A STUDY ON THE RELATIONSHIP BETWEEN STUDENTS' LEARNING MOTIVATION AND LEARNING OUTCOMES AT H COLLEGE IN QINGDAO, CHINA

Yanan Xiao [1*]

Ping Xu [2]

[1] Master Candidate in Educational Administration, Stamford International University of Thailand

[2] Stamford International University of Thailand

[*] **Corresponding Author, E-mail**: 2636985163@qq.com

Abstract: This study explored the relationship between learning motivation and learning outcomes among university students at H College in Qingdao, China. It also analyzed the differences in students' learning motivation and learning outcomes based on various demographic background variables. A questionnaire survey combined with quantitative research methods was used to collect data from students at the college, resulting in 332 valid responses. The findings indicated that the students at H College in Qingdao generally perceived their learning motivation and learning outcomes positively. Significant differences in learning motivation and learning outcomes were observed based on gender, place of origin, and major, while student leadership status did not have a significant impact on either learning motivation or learning outcomes. A significant positive correlation existed between learning motivation and learning outcomes, with particularly strong associations between the empowerment, interest, and caring dimensions of learning motivation and the cognitive and skill outcomes of learning. Finally, the study reflected on and discussed the results, offering recommendations for designing personalized learning support based on gender, place of origin, and major, with the aim of enhancing students' learning motivation and learning outcomes at H College and promoting the development of educational management practices.

Keywords: Learning Motivation ,Learning Outcomes, University Students

Introduction

The relationship between learning Motivation and learning outcomes was a central topic in educational psychology. As global educational systems shifted towards knowledge-based economies, enhancing students' learning Motivation became a key focus of educational reforms worldwide. Self-Determination Theory (SDT), which emphasized the fulfillment of basic psychological needs — autonomy, competence, and relatedness — had been widely applied to promote learning Motivation

and improve learning outcomes (Deci & Ryan, 1985; Ryan & Deci, 2000). In developed countries, teaching models such as flipped classrooms and project-based learning were employed to stimulate intrinsic motivation and foster cognitive, skill-based, and emotional learning outcomes (Van Alten, Phielix, & Janssen, 2019).

In China, the improvement of higher education quality and the cultivation of learning Motivation became focal points of academic research and policy discussions. Studies indicated that learning Motivation was influenced by various factors, including family background, social support, cultural context, and educational models (Li, F., 2008; Wang, J., et al., 2018). Furthermore, shifts in China's educational environment had significantly impacted students' learning Motivation. However, empirical research on the specific effects of learning Motivation on learning outcomes, particularly in the context of regional universities, remained limited. Moreover, the influence of different types of learning Motivation, such as empowerment, interest, and success, had not been extensively studied. China's regional disparities in educational resources and socio-cultural factors further complicated the relationship between learning Motivation and learning outcomes, providing a compelling need for more focused research.

Research Objectives

(1) To understand the current state of learning Motivation among students at H College in Qingdao, China.

(2) To understand the current state of learning outcomes among students at H College in Qingdao, China.

(3) To explore the differences in learning Motivation among students at H College in Qingdao, China, based on different background variables (gender, place of origin, student leadership status, and major).

(4) To explore the differences in learning outcomes among students at H College in Qingdao, China, based on different background variables (gender, place of origin, student leadership status, and major).

(5) To examine the correlation between learning Motivation and learning outcomes among students at H College in Qingdao, China.

Literature Review

Theoretical Foundation: Self-Determination Theory (SDT)

Self-Determination Theory (SDT), introduced by Deci and Ryan in 1985, is a prominent framework for understanding human motivation, focusing on the balance between intrinsic and extrinsic motivations. The theory asserts that motivation is deeply influenced by an individual's basic psychological needs—autonomy, competence, and relatedness—which are essential for fostering

intrinsic motivation and personal growth. When these needs are met, motivation increases, enhancing performance and learning outcomes (Deci & Ryan, 1985).SDT underscores the importance of autonomy, competence, and relatedness in promoting intrinsic motivation, particularly in educational settings.

