The Attitudes of University Students Towards Learning (On the example of students of some universities and colleges of Mongolia and Inner Mongolia, China)

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Abstract. Numerous facts, studies, and practical observations substantiate the profound influence of students' attitudes towards learning on the educational process, its outcomes, and the overall quality of education, particularly when they are training to become educators. Moreover, given the inherent individual disparities, students' learning attitudes exhibit variability [1]. In light of the current societal context and the rapid pace of development, our study aims to investigate the learning attitudes of university students. In our research, we utilized the Likert Scale-Total-Add Scale Method, employing the "learning attitude scale" devised by psychologist Tao De Qing. We assessed the study attitudes of 1020 students from Mongolian universities and various Chinese universities through the aforementioned questionnaire. The findings underwent comprehensive analysis, involving *component analysis, exploratory factor analysis, T-Test, and correlation analysis*, all executed using SPSS 25 software. The results of the study affirm the significance of emotional, cognitive, and behavioral components in the learning process, underscoring their intimate connection with students' learning attitudes. While students' gender does not exhibit any significant correlation with their learning attitudes, factors such as citizenship, nationality (administrative jurisdiction), field of study, and living environment are found to be relevant.

Keywords: Adult learning · Learning attitudes and attitude measures

1 Introduction

Learning attitude is an essential factor that directly influences the learning process and outcomes. It regulates the selection, orientation, motivation, and adaptation of learning behaviours. Attitudes are described in psychology dictionaries as "mental movements... subjectively expressed feelings" [2]. Researchers on the effects of attitudes have stated that "Attitudes guide people toward goals" [3], [4] and that "Learning attitudes are conceptual. They are defined as the basis for understanding coherence and solving problems" [5]. "Learning attitude is a kind of psychological preparation for learning" [6]. The renowned psychologist Tao De Qing emphasized that "Learning attitude plays an important role in students' learning" [7]. Furthermore, "Attitude is an internal force that creates an orderly idea, feeling, and behavior within an individual and is a psychological object" [8], as considered from the perspective of educational and psychological sciences. "The main way to instil the desire and passion (skills) for lifelong learning in students is to support their learning process with an open policy," defined Wirth & Perkins [9]. Learning is not about memorizing knowledge (superficial learning) but about discovering knowledge (creating knowledge), the student's effort to learn, and the ability to apply knowledge (in-depth). Therefore, changes in attitudes lead to changes in behaviour, perception, and cognition. Teachers need to enhance their educational strategies and professional development to promote active learning, learning methods, techniques, and intelligence among their students [10]. It is crucial to focus more on participation, collaboration, integrated learning, modern active learning methodologies, problem-solving, and assessment strategies. For Mongolians, who have been brought up in a nomadic culture since ancient times, the behaviour and culture that value learning have a positive effect on Mongolian students' thinking and learning [1]. To clarify the three main components of the approach:

- **Emotional component:** This includes students' emotions during or towards learning activities. It is manifested by the students' interest, displeasure, happiness, or frustration in any event, person, or scene related to learning.
- **Cognitive component:** This considers the student's knowledge and understanding of specific objects involved in learning activities, including understandings of the purpose and importance of learning, learning content, test results, learning methods, and teaching methods.
- **Behavioural component:** This refers to certain behaviour exhibited by the student at the emotional and

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cognitive levels of the specific object involved in the learning activity. Examples include active learning, planned learning, mastery of learning styles, coping with learning difficulties, and problem-solving, along with factors affecting learning.

