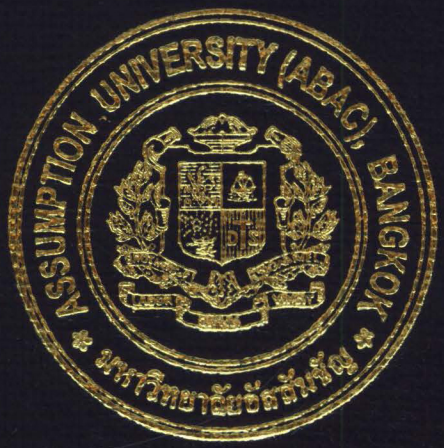

THE RELATIONSHIP OF ATTITUDES TOWARD MATHEMATICS AND MATHEMATICS SELF-EFFICACY WITH MATHEMATICS ACHIEVEMENT OF GRADE 10 STUDENTS AT A LEN BUM IDPs HIGH SCHOOL IN KACHIN STATE, MYANMAR

Zaw June

I.D. No. 5919516

A Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

MASTER OF EDUCATION

in Curriculum and Instruction

Graduate School of Human Sciences

ASSUMPTION UNIVERSITY OF THAILAND

2018

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By: ZAW JUNE

Field of Study: CURRICULUM AND INSTRUCTION

Thesis Advisor: ASSOC. PROF. DR. SUWATTANA EAMORAPHAN

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ABSTRACT

I.D. No.: 5919516

Key Words: ATTITUDES TOWARD MATHEMATICS, MATHEMATICS SELF-EFFICACY, MATHEMATICS ACHIEVEMENT, A LEN BUM IDPS HIGH SCHOOL

Name: ZAW JUNE

Thesis Title: THE RELATIONSHIP OF ATTITUDES TOWARD MATHEMATICS AND MATHEMATICS SELF-EFFICACY WITH MATHEMATICS ACHIEVEMENT OF GRADE 10 STUDENTS AT A LEN BUM IDPS HIGH SCHOOL IN KACHIN STATE, MYANMAR

Thesis Advisor: ASSOC. PROF. DR. SUWATTANA EAMORAPHAN

The purpose of this study was to determine the level of attitudes toward mathematics, mathematics self-efficacy, mathematics achievement of Grade 10 students at A Len Bum IDPs High School and the relationship among them. The study focused on 200 Grade 10 students who enrolled in A Len Bum IDPs High School in 2018- 2019 academic year. Attitudes toward mathematics questionnaire (ATMQ) and sources of mathematics self-efficacy scale (SMSES) were used as a research tool in this study. For mathematics achievement, mathematics scores from the national test in 2017-2018 academic year (previous year) of Grade 10 students were considered to determine the level of mathematics achievement in this study. The data obtained by the ATMQ and SMSES was analyzed by descriptive statistics, mean, standard deviation and by inferential statistics, multiple correlation coefficient. The hypothesis of this study tested whether there was a significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics

achievement of Grade 10 students at A Len Bum IDPs High School. The findings of this study were the level of attitudes toward mathematics of Grade 10 students was high, the level of mathematics self-efficacy of Grade 10 students was moderate, and the level of mathematics achievement of Grade 10 students was moderate as well. The final finding of this study showed that there was no significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar.

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CHAPTER I

INTRODUCTION

This chapter introduces the Background of the Study, Statement of the Problem, Research Questions, Objectives and Hypothesis, Theoretical and Conceptual Framework, Scope of the Study, Definitions of Terms and Significance of the Study.

Background of the Study

Attitude is considered as a major factor that impacting on the learning process. There are many definitions about attitude according to the various perspectives from different scholars. In psychology, attitude is regarded as a set of emotions and beliefs and an outcome of experience or upbringing. Positive attitudes and beliefs about mathematics facilitate to the individual motivation and interest to learning mathematics. Attitude of an individual can be built by three different sectors: cognitive sector, affective sector and, behavioral sector. Maio and Haddock (2010) also postulated that attitude is composed of an affective component, a cognitive component and a behavioral component. According to Larsen (2013), studying mathematics is not only cognitive challenge, but an effective one. Consequently, learning mathematics is related to three categories: beliefs, attitudes and emotions (McLeod, 1992).

Self-efficacy is also one of the major factors that effecting on the learning process and achieving learning goal .More importantly, in self-efficacy theory, self-efficacy of a person is constructed by the four sources: mastery experiences, vicarious experiences, verbal persuasion, and affective factors (Bandura, 1994). According to Pajares (1996) explained that self-efficacy belief is the strongest predictor of learners to achieve highly by comparing other factors such as prior mathematics achievement and cognitive ability. Self-efficacy is students'

beliefs about their abilities to produce designated levels of performance that exercising impact on events that effect on their learning and self-efficacy beliefs determine how the students feel, think, motivate ourselves and behave while learning (Bandura, 1994).

The concept of self-efficacy plays as a major role in social cognitive theory which is regarded as one of the most important theories that promote the learning of students (Ormrod, 2008). According to self-efficacy theory, the people can attempt the things that they believe themselves they can do successfully and cannot accomplish the things when they believe themselves they will not be able to do. Furthermore, Bandura (2005) also explained that students who have low self-efficacy do not believe their capabilities to make the effort to face the challenges.

Several research studies have reported that the relationship between students' attitudes towards mathematics and achievement and performance in mathematics. Likewise, many studies have conducted the relationship between students' mathematics self-efficacy and mathematics achievement. Some studies have found that self-efficacy is closely related to achievement of learners. Moulton, Brown and Lent (1991) mentioned that 38 research studies that conducted within 1977 and 1988 have revealed that there is a positive relationship between self-efficacy and academic achievement. But till now determining about students and their self-efficacy relating to mathematics is considered as a big deal in learning mathematics.

Mathematics is the compulsory subject for all students in secondary level in Myanmar. Nowadays, mathematics is widely used in various fields and covering a wide range of activity. Mathematics is an essential tool for developing the science and technological skills. According to National Association for the Education of Young Children, the knowledge that students learn in school constructs a foundation for learning in their future. Students need to learn mathematics in secondary for the future carrier, but students

have to be able to learn mathematics with comprehension and in order to apply mathematics ideas in their future life (Cockcroft, 1982).

A Len Bum IDPs High School is one of the secondary high schools under the control of Education Department of Kachin Independence Organization (KIO) in Kachin State, Myanmar. The researcher has chosen this school to conduct this study, and this school is mainly opened for IDPs students who have been abandoned their home because of the civil war. The school has the highest population of secondary level students among the schools under the control Education Department of KIO.

Statement of the Problem

Attitudes towards learning mathematics have strongly impacted on the learning and achievement of learners. A negative attitude has created a lot of fear and anxiety of learners to perform the related tasks concerning the subject (Langat, 2015). The high sense of self-efficacy gives the high achievement of students and helps to believe strongly their own ability to approach goals, tasks, and challenges. But students who have low self-efficacy will possess negative thoughts about learning and think of the tasks' demands as threatening instead of challenging (Suraya & Ali, 2009).

In A Len Bum IDP High School, mathematics is a core and compulsory subject for all students. The researcher noticed that teaching mathematics is a big concern for mathematics teachers when compared with other subjects in most of the schools in Kachin State. According to the study of the researcher, attitudes and self-efficacy have a strong impact on the achievement of the learner. Because of this point the researcher wants to help the students to understand the importance of attitudes on learning and to realize that self-efficacy influences the achievement for a successful learning. This study was conducted in Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar.

The researcher has found out that the mathematics scores of students in secondary level in A Len Bum IDPs High School are lower than other subjects' scores according to their academic results. The researcher had also noticed that there has been no previous research of examining the relationship of attitudes towards mathematics and mathematics self-efficacy with mathematics achievement in A Len Bum IDPs High school. There might have many reasons why the students have low scores in mathematics in this school, but the researcher applies attitudes and self-efficacy variables to examine the problem of having low scores in mathematics.

For the above reasons, the researcher decided to determine the relationships of attitudes towards mathematics and mathematics self-efficacy with achievement in mathematics. The researcher also hopes that this study will extend the perception of attitudes and self-efficacy on learning Mathematics and how attitudes and self-efficacy are important in achievement.

This research will find out the levels of attitudes and self-efficacy in mathematics of Grade 10 students in A Len Bum IDPs High School and the levels of their mathematics achievement.

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Research Questions

The questions of this study are as follow:

1. What is the level of attitudes toward mathematics of Grade 10 students at A Len Bum IDPs High School?
2. What is the level of mathematics self-efficacy of Grade 10 students at A Len Bum IDPs High School?
3. What is the level of mathematics achievement of Grade 10 students at A Len Bum IDPs High School?

4. Is there a significant relationship between attitudes towards mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School?

Research Objectives

The objectives of this study are as follows:

1. To determine the level of the attitudes towards mathematics of Grade 10 students at A Len Bum IDPs High School.
2. To determine the level of mathematics self-efficacy of Grades 10 students at A Len Bum IDPs High School.
3. To determine the level of mathematics achievement of Grade 10 students at A Len Bum IDPs School.
4. To determine there is a significant relationship between attitudes towards mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School.

Research Hypothesis

There is a significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School at the significance level of .05.

Theoretical Framework

This study was based on the following theories:

Social Cognitive Theory

Bandura (1986) mentioned his social cognitive theory which is grounded on a triadic reciprocal causation model, three elements of which are environmental factors, human behaviors, and personal factors. In this causation, human behaviors are depicted as being controlled and shaped either by environmental factors or by personal factors. Human thought and action are considered the product of this triadic reciprocal causation model (Bandura, 1986).

Theory on Attitudes

Attitude is one of the personal factors that interacting with environmental factors and behavior of Bandura's conception of reciprocal determinism (Handayani, Kosnin & Jiar, 2010) and has a strong impact on achievement and performance of learning. For mathematics learners, Evans (2011) defined that attitudes toward mathematics as an individual's positive feelings toward mathematics in terms of enjoyment and motivation. Using the concept of this definition, attitudes toward mathematics can be regarded as an individual construct that is different from mathematics self-efficacy.

Self-Efficacy Theory

Self-Efficacy theory is one of the main concepts in social cognitive theory. Self-Efficacy is one of the personal factors including in triadic reciprocal determinism and one of the major constructs of the social cognitive theory. Individuals' choice behavior, effort expenditure and persistence, thought patterns, and emotional reaction are truly depending on self-efficacy belief (Bandura, 1986). Bandura (1997) theorized that there are four sources of

self-efficacy: mastery experiences, vicarious experiences, social persuasions, and physiological and affective factors.

Conceptual Framework

Grade 10 students in A Len Bum IDPs High School were considered as the source of data in this study. The researcher considered attitudes toward mathematics and mathematics self-efficacy as the independent variables and mathematics achievement as the dependent variable. The mathematics scores of national examination in the 2017-2018 academic year (previous year) of Grade 10 students were collected to determine the students' level of mathematics achievement. Figure 1 shows the relationship between the study variables.