Research has shown that students who perceive their learning activities as satisfying these psychological needs engage more deeply, leading to improved learning outcomes (Guay, Ratelle, & Chanal, 2008). Although extrinsic motivation, such as rewards and evaluations, can enhance motivation temporarily, over-reliance on external rewards may undermine intrinsic motivation, thereby affecting the quality of learning (Deci & Ryan, 1985). Creating learning environments that support students' autonomy, provide competence-building tasks, and foster meaningful relationships can significantly boost intrinsic motivation, thus enhancing students' engagement and learning outcomes (Reeve, Deci, & Ryan, 2004).

Research on Learning Motivation

Learning motivation refers to the internal drive that initiates, sustains, and directs students' engagement in learning activities. SDT posits that learning motivation is shaped by intrinsic and extrinsic factors, with intrinsic motivation arising from personal interest in learning content and extrinsic motivation driven by external rewards (Ryan & Deci, 2000). The fulfillment of basic psychological needs—autonomy, competence, and relatedness—has been shown to foster intrinsic motivation, leading to more effective learning outcomes (Li, 2008; Ryan & Deci, 2000).

In contrast, external rewards can undermine intrinsic motivation if relied upon excessively. Learning motivation is typically classified into intrinsic motivation, driven by an individual's interest, and extrinsic motivation, driven by external factors like grades (Li, 2008). The SDT framework emphasizes the role of autonomy, competence, and relatedness in enhancing intrinsic motivation, which in turn improves academic performance. Additionally, the MUSIC model, developed by Jones (2009), incorporates dimensions like empowerment, usefulness, success, interest, and caring, which are crucial in stimulating students' intrinsic motivation.

Learning motivation is commonly classified into intrinsic and extrinsic types, with tools such as achievement motivation and non-achievement motivation frameworks commonly used to measure it. Several studies have explored the multidimensional nature of learning motivation, emphasizing that both cognitive and emotional factors influence students' motivation and learning outcomes. The MUSIC model, in particular, offers a comprehensive framework for assessing the cognitive and emotional engagement of students in their learning tasks (Jones, 2017).

To enhance learning motivation, both intrinsic and extrinsic factors need to be addressed. Strategies such as providing students with autonomy, offering opportunities for success, and fostering supportive teacher-student relationships are crucial for stimulating intrinsic motivation. Additionally, extrinsic rewards, when used appropriately, can also enhance motivation, particularly in the short term

(Wlodkowski & Ginsberg, 2017). These strategies, when combined, can significantly improve students' learning motivation and learning outcomes.

Research on Learning Outcomes

Learning outcomes encompass cognitive, skill-based, and emotional improvements achieved through the learning process. Recent research emphasizes that learning outcomes should not only measure academic achievements but also account for students' engagement and personal growth, such as their ability to transfer classroom knowledge to real-world scenarios (Díaz et al., 2025). Studies on flipped classrooms and blended learning environments demonstrate that innovative teaching models enhance both cognitive and emotional learning outcomes (Van Alten et al., 2019; Kyndt et al., 2016).

Learning outcomes are typically measured through cognitive understanding, practical skill application, and emotional engagement. Scholars like Bloom (1956) and Carey et al. (2018) have emphasized that measuring learning outcomes should go beyond academic achievement to include students' emotional and cognitive development. Modern approaches also consider self-regulation and reflective learning as integral components of academic success (Marulis, 2025).

Learning outcomes are influenced by self-regulated learning strategies, teacher engagement, and students' motivation. Studies indicate that learning environments that incorporate interactive, collaborative learning models significantly enhance student outcomes (Li Juan, 2017). Teacher feedback and course design also play vital roles in shaping students' academic results (Wang Jingxin et al., 2018).

Research on the Relationship between Learning Motivation and Learning Outcomes

Numerous studies have highlighted the strong positive correlation between learning motivation and learning outcomes. Research by Froiland et al. (2020) and Kintu et al. (2017) underscores the importance of intrinsic motivation, goal clarity, and engagement in predicting academic success. Strategies that foster motivation, such as social interaction, goal-setting, and teacher support, are integral to improving learning outcomes.

