



The Study of the Relationship Between Students' Self-assessment and Their Attitudes Towards Learning

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Abstract. The purpose of this study was to describe the relationship between students' self-assessment and their attitudes towards learning, and to identify the factors that influence them. This study is based on theoretical concepts of self-assessment and learning attitudes such as cognitive and affective taxonomy. The taxonomy comprises three learning domains-cognitive, affective and psychomotor. A total of 285 university students of the teacher preparation program in Mongolia were involved in this study. Quantitative research methods were used to identify the factors that affect students' self-assessment and their attitudes towards learning. The student self-assessment questionnaire consisted of 6 subscales with 25 questions and the learning attitude questionnaire consisted of 5 subscales with 25 questions. The results of the study show that there was a significantly moderate, positive, linear correlation between students' self-assessment and their attitudes towards learning ($r = .643, p < 0.001$). It was found that individual factors such as motivation, values, enjoyment, and self-confidence as well as socio-demographic factors affect learners' self-assessment and learning attitudes. The significance of the study is to identify effective approaches and opportunities to support students' successful learning.

Keywords: Student · Self-assessment · Attitude · Values · Motivation · Enjoyment · Self-confidence

1 Introduction

Teachers and researchers emphasize the importance of student self-assessment in the acquisition of learning strategies, independent, self-confident and active learning [4]. Rogers (1969) has described that Independence, creativity and self-reliance are all facilitated when self-criticism and self-evaluation are basic and evaluation by others is of secondary importance. The learning and teaching process focuses on empowering learners [15]. The process is based on the active and collaborative work of teachers and students. In addition, the learner's self-assessment is their own feeling and the feeling can be real or unreal [2]. The self-assessment is a systematic assessment to check current conditions and discover areas of excellence or in need of improvement in achieving objectives and

goals [10]. If a student's self-assessment is too low or too high, it can have positive and negative consequences. The positive effects of self-assessment increase the learner's motivation for self-improvement. Assessment by which the learner gathers information about and reflects on his or her own learning, judges the degree to which it reflects explicitly stated goals or criteria, identifies strengths and weaknesses, and revises accordingly. It is the learner's own assessment of personal progress in knowledge, skills, processes, and attitudes [17]. For self-assessment to be effective, students should first become familiar with the concept. The term 'self-assessment' is used to cover all judgements by learners of their work: it is related to and incorporates terms such as 'self-evaluation' and 'self-appraisal'. There are several different purposes of self-assessment: to evaluate understanding of the content, to demonstrate the achievement of outcomes and goals and the self-development of the learner [20]. When engaging in self-reflection, students have access to more detailed information about themselves than do others. This privileged information allows them to formulate specific estimates of their academic capabilities or personal characteristics such as physical attractiveness or intelligence [6]. Although self-assessment is mainly an introspective action, it is about more than 'self' [18]. Being able to self-assess is fundamental for self-regulated and lifelong learning [11]. Self-assessment helps students follow the learning process in order to develop knowledge through conscious control over the knowledge or to develop metacognitive awareness of thinking and knowledge [7]. Self-assessment can help students develop autonomy in their learning, self-confidence, and skills that can help them manage their time, careers and lives [19]. The concept of self-assessment also incorporates the dimension reflection to a large extent compared to other dimensions, because self-assessment is a process that involves reflection or otherwise it is a reflective procedure [12].

"Attitude is an enduring pattern of evaluative responses towards a person, object, or issue. According to a frequently quoted classical definition" [1]. A learned tendency or readiness to evaluate things or react to some ideas, persons or situations in certain ways, either consciously or unconsciously. Attitudes are underpinned by values and beliefs and have an influence on behavior [17]. This study is based on theoretical concepts of self-assessment and learning attitudes such as cognitive and affective taxonomy. The taxonomy comprises three learning domains—cognitive, affective and psychomotor [3]. The affective domain consists of a broad range of feelings and moods including, as specific components, attitudes, beliefs, and emotions [13]. The work of Bloom and others identified affective learning in a hierarchy [8]. The hierarchy includes five stages: (1) an ability to listen (to receive), (2) to respond in interactions with others, (3) to consider attitudes or values appropriate to particular situations (to value), (4) to organize values so as to demonstrate balance and consideration, and (5) at the highest level, to display a commitment to principled practice on a day-to-day basis (to internalize or characterize). Tapia (1996) developed a methodology for studying students' attitudes towards mathematics that considered four factors: Self-confidence, Value, Enjoyment, and Motivation [13]. Mongolians have a rich experience and tradition of educating their children. Bogd Tsongkhapa Luvsandagva defined a good student as having five qualities: honesty, intelligence, hard work, conviction, and kindness [14]. Separate studies on self-assessment and attitudes have been conducted in Mongolia and other countries. However, there are no studies that study these factors together.

