

AN EXPLORATION OF STUDENT TEACHERS' LEARNING STYLES AND THEIR ENGAGEMENT IN LEARNING MATHEMATICS AT SAGAING UNIVERSITY OF EDUCATION

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Abstract

The purpose of the study is to explore student teachers' learning styles and their engagement in learning mathematics at Sagaing University of Education. A cross-sectional survey was used to get the required data. The participants were (216) mathematics specialized student teachers at Sagaing University of Education during 2023-2024 Academic Year and were selected using a simple random sampling method. Learning styles questionnaire based on Grasha-Riechmann Learning Scales (GRLSS) of Grasha (1996) and the student engagement questionnaire designed on the school's questionnaire (SESQ) by Lam and Jimerson (2008) were used as instruments to collect data. A pilot study was made with (30) mathematics specialized student teachers at University for the Development of the National Races of the Union. Cronbach's alpha coefficient for the learning styles questionnaire was (.852), and Cronbach's alpha coefficient for the student engagement questionnaire was (.872). The obtained data were systematically analyzed using descriptive statistics and Spearman rank-order correlation. According to the results, most student teachers (44%) preferred the dependent learning style, and no student teacher (0%) preferred the avoidant learning style. Most student teachers (63%) had a moderate level of engagement, and the least student teachers (17.6%) had a high level of engagement. Based on the correlation results, it can be concluded that there was a positive correlation between student teachers' independent, dependent, competitive, collaborative, and participant learning styles and their engagement in learning mathematics. Thus, student teachers will be motivated to engage in learning activities that lead to improved educational outcomes if they have the opportunity to learn in their preferred learning styles.

Keywords: learning, student teachers, learning style, student engagement, mathematics

Introduction

Nowadays, mathematics plays a predominant role in everyday life. Learning mathematics helps students think analytically and have better reasoning abilities. To educators, learning is a very complex and perplexing problem. To laymen, however, learning has always been a rather simple matter. Learning has been variously described as an accumulation of knowledge, improvement in an activity, solving a problem, and adjustment to changing situations. Khin Zaw (2001) urged that learning is generally defined as the process by which behavior is developed or altered through practice or experience.

Importance of the Research

One of the biggest challenges in learning is for individuals to take responsibility for their learning style. If learners take responsibility for their learning style, they attribute meaning to the process of learning, leading to effective learning. When students feel motivated in their learning styles, they progress in their academics. Students' learning styles and student engagement play a vital role to promote and increase learning and developmental growth (Nzesei, 2015). Education aims to promote learning. To make learning successful, educators should incorporate diversity into their styles of teaching to satisfy different learners. Teaching cannot be successful without

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knowledge of learning styles. An understanding of learning styles helps educators and learners to become successful in the endeavor of teaching the learning process. Therefore, the study is an attempt to investigate and find out student teachers' learning styles and their engagement in mathematics learning process at Sagaing University of Education.

Purpose of the Research

The purpose of the research is to explore student teachers' learning styles and their engagement in learning mathematics at Sagaing University of Education.

Objectives of the Research

The objectives of the research are as follows:

1. to investigate the different types of learning styles preferred by student teachers at Sagaing University of Education.
2. to explore the levels of student teachers' engagement in learning mathematics at Sagaing University of Education.
3. to examine the relationship between student teachers' learning styles and their engagement in learning mathematics at Sagaing University of Education.
4. to give suggestions and recommendations for improving student teachers' learning and engagement based on the results of the study.

Research Questions

In referring to the research objectives, the following research questions are laid down.

1. What are the different learning styles of student teachers in learning mathematics at Sagaing University of Education?
2. How do student teachers at Sagaing University of Education describe the levels of engagement in learning mathematics?
3. To what extent does the relationship exist between the learning styles of student teachers and their engagement in learning mathematics at Sagaing University of Education?

Scope of the Research

The study was restricted to Sagaing University of Education. Participants in the study were (216) student teachers who specialized in mathematics during 2023-2024 academic year.

Definition of Key Terms

The definition key terms of the research are as follows:

Learning: Learning is defined as a process that leads to change, which occurs as a result of experience and increases the potential for improved performance and future learning (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010).