Methodology

This study utilized a survey design to examine learning motivation and learning outcomes among students at H College in Qingdao, China. The target population consisted of 3,548 students, with a sample of 346 participants selected using the Krejcie & Morgan (1970) sample size determination formula. The data were collected through an online survey, distributed via university communities and email to students enrolled in learning motivation-related courses. The use of online surveys offered advantages such as faster response time, cost-effectiveness, and the avoidance of missing data.

The survey instrument consisted of two main sections: demographic information and scales assessing learning autonomy and satisfaction. The demographic section gathered data on variables such as gender, place of origin, class leader status, and grade level. The Learning Autonomy Scale, developed

by Chen (2022), included 23 items across three dimensions: psychological autonomy, autonomous behavior, and environmental autonomy adaptation. The Learning Satisfaction Scale, based on Wu (2023), included 12 items covering learning environment, process, and social interaction.

Data analysis was performed using SPSS 19.0. T-tests and one-way analysis of variance (ANOVA) were conducted to explore differences across groups and validate hypotheses. The reliability of the scales was assessed using Cronbach's Alpha, which showed values greater than 0.8, indicating strong internal consistency. Validity was confirmed through factor analysis. The KMO value for the learning motivation scale was 0.890, and the Bartlett's test of sphericity results showed a significant P-value of 0.000 ($P < 0.05$). The KMO value for the learning outcomes scale was 0.890, and the Bartlett's test of sphericity results showed a significant P-value of 0.000 ($P < 0.05$). This methodology ensured robust data collection and analysis to explore the relationship between learning motivation and learning outcomes in the context of H College.

Results

Demographic Analysis of Questionnaire Participants

A total of 332 valid questionnaires were collected through an online survey. The sample consisted of 51.8% male and 48.2% female students, with 75.6% from rural areas and 24.4% from urban areas. Among participants, 14.5% held leadership positions, while 85.5% were ordinary members. In terms of academic majors, 33.1% were in the humanities, 34.9% were in engineering, 17.8% were in sciences, and 14.2% were in the arts, with the majority from humanities and engineering.

Descriptive Analysis of Learning Motivation and Learning Outcomes

Using SPSS 19.0, a statistical analysis was conducted on the learning motivation and learning outcomes of H College students. The overall learning motivation score was high ($M = 3.91$, $SD = 0.708$), with the highest scores in Caring ($M = 4.07$, $SD = 0.733$) and Success ($M = 3.95$, $SD = 0.786$), reflecting strong motivation for support and achievement. Other dimensions, such as Usefulness ($M = 3.86$, $SD = 0.799$), Interest ($M = 3.88$, $SD = 0.790$), and Empowerment ($M = 3.79$, $SD = 0.774$), also showed high motivation levels.

Regarding learning outcomes, the overall score was high ($M = 3.91$, $SD = 0.718$), with the highest score in Cognitive Outcomes ($M = 3.91$, $SD = 0.760$), indicating strong knowledge mastery. Affective Outcomes ($M = 3.93$, $SD = 0.741$) and Skill Outcomes ($M = 3.90$, $SD = 0.731$) also showed positive results, reflecting significant progress in emotional and skill development.

Overall, H College students demonstrated strong learning motivation and balanced learning outcomes across cognitive, emotional, and skill dimensions.

Table 1: Descriptive Statistical of Differential Leadership Style of Teachers

Dimension	N	M	SD	Interpretation
Empowerment	332	3.79	0.774	High
Usefulness	332	3.86	0.799	High
Success	332	3.95	0.786	High
Interest	332	3.88	0.790	High
Caring	332	4.07	0.733	High
Total	332	3.91	0.708	High
Cognitive Outcomes	332	3.91	0.760	High
Skill Outcomes	332	3.90	0.731	High
Affective Outcomes	332	3.93	0.741	High
Total	332	3.91	0.718	High

Analysis of the Differences in the Relationship Between Learning Motivation and Learning Outcomes Under Different Background Variables

Testing of Research Hypothesis H1

H1: There are significant differences in the learning motivation of university students at H College in Qingdao, China, under different background variables (gender, place of origin, student leadership status, and academic major).

H1-1: There are significant differences in academic self-efficacy between male and female students at H College in Qingdao, China.

