Article

Sustained promotion of Chinese college students' employment: the impact of social support and goal orientation on academic achievement

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Abstract: The issue of academic achievement among Chinese university students is emerging due to difficulties in finding employment. This study investigates the structural relationships between social support, goal orientation, and academic achievement with the aim of enhancing students' academic performance and facilitating sustained employability. Data were collected from 202 college students in South China, revealing that students' levels of social support, goal orientation, and academic achievement were all moderate. Lower-grade students, in comparison to higher-grade students, exhibited lower levels of social support, goal orientation, and academic achievement. Additionally, students from lower economic backgrounds tended to lack social support. Among the factors of social support, goal orientation, and academic achievement, there were positive correlations among these three variables. Social support significantly and positively influenced goal orientation and academic achievement. Specifically, the sub-factors of social support, school support, and teacher support had differential effects, with school support enhancing academic achievement and teacher support boosting goal orientation. Goal orientation also significantly and positively impacted students' academic achievement, with the sub-factor of mastery goals having a stronger influence. Goal orientation partially mediated the relationship between social support and academic achievement. This study discusses limitations and provides insights for future research.

Keywords: student employability; social support; goal orientation; academic achievement

1. Introduction

College students' efforts and achievements in academic pursuits aimed at successful employment can be referred to as academic achievement (Yeon, 2017). The interpretation of academic achievement can be categorized into broad and narrow definitions. The broad definition of academic achievement encompasses a student's personal abilities, academic performance, cognitive and psychological gains, as well as learning outcomes in both intellectual and non-intellectual domains. The narrow definition of academic achievement includes the completion of academic tasks, obtaining relevant qualifications, and participation in various activities (Kim, 2023) Academic achievement is also a major factor related to the successful employment of college students. Research by Jung, Byoung (2020) indicates a positive correlation between college students' academic achievement and their employment readiness behaviors (Jung, 2020). Lian (2018) suggests that improving the employment quality

of graduates should involve continuous attention to their academic performance and the cultivation of their learning and practical abilities (Lian, 2018).

Following the outbreak of the pandemic, instances of college graduates facing unemployment have become more common. In 2021, the national unemployment rate among college graduates in China exceeded 20%, with approximately 1.8 million college graduates in a state of unemployment (Xia et al., 2023). In 2022, the number of Chinese college graduates exceeded 10 million, and the youth unemployment rate rose to 18.4% (Wu and Zhao, 2022). Many companies have resorted to layoffs for survival, reducing their workforce, and simultaneously placing more specific academic achievement requirements on college graduates. Research by Peng and Yu (2022) shows that some Chinese primary and secondary schools and companies now require job applicants to have a master's degree, excellent academic records, relevant professional skills and qualifications, participation in occupation-related activities during their time in school, and the ability to provide internship experience certificates (Peng and Yu, 2022). This has led to some college graduates struggling to find suitable employment opportunities (Menand, 2014; Paul and Shrivastava, 2015), creating a trend in which employers are increasingly selective in hiring talent (Asuquo and Inaja, 2013).

Simultaneously, the ongoing issue of college graduates' difficulties in finding employment can also indicate an impact on their learning attitudes and behaviors. Peng and Yu's (2022) survey of 23 Chinese universities indicated that due to employment issues and their perceived lack of abilities, 90.7% of students experienced stress and anxiety during their academic lives, with 30% of college students starting to accept mediocrity and only occasionally putting in effort in their studies (Peng and Yu, 2022). Yoo and Shin's (2013) survey of 427 college students from ten private universities in South Korea revealed that employment concerns led to increased academic stress and psychological fatigue among students. When students felt employment pressure, academic pressure also increased, leading students to avoid confronting external crises actively (Yoo and Shin, 2013). Kim (2019) argued that there is a significant positive correlation between college students' academic achievement and their employment behavior. Low academic achievement in students can predict negative employment attitudes and behaviors. These studies suggest that college students' difficulties in finding employment can directly or indirectly affect their academic achievements (Kim, 2019).

Therefore, to enhance the academic achievement of college students, some researchers have proposed that goal orientation is a continuous and effective path. Goal orientation refers to how learners approach and engage in their activities, intending to improve their abilities through clear and progressive goals, with the expectation of achieving better learning outcomes than other learners (Zhang et al., 2022). Soowon and Boungho (2017) argue that college students with goal-oriented career choices exhibit continuous motivation for improvement and a stronger sense of the value of their careers, leading to active improvements in academic achievement (Soowon and Boungho, 2017). Alhadabi and Karpinski (2020), in their study involving 258 college students, found that goal orientation had a positive impact on academic achievement. Furthermore, some research and reports suggest that employment issues resulting from college students' academic achievement may also be due to unclear

goals or excessively high expectations (Alhadabi and Karpinski,2020). For instance, the viewpoint of Pierard, Baca, and Schultz (2020) suggests that students who lack a clear vision of the specific career they want after graduation or who have unrealistic career aspirations beyond their actual capabilities may become disappointed and subsequently lose motivation to pursue their target jobs (Pierard et al., 2022). A survey by Xueli (2022) in Hohhot, China, showed that only 9% of students had a clear idea of the career they wanted to pursue after graduation and had made efforts towards it, while 41% of college students did not have a specific career in mind for the future (Xueli, 2022). Chong's (2014) survey of 475 college students in Hunan, China, revealed that students generally had high employment expectations, with most prioritizing employment benefits over their chosen majors when making career decisions (Normal University). These studies demonstrate the importance of goal orientation to some extent in improving academic achievement.

Previous research also suggests that social support is an effective avenue for improving the academic achievement of college students. Social support refers to the resources individuals obtain from others through social relationships, including practical or emotional assistance received from others in their daily lives. Social support is activated based on an individual's subjective perception and is evaluated based on the quality of social relationships (Chong, 2014). The direct effect of social support is to enhance college students' intrinsic motivation, leading them to achieve positive outcomes (Erzen and Ozabaci, 2023). For example, Shweta (2020) suggests that if students feel anxious and in crisis about their employment prospects and receive external assistance from sources such as the government or educational institutions, they will experience happiness and develop a sense of enthusiasm for learning (Rathakrishnan et al., 2022). Research by Song et al. (2023) indicates a positive correlation between social support and academic achievement; higher social support levels correspond to higher academic achievement (Shweta, 2020). Salam et al. (2020) found that social support has a direct positive effect on college students with low academic achievement and also buffers against aggressive behavior (Song et al., 2023).

