

The Relationship between Students' Academic Motivation and Students' Self-Efficacy related to Students' Academic Performance at Shandong College of Traditional Chinese medicine Yantai, China

Jiahao Xu¹, Patima Rungruang²

¹*MBA students Southeast Bangkok University, Thailand, 1609154049@qq.com*

²*Advisor and Instructor of MBA program Southeast Bangkok University, Thailand, patima.pla2020@gmail.com*

Abstract

Academic motivation and self-efficacy are critical factors influencing students' academic performance, yet their specific relationship remains under explored in the context of traditional Chinese medicine education. Understanding this connection at Shandong College of Traditional Chinese Medicine is essential to develop targeted strategies that enhance student outcomes and professional readiness.

The objectives 1) To study students' academic motivation 2) To study students' self-efficacy 3) To study the relationship between students' academic motivation and Student's self-efficacy related to students' academic performance at Shandong College of traditional Chinese. The sample consisted of 297 students, academic year 2024, using simple random sampling. The instrument using Questionnaire to collect data with an index of consistency (IOC) between 0.67 – 1.00 and the overall reliability of 0.95. Statistics used to analyze the data were mean, standard deviation. The hypothesis was tested by using the Pearson correlation coefficient. The statistical significance was set at the 0.01 level.

The study's results indicated that: 1) Students with higher motivation and stronger self-efficacy beliefs tend to perform better academically, with these factors being strongly correlated with high levels of performance. 2) A significant positive relationship exists between both academic motivation and self-efficacy and academic performance, with their importance being notably high. In conclusion, enhancing students' academic motivation and self-efficacy emerges as effective strategies for improving academic performance and overall student success in college. Recommendations for academic interventions to boost these factors are also provided.

Keywords: Student's Academic Motivation, Students' Self-Efficacy, students' Academic Performance

Background and Statement of the problem

Higher education is the cornerstone of modern society. The advancement of a society depends on its education system and the resources and efforts dedicated to enhancing the quality and accessibility of education for all citizens. To improve academic performance in higher education, it is crucial to examine the factors that contribute to academic success.

To support the achievement of educational goals, it is essential to stay informed about global trends in education, with the aim of improving the quality of services, teaching, and student academic performance. In traditional education, a student is deemed successful if they complete their studies on time, achieve favorable learning outcomes, and meet academic goals. These accomplishments reflect the development of the student's core skills and abilities. In schools, learning outcomes or achievements are typically assessed based on how well students have mastered the material taught. The table below presents the rankings of academic performance for Chinese universities in 2025, specifically in Shandong Province, China.

The table1 displays the top universities in Shandong Province. In this context, we aim to explore the factors that influence better academic performance among students, with a focus on raising the academic standards of colleges and the city of Yantai. The goal is to help students improve their academic outcomes and establish Yantai as a key hub for education in the future.

Table 1 The Ranking about Academic Performance of Chinese universities in 2025 in Shandong Province, China.

Province Ranking	Universities in Shandong Province	City	Nation Ranking
1	Shandong University	Jinan	21
2	China Ocean University	Qingdao	41
3	China University of Petroleum (East China)	Qingdao	64
4	Shandong Normal University	Jinan	111
5	Shandong Agricultural University	Tai'an	130
**	Shandong College of Traditional Chinese medicine, China	Yantai	**

Sources: <https://www.cnur.com/region/2254.html>

Academic success and the achievement of strong results are central goals at all levels of education, positively impacting both learners and the education system as a whole. As a result, identifying the factors that contribute to students' academic success has become a key focus for researchers and educational psychologists. Specifically, much research has been devoted to understanding the roles of students' learning motivation and self-efficacy in shaping their learning and performance (Wu et al., 2020).

Studies consistently show that these psychological factors are crucial in determining how students approach academic tasks, persist through challenges, and ultimately succeed in their learning efforts. As educational systems face growing pressure to improve academic outcomes, understanding the factors that drive student achievement becomes increasingly important (Rafiola et al., 2020).

To improve academic performance in higher education, it is essential to continue investigating the key factors that influence student success, particularly academic motivation and self-efficacy. These factors significantly impact students' academic achievement and perseverance. Fostering these psychological constructs should be a central focus of educational reforms and strategies aimed at enhancing educational outcomes. By understanding and cultivating these factors, we can create more effective learning environments that promote academic success.