Table 2: T-Test Analysis Results for Learning Motivation of Students with Different Genders

Dimension/Variable	Gender	N	Mean	Standard Deviation	T	P
Empowerment	Male	172	172	3.89	2.451	0.015
	Female	160	160	3.69		
Usefulness	Male	172	172	3.98	2.458	0.014
	Female	160	160	3.72		
Success	Male	172	172	4.08	3.027	0.003
	Female	160	160	3.80		
Interest	Male	172	172	4.03	3.027	0.003
	Female	160	160	3.71		
Caring	Male	172	172	4.15	3.270	0.001
	Female	160	160	3.98		
Total	Male	172	172	4.03	3.270	0.001
	Female	160	160	3.78		

Overall learning motivation: Male students scored M = 4.03, SD = 0.717, while female students

scored M = 3.78, SD = 0.676. The t-value was 3.270, and the p-value was 0.001, which is less than 0.05, indicating a significant gender difference in overall learning motivation. Male students had significantly higher overall learning motivation compared to female students. It can be concluded that Hypothesis H1-1: There is a significant difference in learning motivation among university students at Qingdao H College based on gender is supported.

H1-2: Significant Differences in Academic Self-Efficacy Among Students from Different Residences at Qingdao H College

Overall learning motivation: Rural students scored M = 3.96, SD = 0.673, while urban students scored M = 3.76, SD = 0.791. The t-value was 1.248, and the p-value was 0.214, which is above 0.05, indicating that the overall difference in learning motivation did not reach a significant level. It can be concluded that Hypothesis H1-2: There is no significant difference in learning motivation among university students at Qingdao H College based on their place of origin is not supported.

Table 3: T-Test Analysis Results for Learning Motivation of Students from Different Places of Origin

Dimension/Variable	Residence	N	Mean	Standard Deviation	T	P
Empowerment	Rural	48	3.93	0.793	1.327	0.185
	Urban	284	3.77	0.770		
Usefulness	Rural	48	3.92	0.775	1.299	0.199
	Urban	284	3.85	0.804		
Success	Rural	48	4.14	0.773	0.585	0.559
	Urban	284	3.91	0.785		
Interest	Rural	48	3.97	0.782	0.600	0.551
	Urban	284	3.87	0.792		
Caring	Rural	48	4.27	0.718	1.813	0.071
	Urban	284	4.03	0.731		
Total	Rural	48	4.05	0.693	1.832	0.072
	Urban	284	3.89	0.709		

H1-3: Significant Differences in Academic Self-Efficacy Among Students with Different Class Leader Roles at Qingdao H College

Overall learning motivation: Class leaders scored M = 4.05, SD = 0.693, while regular members scored M = 3.89, SD = 0.709. The t-value was 1.832, and the p-value was 0.072, which is close to 0.05, suggesting that while the overall difference in learning motivation is approaching significance, it did not reach a statistically significant level. It can be concluded that Hypothesis H1-3: There is no significant difference in learning motivation among university students at Qingdao H College based on student leadership status is not supported.

Table 4: T-Test Analysis Results for Learning Motivation of Students with Different Student Leadership Status

Dimension/Variable	Leadership Status	N	Mean	Standard Deviation	T	P
Empowerment	Yes	251	3.85	0.746	2.253	0.025
	No	81	3.62	0.839		
Usefulness	Yes	251	3.93	0.761	2.122	0.036
	No	81	3.63	0.873		
Success	Yes	251	3.98	0.750	2.967	0.003
	No	81	3.84	0.887		
Interest	Yes	251	3.93	0.751	2.767	0.007
	No	81	3.72	0.886		
Caring	Yes	251	4.10	0.705	1.360	0.175
	No	81	3.97	0.813		
Total	Yes	251	3.96	0.673	1.248	0.214
	No	81	3.76	0.791		

H1-4: Significant Differences in Learning Motivation Among Students from Different Majors at Qingdao H College

Overall learning motivation: The F-value was 11.002, and the p-value was 0.000, indicating significant differences in overall learning motivation across different major categories. The highest scores were observed in the Science category (M = 4.18, SD = 0.100), followed by the Engineering category (M = 3.99, SD = 0.067), and the lowest scores were found in the Arts category (M = 3.45, SD = 0.062). The Humanities category (M = 3.88, SD = 0.064) had intermediate scores, indicating significant differences in overall learning motivation across major categories. It can be concluded that Hypothesis H1-4: There is a significant difference in learning motivation among university students at Qingdao H College based on their major category is supported.