On the other hand, social support also contributes to the continuous improvement of students' goal orientation. Ho's (2013) study showed that social support significantly influences goal orientation. When college students perceive external support, it enhances their self-control, goal orientation, and decision-making abilities in their careers (Salami et al., 2020). In a study of 739 college students in Taiwan, conducted by Yi, Shu et al. (2019), it was found that support from schools, teachers, and peers plays different roles in students' hope development (Ho, 2013). Teacher support predicts students' goal orientation, while peer support effectively predicts students' logical and subjective thinking. Liu et al. (2022) suggest that students who receive support in their academic pursuits gain the knowledge to improve their academic performance through self-efficacy (Yi and Shu et al., 2019).

Therefore, to transform college students from being pessimistic and stagnant in their academic achievements to a more positive outlook, both social support and goal orientation are essential. In other words, if students can clearly identify their strengths and potential career paths during their time at school, they can better understand the alignment between their chosen careers and their abilities. This clarity enables students to proactively prepare for their desired careers, effectively enhancing their academic

achievements. Conversely, if a college student's academic performance is subpar, it indicates a lack of goal setting for their future development and insufficient social support during their academic journey. Ultimately, this may lead to challenges in finding ideal jobs upon graduation and relying on further education to temporarily alleviate employment pressures. There is also a lack of research on how to improve employment through college students' academic achievements. The influence pathways between social support, goal orientation, and academic achievement remain unclear. It is necessary to analyze the impact of social support and goal orientation on college students' academic achievement and verify the mediating effect of goal orientation on the relationship between social support and academic achievement. This research can provide theoretical foundations and insights for universities and career guidance for college students. Therefore, this study poses the following research questions:

Research Question 1: What is the current status of social support, goal orientation, and academic achievement among college students?

Research Question 2: How do social support and goal orientation influence academic achievement?

Research Question 3: Does social support influence academic achievement through goal orientation?

2. Literature review

2.1. Social support

Social support refers to the resources individuals obtain from their social relationships, which have a positive impact on their social adaptation. Cobb (1976) defines social support as an individual's perception of receiving care and recognition from others (Liu et al., 2022). Dong and Simon (2010) define social support as the assistance and encouragement individuals receive from others through interpersonal relationships, which is a necessary factor for obtaining emotional comfort (Cobb, 1976). Gina et al. (2020) suggest that social support implies positive resources that can be obtained from the people, resources, and environment surrounding an individual. Since humans are social beings, they grow socially through interactions with others, such as receiving care, recognition, support, understanding, and help from individuals in their social circle. This is what is referred to as social support. In this study, social support refers to the resources that individuals continuously obtain through their social relationships with friends, teachers, and the school, and the positive impact of these resources on their social adaptation (Dong and Simon, 2010).

For college students, the primary sources of social support are friends, teachers, and the school (Gina et al., 2020). Friendships represent a type of social relationship distinct from family and teacher-student relationships. These relationships are characterized by interdependence, equality, and relative comfort (Qi, 2023). Support from friends primarily involves sharing mutual information and can serve as both emotional and instrumental support (Shon, 2022). Bokszczanin et al. (2023) found that college students find it relatively easy to satisfy their emotional needs and engage in social behavior with their peers, which contributes to their emotional well-being (Sukkamart et al., 2023). Additionally, college students primarily gain knowledge,

experience, and information from multiple teachers during their time at school. This growth and development are based on learning. The support they receive from teachers, which includes instrumental, evaluative, and informational support, is referred to as teacher support (Shon, 2022). School support mainly involves the support students receive from the school's activities and platforms, which provide information and opportunities (Bokszczanin et al., 2023). In this study, social support refers to the resources that college students obtain through their social relationships with friends, teachers, and the school.

Social support also enhances college students' goal orientation and academic achievement. Hyejin (2022) found that social support has a positive impact on goal orientation among university students. When students gain the motivation from social support, they can effectively plan their learning goals and engage in productive learning behaviors (Adams et al., 2023). Furthermore, support from teachers, schools, and friends can enhance goal orientation among college students. Dweck (1986) argued that positive resources from friends, such as help, interest, and information, in the social relationships established by learners can aid in goal setting (Hyejin, 2022). Kristopher and Maya (2019) concluded that goal orientation in college students is a predictor of self-regulated learning and requires ongoing adjustment with the support of parents and teachers (Dweck, 1986). The research by Elliot and McGregor (2001) found a positive static relationship between school support and the variable of proficient goals in goal orientation (Kristopher and Maya, 2019). These studies suggest that social support motivates college students to set and work towards their goals.

Zeng (2021) conducted a survey of college students in Hangzhou, China, and found a significant positive correlation between social support and academic achievement, indicating that students with higher levels of social support also achieve higher academic performance (Elliot and McGregor, 2001). Qi (2023) argued that social support directly predicts students' academic performance, meaning that higher levels of support from others lead to better learning outcomes (Zeng, 2021). A study by Pi and Xu (2014) showed that when college students receive support from their teachers, they are more likely to invest in their academic efforts to improve their grades (Pi and Xu, 2014). Marley and Wilcox (2022) analyzed their research and found that peer social support had a significantly positive predictive effect on academic motivation and academic achievement, suggesting that positive friendships on college campuses can facilitate learning outcomes (Marley and Wilcox, 2022). The results of Fernando et al. (2023) indicated that school support predicted improved learning outcomes and increased satisfaction with learning among college students (Fernando et al., 2023).

In this study, social support refers to the positive behaviors that college students obtain through their social relationships with friends, teachers, and the school, such as information, emotions, tools, opportunities, etc. These behaviors have a positive impact on students' goal orientation and academic achievement, facilitating their effective accumulation of academic achievements.

2.2. Goal orientation

A goal is an individual's goal to achieve the current task, and it is also a sense of efficacy to enhance and demonstrate results (Ames and Archer, 1988). Personal orientation in goal refers to how learners approach and grasp the intention of their learning activities, and take different approaches, interventions and reactions during the execution of tasks (Kampylafka et al., 2023). Usually, individuals will pursue different goals due to situational differences in needs, and the characteristics of their goals also affect the selection, success, and decision of events (Sajedifard and Sajedifard, 2022). Different from general motivation, which emphasizes that individuals are either strong or insufficient towards a certain goal, it emphasizes the interpretation of behavioral results from multiple perspectives such as reason, purpose and context (Miller, 2022). Especially in the area of initiative towards tasks, it is possible to understand what motivational tendencies a person has in pursuing, experiencing, and understanding achievements (Soltani, 2022; Kim, 2020).