Objective

The purposes of this study were:

1. To study students' academic motivation at Shandong College of traditional Chinese medicine.
2. To study students' self-efficacy at Shandong College of traditional Chinese medicine.
3. To study students' academic performance at Shandong College of traditional Chinese medicine.
4. To study the relationship between students' academic motivation and self-efficacy related to students' academic performance at Shandong College of traditional Chinese medicine.

Expected benefits

The analysis of The Relationship between Students' Academic Motivation and Students' Self-Efficacy related to Students' Academic Performance at Shandong College of Traditional Chinese medicine provides a valuable metric for evaluating and improving the quality of college education in overall academic aspects and can be used as guidelines to improve the students' academic performance to enhance its Future Education. By assessing Student's motivation and Self-Efficacy and Academic performance patterns, college can accurately identify both explicit and implicit needs, allowing for timely adjustments to their education offerings.

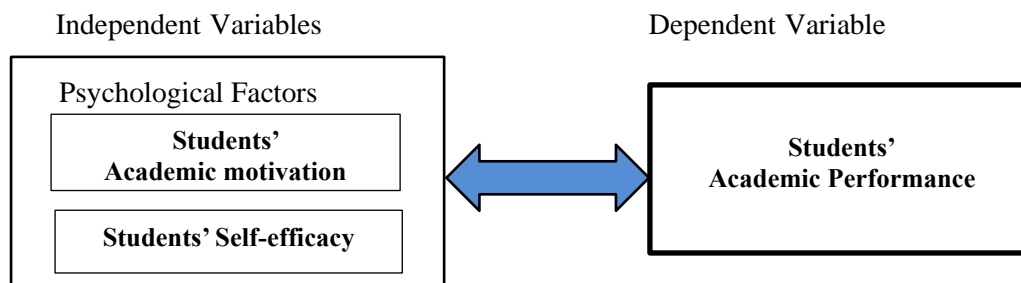
For Parents: Improving Environment Academic quality through an optimized Psychological analysis enables parents to trust a more informed and positive experience, ultimately enhancing their satisfaction with the school's Education and increasing their confidence in the institution.

For Shandong College of traditional Chinese medicine: Strengthening the Academic Policy and particularly increasing support in areas such as of student's Motivation and Enhanced self-efficacy by develop stronger confidence in their abilities, also help the college attract more students, thereby increasing its reputation and competitive standing in the region.

For the Education Sector: The findings from this research offer a benchmark strategy for other schools to improve their Academic Performance by support student's motivation and Self efficacy, thereby elevating the overall quality of education. This contributes to the long-term development of the educational sector by fostering environments that better meet the needs of students and parents alike.

Conceptual Framework

From the study related to students' academic motivation and students' self-efficacy on their academic performance.



Source: Developing from Motivation and Self-efficacy as Predictors of Learners' Academic Achievement from Ugwuanyi (2020)

Research Methodology

Research methodology consists of

Steps	Method
1	Clarify the sample size (Population and sample)
2	determining variables
3	Design instrument construction
4	Conduct Instrument testing

Population and Sample

Population consisted of 13,126 students enrolled Shandong college of Traditional Chinese Medicine, China in academic year 2024 (statistical report student office of traditional Chinese, 2024)

Sample of 297 students with the sample size determined by using Krejcie and Morgan Table (Krejcie and Morgan, 1970) at a 95% confidence level and a tolerance not exceeding $\pm 5\%$.

Independent variables: Psychological Factors consist of 1) Students' Academic Motivation and 2) Students' Self-efficacy

Dependent variable: 1) Student's Academic Performance

Instrument Construction

The instrument used for data collection was a questionnaire, a self-administered format, designed based on a review of literature, theories, and relevant research. It consists of three parts:

Part 1: A questionnaire about Student's personal information.

Part 2: A questionnaire about Students' Academic motivation

Part 3: A questionnaire about Students' Self-efficacy

Part 4: A questionnaire about Students' Academic Performance

Before proceeding with the actual data collection, the content fidelity of the questionnaire was tested. The questions were analyzed for the Index of Item Objective Congruence (IOC), with IOC between 0.67 and 1.00, which is consistent with the method proposed by Brown and Wilson (2020), who stated that the consistency index (IOC) should be greater than 0.7. After ensuring each question aligned with the research objectives, the questionnaires were try-out with 30 samples not included in the main research.