2) Testing Results for Research Hypothesis H2

H2: Significant Differences in Learning Outcomes Among Students at Qingdao H College Based on Background Variables (Gender, Residence, Class Leader Role, and Major Category)

H2-1: Significant Differences in Learning Outcomes Among Male and Female Students at Qingdao H College

Overall Learning Outcomes Dimension: Male students scored M = 4.06, SD = 0.721, while female students scored M = 3.76, SD = 0.683. The t-value was 2.188, and the p-value was 0.029, showing a significant difference in overall learning outcomes based on gender. Male students had significantly higher overall learning outcomes compared to female students.

Table 5: ANOVA Analysis Results for learning motivation of Students from Different Major Categories

Dimension	Major	N	M	SD	*F*	*P*
Empowerment	Humanities	110	3.76	0.068	11.353	0.000
	Sciences	59	4.10	0.108		
	Engineering	116	3.87	0.075		
	Arts	47	3.29	0.066		
Usefulness	Humanities	110	3.86	0.077	8.234	0.000
	Sciences	59	4.09	0.113		
	Engineering	116	3.93	0.074		
	Arts	47	3.37	0.068		
Success	Humanities	110	3.92	0.074	9.038	0.000
	Sciences	59	4.19	0.103		
	Engineering	116	4.04	0.074		
	Arts	47	3.46	0.079		
Interest	Humanities	110	3.78	0.072	9.846	0.000
	Sciences	59	4.22	0.107		
	Engineering	116	3.97	0.074		
	Arts	47	3.46	0.080		
Caring	Humanities	110	4.07	0.066	7.513	0.000
	Sciences	59	4.28	0.095		
	Engineering	116	4.13	0.070		
	Arts	47	3.65	0.089		
Total	Humanities	110	3.88	0.064	11.002	0.000
	Sciences	59	4.18	0.100		
	Engineering	116	3.99	0.067		
	Arts	47	3.45	0.062		

It can be concluded that Hypothesis H2-1: There is a significant difference in learning outcomes among university students at Qingdao H College based on gender is supported.

H2-2: Significant Differences in Learning Outcomes Among Students from Different Residences at Qingdao H College

Overall Learning Outcomes Dimension: Rural students scored M = 3.95, SD = 0.690, while urban students scored M = 3.80, SD = 0.792. The t-value was 1.269, and the p-value was 0.207, indicating that there was no significant difference in overall learning outcomes between rural and urban students. It can be concluded that Hypothesis H2-2: There is no significant difference in learning

outcomes among university students at Qingdao H College based on their place of origin is not supported.

Table 6: T-Test Analysis Results for Learning Outcomes of Students with Different Genders

Dimension/Variable	Gender	N	Mean	Standard Deviation	T	P
Cognitive Outcomes	Male	172	4.07	0.751	3.763	0.000
	Female	160	3.74	0.735		
Skill Outcomes	Male	172	4.03	0.743	3.764	0.000
	Female	160	3.76	0.694		
Affective Outcomes	Male	172	4.09	0.741	2.186	0.030
	Female	160	3.77	0.707		
Total	Male	172	4.06	0.721	2.188	0.029
	Female	160	3.76	0.683		

Table7: T-Test Analysis Results for Learning Outcomes of Students from Different Places of Origin

Dimension/Variable	Residence	N	Mean	Standard Deviation	T	P
Cognitive Outcomes	Rural	251	3.95	0.728	2.167	0.031
	Urban	81	3.80	0.849		
Skill Outcomes	Rural	251	3.93	0.701	1.991	0.049
	Urban	81	3.79	0.810		
Affective Outcomes	Rural	251	3.98	0.714	1.365	0.173
	Urban	81	3.80	0.808		
Total	Rural	251	3.95	0.690	1.269	0.207
	Urban	81	3.80	0.792		

H2-3: Significant Differences in Learning Outcomes Between Class Leaders and Regular Students at Qingdao H College

Overall Learning Outcomes Dimension: Class leaders scored M = 4.05, SD = 0.747, while regular students scored M = 3.89, SD = 0.712. The t-value was 2.148, and the p-value was 0.035, showing that class leaders scored significantly higher in overall learning outcomes compared to regular students. It can be concluded that Hypothesis H2-3: There is a partial significant difference in learning outcomes among university students at Qingdao H College based on student leadership status is supported.