At present, most studies divide the individual's goal orientation into two dimensions: skilled goal orientation and executive goal orientation. Individuals with executive goal orientation are mainly concerned about the conditional proof of meeting goals. It can be believed that college students with a high tendency to implement goals are more eager to get better evaluation and recognition compared with others than their own proficiency in learning (Peipei, 2021). Proficiency goal refers to the individual's commitment to proficiency and ability development, and pays attention to the process itself. Therefore, students with a high proficiency goal tendency carry out learning tasks with an active and challenging attitude in order to understand, continuously explore, acquire and grow a certain learning goal (Jesus et al., 2020). It can be confirmed that compared with the implementation of goal orientation, proficient goal orientation will give students more value in academic tasks and enable students to demonstrate efforts and continuous execution (Jesus et al., 2020; Alamri, 2023). Because some researchers have verified the effectiveness of proficient goal-directed on students' learning and the positive effect on strategies (Rivers, 2021; Liu et al., 2022) also verified that implementing goals would cause students' negative emotional problems in learning (Kong et al., 2023). Between the two factors of executive goal orientation and skilled goal orientation under goal orientation, goal orientation plays an important role in explaining the influence of environmental factors on psychological factors (Ruoxuan et al., 2021). For example, in the study of Lee and Kim (2016), individuals under high external learning pressure will increase their executive orientation towards goals and thus reduce students' academic satisfaction, while students under moderate pressure will promote the challenge of proficiency in learning goals and make them take the initiative to overcome difficulties to adapt to the academic environment. Chen and Mok (2023) also regard goal orientation as a developmental process to explain the influence of parents' parenting style on students' academic adaptation, that is, the educational style of parents' participation improves students' academic adaptation process, which is partly improved through proficient goal orientation.

Therefore, students' academic development should not only focus on improving external conditions and resources, but also actively pay attention to whether students

form favorable goal orientation to ensure the positive influence on the subsequent behavioral results. Although different college students are exposed to different environments, they have different ways of thinking about their learning goals, activity participation motives and employment efforts. However, we can still see from the previous research that goal orientation is an important factor affecting students' learning, and it involves that college students need to successfully transform their academic achievements into successful employment after implementing or proficient employment goals.

2.3. Academic achievement

Academic achievement is the result of learners' efforts in achieving learning outcomes (Alamri, 2023). Hyejin's (2022) research suggests that academic achievement is not only a matter of individual students but also a comprehensive consideration of teachers and schools. Outstanding academic achievement represents a school's enrollment rate and the high teaching level of teachers, making it a primary consideration for students when choosing schools and teachers (Adams et al., 2023). Xinqiao et al. (2019) define academic achievement as the degree to which college students have completed learning tasks during their educational process, and it serves as a predictive factor for learning efficiency (Xinqiao et al., 2019).

On the other hand, Ismael, Gabriela, and Gisela (2020) state that students' academic achievement is an indicator related to career readiness and the mastery of necessary knowledge and skills for employment (Ismael et al., 2020). Jung and Byoung (2020) argue that academic achievement encompasses not only academic performance but also the concepts of students' career adaptation and employment success (Jung and Byoung, 2020). Peipei (2021) proposes that the factors contributing to academic achievement include three aspects: external factors such as the school's cultural background and teachers' teaching outcomes, factors related to learning itself such as learning self-regulation and learning goals, and factors related to learning outcomes such as grades, certificates, and qualifications (Peipei, 2021). Salami, Lawson, and Metzger (2020) suggest that students with consistently good academic achievement are more likely to transition smoothly into work positions, experience happiness and a sense of respect in their jobs. Conversely, poor grades may indicate that students face obstacles in their studies and struggle to apply their abilities to overcome learning difficulties (Song et al., 2023). Therefore, in this study, academic achievement refers to the outcomes related to students' learning and employment knowledge during their time at university, which are crucial for their ability to make career decisions.

3. Research methods

3.1. Research model

This study employed a questionnaire survey format to investigate university students. After providing an explanation of the research subjects, the study included a voluntary participation of 202 students from South China in **Table 1** and **Figure 1**. Among these participants, 102 were male, and 100 were female. Furthermore, 41

students were in their first year, 58 in the second year, 61 in the third year, and 42 in the fourth year of their studies. In terms of family economic status, 65 students came from high-income families, 70 from middle-income families, and 67 from low-income families. Additionally, in terms of parental educational qualifications, 64 students had at least one parent with a postgraduate degree, 67 had at least one parent with a college or undergraduate degree, and 71 had parents with educational qualifications below college level.

Table 1. Basic characteristics of the study participants.