The learning attitude of Mongolian students has been studied by researchers such as O. Myagmar, B. Tuya, and E. Oktyabrjargal [11], O. Myagmar, Ts. Burmaa, and H. Tamir [12], G. Urtnasan [13], and O. Jargalsaikhan [14] in the past few years. O. Myagmar conducted a study among students of the Mongolian National University of Education (MNUE), concluding that during the period of studying as a teacher, there is an improvement in the development of students' ability to manage things, clear communication, responsibility, professional diligence, patience, calmness, and moral character. He further stated that this shows a positive trend in the implementation of the MSU teacher education program [11]. O.Jargalsaikhan analysed the relationship between the self-evaluation of teacher students and the change in learning attitude and studied the influencing factors. It was found that the learning attitude was rated relatively positively, and the rating of the attitude increased as the level of affective taxonomy increased. A student's attitude is influenced by factors such as age, gender, courses, urban and rural areas, preferences, living and learning environment. Therefore, self-esteem and learning attitude are inextricably linked: if self-esteem is high, the assessment of learning attitude will be high, and if it decreases, the other one will also decrease [14]. O.Myagmar developed four versions of "NUM-attitudes 18 a b c d" to evaluate the attitude of student teachers based on an experimental study to determine the attitudes of pre-service teachers. "MNUE-18a version is as follows: 1. View and attitude towards teacher's professional characteristics, 2. Attitude towards children, 3. Teacher's ethics, 4. Teacher's personality, 5. Teacher communication, 6. Teacher's emotions, 7. Teacher's creative thinking, 8. Mongolian traditions and customs, and it is processed with 192 data. However, the 18b version of MNUE has been developed with three main structures: 1. Basic attitude of the individual, 2. Personal characteristics, 3. Attitude towards the teaching profession [12]. Amartuvshin (2023) concluded that it is optimal to develop the professional attitude of students in connection with personal values [15]. Shinibayar (2022) "when evaluating the students' learning attitude, it is better to consider the combination of many subjects and consider them comprehensively" [16]. The following studies by Tao De Qing in "Study Attitude Scale" [7], Qin Xiang Qian in "University Students Study Attitude Survey and Decision" [17], Zhu Zhi Xian analyzed the reasons why adults have a negative attitude towards learning, including internal and external factors. In internal factors, adult learning is influenced by external motivation [6]. When adults participate in learning activities, they often lack self-confidence and patience to overcome obstacles. External factors are mostly related to educational problems, including issues such as poor teaching skills of teachers, inadequate teaching materials, inflexible test evaluation, and non-scientific management. Researcher Liu Zhi Zhi stated that factors affecting students' learning attitudes include society, teachers, families, and individuals [18]. Li Xiao Lan found that most of the students who participated in the study had a negative learning attitude, such as aversion to learning, lack of interest in learning, and a feeling of being forced to learn [19]. Li Bauhinia 's article, conducted during Covid-19, found that male students tend to have a better learning attitude than female students [20]. This may be due to male students' interest in interacting with and using technology. In this way, learning attitude is an important element that affects the quality and learning outcomes. But how to measure the attitude that exists in human consciousness? It is clear that assessing a person's attitude as a feeling or emotion is not easy. Scholars have researched and debated learning attitudes and have attempted to test and propose ways to measure learning attitudes. Regarding the measurement of learning attitudes, researcher Thurstone put forward the idea that attitudes can be measured [21]–[27]. In this work, the measurement methods for attitude (Thurstone Flux Scale-Isometric Scale Method /瑟斯通量表-等通量表法/, Likert Scale-Total-Add Scale Method /利克特量表-总加量表/, Social Distance Scale /社社这个量表/, Semantic Difference Scale /语义电影量表 /) were proposed. In this study, we aim to detect the learning attitudes of students in some universities and colleges of the People's Republic of China and Mongolia using the questionnaire method of "Detecting the Learning Attitudes of Adults" developed by the Chinese scientist Tao De Qing. Based on the research problem, the following questions were raised:

- If attitudes affect learning outcomes, what is the level of university students' learning attitudes?
- What are the factors related to students' learning attitudes?

2 Methodology

The Adult Learning Attitude Scale is a 31-item questionnaire representing the three primary components of attitudes: cognitive, affective, and behavioral. Twenty-seven of these items are closed questions, while the remaining four are open-ended questions. The closed questions were assessed and analyzed based on the criteria outlined in Table 1.

Table 1. Evaluation Criteria for Likert Scale Questions

Signification	Choice	Interval Range	Evaluation Criteria
1	I don't agree at all	1.00-1.79	Very low level
2	I disagree	1.80-2.59	Low level

3	Sometimes	2.60-3.39	Medium Level
4	I agree	3.40-4.19	High Level
5	I fully agree	4.20-5.00	Very high level

Table 2 illustrates how Tao De Qing's questionnaire classified 27 questions into the primary three dimensions and eleven secondary dimensions of learning attitudes. In this classification, emotions comprise 6 questions, cognition includes 9 questions, and behavior consists of 12 questions. Additionally, the open-ended questions were treated separately and subjected to qualitative analysis. For quantitative research data, factor analysis, t-tests, and correlation analysis methods were employed.