Table 8: T-Test Analysis Results for Learning Outcomes of Students with Different Student Leadership Status

Dimension/Variable	Leadership Status	N	Mean	Standard Deviation	T	P
Cognitive Outcomes	Yes	48	4.04	0.807	0.803	0.423
	No	284	3.89	0.751		
Skill Outcomes	Yes	48	4.04	0.767	0.810	0.421
	No	284	3.87	0.723		
Affective Outcomes	Yes	48	4.06	0.747	2.121	0.035
	No	284	3.91	0.739		
Total	Yes	48	4.05	0.747	2.148	0.035
	No	284	3.89	0.712		

H2-4: Significant Differences in Learning Outcomes Among Students from Different Major Categories at Qingdao H College.

Table 9: ANOVA Analysis Results for Learning Outcomes of Students from Different Major Categories

Dimension	Major	N	M	SD	*F*	*P*
Cognitive Outcomes	Freshman	110	3.86	0.070	9.013	0.000
	Sophomore	59	4.23	0.101		
	Junior	116	3.96	0.072		
	Senior	47	3.50	0.076		
Skill Outcomes	Freshman	110	3.90	0.067	10.863	0.000
	Sophomore	59	4.20	0.097		
	Junior	116	3.94	0.070		
	Senior	47	3.43	0.070		
Affective Outcomes	Freshman	110	3.89	0.065	11.944	0.000
	Sophomore	59	4.25	0.099		
	Junior	116	4.01	0.070		
	Senior	47	3.45	0.083		
Total	Freshman	110	3.88	0.065	11.295	0.000
	Sophomore	59	4.23	0.097		
	Junior	116	3.97	0.068		
	Senior	47	3.46	0.066		

Overall Learning Outcomes Dimension: The F-value was 11.295, and the p-value was 0.000, indicating a significant difference in overall learning outcomes across major categories. The highest scores were observed in the Science category (M = 4.23, SD = 0.097), followed by the Engineering category (M = 3.97, SD = 0.068), with the lowest scores in the Arts category (M = 3.46, SD = 0.066). The Humanities category (M = 3.88, SD = 0.065) had intermediate scores, showing significant differences in overall learning outcomes.

It can be concluded that Hypothesis H2-4: There is a significant difference in learning outcomes

among university students at Qingdao H College based on their major category is supported.

3) Hypothesis H3 Testing Results

H3: Significant Correlation Between Learning Motivation and Learning Outcomes Among Students at Qingdao H College

This study employed Pearson correlation analysis to explore the linear relationships and significance levels between different dimensions of learning motivation and learning outcomes. There were significant positive correlations ($p < 0.01$) between all dimensions of learning motivation (Empowerment, Usefulness, Success, Interest, Caring) and all dimensions of learning outcomes (Cognitive Outcomes, Skill Outcomes, Affective Outcomes, Overall Learning Outcomes). The findings indicate that learning motivation plays a crucial role in enhancing students' learning outcomes. Therefore, hypothesis H3, which posits that there is a significant correlation between learning motivation and learning outcomes among students at Qingdao H College, is supported.

Table 10: Correlation Analysis of the Relationship Between Learning Motivation and Learning Outcomes

	1	2	3	4	5	6	7	8	9	10
1. Empowerment	1									
2. Usefulness	.818**	1								
3. Success	.791**	.819**	1							
4. Interest	.782**	.835**	.827**	1						
5. Caring	.712**	.738**	.761**	.785**	1					
6. Learning motivation	.901**	.926**	.923**	.929**	.874**	1				
7. Cognitive Outcomes	.738**	.775**	.812**	.840**	.839**	.878**	1			
8. Skill Outcomes	.768**	.769**	.802**	.798**	.803**	.864**	.914**	1		
9. Affective Outcomes	.742**	.753**	.804**	.825**	.810**	.863**	.890**	.893**	1	
10. Learning Outcomes	.776**	.793**	.835**	.850**	.846**	.900**	.969**	.968**	.960**	1

Discussion

Impact of Demographic Variables on Learning Motivation

This study examined the relationship between learning motivation and demographic variables such as gender, place of origin, student leadership status, and academic major. The findings revealed significant variations in learning motivation based on these factors.