Instrument testing

Students' academic motivation (overall is 0.93)	Cronbach's Alpha	N of items
Autonomy	0.94	3
Competence	0.88	3
Relatedness	0.97	3
Students' Self-efficacy (overall is 0.94)		
Cognitive processes	0.98	3
Motivation processes	0.94	3
Affective process	0.90	3
Selection processes	0.94	3
Students' academic performance	0.97	8

The researcher conducted a quality assessment of the Questionnaire used in the study by performing a try-out with 30 personnel unrelated to the research sample. The data collected were analyzed to determine reliability using Cronbach's Alpha Coefficient. The reliability analysis of the questionnaire indicates an *Overall Paper Reliability coefficient of 0.95*.

Statistics Applied in Research

The statistics used in this study are: Percentage, Average (\bar{X}), Standard deviation (SD) and Pearson correlation coefficient

Research Results

Part 1: Results of Personal Information Data analysis Personal information of the students including gender, age, Majors. Frequency and percentage analysis was performed on the data.

Table 2 Analysis of Personal Information

Personal Information		Frequency	Percentage
Gender	Male	208	70.03
	Female	89	29.97
Total		297	100.00
Age	Less than 20 years	12	4.04
	20– 22 years	130	43.77
	23 – 25 years	155	52.19
Total		297	100.00
Year of study at collage	First year	44	14.81
	Second year	55	18.52
	Third year	113	38.05
	Others	85	28.62
Total		297	100.00
Major	Department of Medicine	117	39.39
	Department of Traditional Chinese Medicine	67	22.56
	Department of Chinese Medicine	101	34.01
	Department of Nursing	12	4.04
Total		297	100.00

From Table 2, it is found that general information of 297 students who responded to the questionnaire can be classified according to the following variables:

1. Gender: the majority of students who responded to the questionnaire were male (70.03%), and followed by females (29.97%), respectively.
2. Age: with the majority aged between 23-25 years old and above, with the largest number (52.19%), followed by 20-22 years old (43.77%), and under less than 20 years old (4.04%), respectively.
3. Year of study at collage: with the majority student in the third year, (38.05%), followed by other studying year (28.62%) and the second year (18.52%), and under in the first years (14.81%) respectively.
4. Major: most the majority of students were in Department of Medicine (39.39 %), followed by Department of Chinese Medicine (34.01%), Department of Traditional Chinese Medicine (22.56%), and Department of Nursing (4.04%), respectively

Table 3 The mean and standard deviation of Students' Academic Motivation

Students' Academic motivation	n = 297		
	\bar{x}	S	Level of Agreement
1. Autonomy	3.64	1.68	High
2. Competence	3.46	1.47	Moderate
3. Relatedness	3.65	1.66	High
Total	3.58	1.60	High

From Table 3 reveals that the students' academic performance is important in students' academic performance to Shandong College of traditional Chinese medicine, China as a whole and in all aspects is high

($\bar{x} = 3.58$). The area of utmost importance is Relatedness ($\bar{x} = 3.65$), followed by the Autonomy ($\bar{x} = 3.64$) and Competence. ($\bar{x} = 3.46$), respectively.

Table 4 The mean and standard deviation of students' Self-Efficacy

Students' self-efficacy	n = 297		
	\bar{x}	S	Level of Agreement
1. Cognitive Processes	3.42	1.42	Moderate
2. Motivation Processes	3.66	1.41	High
3. Affective Processes	3.82	1.54	High
4. Selection Processes	3.73	1.51	High
Total	3.65	1.47	High

From Table 4 reveals that the students' self-efficacy is important in students' academic performance to Shandong College of traditional Chinese medicine, China as a whole and in all aspects is high ($\bar{x} = 3.65$). The area of utmost importance is the Affective Processes ($\bar{x} = 3.82$), followed by the Selection Processes ($\bar{x} = 3.73$). Motivation Processes. ($\bar{x} = 3.66$) Cognitive Processes. ($\bar{x} = 3.42$), respectively.