Individual self-assessment and attitudes are important in learning theories and concepts, educational policy, and teacher education curricula. However, the question of how to evaluate and define them remains unclear. The following questions are addressed in this study. First, how do students measure and evaluate their knowledge, skills, and attitudes? Second, how do students' self-assessment and attitudes towards learning change during the learning process, and what factors influence them? Third, how are students' self-assessments and attitudes toward learning related? The purpose of this study was to describe the relationship between students' self-assessment and their attitudes towards learning, and to identify the factors that influence them.

2 Methodology

In the 2019–2020 academic year, 285 2nd to 4th year students studying at the Mongolian National University of Education were involved in the survey. The research was conducted in one of the basic subjects of teacher education, “Training Theory and Methodology” at the beginning, during and at the end of the training. The survey data were collected using the following tools. These include (1) a/ A learning attitude questionnaire consisted of 5 subscales with 25 questions developed based on Krathwohl's affective taxonomic model; b/ The Attitudes Towards Mathematics Inventory (ATMI) developed by Tapia (1996), was used in this study. The ATMI is designed to measure a student's attitudes by four individual factors: self-confidence, values, enjoyment, and motivation. The questionnaire consisted of 4 subscales with 40 items. There are 5 items related to motivation, 10 items related to enjoyment, 10 items related to values, and 15 items related to self-confidence. (2) The Student self-assessment questionnaire consisted of 6 subscales and 25 questions developed based on Bloom and Anderson's cognitive taxonomic model. (3) Focus group discussions were conducted with students who participated in the study to identify the factors that influence students' self-assessment of their knowledge, skills, and attitudes. To determine the relationship between the variables, Pearson's correlation, Linear regression analysis were used.

Paper-based data collection methods were used in this study. To process the data, the Statistical Package for Social Sciences software (IBM SPSS Statistics, version 22 for Windows) was used.

3 Results

Figure 1 shows the results of a survey that assessed students' attitudes towards their learning activities at the beginning of the training. Students assessed their attitudes towards learning activities on a scale of 22–100 (range = 78), with a maximum frequency of 70–79 points. More than 50 percent of the students surveyed scored between 60 and 79 points.

The results of three tests that assessed students' attitudes towards their learning were different. The mean of the pre-test was $\bar{X} = 72.0$ ($SD = 14.37$), of the progress test was $\bar{X} = 74.86$ ($SD = 13.31$), and of the post test was $\bar{X} = 75.78$ ($SD = 14.75$). In particular, during the training, the assessment of students' attitudes increased by 3.78 points. The attitude questionnaire consisted of a total of 25 statements, each of which