Regarding gender, male students showed higher scores in the dimensions of "empowerment" and "interest," while female students scored higher on "success" and "caring." These results aligned with previous research, suggesting that male students were generally more confident and self-efficacious in academic settings, whereas female students tended to be more motivated by emotional

support and social connections. This supported the idea that gender influenced the types of motivation students prioritized. In terms of place of origin, no significant differences were found between urban and rural students. Despite the expectation that urban students would have had more access to educational resources, the results suggested that factors such as teaching quality and school support were likely more impactful in shaping learning motivation. This challenged the assumption that geographical background alone significantly influenced students' motivation levels. As for student leadership status, no significant differences were observed between student leaders and regular students in terms of learning motivation. This suggested that the additional responsibilities and experiences associated with leadership roles might not have directly influenced students' motivation to engage with academic content. Therefore, leadership roles might not have been a strong motivator in academic settings.

Finally, academic major demonstrated significant differences in learning motivation. Engineering students scored higher in the dimensions of "success" and "usefulness," likely due to their focus on practical and outcome-oriented learning. In contrast, students in the humanities and arts scored higher in "interest" and "caring," reflecting the importance they placed on personal engagement and emotional support within their learning process.

Impact of Demographic Variables on Learning Outcomes

The study also examined the impact of demographic variables on students' learning outcomes.

For gender, male students outperformed female students in "cognitive" and "skill outcomes," which supported the view that male students may have placed more emphasis on demonstrating their abilities through academic achievement. This finding aligned with gender differences observed in academic behaviors, where males were often more focused on skill and knowledge acquisition.

No significant effects were found for place of origin, suggesting that geographic background did not significantly influence students' cognitive, skill, or affective outcomes. This supported the idea that teaching strategies and educational environments were more impactful than the place of origin in shaping students' learning achievements.

Regarding student leadership status, student leaders scored higher in "cognitive" and "skill outcomes," likely due to their experiences in leadership roles, which may have helped them develop practical skills and cognitive abilities. However, no significant differences were found in affective outcomes, indicating that emotional development may have been influenced by other factors, such as personal experiences or external support systems, rather than leadership roles alone.

As for academic major, significant differences were observed. Engineering students scored higher in "cognitive" and "skill outcomes," likely reflecting their emphasis on technical and practical learning. In contrast, students in the humanities and arts excelled in affective outcomes, demonstrating the emotional and social nature of their learning experiences. This highlighted the varying emphases in learning outcomes depending on students' academic disciplines.

Relationship Between Learning Motivation and Learning Outcomes

The study found a significant positive correlation between learning motivation and learning outcomes, particularly in the areas of cognitive and skill outcomes. Students with higher learning motivation, particularly in dimensions such as "usefulness" and "success," demonstrated better performance in knowledge acquisition and skill development. This finding aligned with existing research that emphasized the important role of learning motivation in enhancing cognitive abilities and overall academic performance.

Additionally, the study indicated that learning motivation also positively influenced affective outcomes, suggesting that motivation had a broad impact on students' emotional and personal development. This reinforced the idea that fostering learning motivation could contribute to comprehensive student growth.

Conclusions

This study examined the relationship between learning motivation and learning outcomes among university students at Qingdao H College. The findings indicated that learning motivation was influenced by demographic variables, such as gender and academic background. Male students generally scored higher in dimensions like empowerment, success, and interest, and students from arts-related majors showed more proactive motivation. Gender and academic background also impacted learning outcomes, with male students performing better in cognitive, skill, and affective outcomes, and students from different majors exhibited varying levels of performance.

Furthermore, a significant positive correlation existed between learning motivation and learning outcomes, suggesting that higher learning motivation led to improved learning outcomes, especially in cognitive and skill areas. These results highlighted the importance of enhancing learning motivation to foster better learning outcomes, offering valuable insights for educational policy development and future research.

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