Table 5 The mean and standard deviation of students' academic performance

Students' self-efficacy	n = 297		
	\bar{x}	S	Level of Agreement
1. I study hard because I want to recognize my full potential.	3.55	1.43	High
2. I think my academic performance is at a high level compared to my classmates	3.48	1.36	Moderate
3. I usually get a higher score on exams or assignments	3.57	1.46	High
4. I am able to complete most of the study tasks independently and with good results	3.64	1.45	High
5. The learning goals I set are usually successful	3.68	1.49	High
6. I am able to improve my academic performance by working hard to improve my learning methods	3.56	1.46	High
7. I am able to apply what I had learned to solve practical problems effectively	3.62	1.43	High
8. I feel that the knowledge and skills I have learned in the course will be very useful for the future	3.17	1.41	Moderate
Total	3.53	1.43	High

From Table 5, it was found that the top 3 of students on improving their academic performance to Shandong College of traditional Chinese medicine, China as a whole and all items are at a high level ($\bar{x} = 3.53$). 5. "The learning goals I set are usually successful" ($\bar{x} = 3.68$), 4. "I am able to complete most of the study tasks independently and with good results" ($\bar{x} = 3.64$) 7. "I am able to apply what I had learned to solve practical problems effectively" ($\bar{x} = 3.62$) respectively.

Table 6 The relationship between students' academic motivation and self-efficacy related to students' academic performance

Variables	Academic Performance			
	n	r	p	Results
Academic Motivation	297	0.87	0.00*	High
1. Autonomy	297	0.86	0.00*	High
2. Competence	297	0.88	0.00*	High
3. Relatedness	297	0.88	0.00*	High
Self-Efficacy	297	0.88	0.00*	High
4. Cognitive Processes	297	0.89	0.00*	High
5. Motivation Processes	297	0.89	0.00*	High
6. Affective Processes	297	0.87	0.00*	High
7. Selection Processes	297	0.87	0.00*	High

*Statistically significant at the 0.01 level.

Table 6 presents the relationship between students' academic motivation, self-efficacy, and academic performance at Shandong College of Traditional Chinese Medicine, China. The analysis reveals a strong correlation between Cognitive Processes and Motivation Processes ($r = 0.89$), indicating a significant positive influence on academic performance, with a p-value of 0.00, which confirms statistical significance.

Additionally, the correlation between Competence and Relatedness ($r = 0.88$) is also strong. Affective Processes and Selection Processes show a similar pattern ($r = 0.87$), further emphasizing the significant role of cognitive and selection processes in academic performance. Autonomy ($r = 0.86$) highlights the importance of academic motivation in influencing academic outcomes.

Overall, all factors exhibit a high degree of correlation with academic performance, with all correlations being statistically significant at the 0.01 level. This underscores the critical role these factors play in shaping students' academic performance

Summary of the Study

The study surveyed 297 students, predominantly male, with most respondents aged 23-25 and studying in medical-related fields. The findings indicate that male students were more likely to respond, reflecting a greater focus on academic performance among them. The analysis of factors like Autonomy, Competence, Relatedness, and Cognitive Processes reveals a strong correlation with academic performance. By improving these factors, such as enhancing autonomy and setting clear goals, students can increase their motivation and self-efficacy, ultimately leading to better academic outcomes and long-term success.

Overall Academic Performance: The study found that students at Shandong College of Traditional Chinese Medicine demonstrated high academic performance. This reflects the importance of both academic motivation and self-efficacy in shaping student outcomes.

Key Factors in Academic Motivation and Self-Efficacy: The research highlighted that factors such as Autonomy, Competence, Relatedness, and processes like Cognitive, Motivation, Affective, and Selection play crucial roles in student performance. Students at this college show strong academic motivation and self-efficacy, driven by traits like curiosity and diligence, which align with their studies in Traditional Chinese Medicine (TCM).

Correlation between Motivation, Self-Efficacy, and Performance: The study found a moderate, statistically significant correlation ($p < 0.01$) between students' academic motivation, self-efficacy, and their academic performance. Autonomy, competence, and relatedness, along with cognitive, motivational, affective, and selection processes, all positively influenced students' academic outcomes.