Student Teachers: Student teachers are university students enrolled in a teacher preparation program (Wilkins, 2022).

Learning Style: Learning style is the composite of cognitive, affective, and psychological characteristics that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment (Doherty & Maddux, 2002).

Student Engagement: Student engagement means a condition of students' emotional, social, and intellectual readiness to learn characterized by curiosity, participation, and the drive to learn more (Abla & Fraumeni, 2019).

Mathematics: Mathematics is the study of the measurement, relationships, and properties of quantities and sets, using numbers and symbols (The American Heritage, 2011).

Review of Related Literature

The brain of a person receives information through all the five senses. Among the five, three senses that are eyes, ears, and skin help the most in forming the learning style. Learning style is a group of characteristics, attitudes, and behaviors that define the way of learning. Learning style is a particular way in which the mind receives and processes information. It is an integral concept that bridges the personality to the cognitive dimensions of an individual. Student engagement in school is an important construct that has been associated with student success. Engagement is a growth-producing activity through which an individual allocates attention in response to the environment (Csikszentmihalyi, 1990).

Theoretical Background of the Study

Piaget learning theory is also built on the idea that children's intelligence changes and develops as they get older. This learning theory breaks children's cognitive development down into four key stages: Sensorimotor stage (From birth to 2 years, children learn and understand the world through their senses and movements), Preoperational stage (From 2 to 7 years old, children develop language and begin symbolic play – using objects to represent other objects), Concrete operational stage (From 7 to 11 years old, logical thought develops, but children struggle with abstract or theoretical thought), and Formal operational stage (From 12 years into adulthood, children become more skilled at abstract thought and deductive reasoning). According to Gunuc and Kuzu (2014), behavioral engagement can be referred to as students' involvement in social and academic activities which leads to positive academic outcomes, emotional engagement concerns the relationships and reactions to teachers, peers, and staff that will enhance the love for learning, and cognitive engagement is about the concepts and skills of deep learning.

Concept of Learning Style

Learning style represents the classroom conditions under which someone prefers to learn. Much has been written about how some learners are more global (focusing on the big picture) than analytic (studying the details) in how they approach learning. Visual learners remember visual details and prefer to see what is being learned. Verbal learners enjoy discussion and like to talk aloud and discuss material in groups. Reflective learners learn best when time is allocated to thinking about and digesting new information. Sensory learners like to learn by touching and feeling objects and models. Intuitive learners prefer discovering new relationships and can innovate in their approaches to problem-solving. Sequential learners like to start from the beginning, knowing the detailed facts first and then building on these. Global learners may be able to solve complex problems quickly or put things in novel ways once they have grasped the bigger picture but may have difficulty explaining how they did it (Kivunja, 2015).

Grasha-Riechmann's Learning Styles Scale (GRLSS)

The areas of specialization of Anthony Grasha who is a Professor of Psychology at the University of Cincinnati are cognitive and social processes in human behavior, learning and teaching styles, cognitive processes in stress and coping, and conflict resolution. Grasha and Riechmann consider learning styles as social interactions. In 1974, Anthony Grasha and Sheryl Reichmann formulated the Grasha-Reichmann Learning Style Scales (GRLSS); namely,

dependent, independent, and cooperative styles. Later on, Grasha (1996) further developed the scale to identify and categorize student learning behavior preferences as Independent, Dependent, Competitive, Collaborative, Avoidant, and Participant. The following are general descriptions of each of these preferences.

(1) Independent Learning Style

Independent students prefer independent study, self-paced instruction, and working alone on course projects rather than with other students. They like to think for themselves and are confident in their learning abilities: and they prefer to learn the content they feel is important. They are confident learners who do not need to confer with others. Independent learners relish the opportunity to think for themselves.

(2) Dependent Learning Style

Dependent learners look to teachers and peers as a source of structure and guidance and prefer authority figures to tell them what to do. They show little intellectual curiosity and learn only what is required. Dependent students dislike change. Lacking intellectual curiosity, they tend to learn only what is required to get by and become frustrated if they are asked to explore ideas that are not fully explained in the classroom.