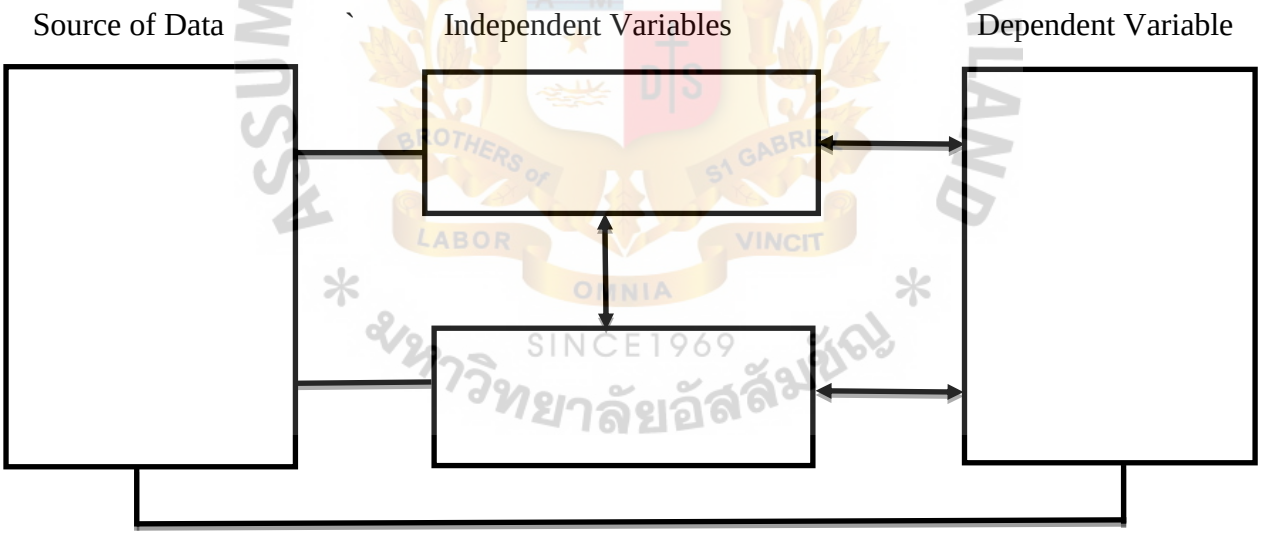

Figure 1. Conceptual framework.

Scope of the Study

This study was carried out in A Len Bum IDPs High School in Kachin State, Myanmar. The study was focused only on the Grade 10 students totaling 200 students. The researcher focused on social cognitive theory, theory on attitudes and self-efficacy theory for this study. For mathematics achievement, the students' mathematics scores of national examination in the 2017- 2018 academic year were collected. The researcher used the sources of mathematics self-efficacy scale (Usher & Pajares, 2009) as a tool to measure the mathematics self-efficacy of students and attitudes towards mathematics questionnaire (Catapano, 2013) to measure the mathematics attitudes of students.

Definitions of Terms

The definitions of terms are listed as follows:

A Len Bum IDPs High School

A Len Bum IDPs High School in this study refers the secondary high school which is specially opened for IDPs, located in Laiza Township in the Kachin Speical Autonomous Region II and under the control of Kachin Independence Organization (KIO).

Attitudes Toward Mathematics

Students' positive feelings toward learning mathematics in terms of enjoyment and motivation (Evans, 2011). It is measured on the attitudes towards mathematics research questionnaire by a total of 8 items.

Grade 10 Students

Grade 10 students in this study refer to the upper secondary IDPs students who enrolled in Grade 10 in A Len Bum IDPs High School in the 2018-2019 academic year.

IDPs (Internally Displaced Persons)

IDPs in this study refers to the students who have been forced to leave their homes to avoid the effects of civil war in Myanmar.

Mathematics Achievement

Mathematics achievement in this study refers to students' mathematics score of national examination in the 2017-2018 academic year.

Mathematics Self-Efficacy

Mathematics self-efficacy in this study refers to a student's beliefs or perceptions of his or her abilities in mathematics (Bandura, 1997) and student's confidence about completing the different types of tasks, from comprehension skill to solving mathematics problems. It is measured by the sources of mathematics self-efficacy scale by a total of 24 items.

Significance of the Study

The findings of this research would be beneficial for teachers, school administrators, and future researchers. This study may benefit the mathematics teachers of A Len Bum IDPs High School to boost the attitudes towards mathematics and mathematics self-efficacy of the students by differentiating the teaching methods and learning activities.

The findings of this study will be helpful and supportive the school administrators to evaluate the levels of attitudes toward mathematics and mathematics self-efficacy of students and to find out the problems if the students have low levels in these two variables.

The outcome of this research would be a tool to help the future researchers who are interested in conducting the research on attitudes towards mathematics and mathematics self-efficacy in Kachin State, Myanmar.

The researcher has mentioned the aims and the importance of this study, the background of the study, statement of the problem, research questions, objectives and hypothesis, theoretical and conceptual framework, scope of the study, definitions of terms and significance of the study in this chapter.

In next Chapter II, the researcher will explain and discuss about the social cognitive theory, self-efficacy theory and attitude that described in the theoretical and conceptual framework. Furthermore, the researcher will provide the detailed information and background of A Len Bum IDPs School. The chapter III will present the research methodology which will be used to measure the study variables.

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CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter reviews the related research literature and theory which served as the theoretical foundation and support to examine the relationship attitudes towards mathematics and mathematics self-efficacy with mathematics achievement of Grade10 students of A Len Bum IDPs High School in Myanmar. This chapter includes attitudes, self-efficacy, theories that incorporate self-efficacy and attitudes, the education system in Myanmar, KIO education system, previous studies on attitudes toward mathematics and mathematics achievement, previous studies on mathematics self-efficacy and mathematics achievement, previous studies on attitudes toward mathematics and mathematics self-efficacy, and finally background of A Len Bum IDPs High School in this study.

Attitudes

In psychology, attitude is defined as an organization of emotions, beliefs, and behaviors towards a person, a thing or an event. An attitude may be comparatively persistent of beliefs, feelings, and behavioral tendencies towards particularly situations and tasks such as objects, groups, events or symbols (Hogg & Vaughan, 2005). Attitude is also regarded as the result of experiences and has a strong influence on human behavior (Cherry, 2017). According to the social learning theory by Bandura (1977), people can acquire attitudes by observing, imitating the objects in their environment or the behavior of the person they admire. Maio and Haddock (2010) mentioned that an attitude is composed of the affective component, cognitive component, and behavioral component and these three-component

models are currently supportive in comparison to one-component-models which focus the affective reaction.

Affective Component

Individual's feeling or emotion is the affective component, which means that his or her attitude is based on the emotion. When presented with stimuli, one should be able to show either negative or positive reaction towards it. The way a person feels about an object is always influenced by his previous experience whether a good or bad experience.

Cognitive Component

This component refers to our thoughts, beliefs, and ideas about something. It involved what a person believes in when it comes to a certain object. The cognitive component of attitude is concerned with how one values something.

Behavioral Component

This component refers to actual action and how one would react towards something or someone, based on his or her attitudes towards the object or the person. Thus, the behavioral component of attitude determines the action that an individual would take based on how they think and feel.

Attitudes give sense to us to predict the future situation and what is going to happen in the future, and so provide us the knowledge of control ourselves (McLeod, 2014). Furthermore, attitude helps people to think deeply between their inside needs (expression and defense) and the outside world (adaptive and knowledge). Attitudes can also facilitate us to organize and structure our experiences that we have learnt and to understand the attitudes of other people, as well as predict the behavior of other people.

In the learning process, attitude is a major factor for students and one of the strongest impacts on the success of learners. Attitude can have both positive and negative impact on the achievement of students. Attitude has more and less positive and encompass emotions,

beliefs, values, and behavior and affects a person's way of thinking, acting and behaving which is supportive to teaching and learning (Mensah, Okyere & Kuranchie, 2013). The student with good attitude eagers to learn and processes the positive energy that make easier to learn.

Self-Efficacy

The term self-efficacy was introduced by Bandura around 40 years ago. But the research and studies on the concept of self-efficacy have been growing steadily. In social cognitive theory, self-efficacy is regarded as an individual's judgments of their abilities to compose and execute courses of action required to achieve designated types of performances (Bandura, 1986). Self-Efficacy is an important concept that influences human learning and the high self-efficacy belief boosts personal motivation, the accomplishment of the performance of people and personal well-being in various ways (Bandura, 1994). Self-Efficacy directly provides the benefit to our normal life. According to Neil (2005), self-efficacy belief is about one's capacities to accomplish specific tasks in normal life such as driving, public speaking, and studying.

Individuals who have high assurance in his/her abilities and capabilities approach to face the new challenges rather than to avoid them. People who disbelieve their abilities and have low aspiration run away from the difficult tasks and they are more likely to give up the tasks. In turn, constructing beliefs on our own capabilities improves the levels of self-efficacy and have an impact on what we are able to do (Cook, 2017). If we are able to raise the level of self-efficacy, there is a positive impact on emotional state and the level of motivation. Self-Efficacy is applied not only in education and business field, but for the behavior of

people such as self-control of chronic disease, smoking, using alcohol, eating, pain control and doing exercise (Carey & Forsyth, 2014).

There are four major psychological processes to activate self-efficacy that affect human functioning: cognitive process, motivational process, affective process, and selection process.

Cognitive Process

According to Bandura (1994), most human behaviors are originally generated by thought. The types of anticipatory scenarios that people build and practice are influenced by their self-efficacy beliefs. People who strongly believe their efficacy can imagine the success of their future problems and that efficacy offers positive guidance for performance. People who disbelieve and doubt their beliefs may imagine failure situations in the future and that negative efficacy can destroy the performance by thinking how things will go wrong.

Motivational Process

Self-Efficacy beliefs are regarded as important roles in the self-regulation of motivation (Bandura, 1994). People's self-efficacy beliefs influence their levels of motivation (Bandura, 1994). Individual's motivation is generated by cognitive factors. In cognitive motivation, people motivate themselves to perform the tasks and guide their actions or performances by the exercises of forethought. Self-efficacy beliefs of a person are formed positively or negatively, depending on the performance that they are able to do.

Affective Process

Self-Efficacy beliefs are regarded as a crucial role in the self-regulation of affective states because they have an impact on affective states such as anxiety, depression, and stress which happens in the difficult situation. Perceived self-efficacy to exercise control over stressors operates the anxiety arousal. People who have high positive thought believe

themselves to exercise control over potential threats. But those who do not believe that they can overcome potential threats face high levels of affective factors such as stress and anxiety.