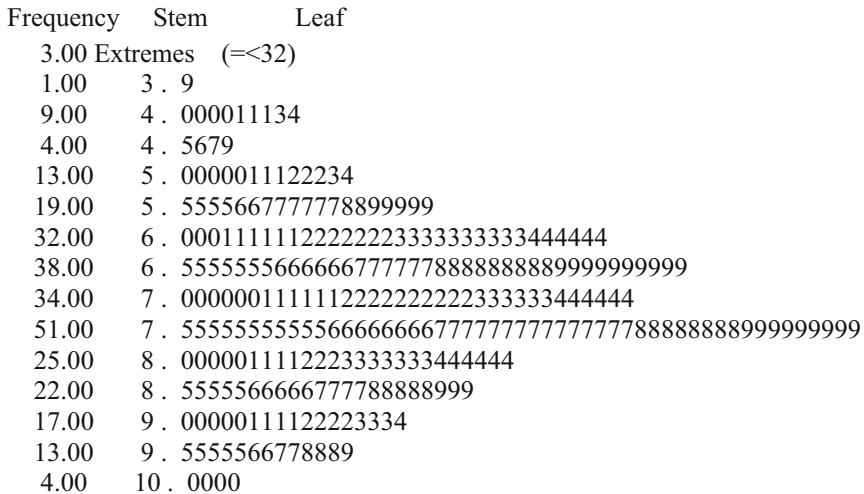


Fig. 1. The assessment of students’ attitudes towards their learning-I

Table 1. Changes in students’ attitudes towards their learning /assessment I, II III/

level of affective domain	Assessment I		Assessment II		Assessment III		Mean Difference	
	\bar{X}	<i>SD</i>	\bar{X}	<i>SD</i>	\bar{X}	<i>SD</i>	I&II	II&III
Receiving	3.13	0.68	3.22	0.61	3.18	0.66	0.08	-0.04
Responding	2.87	0.65	2.96	0.61	3.04	0.66	0.08	0.08
Valuing	3.01	0.75	3.15	0.64	3.14	0.65	0.14	-0.02
Organizing	2.72	0.63	2.84	0.61	2.93	0.66	0.12	0.08
Characterizing	2.66	0.65	2.80	0.61	2.87	0.68	0.14	0.07
Mean	2.88	0.57	2.99	0.53	3.03	0.59	0.11	0.04

was rated 0–4. Analyzing how students’ learning attitudes changed during the training at each level of affective domain, the results increased by 0.04–0.21, respectively. For example, increased at the level of receiving by 0.04, responding by 0.16, valuing by 0.12, organizing by 0.2, and characterizing by 0.21 points (Table 1). These show that (I) students’ attitudes towards learning activities ($\bar{X} = 72-75$) are relatively positive, (II) the level of affective domains is increasing and the assessment scores are slightly increasing, and (III) the assessment of attitudes increased slightly during the training, but the attitudes remained stable.

Pearson’s correlation analyzes the relationship between students’ attitudes towards learning activities and some individual factors, such as values, self-confidence, motivation, and enjoyment. The analysis shows that attitudes and enjoyment ($r = .798$), attitudes

Table 2. Correlation between students' attitudes towards learning activities and some individual factors

		Attitude	Motivation	Enjoyment	Self-confidence	Value
<i>Attitude</i>	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	285				
Motivation	Pearson Correlation	.725**	1			
	Sig. (2-tailed)	.000				
	N	285	285			
Enjoyment	Pearson Correlation	.798**	.822**	1		
	Sig. (2-tailed)	.000	.000			
	N	285	285	285		
Self-confidence	Pearson Correlation	.541**	.567**	.587**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	285	285	285	285	
Value	Pearson Correlation	.767**	.710**	.745**	.391**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	285	285	285	285	285

and values ($r = .767$), attitudes and motivations ($r = .725$) are strongly positive correlated. The correlation coefficient ($r = .541$) also shows a moderate positive correlation between variables such as self-confidence and attitude (Table 2).

During the course, students assessed their knowledge and skills at six levels of the cognitive taxonomy, three times. The student self-assessment questionnaire consisted of a total of 25 statements, each of which was rated 0–4. Analyzing how students' self-assessment changed during the training at each level of cognitive taxonomy, the results increased by 0.16–0.51. For example, increased at the level of remembering by 0.51, understanding by 0.39, applying by 0.35, analyzing by 0.37, evaluating by 0.16, and creating by 0.24 points (Table 3). The results of the survey show that students' self-assessment is generally not high, and it is constantly increasing during the learning process.