(3) Competitive Learning Style

Competitive students learn to perform better than their peers. They see the classroom as a win-lose situation in which they must win. Believe that they must compete with other students in a course for the rewards offered. They like to be the center of attention and receive recognition for their accomplishments in class. Competitive students are mistrustful of their peers and prioritize learning as a way to outperform other students in their class.

(4) Collaborative Learning Style

Collaborative learners learn through sharing and cooperating with their teacher and peers in small group discussions and group projects. Typical of students who feel that they can learn by sharing ideas and talents. They also cooperate with teachers and like to work with others. In direct contrast to competitive learners, collaborative students work in harmony with their peers and blossom as part of a team.

(5) Avoidant Learning Style

Avoidant students tend to perform poorly, achieving grades at the lower end of the spectrum. They are unenthusiastic about learning content and do not engage with other students or teachers. They are reluctant to learn and uninterested in participating in class activities with their teachers and peers. They do not enjoy learning and generally try to avoid it at all costs. They are uninterested and overwhelmed by what goes on in class. They may not even want to attend class.

(6) Participant Learning Style

Participant learners are eager to learn and enjoy classroom activities and discussions, and good citizens in class. They take responsibility for their learning and are eager to do as much class work as possible. They are highly motivated to meet the teacher's expectations, enjoy going to class, and take part in as many of the course activities as possible, both required and optional.

Student Engagement

Student engagement is a multidimensional construct that predicts learning performance. Both cognitive and emotional factors are influential in achievement in mathematics and retention. Students with learning engagement will gain more enjoyable classroom experiences, learn more, and perform better in mathematics. It is also important that student engagement in higher education is defined in a way that covers the processes of campus engagement and class engagement.

Student engagement in higher education has certain differences when compared to student engagement in other school levels, especially in the context of campus or social life. It was observed that the campus itself and campus activities have indirect effects on students, especially in higher education (Gunuc, 2013). Such concepts as giving value to campus (university) or to education, a sense of belonging, and participation in campus activities are considered to be among the important parts of student engagement. Willms (2003) defines engagement as students' sense of belonging, accepting the value of school, and active participation in school activities.

Class engagement is made up of three interdependent components – behavioral, emotional, and cognitive, whose compound effect reflects students' positive approach to learning and responses to in-class and out-of-class activities.

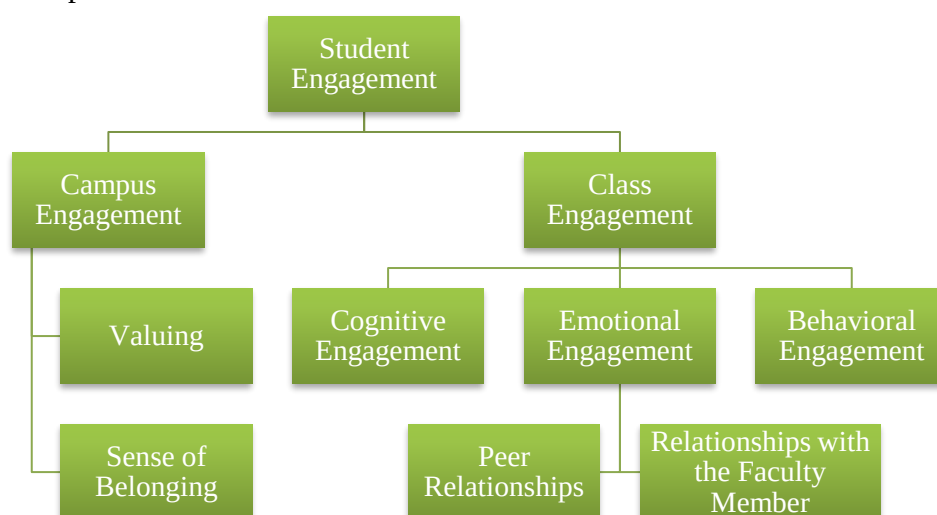


Figure 1. Student engagement structure (Gunuc & Kuzu, 2014).