Selection Process

The life paths of people are influenced by the environment they select or the environment they create. Decision-making for career and career development depends truly on self-efficacy beliefs and the power of self-efficacy relies strongly on selection process because self-efficacy beliefs are able to shape the life paths of people through selection processes (Lent & Hackett, 1987). A high sense of self-efficacy is strongly related to a high level of exploratory activity designed to aid selection of pursuits (Blustein, 1989).

In an academic context, self-efficacy provides the confidence of students to perform and accomplish the specific subjects and effects the achievement of learning. The academic self-efficacy has been extensively applying as a variable in researches and studies that conducting the student learning. It can affect the learning strategies of students, specifically self-regulated learning (Zimmerman, 2000). Self-Regulated learning which involves, self-monitoring, self-evaluation, goal setting, and planning, advances the academic achievements of students (Zimmerman, Bandura, & Martinez-Pons, 1992). According to Odaci (2011), the students' beliefs in academic self-efficacy are highly important for students, as well as for prospective teachers. Because academic self-efficacy is highly related to self-confidence and positive attitudes towards the future profession (Turgut, 2013).

Theories on Self-Efficacy and Attitudes

Social Cognitive Theory

In 1986, Bandura introduced social cognitive theory that presented individual's behaviors are a product of their environments and vice versa. Bandura (1986) developed the

social cognitive theory which postulated about that people are neither absolutely controlled by inside impulses nor automatically driven by environment pushes. The individual contributes to their own motivation, behavior, and development within reciprocally interactive influences each other. In this social cognitive theory, human functioning participates as a major role to cognitive, vicarious, self-regulatory, and self-reflective processes in human adaptation and change. From the theoretical perspective of human psychological functioning, people were considered as self-organizing, proactive, self-reflecting, and self-regulating (Pajares, 2006).

Bandura also stated a model of reciprocal determinism in which behaviors, cognitive and other personal factors, and environmental factors interact with each other. Human thought and action are also regarded as the product of this triadic reciprocal determinism. The results of individual's own behaviors differently depend on the personal factors which are composed of cognition, affect, and biological events (Pajares, 2006). All the relationship between reciprocal determinism variations, as shown in Figure 2.

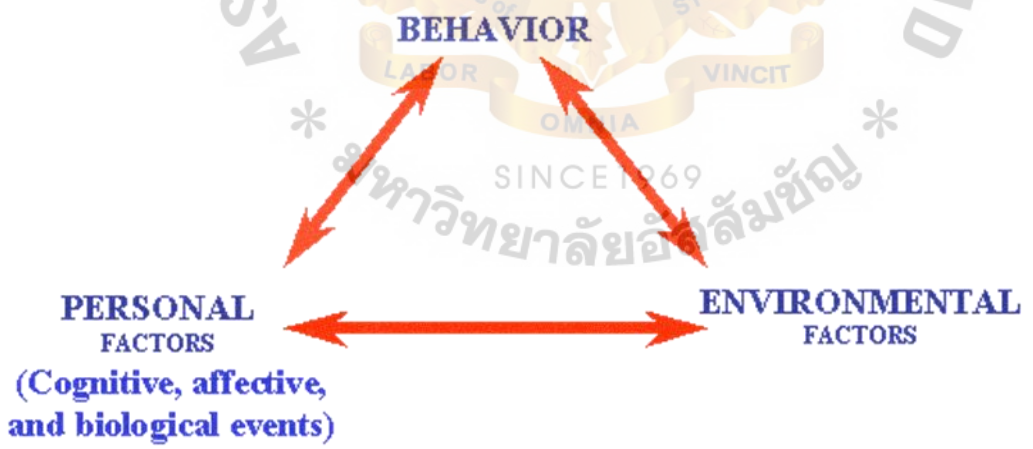

Figure 2. Triadic reciprocal determinism (Pajares, 2006).

Bandura (1986) mentioned the relationships between three variables in Figure 2 as follows (P = Personal factors, B = Behavior, and E = Environmental factors).

PE segment of the above reciprocal determinism refers to the relationship between personal factors and environmental factors. The behavior of a person was shaped and influenced by personal factors such as expectations, beliefs, self-perceptions, goals, and intentions. What individual think, feel and believe, has an impact on how they act (Bandura, 1986).

EP segment of this reciprocal causation explains the interaction between personal factors and environmental factors. According to Bandura (1986) personal characteristics (cognitive competencies, emotional skills, beliefs, and expectations) are modified by environmental influences (social influences).

BE segment of this reciprocal causation reflects the correlation between behavior and environmental factors. Behavior is altered by every condition the environment creates in everyday life. In turn, behavior alters in according with the environmental conditions.

Theory on Attitudes

According to Evans (2011), attitudes toward mathematics are defined as an individual's positive feelings toward mathematics in terms of enjoyment and motivation. By depending on this definition, Catapano (2013) combined the items from the 2003 PISA (Program for International Students Assessment) that described in Instrumental Motivation to Learn Mathematics and Interest In and Enjoyment of Mathematics created by OECD (the Organization for Economic Cooperation and Development) to represent attitudes toward mathematics. Attitudes toward mathematics are considered as an individual's feelings while mathematics self-efficacy is a judgment of an individual's capabilities, and mathematics self-concept is regarded as a composite view obtained by direct experiences (Bandura, 1986).

From the concept of this definition, attitudes toward mathematics can be assumed as an individual construct that differs from mathematics self-efficacy and mathematics self-concept.

A positive emotional disposition is reflected by a positive attitude toward mathematics in relation to the subject and, likewise, a negative attitude towards mathematics reflects a negative emotional disposition (Zan & Martino, 2007). These emotional dispositions affect a person's behavior, as an individual is more likely to achieve the better result in a subject that one enjoys, has confidence in or finds useful (Eshun, 2004) .The improvement of positive attitudes toward mathematics is crucial for the enjoyment of mathematics, which will guide the development the achievement in mathematics (Higbee & Thomas, 1999).

Self-Efficacy Theory

Self-efficacy is one of the main concepts in social cognitive theory. Bandura (1994) theorized that there are four sources that influence on the individual's self-efficacy beliefs in self-efficacy theory. These are mastery experiences, vicarious experiences, social persuasions, and physiological factors.

Mastery experiences. The most important and influential source in individual's self-efficacy beliefs. The past experiences effect self-efficacy and the high sense of self-efficacy beliefs can be built by the past success. If a person did well in the given tasks previously, he would have more chance and confidence to perform similarly associated task (Bandura, 1977). The ability of performance of a person on a given task can be influenced by positive and negative experiences. According to Bandura (1986), consecutive successes builds a strong sense of self-efficacy, and occasional failures make the low sense of self-efficacy beliefs.

For example, if a student receives grade A in previous mathematics test, he or she is more likely to earn grade A again in the next mathematics test. If a student gets grade C in the previous test, the grade is more likely to be reduced in the next test. But, if these failures are later defeated, it can help us to boost self-motivation and self-efficacy when the problem is seen as an achievable challenge (Bandura, 1977).

Vicarious experiences. The second source of self-efficacy is vicarious experiences that mean observing others. Norm-referencing and social comparison affect people to perceive their capabilities in related to the successes or failures of others (Hendricks, 2015). Vicarious experience can affect the individuals through positive or negative ways. Students watch the performance of the parents, siblings, teachers and classmates in their everyday lives. A person can observe other person's performance and then he or she can compare his or her competence to other's competence. The individual can build a high sense of confidence in their capabilities to perform similar tasks by observing others perform successfully (Bandura, 1977).

For example, if the students observe the classmates who get grade A in the examination, they also tend to believe themselves that they are capable of doing so. The opposite is true; observing someone similar fail can provide a low sense of self-efficacy of students.

Social persuasion: The third source of self-efficacy is verbal or social persuasion. Individual's self-efficacy can be affected by encouragement or discouragement of others. The praise and support from parents, teachers, and peers can raise the strong sense of confidence of students. Especially, encouragement from teachers can raise students' perceptions of confidence to achieve their academic goals (Chen, 2010).

For example, if the students are praised verbally when they receive grade A in exam, they are more likely to do the grade job in the next exam. But if the verbal persuasion is

negative, they can lose their confidence to perform well the next exam. When someone is told that he does not have the skill to do the task, he is more likely to give up the task quickly (Bandura, 1994).

Physiological factors. The last source of self-efficacy is physiological or emotional factors. This source is the least influential one on self-efficacy belief when comparing to other three factors. But people cannot avoid this source to raise belief of efficacy. The awareness of physical and emotional reaction have an impact on the capabilities of people in certain situations (Bandura, 1997). Physiological states have the particular effect on tasks that require physical strength and stamina (Bandura, 1997). People experience their physiological feelings and how they perceive these feelings that effect on their self-efficacy beliefs (Bandura, 1977). Individual experience their abilities by interpreting their emotional states like depression, anxiety, and stress. People with strong anxiety have lower beliefs of self-efficacy to perform the task.

For example, if the students feel anxious and stressed when they take the exam, they have more chance to get the lower grade. Oppositely, the students with less anxiety have a strong sense of confidence and they are more likely to get the higher grade.

Education System in Myanmar

Myanmar, one of the members of ASEAN (Association of Southeast Asian Nations), is composed of multi-nationality and multi-culture. The education quality of Myanmar is in a poor condition and there are a lot of weakness in every sector of the educational field when comparing to other countries of ASEAN. Ministry of Education in Myanmar is attempting to reform the education system and quality by increasing the investment of government in the education field, setting up strategic planning, and cooperating with international education

organization. But Ministry of Education in Myanmar is still facing many challenges in term of school management, school curriculum, teaching pedagogy, equity, and quality.

The structure of the basic education schooling system from primary level to secondary level in Myanmar is 5-4-2. The students in primary level (elementary education) from Grade 1 to Grade 5 and usually start from ages 6 to 10 years old. In middle school (lower secondary level) the ages of students are from 11 to 14 years old (Grade 6 to 9) and the students in high school (higher secondary level) are normally from the ages 15 to 16 years old (Grade 10 to 11).

Primary school education is compulsory in Myanmar. Grade 1to 4 is called the lower primary level. The students at this level study the subjects of Myanmar and English languages, mathematics, and science. Grade 4 to 5 is called the upper primary level. The students in this level learn Myanmar, English, mathematics, geography, and history. Secondary education is divided into middle school (lower secondary) and high school (higher secondary). The middle school students have to take the national examination in Grade 9 to continue the higher secondary level. In higher secondary level Myanmar, English, and mathematics are compulsory subjects. There are eight subject combinations that students can choose to study higher secondary education after Grade 9. Table 1 presents the optional subject combinations.