The study at Shandong College of Traditional Chinese Medicine (SCTCM) found that students' academic motivation and self-efficacy are critical for academic success, with cognitive processes being the most significant factor, followed by selection processes, motivation processes, affective processes, competence, relatedness, and autonomy.

Autonomy: A key factor in motivating students, autonomy helps foster deep understanding and critical thinking, which are essential in Shandong College of Traditional Chinese Medicine (SCTCM). By allowing students to control their learning, autonomy increases motivation, enhances engagement, and contributes to improved academic performance.

Competence: Competence plays a vital role in academic motivation, especially in Shandong College of Traditional Chinese Medicine (SCTCM), which requires both practical skills and theoretical knowledge. Mastery and accomplishment in areas like herbal identification or acupuncture increase students' confidence, leading to greater motivation and improved academic performance.

Relatedness: Relatedness, or the sense of connection with peers, professors, and the broader academic community, is crucial in SCTCM education. It provides students with a sense of purpose and meaning, motivating them to engage with their studies and persist through challenges. A collaborative learning environment at SCTCM can significantly enhance students' academic performance and self-efficacy.

Cognitive Processes: Cognitive processes, including past academic achievements and experiences, significantly influence self-efficacy. Positive feedback from peers, mentors, and instructors enhances students' belief in their abilities, motivating them to continue improving and achieving academic success.

Together, these factors—autonomy, competence, relatedness, and cognitive processes—play a critical role in students' academic motivation and performance at SCTCM, shaping their potential for success in both their studies and future careers as TCM practitioners. The study also found that various motivational and psychological factors play a significant role in students' academic performance at Shandong College of Traditional Chinese Medicine (SCTCM).

Motivation Processes: Students driven by curiosity and a passion for TCM are more engaged and motivated, leading to deeper learning and greater academic success. A sense of purpose, challenge, and social support enhances motivation, as does positive feedback and recognition for achievements.

Affective Processes: Positive emotions, a sense of belonging, and confidence contribute to a supportive learning environment that nurtures both intellectual and emotional growth, boosting academic performance.

Selection Processes: Students with clear career goals in SCTCM are more likely to be motivated, engage in relevant studies, and select activities that support their academic and professional development.

Discussions

The study found that students' academic performance at Shandong College of Traditional Chinese Medicine (SCTCM) is generally at a high level. This high performance is attributed to the inherently demanding nature of the Traditional Chinese Medicine (TCM) curriculum, which requires a strong foundation in both theoretical knowledge (e.g., anatomy, physiology, pharmacology, herbalism) and practical skills (e.g., acupuncture, massage, herbal preparation). The intensity of this curriculum demands high levels of dedication, self-discipline, and effective learning strategies. Students must be able to manage the rigorous workload effectively to succeed (Niu, 2023).

Individual student characteristics play a significant role in academic outcomes. Factors such as prior academic background, learning styles, motivation levels, self-efficacy, time management skills, and resilience all impact students' academic performance. Students who demonstrate strong self-discipline, effective learning strategies, and a growth mindset are more likely to thrive in this challenging environment (Zheng et al., 2023). The study also highlights the important relationship between students' academic motivation and self-efficacy, which significantly affects their academic performance at SCTCM. Research suggests that students with higher motivation and self-efficacy tend to perform better academically. These factors influence student engagement, persistence in the face of challenges, and overall academic success.

The following aspects were identified as key factors affecting students' academic motivation and self-efficacy at SCTCM:

Autonomy

The study found that autonomy is highly important for students' academic performance. Students who feel a greater sense of autonomy in their learning are more likely to be engaged, motivated, and achieve higher academic scores. This aligns with previous research on the benefits of autonomy in education (Reeve & Cheon, 2021).

Competence

Competence is another crucial factor influencing academic performance. Students who feel confident in their abilities and believe they are mastering the material are more likely to be motivated and engaged. This aligns with Bandura's concept of self-efficacy, which emphasizes the role of individuals' beliefs in their abilities in determining motivation and performance (Bandura, 1986). Students who feel competent tend to view challenges as opportunities to grow, set challenging goals, and ultimately achieve better academic results.