Engagement has three facets – behavioral (participation in academic, social, and extra-curricular activities), emotional (affective ties with teachers and classmates), and cognitive (deliberate efforts to master complex problems and skills).

(1) Behavioral Engagement

Behavioral engagement consists of students' active engagement in learning and academic tasks, including behaviors such as effort, persistence, and focus, asking questions, and contributions to class discussions (Gunuc & Kuzu, 2014). The basics of behavioral engagement could be said to be related to class activities.

(2) Affective Engagement

Affective engagement refers to indicators such as the presence of interest and happiness and the lack of boredom, anxiety, and sadness. Affective or Emotional engagement involves

students' responses to the teacher, peers, course content, and the class which all include attitudes, interests, and values (Bryson & Hand, 2007). In addition, such emotions as a sense of belonging to the university, loving the university, and feeling oneself to be a member of a group are also examined within the scope of emotional engagement.

(3) Cognitive Engagement

Cognitive engagement refers to investment in learning and involves aspects such as willingness and thoughtfulness to expand the effort required to understand and master difficult tasks, the use of appropriate learning strategies, challenge preference, and self-regulation (Li & Lerner, 2011). Cognitive engagement includes value given to learning, learning goals, self-regulation, and planning. Cognitive engagement refers to students who invest in their learning, who determine their needs, and who enjoy mental difficulties.

Methods

This section describes the research design, population and sample size, instruments, procedure, and analysis of the data.

Research Design

To carry out the research, a cross-sectional survey which is one of the survey research designs was used to delve into student teachers' learning styles and their engagement in learning mathematics at Sagaing University of Education.

Population and Sample Size

The population for the study is student teachers who specialize in mathematics at Sagaing University of Education during 2023-2024 Academic Year. Among them, the participants were selected by using a simple random sampling method.

Table 1 Population and Sample

	Population	Sample
Student Teachers (Specialized in Mathematics)	356	216
Total	356	216

Instruments

To examine the learning styles that student teachers applied or the dominant learning style they have, a learning style questionnaire that was taken Grasha-Riechmann Learning Styles Scales (GRLSS) of Grasha (1996) was used. To explore student teachers' engagement, a student engagement questionnaire that was designed on student engagement in school's questionnaire (SESQ) by Lam and Jimerson (2008) was administered.

Procedure

Firstly, related literature to the study was explored and collected from various sources such as reference books, journals, theses, and internet sources. To be able to collect data about student teachers' learning styles and their engagement, the instruments – namely, the learning styles questionnaire and student engagement questionnaire were developed. For expert validation, copies of the instruments were distributed to three experienced teachers. Then, the questionnaire items were refined and jumbled by expert opinions and suggestions. Before conducting the main study, the questionnaire was tested for its validity and reliability with thirty

student teachers who are specializing in mathematics and are attending in 2023-2024 academic year at University for the Development of the National Races of the Union. The reliability value of Cronbach's alpha coefficient for the learning styles questionnaire was (.852), and the reliability value of Cronbach's alpha coefficient for the student engagement questionnaire was (.872) respectively. After pilot testing, the items of the questionnaires were reviewed and modified. After piloting, the main study was carried out with two hundred and sixteen student teachers who specialize in mathematics at Sagaing University of Education in 2023-2024 academic year. Finally, the collected data was analyzed, and findings and interpretations were presented.

Analysis of the Data

The computer program, namely, Statistical Package for Social Sciences (SPSS) version 23, will be utilized to analyze the data. Descriptive statistics will be used to analyze student teachers' different learning styles and their engagement levels in learning mathematics. Spearman rank-order correlation will be applied to determine if a relationship exists between two variables: the learning styles of student teachers and student teachers' engagement.

Findings

This section describes the quantitative findings of the research.

Findings for the Different Types of Learning Styles Preferred by Student Teachers

To look into the different types of learning styles preferred by student teachers in learning mathematics, descriptive statistics was used. The mean for each learning style is shown in Table 2.