Table 3. The students' self-assessment (at the cognitive levels)

level of cognitive taxonomy	Assessment I		Assessment II		Assessment III		Mean Difference	
	\bar{X}	<i>SD</i>	\bar{X}	<i>SD</i>	\bar{X}	<i>SD</i>	I&II	II&III
remembering	1.94	0.67	2.17	0.61	2.45	0.64	0.23	0.28
understanding	2.36	0.71	2.56	0.66	2.75	0.66	0.20	0.19
applying	2.42	0.73	2.61	0.64	2.77	0.64	0.20	0.15
analyzing	2.30	0.72	2.48	0.63	2.68	0.65	0.18	0.19
evaluating	2.59	0.71	2.64	0.63	2.74	0.64	0.06	0.10
creating	2.45	0.73	2.55	0.63	2.70	0.68	0.10	0.14
mean	2.34	0.58	2.50	0.52	2.68	0.56	0.16	0.18

Table 4. Correlation between student self-assessment and their learning attitudes

		Attitude	Self-assessment
Attitude	Pearson Correlation	1	.643**
	Sig. (2-tailed)		.000
	N	285	285
Self-assessment	Pearson Correlation	.643**	1
	Sig. (2-tailed)	.000	
	N	285	285

The results of the study show that there was a significantly moderate, positive, linear correlation between students' self-assessment and their attitudes towards learning ($r = .643, p < 0.001$) (Table 4). In other words, when self-assessment decreases, the student's attitude towards learning decreases, or when self-assessment increases, so does the students' attitudes towards learning. Therefore, depending on the learners' self-assessment, their attitudes towards learning activities are different, which is statistically significant.

Focus group discussions were conducted with students who participated in the study to identify the factors that influence students' self-assessment of their knowledge, skills, and attitudes. Summarizing the information provided by the participants in the group discussion, the following results were obtained (Table 5). These include (1) individual factors such as students' self-confidence, self-assessment skills, experience, and attitudes; (2) factors related to the learning environment, such as teacher and peer assessments and their attitudes and relationships; (3) other factors related to the self-assessment method and tools, such as the clarity of the self-assessment questions, the environment and time for the assessment.

Table 5. Factors influencing student self-assessment

Individual factors	Learning environment factors	Other factors
<ul style="list-style-type: none"> - self-esteem - self-confidence - personality - beliefs - attitude towards self-assessment - individual effort and participation - knowledge and skills - self-assessment skills and experience - learning goals - learning style - interests - academic achievement 	<ul style="list-style-type: none"> - attitudes and relationships of teachers and others - teacher and peer assessments - Teaching and learning process and organization - lesson exercises, assignments, and homework - training content and methodology - conditions at the time of evaluation - teacher support and advice 	<ul style="list-style-type: none"> - clarity of self-assessment questions - relevance and interest of the questions - assessment period - self-assessment environment - self-assessment guidelines and instructions - self-assessment methods and forms of assessment - professional differences - urban and rural features and differences

4 Conclusions

The following conclusions are drawn from the results of a study conducted to identify the relationship, changes, and influencing factors in student self-assessment and learning attitudes. These include:

Statistical analysis has shown that students' self-assessment and their attitudes towards learning activities are significantly moderate, positive, linear correlated. In particular, students' attitudes towards learning vary depending on their self-assessment. For example, about 41 percent of changes in students' attitudes towards learning are related to self-assessment.

According to the survey, students' attitudes towards learning activities are relatively positive. As the level of affective domains increases, the assessment of students' attitudes also increases in a positive direction. Research has also shown that their changes are gradually stabilizing. Therefore, teachers need to pay attention to their changes and patterns and look for opportunities and ways to influence students' attitudes and development.

Some Individual factors, such as values, enjoyment, motivation, and self-confidence, influence students' attitudes towards their learning. The results of the study show that these variables are positively and strongly correlated. In addition, there are three types of factors that affect a student's self-assessment such as (1) Individual factors, (2) environmental factors, and (3) other factors related to the self-assessment. For example, students' self-assessment and attitudes are influenced by their learning style, interests, academic achievement, teacher and peer assessments, urban and rural features and differences, career choice, and teachers' support and advices. Therefore, it is important to minimize these factors and ensure that learners have the opportunity to evaluate themselves freely and objectively. Students' knowledge, skills, attitudes, and experiences of self-assessment vary. Therefore, develop, publish and increase access to books, manuals and methodologies for them.

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