sig.) of this test is less than 0.05, the hypothesis of sphericity is rejected, and it is considered that there is correlation between variables and it is suitable for factor analysis. In this study, the approximate chi-square of Bartlett's sphericity test of the three constructs are 235.846, 268.569 and 234.916, respectively, Df is all 6, and Sig is all 0.000, which is far less than 0.05, indicating that there is a significant correlation among variables, further verifying the validity of the questionnaire.

Combining the results of KMO test and Bartlett's sphericity test, it can be concluded that the questionnaire of psychological capital, subjective well-being and academic achievement in this study has good validity. This shows that the questionnaire can effectively measure the research construct and provide a reliable basis for the subsequent structural equation model analysis. These validity test results enhance the confidence in the research results and provide strong support for the follow-up research.

TABLE 3: QUESTIONNAIRE VALIDITY TEST

	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
		Approx. Chi-Square	Df	Sig.
Psychological Capital	0.834	235.846	6	.000
Subjective well-being	0.818	268.569	6	.000
Academic Achievement	0.791	234.916	6	.000

Source: Developed for this research

IV. FINDING

Sample Size

According to the statistical data of this survey, we can have a comprehensive understanding of the characteristics of the sample. This survey covers key classified variables such as gender, grade and professional background, and a total of 399 valid questionnaires are collected. In terms of gender, there were 246 male respondents, accounting for 61.65%, while there were 153 female respondents, accounting for 38.35%. This gender ratio reflects that there are slightly more men than women in the sample, which may be related to the gender distribution of colleges and universities or the gender orientation of specific majors, and this background needs to be considered in the interpretation of the research results.

In terms of grade distribution, the sample covers all grades of the university, including 84 freshmen, accounting for 21.05%, 135 sophomores, accounting for 33.83%, 106 juniors, accounting for 26.57%, and 74 seniors, accounting for 18.55%. This grade distribution helps researchers to analyse the influence of psychological capital on academic achievement from different learning stages, taking into

account the possible differences in academic pressure and psychological state faced by students in different grades.

In terms of professional background, there are 201 science students, accounting for 50.38%, and 198 liberal arts students, accounting for 49.62%, accounting for almost half. This balanced proportion of arts and sciences provides a diversified professional perspective for research, which is helpful to explore the relationship between psychological capital and academic achievement in different disciplines.

Generally speaking, the sample size of this survey is large and representative in several key variables, which provides a solid foundation for research. However, we should also pay attention to the uneven distribution of gender and grade in the sample, and make appropriate weighted or stratified analysis when possible, to ensure the accuracy and effectiveness of the research results. In addition, future research can consider expanding the sample size to further improve the universality and generalization of the research results. Through such sample size and characteristic analysis, we can deeply understand the complex relationship between college students' psychological capital and academic achievement, and provide targeted educational intervention suggestions for colleges and universities.

TABLE 4: STATISTICS ON THE CHARACTERISTICS OF RESPONDENTS

Survey Items	Category	Number of Student	Percentage (%)
Gender	Male	246	61.65%
	Female	153	38.35%
grade	Freshman year	84	21.05%
	Sophomore	135	33.83%
	Junior	106	26.57%
	Senior	74	18.55%
Professional Background	Science	201	50.38%
	Liberal Arts	198	49.62%

Source: Developed for this research.

Correlation Analysis

According to the analysis results in Table 5, we can get the correlation between the four dimensions of psychological capital and subjective well-being and academic achievement.

First of all. The four dimensions of psychological capital have a significant positive correlation with subjective well-being. Among them, the correlation coefficient between self-efficacy and subjective well-being is 0.716, hope is 0.735, resilience is 0.781 and optimism is 0.710. These results show that with the increase of various dimensions of psychological capital, students' subjective well-being also increases, which is consistent with the view of positive psychology, that is, psychological capital can promote individual positive emotions and life satisfaction.

Secondly, the four dimensions of psychological capital are also positively correlated with academic achievement. The correlation coefficients of self-efficacy, hope, resilience and optimism with academic achievement

are 0.721, 0.763, 0.751 and 0.744, respectively, which shows the positive influence of psychological capital on academic achievement. In particular, hope, resilience and optimism have a strong correlation with academic achievement, which may mean that these psychological capital dimensions play an important role in promoting academic achievement.

It is worth noting that the correlation coefficient between subjective well-being and academic achievement is 0.715, which indicates that the higher the subjective well-being of students, the higher their academic achievement. This is consistent with the research results of educational psychology, that is, students' positive emotions and life satisfaction can promote academic performance.

Finally, subjective well-being plays an intermediary role between psychological capital and academic achievement. The strong correlation between psychological capital dimensions and subjective well-being, as well as between subjective well-being and academic achievement, supports the theoretical hypothesis that subjective well-being is an intermediary variable. This shows that psychological capital may improve students' subjective well-being, and then promote the improvement of academic achievement.