Table 1

Subject Combinations for Grade 11 Students in Myanmar

No.	Subject combination
1	Physics, chemistry and biology
2	Physics, chemistry and economics

(continued)

No.	Subject combination
3	Geography, history and economics
4	Geography, history and optional Myanmar
5	Geography, economics and optional Myanmar
6	History, physics and chemistry
7	Geography, chemistry and optional Myanmar
8	Geography, physics and chemistry

(continued)

In Grade 11, the students have to take the matriculation examination (university entrance exam). After Grade 11, the students can elect many kinds of programs to study in higher education, but choosing the programs and universities depends on the GPA and total score of matriculation examination. Moreover, vocational schools and colleges are offered to the students for another option.

The Ministry of Education mainly has the responsibility to provide the basic education in Myanmar. There are two ministries which support Ministry of Education: Ministry of Religious Affairs and the Ministry of Border Affairs. Ministry of Religious Affairs controls all monastic schools, and Ministry of Border Affairs has the responsibility for the schools in border regions of Myanmar.

Kachin Independence Organization (KIO) Education System

Kachin Independence Organization (KIO) is regarded as the Kachin Special Autonomous Regoin II in Myanmar. KIO is standing with its own governing system, as well as own education system. KIO founded the Department of Education to promote education

quality in 19. KIO Department of Education tries to develop the education standard of Kachin nationality by setting up missions and visions.

A Len Bum IDPs School is located in KIO region or the Kachin Special Autonomous Region II and follows the education system of KIO Department of Education. KIO education system is very similar to Myanmar government education system. The school system of KIO is 5-4-2 system: Grade 1 to 5 (primary level), Grade 6 to 9 (lower secondary level) and Grade 10 to11 (upper secondary level).

Kachin language, which is not involved in the curriculum of Myanmar government, is taught in all grade levels (Grade 1 to 11) in all schools that under the control of KIO. Kachin language, Myanmar, English and mathematics are the compulsory subjects for all grade levels. After Grade 9, the students have to take national examination hold by KIO Education Department to continue upper secondary education.

In KIO education, Kachin language, Myanmar, English, and mathematics are compulsory subjects in upper secondary level. Upper secondary students can choose 3 subject combinations: science study (physics, chemistry, and biology), economic study (physics, chemistry, and economics) and art study (geography, history, and economics). In Grade 11, the students have to take the matriculation examination to study the higher education (university education).

Education Department of KIO has the plan to add Chinese language subject in the school curriculum. Chinese language is essential for students to communicate because KIO region is very close to China. Currently, the curriculum of Myanmar government is applied in all schools which under the control of KIO Education Department. But, Education Department of KIO is making an attempt to create the new curriculum which is matched and effective for Kachin society. Although there are many challenges and difficulties, KIO Education Department keeps attempting to develop the education quality.

Previous Studies on Attitudes Toward Mathematics and Mathematics Achievement

The studies about attitudes toward mathematics have been conducted for many years to get the best results of students in learning mathematics. Previous researchers, Bhowmik and Banerjee (2016) conducted a study to investigate the relationship between achievement in mathematics and attitude towards mathematics and secondary school students was mainly focused to conduct. This study used 394 secondary students of Jangal- Mahal of West-Bengal (India) under West-Bengal Board of Secondary Education (WBBSE) to conduct this study. The results of this study showed that the achievement in mathematics has the positive correlation with attitude towards mathematics of the secondary students. The researchers also determined the significant differences in the achievement levels in mathematics and attitudes towards mathematics of the secondary students with regard to gender. The researchers finally found out that there is a positive relationship between attitudes towards mathematics and achievement in mathematics. They also mentioned that if the attitude toward mathematics is high, the achievement in mathematics would be increased.

Mubeen, Saeed and Arif (2013) developed a study on attitude towards mathematics and academic achievement in mathematics and this study targeted secondary level boys and girls in Pakistian. A sample of 500 students was chosen from two boy's schools and two girl's schools in Pakistan. And then 300 girls and 200 boys were randomly selected from these four schools. It can be seen that the findings of this study are different from each other according to gender. The first result of this study is that there is a significant relationship between girls 'attitude scores towards mathematics and academic achievement of girls in secondary level. But, for boys, the result showed that attitude scores towards mathematics have no correlation with academic achievement of boys in secondary level of this school.

According to the results of this study, boys have different mathematical achievement with girls, and girls achieve better than boys. The researchers confirmed that attitudes towards mathematics do not go together with mathematics achievement and the differences of students' attitudes towards mathematics are based on gender.

Zulekha and Aqil (2015) created a study on mathematics achievement of nine standard students in relation to their gender and attitude towards mathematics where 95 students from English medium and 105 students from Hindi medium in the selected school in India were studied. One of the findings of this study showed that there is no significant difference between attitude toward mathematics and mathematics achievement of nine standard students.

Taat and Rozario (2014) conducted a study on the influence of academic attitude and self-efficacy towards students' achievement in mathematics in private higher learning institution, Malaysia. 200 allied health college students from two campuses of Masterskill Global College in Malaysia participated in this study. The researchers of this study applied Aiken's Mathematics Attitude Scale to measure students' attitudes toward mathematics. One of this results presented that there is a significant difference in students' attitude towards mathematics based on mathematics achievement. The researchers of this study commented that even though students' attitudes toward mathematics are high, it is not yet a good predictor for achievement in mathematics for students in Masterskill Global College.

Previous Studies on Mathematics Self-Efficacy and Mathematics Achievement

Many research studies have been investigated to determine the relationship between self-efficacy and achievement in mathematics. Some researchers have performed these studies based on gender. Many studies have proved that there is a positively significant relationship between mathematics self-efficacy belief and mathematics achievement.

Ayotola and Adedeji (2009) performed a study on the relationship between mathematics self-efficacy and achievement in mathematics. This study was built with 192 male students and 160 female students in Oyo state, Nigeria. Mathematics Self-Efficacy Scale (MSES) created by Parajes and Kranzler (1995, as cited in Ayotola & Adedeji ,2009) and Mathematics Achievement Test (MAT) self-constructed by the researchers was applied in this study. The result of this study pointed out that there is a positive correlation between students' mathematics self-efficacy and achievement in mathematics. The finding of this study supports the Bandura's Social Cognitive Theory which claims that self-efficacy beliefs have a strong predictor for academic outcomes.

Ochieng (2015) created a study on mathematics self-efficacy and mathematics achievement in Kenya. The study had 200 students from three selected schools who participated in the Mathematics Self-Efficacy Questionnaire by Benard (2012, as cited in Ochieng, 2015). The finding of this study presented that there is a positive relationship between mathematics self-efficacy and mathematics achievement. But the Ochieng (2015) noted that the male students have higher self-efficacy than female students in learning mathematics.

Perez and Yan (2013) developed a study to conduct if there is a relationship between mathematics self-efficacy and achievement in mathematics with 198 students from mathayomsuksa 1 to 3 in one selected international school in Thailand. Mathematics Self-Efficacy Scale by Rodrigues (2003, as cited in Perez & Yan, 2013) was applied to measure students' attitudes toward mathematics and the mathematics scores in the final exam of the second semester was considered as the basic mathematics achievement levels. According to result from this study, mathematics self-efficacy had positively correlated with mathematics achievement of mathayomsuksa 1 to 3 students. The positive finding of this study also agrees

the previous studies that support self-efficacy is a strong predictor for success in academic achievement.

Loo and Choy (2013) created a study about the sources of self-efficacy influencing academic performance and the study focused on engineering students who studied in Singapore. The study used the sample of 178 third year students from 4 electronic-related diplomas in Republic Polytechnic to participate. The result of the study showed that four primary sources of self-efficacy were significantly correlated with mathematics achievement. The study also indicated that mastery experience is the strongest predictor for academic achievements of mathematics.

Previous Studies on Attitudes Toward Mathematics and Mathematics Self-Efficacy

Attitude and self-efficacy have the strong impact on learning mathematics of students. The studies on attitudes toward mathematics and mathematics self-efficacy have been conducted on all levels of students from primary level to university level. According to the studies of many researchers, attitude toward mathematics and mathematics self-efficacy are positively related and that achievement in mathematics is positive and significantly explained by these two variables.

Kundu and Ghose (2016) have done a study on the relationship between attitude and self-efficacy in mathematics among higher secondary students in India. The study used 784 of Class XI students from 25 selected schools as the sample. The tools of the study were Mathematics Self Efficacy Questionnaire by May (2009, as cited in Kundu & Ghose, 2016) and Modified Fennema Sherman Mathematics Attitude Scale by Depaken, Lawsky and Padwa (1993, as cited in Kundu & Ghose, 2016). The finding of the study shows that the correlation between attitude towards mathematics and mathematics self-efficacy is positive and highly significant. The study also proved that good attitude toward mathematics can build

high self-efficacy beliefs to perform solving mathematics problems and boosting mathematical capability.

Nicolaidou and Philippou (2003) created a study on attitudes towards mathematics, mathematics self-efficacy and achievement in problem-solving in Cyprus. The sample involved 238 Grade 5 students from 11 classes from six primary schools. The result of the study pointed out that attitudes toward mathematics are highly correlated with mathematics self-efficacy. The study also showed that students with high self-efficacy beliefs had more positive attitudes toward mathematics than the others.

Background of A Len Bum IDPs High School in this Study

A Len Bum IDPs High School is situated in Laiza Township, Kachin State, Myanmar. A Len Bum IDPs High school is founded to provide education to students who have been forced to leave their places due to the civil war between Myanmar Government Military and Kachin Independent Army (KIA) in 2011. This school does not provide the primary education, and the school is opened to provide lower and upper secondary education (from Grade 6 to 11). This school is following the education system of KIO. This school is under the control of IDPs Camp Committee, but the school curriculum and academic instruction are provided by the Department of Education of KIO.

According to the statistic of 2017-2018 academic year, there are 803 students with 68 teachers. Most of the students are from Jeyang IDPs camp and Hpum Lum Yang IDPs camp. The school uses the Kachin language as medium instruction, but Myanmar subject teachers apply Myanmar language. Mathematics is a compulsory subject from primary level to secondary level. Teaching mathematics in upper secondary level is a big concern for the school. Because the school faces the difficulty to earn upper secondary mathematics teachers rather than primary and lower secondary level.

Currently, the school is standing with the financial support from non-government organizations (NGO). But the principal and teaching staffs for the school are hired and recruited by the Department of Education of KIO. The school also has some volunteer teachers sent by Kachin Baptist Convention (KBC). Some of the teachers are graduated from the universities of Myanmar government, and some are graduated from Mai Ja Yang Institute of Education which is run under the supervised of the Department of Education of KIO. Grade 9 and Grade 11 take the standard examination held by Education Department of KIO. The examination for the other grades is given by the examination board of the school.