Relatedness

Relatedness plays a significant role in academic performance. Students who feel a strong sense of belonging and connection to their peers, professors, and the broader academic community are more motivated and engaged in their studies. This finding aligns with self-determination theory, which emphasizes the importance of feeling connected to others for optimal motivation and well-being (Deci & Ryan, 2000). Students who experience a sense of relatedness are more likely to receive support, encouragement, and feedback, all of which strengthen their motivation to learn.

Cognitive Processes

Effective cognitive processes, such as goal setting, planning, and self-regulation, are important for academic success. Students who engage in these processes are more likely to be motivated, organized, focused, and successful in their studies. This aligns with research on metacognition, which suggests that students who are aware of their own learning processes and can effectively manage them are more likely to succeed (Flavell, 1979).

Motivation Processes

Intrinsic motivation, a sense of purpose, and a growth mindset significantly contribute to academic performance. Students who are intrinsically motivated find learning enjoyable and rewarding, which leads to

greater engagement and persistence. Students with a clear sense of purpose and those who view challenges as opportunities for growth are more likely to persevere and succeed in their studies.

Affective Processes

Affective processes also play a key role in academic performance. Students who experience positive emotions, such as interest, enjoyment, and a sense of accomplishment, are more likely to be motivated and engaged in their studies. In contrast, students who experience negative emotions, such as anxiety, frustration, and boredom, are less motivated and engaged. This aligns with research suggesting that positive emotions enhance motivation and learning, while negative emotions can hinder academic progress (Pekrun, 2006).

Selection Processes

Finally, students who make learning choices that align with their interests, strengths, and learning styles tend to be more motivated, engaged, and successful. This finding supports research on self-directed learning, which suggests that students who have control over their learning are more likely to be motivated and engaged (Knowles, 1975). Students who can make decisions about their learning are more likely to feel a sense of ownership and responsibility for their studies, leading to greater engagement and improved academic outcomes.

In conclusion, the study highlights that the academic performance of students at Shandong College of Traditional Chinese Medicine is influenced by a combination of intrinsic motivation, self-efficacy, and various psychological factors such as autonomy, competence, relatedness, cognitive processes, motivation, affective processes, and selection processes. By supporting these factors, SCTCM can further enhance students' academic motivation, engagement, and overall performance, preparing them for successful careers in Traditional Chinese Medicine.

Recommendations

Recommendations for Shandong College of Traditional Chinese Medicine: **Autonomy:** Encourage students to make choices in projects, learning methods, and goal setting. Offer activities aligned with their interests and learning styles. Provide opportunities for students to express their views, set personal goals, manage time effectively, and independently find resources.

Competence: Design learning activities and assessments that help students experience success and build confidence. Provide regular, specific feedback that highlights strengths and areas for improvement. Encourage realistic goal-setting and break larger tasks into manageable steps to foster a sense of accomplishment and motivation.

Relatedness: Promote opportunities for students to connect with peers, professors, and the broader community through activities, events, and mentoring programs. Encourage group projects, peer learning, and collaborative activities to create a sense of belonging, support, and positive teacher-student relationships.

Cognitive Processes: Integrate metacognitive strategies such as self-monitoring, reflection, and self-assessment into the curriculum. Provide guidance on effective study techniques, including time management and note-taking. Encourage active participation in learning activities such as group discussions, problem-solving exercises, and project-based learning.

Motivation Processes: Foster a sense of purpose by connecting the curriculum to real-world applications. Create engaging learning experiences that tap into students' interests and passions. Encourage students to view challenges as opportunities for growth, helping them develop resilience and perseverance.

Affective Processes: Create a positive, inclusive classroom atmosphere where students feel comfortable asking questions, sharing ideas, and seeking support. Introduce strategies for managing stress and anxiety, such as mindfulness exercises and relaxation techniques. Offer opportunities for students to experience positive emotions like enjoyment and a sense of accomplishment.

Selection Processes: Allow students to choose courses, activities, and resources that match their interests and learning styles. Encourage them to take control of their learning by setting goals, managing time, and seeking resources independently. Provide opportunities for peer collaboration and mentoring to enhance knowledge sharing and skill development.

Conclusion: A more in-depth study of students' academic performance at Shandong College of Traditional Chinese Medicine is needed to identify further strategies for enhancing academic motivation, self-motivation, and overall academic success. Implementing these recommendations could improve student outcomes and create a more supportive and effective learning environment.

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