To sum up, the correlation analysis results of this study provide strong evidence for the positive influence of psychological capital on academic achievement, and reveal the intermediary role of subjective well-being in this process. These findings are of great significance to the design and implementation of educational intervention measures aimed at improving college students' mental health and academic achievement.

TABLE 5: CORRELATION ANALYSIS RESULTS

Dimension	Self-Efficacy	Hope	Resilience	Optimism	Subjective well-being	Academic Achievement
Self-Efficacy	1					
Hope	0.615	1				
Resilience	0.635	0.641	1			
Optimism	0.534	0.648	0.658	1		
Subjective well-being	0.716	0.735	0.781	0.710	1	
Academic Achievement	0.721	0.763	0.751	0.744	0.715	1

Source: Developed for this research.

Regression Analysis

In regression analysis, the b of self-efficacy is 0.724, which indicates that it has a significant positive impact on academic achievement. The b value of hope is 0.731, which has the greatest influence on academic achievement in all dimensions of psychological capital, indicating that hope plays a particularly important role in promoting academic achievement. The B value of resilience is 0.781, which also has a significant positive impact on academic achievement, showing the importance of the ability to recover quickly in the face of challenges for academic success. The optimistic B value is 0.728, which shows that an optimistic attitude is also crucial for academic achievement.

The B value of subjective well-being is 0.792, and its corresponding T value is 11.581, and P value is less than 0.05, which indicates that subjective well-being is still a significant predictive variable after controlling all

dimensions of psychological capital. This result further supports the mediating role of subjective well-being between psychological capital and academic achievement.

Finally, the *b* of academic achievement is 0.755, which indicates that the increase of each variable in the model will positively predict academic achievement. The *f* value is 268.418, and the *p* value is much less than 0.05, which indicates that the overall regression model is significant.

To sum up, the results of regression analysis emphasize the importance of various dimensions of psychological capital and subjective well-being in predicting college students' academic achievements. These findings provide valuable insights for colleges and universities, and help to design and implement intervention measures aimed at improving students' psychological capital and subjective well-being, thus promoting students' academic achievements.

TABLE 6: REGRESSION ANALYSIS RESULTS

	Non- standardized coefficient	Standardize d coefficient	<i>t</i>	<i>p</i>	<i>R</i> ²	Adjus ting <i>R</i> ²	<i>F</i>
	<i>B</i>	Standar d Error <i>Beta</i>					
(Constant)	.641	.035	-	4.364	.000		
Self-Efficacy	.724	.015	.714	11.543	.000	.548	.536
Hope	.731	.045	.761	10.596	.000	.538	.515
Resilience	.781	.036	.752	11.649	.000	.522	.528
Optimism	.728	.069	.756	12.367	.000	.549	.578
Subjective well-being	.792	.025	.751	11.581	.000	.571	.569
Academic Achievement	.755	.034	.793	10.482	.000	.535	.543

Source: Developed for this research

V. CONCLUSION

In this study, the influence of college students' psychological capital on their academic achievements is discussed, and the intermediary role of subjective well-being is also concerned. Through correlation analysis and regression analysis, this paper collects and analyses the four dimensions of college students' psychological capital (self-efficacy, hope, resilience and optimism) and how these dimensions affect subjective well-being and academic achievement.

According to the above research results, all four hypotheses are valid, and psychological capital has a significant positive impact on college students' academic achievements. Specifically, the four dimensions of self-efficacy, hope, resilience and optimism are all positively correlated with academic achievement, indicating that the

improvement of psychological capital can promote the improvement of academic achievement. In addition, the four dimensions of psychological capital are also positively correlated with subjective well-being, which shows that psychological capital not only directly affects academic achievement, but also indirectly affects academic achievement by improving students' subjective well-being.

The study also found that subjective well-being played a partial mediating role between psychological capital and academic achievement. This discovery reveals the possible psychological mechanism that psychological capital affects academic achievement: the improvement of psychological capital can enhance students' subjective well-being, which in turn promotes the improvement of academic achievement. This discovery is of great significance to educational practice, because it emphasizes the importance of attaching importance to and enhancing students' subjective well-being in the process of pursuing and improving their academic achievements.

To sum up, the conclusion of this study is that psychological capital has an important positive impact on college students' academic achievements, and this impact is achieved to some extent by improving students' subjective well-being. These findings provide valuable insights for higher education institutions and emphasize the importance of cultivating students' psychological capital and subjective well-being in educational practice. In order to promote the all-round development of students and improve the quality of education, colleges and universities can take a series of measures, such as strengthening mental health education, providing positive psychological counseling services, developing team building and leadership training, etc., to help students establish and enhance their psychological capital. At the same time, by creating a supportive and encouraging learning environment, students' subjective well-being can be further enhanced, thus indirectly improving their academic achievements. Future research can continue to explore the role of different educational interventions in improving students' psychological capital and subjective well-being, and how these interventions affect students' academic achievements in different backgrounds and disciplines.

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