| Component		Number of people	Ratio
Gender	Male	102	50.5%
	Female	100	49.5%
Grade	1	41	20.3%
	2	58	28.7%
	3	61	30.2%
	4	42	20.8%
Family finances	High (monthly income above 50,000 RMB)	65	32.1%
	Medium (monthly income: 10,000–50,000 RMB)	70	34.7%
	Low (monthly income less than 10,000 RMB)	67	33.2%
Educational background of parents	High (at least one parent has a graduate degree)	64	31.7%
	Secondary (at least one parent has a college degree or bachelor degree)	67	33.2%
	Low (both parents have a college degree or below)	71	35.1%
Total		202	100%
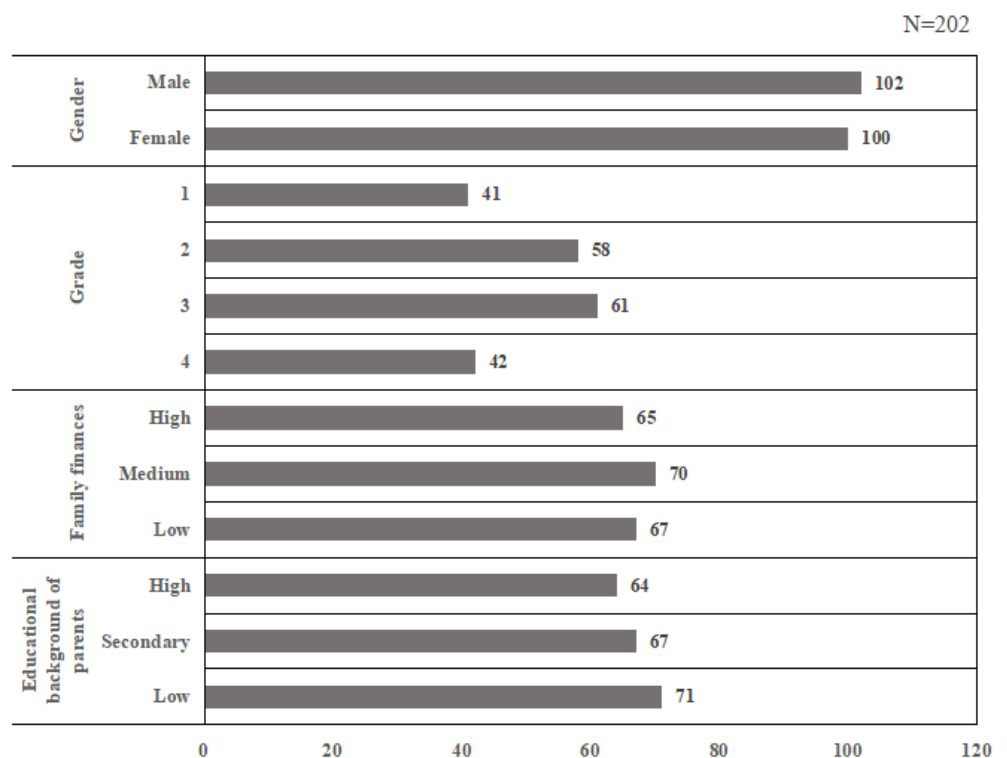
Figure 1. Distribution of research subjects.

3.2. Construction of research instruments

Table 2 summarize the reliability and composition of the research instruments used in this study, all of which employed a Likert 5-point scoring system. The social support scale was adapted from the questionnaire used in Qi's (2023) study (Gina et al., 2023), consisting of 12 questions. These questions were categorized into three dimensions, support from school (questions 1–4), support from friends (questions 5–8), and support from teachers (questions 9–12). The overall Cronbach's α coefficient for this scale was 0.830. The instrument for measuring goal orientation was adapted from Kim's (2020) research (Kim,2020), comprising 10 questions. These questions were categorized into two dimensions, performance goals (questions 1–5) and mastery goals (questions 6–10). The overall Cronbach's α reliability coefficient for this scale was 0.907. Finally, the instrument for assessing academic achievement was adapted from Park's (2023) research (Park, 2023), consisting of 4 questions. The overall Cronbach's α coefficient for this scale was 0.852.

Table 2. Composition of social support, goal orientation, and academic achievement.

Variable	Total number of questions	Cronbach's α
Social Support	12	0.830
Goal Orientation	10	0.907
Academic Achievement	4	0.852

Scoring method: 1 point for a complete disagreement, 2 points for a relative disagreement, 3 points for a medium level, 4 points for a relative agreement, and 5 points for a complete agreement.

3.3. Measurement

In this study, **Table 3** summarizes the reliability and composition of social support, goal orientation and academic achievement, all of which use the Likert 5-degree scoring method, and social support uses the questionnaire in the Qi (2023) study. There are 12 questions in total, which are divided into three dimensions, school support, friend support and teacher support. The school support ranges from 1–4. Examples of questions include 'The school can help me when I am confused about the future' and 'the school supports me in setting up my own future plan'. Cronbach's α is 0.811. Friends' support was questions 5–8, such as 'My friends are eager to help me when I am in trouble', 'I have friends who share my career ideas and experiences', etc. Cronbach 'α was 0.716. Teacher support is for questions 9–12, examples of which include 'My teacher will help me plan for the future', 'I can talk to my teacher about my employment', etc. In this study, questions on each dimension of social support were scored on a Likert 5 scale, from 1 ('totally inconsistent') to 5 ('completely consistent'). The higher the score, the higher the degree of social support perceived by students. Cronbach 'α coefficient of social support population was 0.830.

Goal-directed tools using detection tools in Kim's (2020) study. A total of 10 questions are divided into two dimensions, executive goal and proficiency goal. For executive goal 1–5, questions include 'My goal is to enter an ideal career', 'I will work harder for students with better grades than me', etc. Cronbach 'α is 0.896. Proficiency goal questions 6–10, including 'I want to learn a lot about the topic of employment', 'I am very familiar with the career I will enter in the future', etc. Cronbach 'α is 0.904.

Each dimension of executive goal and proficient goal orientation is similarly scored by Likert 5 degrees. The higher the score, the higher the level of goal orientation. The Cronbach 'α coefficient of the whole population is 0.907.

Academic achievement was measured using the tools in Park's (2023) study. There are 4 questions in total, including 'I am good at organizing what I have learned', 'I often complete tasks within the prescribed time', etc. The overall Cronbach 'α coefficient is 0.852. Each item is scored on a Likert 5 scale (1 point for complete nonconformity, 2 points for nonconformity, 3 points for general conformity, 4 points for relative conformity, and 5 points for complete conformity). The higher the score, the higher the level of academic achievement.

Table 3. Composition of social support, goal orientation, and academic achievement.

Variable	Total number of questions	Cronbach α
Social Support	12	0.830
School support	1–4	0.811
Friend support	5–8	0.716
teacher support	9–12	0.807
Goal Orientation	10	0.907
Executive objective	1–5	0.896
Proficiency target	6–10	0.904
Academic Achievement	4	0.852

Notes: Scoring method: 1 point for a complete disagreement, 2 points for a relative disagreement, 3 points for a medium level, 4 points for a relative agreement, and 5 points for a complete agreement.