Table 2. Comparison of Tao De Qing's Questionnaire to the Primary and Secondary Dimensions of Learning Attitudes

Primary Dimensions	**Secondary Dimensions**	**Query**
Affective	Emotions from the learning process	Questions 1 and 2
	Emotions created by yourself and others	Questions 3, 4, 5
	Curiosity	Question 6
Cognitive	An understanding of the purpose and importance of learning	Questions 7,8,9
	Understanding of learning content and course grades 7, 8, 9	Questions 10,11,12
	Understanding of learning and teaching methods	Questions 13,14,15
Behavioral	Active learning	Questions 16,17,18
	Planned learning	Questions 19,20
	Mastery of learning methods	Questions 21,22,23
	Overcoming obstacles to learning	Questions 24,25
	Addressing factors and problems affecting learning	Questions 26,27

3 Data Analysis

A total of 1020 participants took part in our study. Among them:

- 498 (48.9%) were students from public universities in Mongolia, including the National University of Mongolia (NUM), Mongolian National University of Education (MNUE), University of Agriculture and Life Sciences (UALS), Mongolian University of Science and Technology (MUST), University of Medical Sciences. Additionally, students from two private institutions, Mongolian National University (MNU) and Em Ai Yu University (MIU) participated.
- 520 (51.0%) were students from the five universities in Inner Mongolia, China, which include Inner Mongolia University, University of Education, University of Agriculture, University of Economics, and University of Medicine. Approximately 40% of the participants were first-year students.

Table 3. Citizenship * Currently studying course Crosstabulation

			Current course				Total
			1st year	2nd year	3rd year	4th year	
Citizenship	Mongolian	Count	170	128	67	127	492
		% of Total	17.2%	12.9%	6.8%	12.8%	49.7%
	Chineze	Count	216	131	80	71	498
		% of Total	21.8%	13.2%	8.1%	7.2%	50.3%
Total		Count	386	259	147	198	990
		% of Total	39.0%	26.2%	14.8%	20.0%	100.0%

62.2% (634) of the participating students were female, while 37.8% (386) were male. Approximately 68% fell within the age range of 19 to 21, with the oldest student being 28 years old (0.1%) and the youngest being 18 years old (9.1%).

4 Results and Discussion

The reliability of the questionnaire was assessed using Cronbach's alpha method. The reliability coefficient

for the emotional component is 0.888, the cognitive component has a reliability coefficient of 0.887, and the behavioural component's reliability coefficient is 0.865. The overall reliability coefficient is 0.949. These Cronbach's Alpha values, all exceeding 0.7, indicate that the measure is reliable and trustworthy.

Table 4. Reliability analysis / Reliability /

The factor	Cronbach's Alpha	N of Items
Affective	.888	6
Cognitive	.887	9
Behavior	.865	12
Total	.949	27

KMO and Bartlett tests were employed to determine whether an adequate number of variables were included for each factor. The results indicate that KMO=0.972, p(sig)=0.000 in factor analysis/Exploratory factor analysis, suggesting that it is a suitable outcome for factor analysis. The Scree Plot displayed that the first three factors had values greater than 1, accounting for 62.477% of the total variables, and thus, the entire questionnaire was divided into three factors. These factors encompass emotional aspects of learning attitude, such as the emotional experiences of students during learning and their expressions of curiosity. Additionally, the factors encompass cognitive aspects like understanding the purpose and importance of learning, comprehension of learning content and grading, as well as grasping learning methods and teaching techniques. The questionnaire's overall construct validity is supported by the fact that proactive and planned learning, mastery of learning methods, overcoming obstacles in learning, and problem-solving skills are behavioral factors. Correlation analysis revealed significant correlations between learning attitude and the "emotional" (r = 0.957, p = 0.00), "cognitive" (r = 0.951, p = 0.000), and "behavioral" components (r = 0.897, p = 0.000), indicating positive correlations.
The study also demonstrated that the learning attitudes of students from the two countries are likely to differ (t = 23.528, p = 0.000).