This chapter presented about attitudes and self-efficacy by the review of the literature and the theories that related to attitudes and self-efficacy. This chapter also explored the previous research on attitudes towards mathematics and mathematics achievement, mathematics self-efficacy and mathematics achievement, and attitudes towards mathematics and mathematics self-efficacy. The following chapter will discuss the research design of this study.

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CHAPTER III

RESEARCH METHODOLOGY

This chapter presented the research methodology. It includes the description of the research design, population, sample, research instrument, validity and reliability of the instrument, collection of data, data analysis and summary of the research process.

Research Design

The study is a quantitative and correlational research design. Descriptive statistics (means and standard deviations) was used to examine the levels of attitudes toward mathematics, mathematics self-efficacy, and mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar. Multiple correlation coefficient was used to calculate if there is a relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of students.

Population

The population of this study is 200 students in Grade 10 at A Len Bum IDPs High School in Kachin State, Myanmar.

Sample

All students (200 students) in Grade 10 from A Len Bum IDPs High School were considered as the sample in this study. Table 1 presents in details about the population and sample of students in Grade 10 at A Len Bum IDPs High School.

Table 2

Population and Sample of the Study

Grade	Population	Sample
10	200	200

Research Instrument

The researcher used the research questionnaire as the primary data collection instrument to conduct this study. There are two questionnaires in this study. In the first questionnaire, Attitudes toward Mathematics Questionnaire by previous researcher Catapano (2013) was applied and in the second questionnaires, the researcher used the Sources of Mathematics Self-efficacy Scale developed by (Usher & Pajares, 2009).

Attitudes toward Mathematics Questionnaire (ATMQ)

Catapano (2013) converted the items from the 2003 PISA that described in Instrumental Motivation to Learn Mathematics and Interest In and Enjoyment of Mathematics created by OECD to Attitudes toward Mathematics Questionnaire. Catapano (2013) conducted the study to measure three variables which are students' mathematics self-efficacy, mathematics anxiety and attitudes toward mathematics. However, the researcher chooses only attitudes toward mathematics questionnaire to utilize in this study.

A total of 8 items is included in ATMQ. In original questionnaire, 4-point Likert scale from 1(*strongly disagree*) to 4 (*strongly agree*) was applied. However, the researcher converted to 5-point Likert scale with 1(*strongly disagree*) and 5 (*strongly agree).*

The following Table 3 displays the interpretation scores of ATMQ of Grade 10 students at A Len Bum IDPs High School.

Table 3

Interpretation Scores for Attitudes Toward Mathematics Questionnaire

Score	Interpretation
4.51 – 5.00	Very High
3.51 – 4.50	High
2.51 – 3.50	Moderate
1.51 – 2.50	Low
1.00 – 1.50	Very Low

Validity and Reliability of the ATMQ

The OECD determined the construct validity of the survey items from the 2003 PISA. The items were regarded to be a good predictor to measure the intended variables (OECD, 2005). According to OECD (2015), ATMQ has good internal consistency, with Cronbach's alpha coefficients .86. In this study, the researcher had Cronbach's alpha coefficients .72 from this study.

Table 4

Internal Reliability of Attitudes Toward Mathematics Questionnaire

Scale	Item number	Cronbach's alpha value of (OECD, 2005)	Cronbach's alpha value of current study
Attitudes toward Mathematics	1,2,3,4,5,6,7,8	.86	.72

Sources of Mathematics Self-efficacy Scale (SMSES)

The researcher used the Sources of Mathematics Self-efficacy Scale (Usher & Pajares, 2009) to measure the mathematics self-efficacy of students. There are four sources or subscales in this scale: mastery experience (6 items), vicarious experience (6 items), verbal

persuasion (6 items) and physiological state (6 items). The total number of all items in this scale is 24 items. Items 3, 19, 20, 21, 22, 23, and 24 on this scale (in Table 6) are negatively worded items and the rest of them are positively worded items. Thus, reversed coding will be used for these negatively worded items.

Chen (2010), the previous researcher, used 6-point Likert type scale and items were described to rate how true or false each statement by students with 1 (*definitely false*) and 6 (*definitely true*). However, the researcher will convert to 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*) to conduct this scale.

The following Table 5 shows each mean score interpretation of sources of mathematics self-efficacy scale. There are five different levels of mathematics self-efficacy: very low, low, moderate, high and very high according to mean (*M*) score of students' mathematics self-efficacy.

Table 5

Interpretation Scores of Sources of Mathematics Self-efficacy Scale

Score		
Positive worded	Negative worded	Interpretation
4.51 – 5.00	1.00 – 1.50	Very high
3.51 – 4.50	1.51 – 2.50	High
2.51 – 3.50	2.51 – 3.50	Moderate
1.51 – 2.50	3.51 – 4.50	Low
1.00 – 1.50	4.51 – 5.00	Very low

Validity and Reliability of SMSES

For the validity of this scale, Usher and Pajares (2009) presented the construct validity and convergent validity with the publication of sources of self-efficacy in mathematics: a

validation study. Chen (2010) also reported good internal consistency, with Cronbach's alpha coefficients .90 for mastery experience, .90 for vicarious experience, .95 for social persuasions, and .92 for physiological state.

The following Table 6 shows Cronbach's alpha values of four different sub-scales from original developers, the previous researcher, and the current study.

Table 6

Internal consistency of Sources of Mathematics of Self-efficacy Scale

Sub-scale	Item number	Cronbach's alpha value (Usher & Pajares, 2009)	Cronbach's alpha value (Chen, 2010)	Cronbach's alpha value of the current study
Mastery Experience	1,2,3,4,5,6	.88	.90	.54
Vicarious Experience	7,8,9,10,11,12	.84	.90	.48
Social Persuasion	13,14,15,16,17,18	.88	.95	.87
Physiological State	19,20,21,22,23,24	.87	.92	.75

Students' Mathematics Achievement

The researcher conducted this study on the Grade 10 students in A Len Bum IDPs High School in the 2018 -2019 academic year. However, mathematics scores from the national test in the 2017-2018 academic year of Grade 10 students were considered to determine the level of mathematics achievement in this study. The national examination was done in the end of May, 2018 and the next academic year was started in June, 2018. The researcher considered that there was no long gap between national examination period and the time of starting next academic year. From the above reason, the researcher decided to collect the mathematics scores of Grade 10 students in A Len Bum IDPs High School from the national examination of the previous academic year. The number grading scale based on 0

to100 points has been used to determine students' academic learning. This scale is used to determine the pass or fail of students. Table 7 shows the grading scale and agreement levels.

Table 7

The Interpretation of Learning Achievement

Achievement	Level
80-100	Very high
60-79	High
40-59	Moderate
30-39	Low
0-29	Very low

Collection of Data

The researcher asked the permission of the school principal of A Len Bum IDPs High School to conduct research and to collect data. Table 8 shows data collection process for this research.

Table 8

Data Collection Process

Date	Task
March 2018	Requested permission from the target school.
14th June 2018	Thesis proposal examination.
30th August 2018	Distributed 200 questionnairs to Grade 10 students of A Len Bum IDPs High School and returned 100% to the researcher.
28th November 2018	Do the final thesis examination.

Data Analysis

The following statistical methods were used for the research objectives of this study. Table shows the summary of the research process.

For Objective 1, mean and standard deviation has been used to determine the level of students' attitudes toward mathematics of Grade 10 students at A Len Bum IDPs High School, in Kachin State, Myanmar.

For Objective 2, mean and standard deviation has been used to determine the level of students' mathematics self-efficacy of Grade 10 students at A Len Bum IDPs High School, in Kachin State, Myanmar.

For Objective 3, mean and standard deviation has been used to determine the level of students' mathematics achievement of Grade 10 students at A Len Bum IDPs High School, Kachin State, Myanmar.

For Objective 4, an examination of the bivariate correlations among the three variables in this study using Person's correlation coefficient, as a perquisite to calculate the multiple correlation coefficient, has been used to determine whether there is a significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School, Kachin State, Myanmar.

Summary of the Research Process

The research process of this study is summarized in the Table 9.

Table 9

Research objectives	Sources of data or sample	Data collection method or research instrument	Method of data analysis
1. To determine the levels of attitudes toward mathematics of Grade 10 students at A Len Bum IDPs High School.	200 of Grade 10 students at A Len Bum IDPs High School	Attitudes toward Mathematics Questionnaire (ATMQ)	Mean and standard deviation
2. To determine the levels of mathematics self-efficacy of Grade 10 students at A Len Bum IDPs High School.		Sources of Mathematics Self-efficacy Scale(SMSES)	Mean and standard deviation
3. To determine the levels of the mathematics achievement of Grade 10 students at A Len Bum IDPs High School.		Students' mathematics scores in the national exam of 2017-2018 academic year	Mean and standard deviation
4. To determine if there is a significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School.		Attitudes toward Mathematics Questionnaire, Sources of Mathematics Self-efficacy Scale and Students' mathematics scores in the national exam of 2017-2018 academic year	Multiple correlation coefficient

Summary of the Research Process

CHAPTER IV

RESEARCH FINDINGS

This chapter explains the findings of the research objectives that obtained from a total of 200 students who have participated ATMQ and SMSES in A Len Bum IDPs High School in Kachin State, Myanmar. The findings of this study were shown in tables and reported separately for overall response of each objective.

Research Finding for Objective 1

Research Objective 1 was to determine the level of the attitudes towards mathematics of the Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar. The researcher applied ATMQ to determine the level to the attitudes towards mathematics of students.

There are eight items in ATMQ and the researcher used 5-point Likert scale with ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The interpretation scale of attitudes toward mathematics of Grade 10 students was divided into five parts: very high, high, moderate, low, and very low. Table 10 shows the mean scores, standard deviations, and interpretation of Grade 10 students' attitudes towards mathematics in A Len Bum IDPs High School in Kachin State, Myanmar.

Table 10

Mean Scores, Standard Deviations, and Interpretation of Grade 10 Students' Attitudes Toward Mathematics in A Len Bum IDPs High School in Kachin State, Myanmar

Item	Item statement	*M*	*SD*	Interpretation
1	I enjoy reading about mathematics.	3.58	.98	High
2	Making an effort in mathematics is worth it because it will help me in the work that I want to do later on.	4.45	.71	High
3	I look forward to my mathematics lessons.	3.23	.80	Moderate
4	I do mathematics because I enjoy it.	3.21	.78	Moderate
5	Learning mathematics is worthwhile for me because it will improve my career prospects.	4.46	.76	High
6	I am interested in the things I learn in mathematics.	3.87	.76	High
7	Mathematics is an important subject for me because I need it for what I want to study later on.	4.55	.58	Very high
8	I will learn many things in mathematics that will help me get a job.	4.51	.70	Very high
	Total	3.98	.77	High

In Table 10, the level of attitudes towards mathematics of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar is high with mean scores 3.98. The mean scores of Items 7 and 8 show the very high mean scores with 4.55 and 4.51 according to interpretation score. But the results of the table display that Items 3 and 4 have the moderate level with means scores 3.23 and 3.21 respectively.