3.4. Research program

This research establishes social support as the independent variable, with goal orientation and academic achievement as dependent variables. Gender, grade, family economic status, and parental educational background are selected as control variables within the demographic and sociological factors of the university students surveyed. The model for this research is thus formulated, as depicted in **Figure 2**.
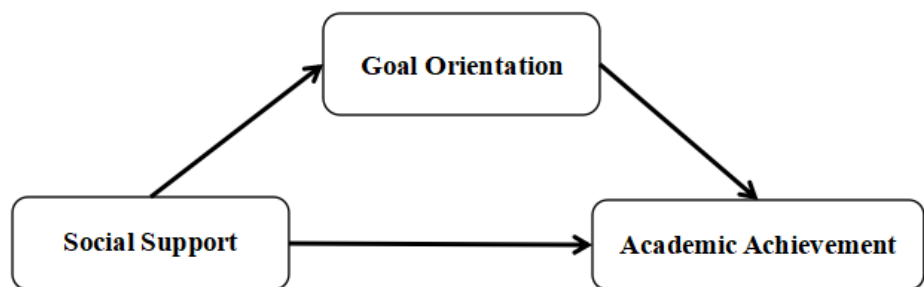

Figure 2. Research model.

3.5. Research procedure

First, to verify the reliability of the measurement tools, a reliability analysis was conducted on the measurement instruments. Second, descriptive statistics and differential analysis were performed on demographic variables with regard to social support, goal orientation, and academic achievement variables. Third, to validate the

research questions, a correlation test and regression analysis were conducted to confirm the relationships between variables. Fourth, to examine the mediating effects of variables, multiple regression analysis was conducted. All of the above steps were carried out using SPSS 25.0 software.

4. Research results

4.1. Participants

To gain an understanding of the overall characteristics of the research subjects in terms of the social support, goal orientation, and academic achievement variables in this study, descriptive statistical analysis was conducted. The results are presented in **Table 4** and **Figure 3**. The average score for social support was 3.38. The average score for goal orientation was 2.98. The average score for academic achievement was also 2.98.

Table 4. Overall levels of the research subjects.

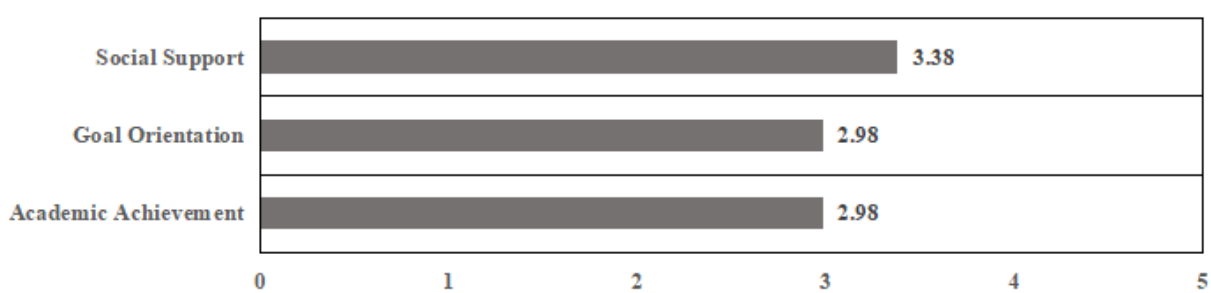| Variable	Average value	Standard deviation	Maximum	Minimum
Social support	3.38	0.50	5	2
Goal orientation	2.98	0.81	5	1
Academic achievement	2.98	0.91	5	1

Figure 3. Trends in social support, goal orientation, and academic achievement levels of study participants.

4.2. Differential analysis

Observations of differences between gender and the measured factors were analyzed using independent sample t-tests, as shown in **Table 5**. Gender differences in social support ($t = -0.213$, $p = 0.832$), goal orientation ($t = 0.916$, $p = 0.361$), and academic achievement ($t = 0.023$, $p = 0.982$) were all statistically insignificant ($p > 0.05$). Therefore, gender did not emerge as a significant influencing factor for academic stress, resilience, and academic achievement.

Table 5. Differential situations of research subjects.

Demographic variables	Category t (or F) value *p* value	Social Support	Goal Orientation	Academic Achievement
Gender	Male M ± SD	3.37 ± 0.52	3.03 ± 0.76	2.98 ± 0.89
	Female M ± SD	3.39 ± 0.47	2.93 ± 0.85	2.98 ± 0.92
	t	−0.213	0.916	0.023
	p	0.832	0.361	0.982
Grade	1 M ± SD	2.61 ± 0.32	2.16 ± 0.59	2.21 ± 0.87
	2 M ± SD	3.25 ± 0.15	2.91 ± 0.76	2.78 ± 0.80
	3 M ± SD	3.63 ± 0.09	3.20 ± 0.73	3.12 ± 0.71
	4 M ± SD	3.94 ± 0.17	3.54 ± 0.45	3.78 ± 0.57
	F M ± SD	406.485***	33.208***	32.395***
	p	≤ 0.001	≤ 0.001	≤ 0.001
Family finances	High M ± SD	3.46 ± 0.49	2.90 ± 0.90	3.02 ± 0.94
	Medium M ± SD	3.45 ± 0.41	2.98 ± 0.66	2.95 ± 0.84
	Low M ± SD	3.23 ± 0.55	3.05 ± 0.87	2.96 ± 0.95
	F	4.862**	0.548	0.127
	P	0.009	0.579	0.881
Educational background of parents	High M ± SD	3.38 ± 0.51	2.95 ± 0.80	3.10 ± 0.75
	Secondary M ± SD	3.38 ± 0.48	2.98 ± 0.80	2.87 ± 0.99
	Low M ± SD	3.38 ± 0.51	3.00 ± 0.84	2.96 ± 0.95
	F	0.005	0.056	1.014
	p	0.995	0.946	0.365

$**p \leq 0.01$, $***p \leq 0.001$, $N = 202$.

Differential analyses between grade level, family economic status, and parental education were conducted using ANOVA factorial variance analysis. There were statistically significant differences in social support ($F = 406.485$, $p < 0.001$), goal orientation ($F = 33.208$, $p < 0.001$), and academic achievement ($F = 32.395$, $p < 0.001$) among different grade levels, as shown in **Figure 4**. Social support scores for each grade level were as follows, Senior ($M = 3.94$), Junior ($M = 3.63$), Sophomore ($M = 3.25$), Freshman ($M = 2.61$); goal orientation, Senior ($M = 3.54$), Junior ($M = 3.20$), Sophomore ($M = 2.91$), Freshman ($M = 2.16$); academic achievement, Senior ($M =$

3.78), Junior (M = 3.12), Sophomore (M = 2.78), Freshman (M = 2.21). It can be observed that higher-grade students scored significantly higher in all three variables compared to lower-grade students.