Table 5. Analysis of differences in learning attitudes of students from two countries

		Citizenship	N	Mean	Std. Deviation	Std. Error Mean	Evaluation Criteria
Components of learning attitudes	Affective	Mongolian	493	3.773	.45098	.02031	High Level
		Inner Mongolian	498	2.575	.94130	.04218	Low level
	Cognitve	Mongolian	493	3.731	.41169	.01854	High Level
		Inner Mongolian	498	2.496	.92874	.04162	Low level
	Behavioral	Mongolian	493	3.284	.44812	.02018	Medium Level
		Inner Mongolian	498	2.778	.86097	.03858	Medium Level
Approach to learning /general/		Mongolian	493	3.596	.32470	.01462	High Level
		Inner Mongolian	498	2.616	.86655	.03883	Medium Level

The learning attitude of Mongolian students is categorized as "high," whereas that of Inner Mongolian students falls within the "medium" level, as shown in Table 5. However, when breaking down the learning attitude into three components, it becomes evident that the behavioral component of Mongolian students is rated lower than the emotional and cognitive components, placing it in the "medium" level. On the other hand, Inner Mongolian students' behavior scores are also at the "medium" level, while their emotional and cognitive scores are categorized as “low”.

Nevertheless, there is no statistically significant difference between the averages of male and female students' learning attitudes (t = 0.860; p = 0.390). This indicates that there are no gender-based variations in learning attitudes.

Table 6. Statistical analysis between major and learning attitude

Professional direction	Mean	Std. Deviation	Evaluation
Education	3.0452	.87270	Medium
Arts and Humanities	3.1580	.79652	Medium
Social Sciences, Information and Journalism	3.0556	.84808	Medium
Business, Management and Law	2.9163	.81179	Medium
Natural sciences, Mathematics and Statistics	3.2358	.83914	Medium
Information and Communication technology	3.1400	.71532	Medium
Engineering, Manufacturing and Design	3.3879	.87029	Medium
Agriculture, Forestry, Fisheries, Veterinary medicine	3.0314	1.04703	Medium
Health and Social security	3.6177	.25852	Height

Service	2.8810	1.14685	Medium

When grouping and examining students based on their professional fields, the study attitude of students in the field of "Health and Social Protection" was rated as "high," while the study attitude of students in other fields was categorized as "average" (Table 6).

Table 7. Correlation between student's learning attitude and other factors

	1	2	3	4	5	6
1. Age	-					
2. Sex	-.089**	-				
3. Citizenship	.218**	-.034	-			
4. Course	.614**	-.028	-.124**	-		
5. Occupation	.283**	-.094**	.868**	-.013	-	
6. Living environment	.090**	-.062	-.180**	.168**	-.108**	-
7. Study attitude	-.198**	.012	-.876**	.095**	-.793**	.174**

**. Correlation is significant at the 0.01 level (2-tailed).

Age, citizenship, profession, and the student's living environment exhibit significant associations with the student's learning attitude, whereas the student's gender does not show a significant relationship (Table 7).
The results of the open-ended questionnaire aimed at identifying learning attitudes were organized based on response frequency and subsequently analysed. For instance, when ranking the factors influencing the participating students' motivation to learn, the most frequently mentioned factors are:

Mongolian student	**Inner Mongolian student**
1. Depending on oneself	1. Passion for learning
2. Learning environment and conditions	2. Mood, stress, Covid 19
3. Teacher's approach	3. Psychological state of the learning environment

The students from both countries unanimously agree that factors influencing their motivation to learn are predominantly determined by individual factors, and they emphasize the importance of a conducive learning environment. However, there are notable distinctions in their responses. Mongolian students frequently highlight factors related to the availability and equity of educational resources, technical infrastructure, internet accessibility, and digital environments. In contrast, Inner Mongolian students often mention psychological factors, such as stress, crises, and the overall atmosphere in the community. Additionally, Mongolian students emphasize the role of teachers, including teaching methods, non-discrimination, and ethics, in shaping their learning attitude, while Inner Mongolian students place more emphasis on social psychology. For example, one participant (#105) stated, "Sometimes, competition doesn't value the person who works hard, but the one who appears superficial, which stresses me out."

Regarding the factors that influence their motivation to learn, Mongolian students place the most importance on "Teachers' teaching methods, level, and quality of teaching," whereas "Exam scores" have the least impact on their motivation to learn. Conversely, Inner Mongolian students believe that "Satisfaction with school curriculum, learning management, and learning conditions" has the greatest impact, and "Family support" has the least influence on their motivation to learn.