Research Finding for Objective 2

The research Objective 2 was to determine the level of mathematics self-efficacy of the Grades 10 students at A Len Bum IDPs High School in Kachin State, Myanmar. SMSES was used to determine the level of students' mathematics self-efficacy.

For Objective 2, there are four subscales: mastery experiences, vicarious experiences, social persuasions, and physiological states. Tables 11, 12, 13, 14 display mean scores, standard deviations, and interpretation for those four subscales. Table 11 shows mean scores, standard deviations and interpretation for mastery experiences of mathematics self-efficacy of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar.

Table 11

Mean Scores, Standard Deviations, and Interpretation for Mastery Experiences

Item	Item statement	*M*	*SD*	Interpretation
1	I make excellent grade on math tests.	2.28	.99	Low
2	I have always been successful with math.	2.99	.86	Moderate
3	Even when I study very hard, I do poorly in math.	3.57	1.04	High
4	I got good grades in math on my last report card.	2.31	1.00	Low
5	I do well on math assignments.	3.23	.79	Moderate
6	I do well on even the most difficult math assignment.	2.80	.90	Moderate
	Total	2.86	.93	Moderate

There are six items in mastery experiences subscale and each item has each interpretation scale. However, Item 3 is negatively worded item and the researcher used reversed coding of this item. Results in Table 11 shows the total mean score of mastery experiences was *M* = 2.86 which demonstrates that the mastery experiences of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar was on moderate. It can be seen that Items 1 and 4 have low mean scores and item 3 has high mean scores.

Table 12

Mean Scores, Standard Deviations, and Interpretation for Vicarious Experiences

Item	Item statement	*M*	*SD*	Interpretation
7	Seeing adults do well in math pushes me to do better.	2.96	.97	Moderate
8	When I see how my math teacher solves a problem, I can picture myself solving the problem in the same way.	2.90	.87	Moderate
9	Seeing kids do better than me in math pushes me to do better.	2.99	1.01	Moderate
10	When I see how another student solve a math problem, I can see myself solving the problem in the same way.	2.88	1.00	Moderate
11	I imagine myself working through challenging math problems successfully.	2.90	.95	Moderate
12	I complete with myself in math.	2.56	.93	Moderate
	Total	2.86	.96	Moderate

There are six items in vicarious experiences. Results in Table 12 shows that all items have moderate mean scores. In an overall look, the total mean score of vicarious experiences was *M* = 2.86 which demonstrates that vicarious experiences of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar was on moderate.

Table 13

Mean Scores, Standard Deviations, and Interpretation for Social Persuasions

Item	Item statement	*M*	*SD*	Interpretation
13	My math teachers have told me that I am good at learning math.	2.31	.98	Low
14	People have told me that I have a talent for math.	2.30	1.03	Low
15	Adults in my family have told me what a good math student I am.	2.19	.93	Low
16	I have been praised for my ability in math.	2.23	1.00	Low
17	Other students have told me that I am good at learning math.	2.29	.97	Low
18	My classmates like to work with me in math because they think I am good at it.	2.65	.96	Moderate
	Total	2.33	.98	Low

There are six items in social persuasions. Results in Table 13 displays the total mean score of social persuasions was *M* = 2.33 which demonstrates that social persuasions of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar was on low. It is also noticed that Items 13,14,15,16, 17 have low mean scores when comparing with Item 18 which has moderate mean score.

Table 14

Mean Scores, Standard Deviations, and Interpretation for Physiological Factors

Item	Item statement	*M*	*SD*	Interpretation
19	Just being in math class makes me feel stressed and nervous.	3.65	1.16	High

20	Doing math work takes all of my energy.	2.75	1.19	Moderate

(continued)

Item	Item statement	*M*	*SD*	Interpretation
19	Just being in math class makes me feel stressed and nervous.	3.65	1.16	High
20	Doing math work takes all of my energy.	2.75	1.19	Moderate
21	I start to feel stressed-out as soon as I begin my math work.	3.12	1.22	Moderate
22	My mind goes blank and I am unable to think clearly when doing math work.	2.95	.97	Moderate
23	I get depressed when I think about learning math.	3.11	1.06	Moderate
24	My whole body becomes tense when I have to do math.	3.08	1.15	Moderate
	Total	3.11	1.13	Moderate

(continued)

There are six items in physiological states and all items in this subscale are negatively worded items. The total mean score of physiological states was *M* = 3.11 which demonstrates that physiological states of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar was on moderate. Moreover, results in Table 14 displays that Items 19, 20, 21, 22, 23 have moderate mean scores when comparing with item 19 which has high mean score.

Table 15

Mean Scores, Standard Deviations, and Interpretation for Mathematics Self-Efficacy of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar

Subscales of motivation	*M*	*SD*	Interpretation
Mastery experiences	2.86	.93	Moderate

(continued)

Subscales of motivation	*M*	*SD*	Interpretation
Vicarious experiences	2.86	.96	Moderate
Social persuasions	2.33	.98	Low
Physiological states	3.11	1.13	Moderate
Total	2.79	1.00	Moderate

(continued)

Table 15 shows that Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar have moderate mathematics self-efficacy with *M* = 2.79. The mean score of mastery experiences was 2.86, mean score of vicarious experiences was 2.86, mean score of social persuasions was 2.33, and mean score of physiological states was 3.11. According to the results, mean score of social persuasions is low with *M* = 2.33 while other subscales have moderate mean scores. Among the four subscales social persuasions have the smallest means score.

Research Finding for Objective 3

Research Objective 3 was to determine the level of mathematics achievement of the Grade 10 students at A Len Bum IDPs School in Kachin State, Myanmar. The researcher collected the mathematics scores of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar from the national examination of the previous academic year (2017-2018) to interpret the level of mathematics achievement. The interpretation scale of

mathematics achievement was divided into five parts: very high, high, moderate, low, and very low. Table 16 displays mean scores, standard deviations and interpretation of mathematics achievement of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar.

Table 16

Mean Scores, Standard Deviations, and Interpretation for Mathematics Achievement of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar

Mathematics achievement	*M*	*SD*	Interpretation
Mathematics score of Grade 10 students from national examination of previous academic year	50.89	10.59	Moderate

The result

Research Finding for Objective 4

The research Objective 4 was to determine there was a significant relationship of attitudes towards mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar. To examine the Objective 4, the research used statistical hypothesis for three variables in this study.

To address the research Objective 4 the researcher calculated bivariate correlations between attitudes toward mathematics, mathematics self-efficacy, and mathematics achievement test score of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar.

Table 17 shows bivariate correlations among attitudes toward mathematics, mathematics self-efficacy, and mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar.

Table 17

Bivariate Correlations Between Attitudes Toward Mathematics, Mathematics Self-Efficacy, and Mathematics Achievement of Grade 10 Students at A Len Bum IDPs High School in Kachin State, Myanmar

Variables	1	2	3
1. Mathematics achievement	-	-	-
2. Attitudes toward mathematics	.06		
3. Mathematics self-efficacy	-.016	.344**	

Note. **$p < .001$, two-tailed.

The bivariate correlations among the three variables in this study (attitudes toward mathematics and mathematics achievement, mathematics self-efficacy and mathematics achievement, and mathematics self-efficacy and attitudes toward mathematics self-efficacy), show that attitudes toward mathematics and mathematics self-efficacy of Grade 10 students did not have significant relationship ($r = .06$, $p = .384$) as a significant level of .05.

Similarly, there was no statistically positive significant relationship (r=.-016, $p = .824$) between mathematics self-efficacy and mathematics achievement.

However, Grade 10 students' attitudes toward mathematics and mathematics self-efficacy are correlated (r= .34, $p < .001$) as a significant level of .05. The coefficient of determination (r^2) for these variables is .11, which indicates that 11% of the variance in the relationship of Grade 10 students' attitudes toward mathematics could be accounted by their mathematics self-efficacy.

The research hypothesis of this study is that there was a significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar at

significance level of .05. According to the results of Table 17, two dependent variables, attitudes toward mathematics and mathematics self-efficacy, had a weak relationship. However, there is no statistically significant relationship between attitudes toward mathematics and mathematics achievement. Similarly, there was no significant relationship between mathematics self-efficacy and mathematics achievement. So, multiple correlation coefficient did not require to be calculated for those three variables.

In this Chapter IV, the researcher explained the research findings of the level of attitudes toward mathematics, mathematic self-efficacy, and mathematics achievement of Graded 10 students at A Len Bum IDPs High School in Kachin State, Myanmar. In next chapter, the researcher will present conclusion, discussion, and recommendations for students, teachers and next researcher based on this study.

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CHAPTER V

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

This chapter presents a brief summary and findings of this study. The research will discuss the results in relation to research objectives and hypothesis. Furthermore, this chapter provides conclusion of this study, discussion about the important findings, and recommendation for students, teachers, and future researchers.

Summary of the Study

The purpose of this study was to determine the level of students' attitudes toward mathematics, students' mathematics self-efficacy, and students' mathematics achievement and the relationship of these three variables. The target students are Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar. There has been no previous research that investigates students' attitudes toward mathematics and mathematics self-efficacy in this school.

The sample of this study was 200 of Grade 10 students in A Len Bum IDPs High School in 2018-2019 academic year. This study has four main research objectives and one research hypothesis and they are as follows:

1. To determine the level of the attitudes towards mathematics of Grade 10 students at A Len Bum IDPs High School.
2. To determine the level of mathematics self-efficacy of Grades 10 students at A Len Bum IDPs High School.
3. To determine the level of mathematics achievement of Grade 10 students A Len Bum IDPs School.

4. To determine there is a significant relationship between attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School.

The hypothesis was there is significant relationship between attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School at significance level of .05.

The researcher used ATMQ (Catapano, 2013) and SMSES (Usher & Pajares, 2009) as the research instruments. To determine the level of attitudes toward mathematics, mathematics self-efficacy, and mathematics achievement, the researcher applied mean and standard deviation. A bivariate correlation coefficient was calculated to determine the relationship of these three variables. For mathematics achievement, the researcher collected the mathematics scores of Grade 10 students in A Len Bum IDPs High School from national examination of the previous academic year (2017-2018).

Research Findings

Research Objective 1

The level of attitudes toward mathematics of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar was high.

Research Objective 2

The level of mathematics self-efficacy of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar was moderate.

Research Objective 3

The level of mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar was moderate.

Research Objective 4

There is no significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar.