Regarding family economic status, academic achievement (F = 0.127, p = 0.881) and goal orientation (F = 0.548, p= 0.579) showed no statistically significant differences, but social support (F = 4.862, p = 0.009) exhibited significant differences, as depicted in **Figure 5**. The categories for family economic status were High (M = 3.46), Medium (M = 3.45), and Low (M = 3.23). Thus, university students from higher family economic backgrounds scored higher in social support compared to those from medium and low family economic backgrounds.

Furthermore, parental education exhibited no statistically significant differences in social support (F = 0.005, p= 0.995), goal orientation (F = 0.056, p= 0.946), or academic achievement (F = 1.014, p = 0.365), indicating no significant influence.
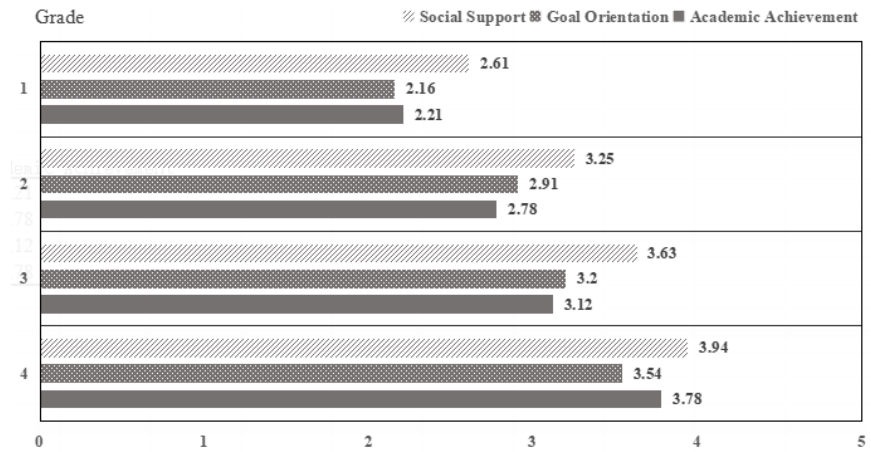

Figure 4. Trends in social support levels for students of different family economic backgrounds.
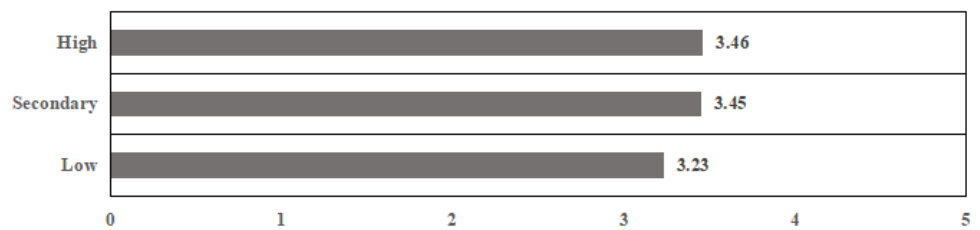

Figure 5. Trends in social support, goal orientation, and academic achievement levels by grade.

Pearson's product-moment correlation is used as a preliminary step to test the correlation between variables. As can be seen in **Table 6**, the results of correlation test show that, School support, Friend support, Teacher support, Execution goals, Competence goals and Academic achievement all show significant positive (+) correlation.

Table 6. Correlation analysis results.

Variable		Social support			Goal orientation		Academic achievement
		School support	Friend support	Teacher support	Execution goals	Competence goals	
Social support	School support	1	-	-	-	-	-
	Friend support	0.699**	1	-	-	-	-
	Teacher support	0.826**	0.378**	1	-	-	-
Goal orientation	Execution goals	0.543**	0.206**	0.359**	1	-	-
	Competence goals	0.482**	0.325**	0.332**	0.524**	1	-
Academic achievement		0.602**	0.485**	0.447**	0.391**	0.546**	1

$**p \leq 0.01$.

4.3. Regression results for social support, goal orientation, and academic achievement

To better observe the impact among dimensions, this study included the sub-variables of social support and goal orientation in the regression analysis. **Table 7** summarizes the regression results for the three variables, social support, goal orientation, and academic achievement. The analysis of the independent variable, social support, on academic achievement shows an overall explanatory power of 36.3%, with a β coefficient of 0.602. The explanatory power of the sub-variables of social support on academic achievement is 37.0%, with statistical results indicating support from school at 0.321, support from friends at 0.258, and support from teachers at 0.223.

Table 7. Regression analysis of independent variables on dependent variables.

The dependent variable	The independent variable	B	S.E	β	R²	F	p
Academic Achievement	Social Support	1.098	0.103	0.602	0.363	113.727***	≤ 0.001
	School Support	0.446	0.086	0.321			
	Friend Support	0.441	0.107	0.258	0.370	38.502***	≤ 0.001
	Teacher Support	0.261	0.076	0.223			
	Goal Orientation	0.603	0.067	0.539	0.290	81.773***	≤ 0.001
	Execution Goals	0.144	0.069	0.144	0.314	45.478***	≤ 0.001
	Competence Goals	0.451	0.066	0.471			
Goal Orientation	Social Support	0.955	0.093	0.586	0.344	104.694***	≤ 0.001
	School Support	0.073	0.076	0.059			
	Friend Support	0.261	0.094	0.171	0.395	43.017***	≤ 0.001
	Teacher Support	0.538	0.066	0.512			

$***p \leq 0.001$.

The analysis of the independent variable, goal orientation, on academic achievement shows an overall explanatory power of 29.0%, with a β coefficient of 0.539. The explanatory power of the sub-variables of goal orientation on academic achievement is 31.4%, with statistical results indicating an effect of 0.144 for execution goals and 0.471 for mastery goals.

On the other hand, the regression of the independent variable, social support, on goal orientation shows an overall explanatory power of 34.4%, with a β coefficient of 0.586. The explanatory power of the sub-variables of social support on goal orientation is 39.5%, with statistical results indicating an effect of 0.059 for support from school, 0.171 for support from friends, and 0.512 for support from teachers, all statistically significant.