5 Conclusion

The application of the "Discovering the Learning Attitudes of Adults" method developed by the psychologist Tao De Qing has shed light on the learning attitudes of students in various universities and colleges in China. The analysis has demonstrated that the overall construct validity of the survey questionnaire aligns with the expected dimensions (KMO = 0.949, p(sig) = 0, Cronbach's Alpha > 0.949), affirming the reliability of the study results. Mongolian students participating in this study exhibit a more favourable learning attitude compared to their Inner Mongolian counterparts. However, the behaviour component indicator (t = 3.284; SD = 0.448) is lower than the emotional and cognitive indicators, indicating a relatively weaker ability to apply acquired knowledge in practical situations. Their interest and attitude towards learning seem to fluctuate, being influenced by their current emotions. While gender does not appear to be a significant factor influencing students' learning attitudes, their age, academic discipline, field of study, and living environment may play crucial roles. The data suggest that Mongolian students' ability to choose their profession based on personal interest, which is more prevalent than among Inner Mongolian students, could contribute to the variance in their learning attitudes. On the other hand, Inner Mongolian students tend to prioritize factors such as job availability and fields with lower competition in

shaping their learning attitudes.

Limitations. Due to the research's objectives and time constraints, conducting regression analysis to explore the impact of age, gender, nationality, school, and living environment on students' learning attitudes was not feasible.

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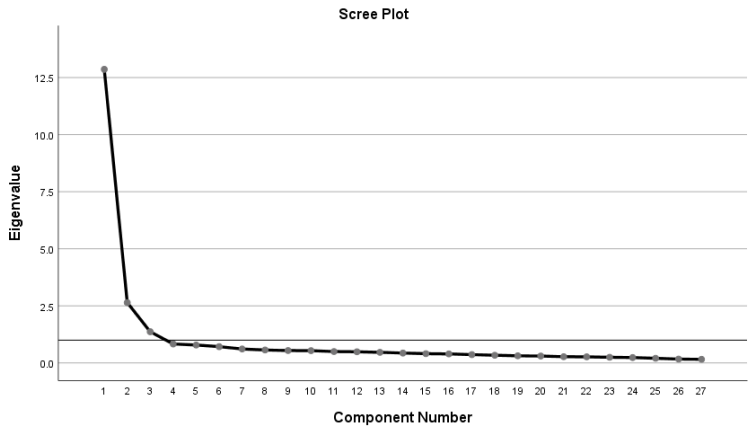
Appendix

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.860	47.630	47.630	12.860	47.630	47.630	8.016	29.689	29.689
2	2.642	9.784	57.414	2.642	9.784	57.414	6.282	23.266	52.955
3	1.367	5.064	62.477	1.367	5.064	62.477	2.571	9.522	62.477
4	.831	3.077	65.554						
5	.782	2.897	68.451						
6	.713	2.640	71.092						
7	.611	2.262	73.354						
8	.566	2.097	75.451						
9	.541	2.005	77.456						
10	.536	1.987	79.443						
11	.499	1.847	81.290						
12	.488	1.809	83.099						
13	.465	1.723	84.822						
14	.432	1.600	86.422						
15	.405	1.501	87.924						
16	.394	1.458	89.382						
17	.364	1.347	90.729						
18	.337	1.250	91.979						
19	.311	1.152	93.131						
20	.302	1.118	94.248						
21	.272	1.007	95.256						
22	.267	.990	96.245						
23	.248	.919	97.165						
24	.235	.871	98.035						
25	.204	.756	98.791						
26	.169	.626	99.417						
27	.157	.583	100.000						

Extraction Method: Principal Component Analysis.



The relationship between the 3 components of attitudes and learning attitudes

			1	2	3	4
1.	Affective	Pearson Correlation	1			
		Sig. (2-tailed)				
		N	1020			
2.	Cognitive	Pearson Correlation	.881**	1		
		Sig. (2-tailed)	.000			
		N	1020	1020		

3. Behavioral	Pearson Correlation	.790**	.768**	1	
	Sig. (2-tailed)	.000	.000		
	N	1020	1020	1020	
Learning attitude	Pearson Correlation	.957**	.951**	.897**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	1020	1020	1020	1020

**. Correlation is significant at the 0.01 level (2-tailed).