Conclusions

From the findings, the conclusions are as follows:

Research Objective 1

The findings from Research Objective 1 revealed that the level of attitudes toward mathematics of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar was high which implied that Grade 10 students of A Len Bum IDPs High School had the high positive feelings toward mathematics in terms of enjoyment and motivation. It is also meant that the students thought mathematics is worthwhile for their careers in future and helpful for what they want to learn later on.

Research Objective 2

The findings from Research Objective 2 revealed that the level of mathematics self-efficacy of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar was a moderate level which suggested that Grade 10 students only had a moderate confidence to perform mathematics. Amongst the self-efficacy subscales, social persuasions ranked last with a lowest mean score while mastery experiences, vicarious experiences, and physiological factors had the moderate mean scores.

Research Objective 3

The findings from the Research Objective 3 revealed that the level of mathematics achievement of Grade 10 student at A Len Bum IDPs High School in Kachin State, Myanmar was moderate which implied that the average score of 200 of Grade 10 students in

mathematics had a moderate level according to the interpretation of mathematics achievement. Most of Grade 10 students of A Len Bum IDPs High School were slightly low in mathematics scores according to their interpretation scale of mathematics achievement.

Research Objective 4

The findings from the Research Objective 4 revealed that students' attitudes toward mathematics have a weak correlation with mathematics self-efficacy. However, there is no statistically significant relationship between attitudes toward mathematics and mathematics achievement. Similarly, there is no significant relationship between mathematics self-efficacy and mathematics achievement. In overall, there is no significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar.

Discussion

The findings of the current study revealed that there was no significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bum IDPs High School in Kachin State, Myanmar. The main reason why the researcher chose this school is that this A Len Bum IDPs High School has the largest population of IDPs secondary students in Kachin State. The findings of this study revealed the current level of attitudes toward mathematics, self-efficacy, and achievement of 200 of Grade 10 IDPs students. The researcher assumed that the findings and the following discussions of this study will strongly be beneficial and supportive to other IDPs high schools in Kachin State, Myanmar.

The Relationship of Attitudes Toward Mathematics and Mathematics Achievement

The findings of this study showed that Grade 10 students of A Len Bum IDPs High School have the high level of attitudes toward mathematics. According to the definition of

attitudes toward mathematics by Evans (2013), Grade 10 students of A Len Bum IDPs High School have strongly positive feeling toward mathematics in terms of enjoyment and motivation according to this definition. It also means that the students have high expectation on mathematics for their future carriers. The similar study of this research was done in Malaysia by Taat and Rozario (2014), in Pakistan by Mubeen, Saeed and Arif (2013), in India by Zulekah and Aqil (2015) and Bhowmik and Banerjee (2016).

Taat and Rozario (2014) revealed that student's attitude is not a strong predictor for mathematics achievement in Masterskill Global College. It is meant that the grade and score in mathematics of students is not influenced by attitude. Mubeen, Saeed and Arif (2013) pointed out that the level of attitudes toward mathematics and mathematics achievement are depending on gender. According to their studies, there was a positively significant relationship between attitudes toward mathematics and mathematics achievement of girls, but there was no significant relationship between those variables of boys. They finally noted that attitudes toward mathematic and mathematics achievement are not going together and do not depend on each other. However, from the study of Bhowmik and Banerjee (2016), the level of attitudes toward mathematics depends truly on mathematics achievement.

In this study, the researcher found out that there is no statistically significant relationship between attitudes toward mathematics and mathematic achievement of Grade 10 students in A Len Bum IDPs High School. The researcher assumed that there are some reasons why attitudes toward mathematics and achievements are not significant correlated. The students have high positive feelings and attitudes on mathematics, but their achievements are not high. The main reason that the researcher assumed is that A Len Bum IDPs High School is standing with the support of NGOs and other local organizations to run the school system. The school does not have enough resources such as internet access, good library, and reference books to develop their mathematics skills of students. Other reasons are that the

class is overcrowded and the school does not have enough teachers. So, it is considered that the above reasons lead why attitudes toward mathematics and achievements are not correlated. From the above result, the researcher concludes that attitudes toward mathematics do not have a strong impact on mathematics achievement.

The Relationship of Mathematics Self-Efficacy and Mathematics Achievement

The findings of this study demonstrated that mathematics self-efficacy did not have significant relationship with mathematics achievement of Grade 10 students in A Len Bum IDPs High School in Kachin State, Myanmar. This finding was contrary to my expectation. The study of correlation between mathematics self-efficacy and mathematics achievement was similarly conducted by previous researchers, Ayotola and Adedeji (2009) in Nigeria, Ocheing (2015) in Kenya, Perez and Yan (2013) in Thailand, and Loo and Choy (2013) in Singapore. All of these researchers found out that students' achievements do not strongly depend on their self-efficacy and their findings supported self-efficacy theory of Bandura that asserted that self-efficacy beliefs are able to predict academic achievement of students.

However, in this study, mathematics self-efficacy and mathematics achievement are not correlated each other. According to this study, self-efficacy is built by four primary sources: mastery experiences, vicarious experiences, social persuasions, and physiological factors. Among these four sources the students have the lowest level in social persuasions while they have the moderate level in others according to statistical results. It is assumed that the encouragement of teachers, parents, and peers are hugely required for the students to have confidence in mathematics. The parents of students are working almost every day to survive and they cannot involve in studying of their children. Another possible reason is that there are over sixty students in a classroom and the teacher cannot pay attention and feedback to each

student. The above reasons are the big concern for the principal, teachers, and parents in order to improve self-efficacy belief of students in mathematics.

The Relationship of Attitudes Toward Mathematics and Mathematics Self-Efficacy

The findings of this study suggested that there is a relationship between attitudes toward mathematics and mathematics self-efficacy. The findings of this study were also in line with Kundu and Ghose (2016), and Nicolaidou and Philippou (2003) which revealed that a positive relationship between attitudes toward mathematics and mathematics self-efficacy. Kundu and Ghose (2016) proved that self-efficacy in mathematics is directly connected with attitudes toward mathematics. Increasing student's attitudes is boosting their confidence and self-beliefs in mathematics. Nicolaidou and Philippou (2003) also showed that students' self-efficacy beliefs are highly manipulated by attitudes in solving mathematics problems.

In this study, however, the researcher found out that students' mathematics self-efficacy was weakly correlated with their attitudes toward mathematics. The results of this study presented that students' self-efficacy beliefs in mathematics can be interpreted by determining their attitudes toward mathematics. So, it can be recognized that if students have high self-efficacy beliefs in mathematics, their attitudes toward mathematics are undoubtedly high. Finally, the researcher assumed that mathematics self-efficacy of Grade 10 students in A Len Bum IDPs High School was correlated with their attitudes toward mathematics.

Recommendations

Recommendations for Teachers

Teachers should be aware that students' self-efficacy beliefs are strongly correlated with their achievements, as well as the correlation between attitudes toward mathematics and achievement. In these research findings, the students have high attitudes toward mathematics which mean that the students have high positive feelings on mathematics. However, their

mathematics self-efficacy beliefs and achievements scores are moderate and it can be considered that they have low confidence in mathematics and they are not able to do well in learning mathematics. . Teachers should be aware that the four subscales of self-efficacy, mastery experiences, vicarious experience, social persuasion, and physiological factors are have a strong impact on learning in mathematics of students. According to the findings of this study, Grade 10 students of A Len Bum IDPs High School in Kachin State, Myanmar have the low level in social persuasion. It means that the students need the supporting and encouragement of teachers, parents, and classmates to increase their self-efficacy in mathematics. The students also have the moderate level in the other three subscales: mastery experiences, vicarious experiences, and physiological factors. From the results of this study, the researcher assumed that the students have low confidence to perform mathematics. Teachers should attempt to boost high level in all subscales of self-efficacy and to have more confidence in learning mathematics. Therefore, teachers always need to pay attention to his or her students' self-efficacy and attitudes on mathematics by comparing their mathematics test scores

Recommendation for School Administrators

The researcher assumed that the findings of this study are a big concern of the school administrators. This study showed the findings that emphasized on mathematics. According to findings of this study, the students have only moderate level self-efficacy scale and mathematics achievement. It can be considered that the students have low confidence in doing mathematics. The findings also reminded that the students need praising, supporting, and encouragement from parents, teachers, and their friends to be confident of doing mathematics. The school administers should conduct the teacher-parent meeting to concern about their self-efficacy in mathematics. The school administrators should also conduct the research study on other subjects. It is also recommended that professional development

sessions should be provided to teachers to educate how to boost the levels of mathematics self-efficacy and attitudes toward mathematics and how to promote the instructional design and learning activities.

Recommendation for Future Researchers

This study found out that there was no significant relationship of attitudes toward mathematics and mathematics self-efficacy with mathematics achievement of Grade 10 students at A Len Bun IDPs High School in Kachin State, Myanmar. But the researcher strongly recommends future researchers to investigate this study with diverse demographic factors such as age, education background, and gender. Based on this study, the future researchers might conduct these variables on other subjects such as biology, physics, chemistry, and social sciences and on different grade level. This study was only focused on one specific school in Kachin State, Myanmar, but the future researchers should determine this study in different schools in Kachin State, Myanmar.

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APPENDIX A

Attitudes toward Mathematics Questionnaire (ATMQ)

Attitudes toward Mathematics Questionnaire (ATMQ)

No. _____

Direction: Please answer the questions by placing checkmark (√) in the box corresponding for your degree of agreement or disagreement to each of the statements, using the following scale;

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

No.	**Statement**	**Respond**				
		Strongly Disagree 1	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly Agree 5**
1.	I enjoy reading about mathematics.					
2.	Making an effort in mathematics is worth it because it will help me in the work that I want to do later on.					
3.	I look forward to my mathematics lessons.					
4.	I do mathematics because I enjoy it.					
5.	Learning mathematics is worthwhile for me because it will improve my career prospects.					
6.	I am interested in the things I learn in mathematics.					
7.	Mathematics is an important subject for me because I need it for what I want to study later on.					
8.	I will learn many things in mathematics that will help me get a job.					

APPENDIX B

Attitudes toward Mathematics Questionnaire (ATMQ) (Kachin Translation Version)

M/Y	Lawng Lam	Kachyi mung myit n hkrum ai (strongly Disagree) 1	Myit n hkrum ai (Disagree) 2	Lapran tsap ai (Neutral) 3	Myit hkrum ai (Agree) 4	Grai myit hkrum ai (Strongly Agree) 5

Attitudes toward Mathematics Questionnaire (ATMQ)

No. _____

Matsun: N pu e jaw da ai mahkrek myu manga hpe lang nna ga yan ni hpe hti yu let tinang mu mada ai shara hta mahkret (√) hku nna htai ya rit.