4.4. Results of goal orientation mediation analysis

To verify the mediating effect of goal orientation between social support and academic achievement, a hierarchical regression analysis was conducted, as shown in **Table 8** and **Figure 6**. In the second stage, the *β* value between social support and academic achievement was 0.602, predicting with 36.3% explanatory power. In the third stage, when both social support and goal orientation were predictors of academic achievement, the *β* value was 0.436. Although the effect of social support decreased compared to the second stage, both social support and goal orientation significantly predicted academic achievement, confirming that goal orientation partially mediates the relationship.

Table 8. Mediation analysis.

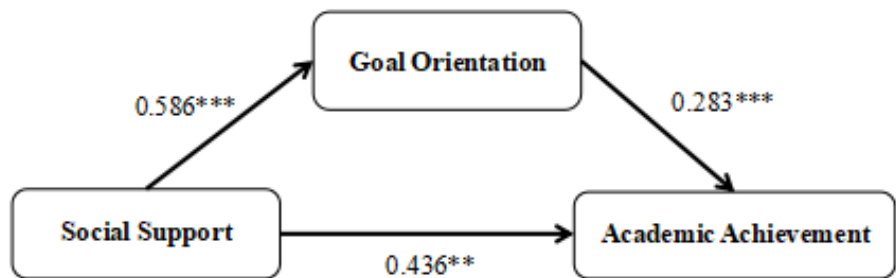| Stage	The dependent variable	The independent variable	B	S.E	β	R^2	F	p
1	Goal Orientation	Social Support	0.955	0.093	0.586	0.344	104.694***	≤ 0.001
2	Academic Achievement	Social Support	1.098	0.103	0.602	0.363	113.727***	≤ 0.001
3	Academic Achievement	Social Support	0.795	0.122	0.436	0.415	70.611***	≤ 0.001
		Goal Orientation	0.317	0.075	0.283			

***$p \leq 0.001$.

Figure 6. The mediating effect of goal orientation on the relationship between social support and academic achievement.

4.5. Validation of research hypotheses

In the hypothesis of this study, "H1, Social support has a positive (+) impact on academic achievement", "H2, Social support has a positive (+) impact on goal orientation", "H3, Goal orientation has a positive (+) impact on academic achievement", "H4, Goal orientation mediates the relationship between social support and academic achievement". The results were verified in the study, as shown in **Table 9**.

Table 9. Validation of research hypotheses.

No.	Hypothesis content	Verification status
H1	Social support has a positive (+) impact on academic achievement.	Confirmed
H2	Social support has a positive (+) impact on goal orientation.	Confirmed
H3	Goal orientation has a positive (+) impact on academic achievement.	Confirmed
H4	Goal orientation mediates the relationship between social support and academic achievement.	Confirmed

4.6. Results of goal-oriented mediation analysis

In order to verify the mediating effect of goal orientation on social support and academic achievement, a stepped-regression analysis was conducted, as shown in **Table 8**. The beta value of social support and academic achievement at stage 2, 0.602 was predicted with 36.3% explanatory power, and the results at this stage were directly visible with a direct effect size of 0.602. In the third stage, when social support and goal orientation predicted academic achievement at the same time, the beta value was 0.436, and the effect of social support was lower than that of social support and goal orientation in the second stage, but both social support and goal orientation predicted academic achievement significantly, which confirmed that goal orientation had a partial mediating effect. The mediating effect size of goal orientation was further calculated ($\beta = 0.586 \times 0.283$). As shown in **Table 10** the mediating effect size of goal orientation was 0.166. By combining the direct effect ($\beta = 0.602$) and indirect effect ($\beta = 0.166$), the total effect size was 0.768. Finally, according to the calculation results of the proportion of effects, it can be seen that the effect produced by the intermediary path of goal orientation accounted for 21.6% of the total influence of social support on academic achievement.

Table 10. Mediating effect size and proportion.

Effect	Size	Proportion
total effect	0.768	100%
mesomeric effect	0.166	21.6%
direct effect	0.602	78.4%

4.7. Verification results of the research hypothesis

The verification of the research hypothesis is shown in **Table 11**. Through the regression analysis results of social support, goal orientation and academic achievement, it is concluded that 'H1, social support has a positive (+) influence on academic achievement', 'H2, social support has a positive (+) influence on goal orientation' and 'H3, goal orientation has a positive (+) influence on academic achievement' are verified. In the results of the mediation analysis of goal orientation, 'H4, goal orientation has a mediating effect between social support and academic achievement' was verified.

Table 11. Test of research hypothesis.

No	Hypothetical content	Verification situation
H1	Social support has a positive (+) effect on academic achievement	pass
H2	Social support has positive (+) influence on goal orientation	pass
H3	Goal orientation has positive (+) influence on academic achievement	pass
H4	Goal orientation plays a mediating role between social support and academic achievement	pass

5. Discussion, conclusion and limitations

5.1. Discussion

This study conducted research on 202 college students to explore the conditions of social support, goal orientation, and academic achievement among college students, as well as the relationships and mediation effects between these variables. The discussion of the research findings is as follows,

First, regarding the validation of research question 1, 'What are the conditions of social support, goal orientation, and academic achievement among college students?' In the descriptive statistical analysis and differential analysis, college students showed overall moderate levels of social support, goal orientation, and academic achievement. Further analysis indicated that gender and parents' educational background did not significantly influence social support, goal orientation, or academic achievement. This result is consistent with the findings of Ho (2013) (Salami et al., 2020). However, grade level and family economic status emerged as factors affecting social support, goal orientation, and academic achievement. Higher-grade college students exhibited significantly higher levels of social support, goal orientation, and academic achievement compared to lower-grade students. This could be attributed to the fact that higher-grade college students have typically adapted fully to the academic and lifestyle rhythms of college. Additionally, the sustained pressure of post-graduation survival motivates them to manage their time and energy more effectively, actively seek opportunities for self-improvement, and access more resources for planning their future (Ismael et al., 2020; Vakkai et al., 2020). Furthermore, the differential results also showed that college students from higher family economic backgrounds had higher levels of social support. This suggests that college students from higher family economic backgrounds may have access to more financial support and, consequently, more opportunities for education, training, and self-development (Zhao et al., 2023; Zetian et al., 2022).