Mahkrek:

1 = Kachyi mung myit n hkrum ai (Strongly Disagree)

2 = Myit n hkrum ai (Disagree)

3 = Lapran tsap ai (Neutral)

4 = Myit hkrum ai (Agree)

5 = Grai myit hkrum (Strongly Agree)

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1.	Ngai gaw sawn hpan a lam hti hka ja ai hpe kabu sharawng ai.					
2.	Sawn hpan hta n gun atsam bang ai lam gaw manu dan ai, hpa majaw nga yang hpang de madu galaw mayu ai bungli ni hpe galaw na matu garum shingtau ya ai.					
3.	Ngai gaw sawn hpan hte seng ai malawm (lesson) ni hpe kabu let myit mada taw ai.					
4.	Ngai gaw sawn hpan hpe ra sharawng ai majaw sawn hpan hpe galaw ai.					
5.	Sawn hpan hpe hka ja ai lam gaw ngai na matu manu dan ai, hpa majaw nga yang ngai na kan bau magam bungli a matu ahkaw ahkang hpe sha tsaw ya lu ai.					
6.	Ngai gaw sawn hpan hta na sharin la lu ai lam ni hpe myit lawm ai.					
7.	Hpang de madu hka ja mayu ai lam ni hpe hka ja lu na matu sawn hpan gaw ahkyak ai hte akyu jaw lu ai gin hpan re.					
8.	Sawn hpan hta na sharin la lu ai lam ni gaw bungli lu na matu garum shingtau ya ai.					

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APPENDIX C

Source of Mathematics Self-Efficacy Scale (SMSES)

Source of Mathematics Self-Efficacy Scale (SMSES)

No. _____

Direction: Please answer the questions by placing checkmark (√) in the box corresponding for your degree of agreement or disagreement to each of the statements, using the following scale;

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

No.	**Statement**	**Respond**				
		Strongly Disagree 1	**Disagree 2**	**Neutral 3**	**Agree 4**	**Strongly Agree 5**
1	I make excellent grade on math tests.					
2	I have always been successful with math.					
3	Even when I study very hard, I do poorly in math.					
4	I got good grades in math on my last report card.					
5	I do well on math assignments.					
6	I do well on even the most difficult math assignment.					
7	Seeing adults do well in math pushes me to do better.					
8	When I see how my math teacher solves a problem, I can picture myself solving the problem in the same way.					

(continued)

(continued)

No.	Statement	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
9	Seeing kids do better than me in math pushes me to do better.					
10	When I see how another student solve a math problem, I can see myself solving the problem in the same way.					
11	I imagine myself working through challenging math problems successfully.					
12	I complete with myself in math.					
13	My math teachers have told me that I am good at learning math.					
14	People have told me that I have a talent for math.					
15	Adults in my family have told me what a good math student I am.					
16	I have been praised for my ability in math.					
17	Other students have told me that I am good at learning math.					
18	My classmates like to work with me in math because they think I am good at it.					
19	Just being in math class makes me feel stressed and nervous.					
20	Doing math work takes all of my energy.					
21	I start to feel stressed-out as soon as I begin my math work.					
22	My mind goes blank and I am unable to think clearly when doing math work.					
23	I get depressed when I think about learning math.					
24	My whole body becomes tense when I have to do math.					

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APPENDIX D

Source of Mathematics Self-Efficacy Scale (SMSES) (Kachin Translation Version)

Source of Mathematics Self-Efficacy Scale (SMSES)

		Kachyi	Myit n	Lapran	Myit	Grai myit

No. _____

Matsun: N pu e jaw da ai mahkrek myu manga hpe lang nna ga yan ni hpe hti yu let tinang mu mada ai shara hta mahkret (√) hku nna htai ya rit.

Mahkrek:

1 = Kachyi mung myit n hkrum ai (Strongly Disagree)

2 = Myit n hkrum ai (Disagree)

3 = Lapran tsap ai (Neutral)

4 = Myit hkrum ai (Agree)

5 = Grai myit hkrum (Strongly Agree)

M/Y	Lawng Lam	mung myit n hkrum ai (strongly Disagree) 1	hkrum ai (Disagree) 2	tsap ai (Neutral) 3	hkrum ai (Agree) 4	hkrum ai (Strongly Agree) 5
1.	Ngai gaw sawn hpan hte seng ai san jep ai lam ni hta hkrak kaja dik ai hku htai lu ai.					
2.	Ngai gaw sawn hpan hta galoi mung awng dang ai lam lu la ai.					
3.	Ngai gaw sawn hpan hta grai shakut timung, sawn hpang hta gawng kya ai.					
4.	Ngai gaw lai wa sai masat sumtang (report card) hta hkrak kaja ai masat hpe lu la ai.					
5.	Ngai gaw sawn hpan hte seng ai magam lit (assignment) hpe jaw kaja ai hku galaw ai.					
6.	Ngai gaw yak dik htum ai sawn hpan magam lit (assignmet) ni hpe mung jaw kaja ai hku sha galaw ai.					
7.	Tinang hta tsang kaba sai ni sawn hpan hta ning tawn ai lam hpe mu la ai lam gaw ngai hpe sawn hpan hta grau ning tawn na matu n gun jaw ya ai.					
8.	Ngai na sawn hpan sara wa a htai ladat ni hpe yu nna, sara wa htai madun dan mat wa ai htai ladat hte maren bung pre hkra bai lu htai ai ngu tinang hkum tinang myit sumru lu ai.					
9.	Tinang hta tsang kaji ai ma ni sawn hpan hta ning tawn ai lam hpe mu la ai lam gaw ngai hpe sawn hpan hta grau ning tawn na matu n gun jaw ai.					

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M/Y	Lawng Lam	Kachyi mung myit n hkrum ai (strongly Disagree) 1	Myit n hkrum ai (Disagree) 2	Lapran tsap ai (Neutral) 3	Myit hkrum ai (Agree) 4	Grai myit hkrum ai (Strongly Agree) 5
10.	Kaga jawngma manang wa a htai ladat ni hpe yu nna, dai manang wa htai mat wa ai htai ladat hte maren bung pre hkra bai lu htai ai ngu tinang hkum tinang myit sumru lu ai.					
11.	Sawn hpan hte seng na marai atsam hpe chyam yu ai lam (challenge) ni hpe mung awng dang ai hku galaw lu ai ngu tinang hkum tinang myit lu ai.					
12.	Ngai gaw sawn hpan hte seng ai gasan ni hpe tinang hkrai sha shangut shakre la lu ai.					
13.	Ngai na sawn hpan sara gaw ngai hpe sawn hpan hte seng na hka ja ai lam hta hkrak ai ngu tsun ai.					
14.	Masha ni ngai hpe sawn hpan hta atsam rawng ai nga tsun ma ai.					
15.	Ngai na nta masha rai nga ai hpu shawng hpu ba ni gaw ngai hpe sawn hpan hta ning tawng ai nga tsun ai.					
16.	Ngai na sawn hpan hte seng ai atsam marai a majaw shakawn hkrum ai.					
17.	Kaga jawngma manang ni gaw ngai hpe sawn hpan hta ning tawn ai nga na tsun ma ai.					

(continued)

(continued)

(continued)

M/Y	Lawng Lam	Kachyi mung myit n hkrum ai (strongly Disagree) 1	Myit n hkrum ai (Disagree) 2	Lapran tsap ai (Neutral) 3	Myit hkrum ai (Agree) 4	Grai myit hkrum ai (Strongly Agree) 5
18.	Kaga jawng ma manang ni gaw ngai hpe sawn hpan hta ningtawn ai ngu shadu ai majaw sawn hpan hta galaw ra ai lam ni hta ngai hte rau galaw mayu ma ai.					
19.	Sawn hpan sharin ten hta ngai hpe myit hkyi lit li ai hte myit tsang ai lam hpe byin shangun ai.					
20.	Sawn hpan hte seng na galaw ai lam gaw ngai na n gun yawng hpe la kau ya ai.					
21.	Sawn hpan hte seng ai bungli hpe galaw na matu hpang da tai hte kalang ta myit kyi lit li ai ngu hkam sha lu ai.					
22.	Sawn hpan hte seng ai bungli ni hpe galaw ai ten hta myit lawm ai lam hpa n nga ai hte a tsawm myit lu ai lam n lu galaw ai.					
23.	Sawn hpan hpe hka ja na matu myit dat ai hte tinang hkum tinang myit kyi lit ai ngu hkam sha ai.					
24.	Sawn hpan hpe sawn ra ai shaloi ngai na hkum hkrang ni yang pu ba wa ai.					

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APPENDIX E

Questionnaire Translation Approval Forms

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Translation Approval Form (1)

1. What do you think about the survey translation? Is the translation clear and enough to understand?

-This survey translation is relevant for the participants and clear enough to understand for them.

2. Is there any phrase or grammar mistake in Kachin translation version which might make teachers confused?

-There is no any mistaken phrase or grammar in Kachin translation version so that teachers might not be confused.

3. Which part of number do you find to edit to make questionnaire clearer? Please write down the number and new sentences you find out?

- Each of questionnaire is already tidy and clear to read and understand. We, therefore, did not find out anything to edit in it.

Name: Htang San

Academic Rank: Lecturer

Highest Degree: M. Div (Master of Divinity)

Field of Degree: Theology

Work Position: Lecturer

Address: No. (251), East Lekone, Myitkyina, Kachin State, Myanmar.

Signature:

Date: 17/8/2018

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Translation Approval Form (2)

1. What do you think about the survey translation? Is the translation clear and enough to understand?

- Sure, the translation is clear and enough to understand.

2. Is there any phrase or grammar mistake in Kachin translation version which might make teachers confused?

- There is nothing any phrase or grammar mistake in Kachin translation version which might make teachers confused.

3. Which part of number do you find to edit to make questionnaire clearer? Please write down the number and new sentences you find out?

- I have no find to edit to make questionnaire clearer. It is completed and perfected survey Kachin translation version questionnaire.

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Name: Kai Nan Lahpai

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Signature:

Date: 15.8.2018

BIOGRAPHY

Personal Profile

Name: Zaw June

Date of Birth: 26. 3. 1992

Gender: Male

Nationality: Myanmar

Ethnicity: Kachin

Email: majumlahtaw@gmail.com

Religion: Christian

Educational Background

- Bachelor of Sciences in Physics (B.Sc., Phys)

Current Study

- Master of Education in Curriculum and Instruction in Assumption University, Bangkok, Thailand.

Professional Training

- Child Center Approach (CCA), Kachin Baptist Convention (KBC), Myitkyina, Kachin State, Myanmar (2011)

Professional Experience

- Part time teacher at New Ocean Private School, in Lashio, Shan State, Myanmar (2009 – 2011)
- Full time teacher at Mai Ja Yang High School, in Mai Ja Yang, Kachin State, Myanmar (2012-2014)

- Full time teacher at Nawng E Hku Mission School, in Laiza, Kachin State, Myanmar (2014 – present)

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