Second, in response to research question 2, 'How do social support and goal orientation influence academic achievement?' In the correlation analysis, various factors of social support, goal orientation, and academic achievement exhibited positive correlations with each other. Furthermore, from the regression analysis results, it was observed that social support had a positive impact on academic achievement, with school support having the highest influence, followed by friend support and teacher support. This result is consistent with the findings of some previous studies (Elliot and McGregor, 2001; Zeng, 2021; Pi and Xu, 2014; Marley and Wilcox, 2022; Fernando et al., 2023). School support is comprehensive in nature, as it not only

provides ongoing academic support but also offers opportunities, platforms, and courses related to internships (Bokszczanin et al., 2023). Friend support mainly comes from communication, sharing, and interactive learning outcomes (Shon, 2022). Teacher support, on the other hand, is more focused on assisting students in resolving difficulties related to job skills, career-relevant knowledge, and skills (Ho, 2013). It is also possible that teacher and friend support factors have highlighted the positive effects of school support in the supportive environment of the school.

Academic achievement is also positively influenced by social support, with the results showing that mastery goals have the highest impact on academic achievement, followed by performance goals. This result is consistent with the findings of some previous studies (Peipei, 2021), (Jesus et al., 2020). According to the views of Kim (2020) and Angie et al. (2021), individuals with mastery goals enjoy the process of understanding and exploring a particular goal, tend to have a mindset inclined toward self-challenge, and are more likely to immerse themselves in the process, leading to better learning outcomes. Therefore, familiarity with employment knowledge and the continued accumulation of practical experience related to mastery goals may immerse college students in the process, thereby promoting their academic achievements (Kim, 2020; Angie et al., 2021). Regarding the influence of social support on goal orientation, the results show a positive impact, with teacher support having the highest influence, followed by friend support and school support. This research result also has similarities with the findings of some researchers. It is because of the continuous external resources and assistance that college students gradually establish the right goal orientation, clarifying their own plans and pursuits. Among these, the support and assistance provided by teachers come from an experiential perspective, providing continuous and specific objective information feedback and advice to help students understand their goal orientation (Pi & Xu, 2014).

Finally, to address research question 3, 'Does social support influence academic achievement through goal orientation?' The analysis of the mediation effect based on goal orientation in the relationship between social support and academic achievement shows that both social support and goal orientation significantly positively predict academic achievement. When social support and goal orientation are combined, the effect on academic achievement remains significant. This result suggests that students with higher levels of social support tend to have better academic achievements, possibly because students with clear goals or strong intentions are more proactive and willing to challenge themselves and accumulate learning outcomes. Therefore, goal orientation has a partial mediating effect in the relationship between social support and academic achievement.

5.2. Conclusion

Based on the analysis of the results, we can conclude that school support within the category of social support can be a major positive factor in improving students' academic achievement. Teacher support is a key positive factor in enhancing students' goal orientation. Within the goal orientation category, mastery goals are crucial for increasing academic achievement. In other words, schools can directly optimize students' academic achievement, while teacher support can help students clarify and

master their learning goals, thereby improving academic achievement. Academic achievement also requires students to master their learning goals to achieve the best efficiency. Overall, social support partially enhances academic achievement through goal orientation. Therefore, both school and teacher support are essential key factors. Considering the differences in the demographic characteristics of the study participants, lower-grade students and those from lower economic backgrounds lacked social support. Additionally, lower-grade students had relatively lower levels of goal orientation and academic achievement. Therefore, in order to avoid employment difficulties, continuous support from schools and teachers during the early stages of college can help students clarify their future goals and plans, and students will actively seek opportunities to improve their academic achievements. This is particularly important for college students from lower-income families, who require more attention and support from schools and teachers.

Schools can provide early and sustained assistance to lower-grade students, including courses, lectures, and activities related to career choices and the knowledge required for employment. These courses, lectures, and activities need to match the entry requirements for employment. Similar approaches have been proposed in other studies. For example, arranging relevant arts courses and activities for elementary education majors can improve their employment prospects and familiarity with the profession, helping them acquire the necessary skills for employment (Ji, 2021). Similarly, music majors may need more stage experience and honor certificates to enhance their resumes and increase their employment rates. Schools can offer more arts competitions and other cultural activities to help them achieve these goals (Zeng, 2021).

Teachers can actively guide students to set their career goals early, help students understand the entry requirements for employment in advance, and base their knowledge transfer on future employment fields. Students can effectively plan their learning goals continuously to improve their academic performance and prepare for their careers. As mentioned in Liu's (2010) study, if teachers familiarize themselves with the careers that interest their students and link course content to the requirements of students' desired careers, it can increase students' interest in the course, improve their academic performance, and indirectly enhance their familiarity with potential careers (Qi, 2021).

For students with less favorable economic backgrounds, they can request assistance from schools and teachers in career planning. For example, they can seek help in narrowing down their career choices and devising talent development plans that align with the requirements of prospective employers. The goal is to have a clearer understanding of their future employment goals, avoid immediate unemployment after graduation, and make efforts to improve their academic achievement. However, it is important to note that students with lower grades and lower economic backgrounds particularly need support and guidance from schools or teachers to master and become familiar with their goals in order to enhance their academic achievement.

5.3. Limitations

This study has several limitations that should be considered:

(1) Small Sample Size: the study sample consisted of only 202 college students, which may not be representative of the entire population of college students. A larger and more diverse sample would enhance the generalizability of the findings.

(2) Self-Reporting Bias: the data in this study were collected through self-reporting questionnaires, which may be subject to social desirability bias. Participants may have provided answers that they believed were more socially acceptable, which could potentially affect the accuracy of the data.

(3) Limited Factors Examined: this study focused on the effects of social support and goal orientation on academic achievement. While these factors were found to be significant, other variables such as career decision-making and self-efficacy may also play important roles in academic achievement. Future research could explore a broader range of factors that may influence academic achievement.

(4) Cross-Sectional Design: this study employed a cross-sectional design, which limits the ability to establish causal relationships. Longitudinal studies could provide more insights into the dynamic relationships between social support, goal orientation, and academic achievement over time.

(5) Generalizability: the findings of this study may be specific to the cultural and educational context in which it was conducted. Therefore, caution should be exercised when applying these results to different cultural or educational settings.

In future research, increasing the sample size, reducing sampling bias, exploring additional factors, employing longitudinal designs, and considering cultural context could contribute to a more comprehensive understanding of the relationships between social support, goal orientation, and academic achievement among college students. Additionally, qualitative methods such as interviews could provide valuable insights into the experiences and perceptions of students regarding these factors.

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