Table 2 Mean and Standard Deviation for the Different Types of Learning Styles

Types of Learning Styles	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>M</i>	<i>SD</i>
Independent Learning Style	216	22	37	30.70	3.68
Dependent Learning Style	216	26	39	34.09	2.32
Competitive Learning Style	216	11	37	26.71	5.64
Collaborative Learning Style	216	25	40	33.87	3.44
Avoidant Learning Style	216	8	24	17.06	4.29
Participant Learning Style	216	24	39	31.76	3.09

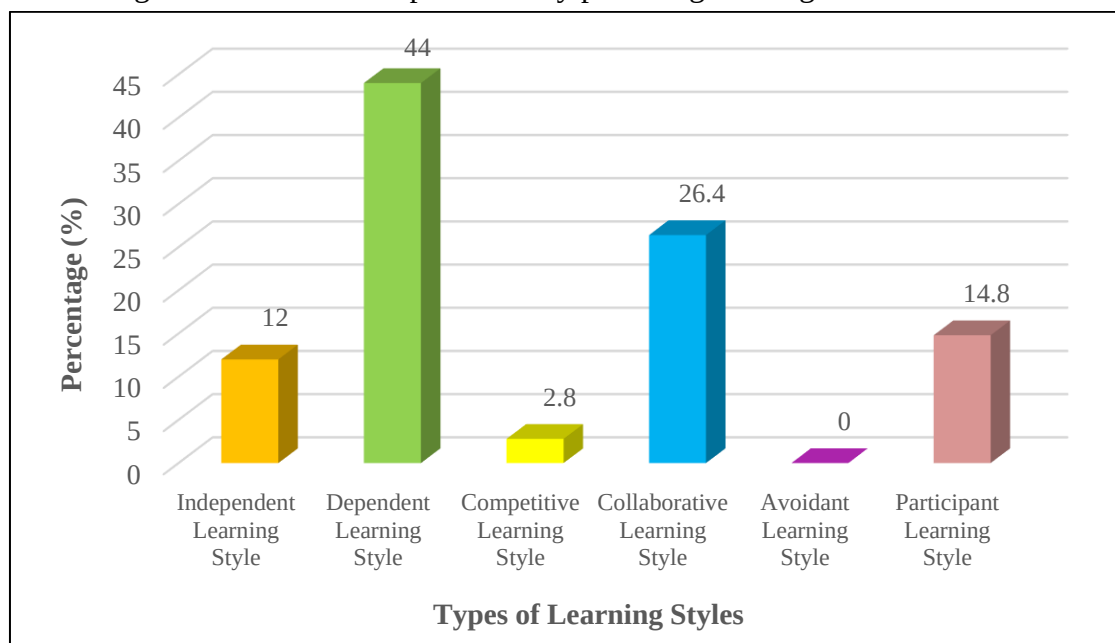
According to Table 2, it was found that the dependent learning style had the highest mean (34.09), and the avoidant learning style had the lowest mean (17.06) among the six learning styles. It means that the dependent learning style was a learning style that was mostly used by student teachers in learning mathematics.

The distribution of student teachers' preferences of learning styles is described by descriptive statistics. The mean, percentage, and standard deviation for each learning style are shown in Table 3.

Table 3 Distribution of Student Teachers by the Different Types of Learning Styles

Types of Learning Styles	<i>n</i>	Percentage	Minimu	Maximum	<i>M</i>	<i>SD</i>
Independent Learning Style	26	12	34	37	35.85	1.49
Dependent Learning Style	95	44	30	37	34.17	1.81
Competitive Learning Style	6	2.8	28	32	29.67	1.63
Collaborative Learning Style	57	26.4	32	40	36.46	3.09
Avoidant Learning Style	0	0	-	-	-	-
Participant Learning Style	32	14.8	26	39	35.88	3.01

Among two hundred and sixteen student teachers, Table 3 shows that (44%) of student teachers preferred the dependent learning style, and (0%) of student teachers preferred the avoidant learning style. To see at a glance, the distribution of student teachers for each learning style in learning mathematics was represented by percentages in Figure 2.

**Figure 2.** Percentage of student teachers on each learning style.

The number of Student Teachers with different learning styles in terms of subject combination and gender is shown in Table 4.

Table 4 Number of Student Teachers with Different Learning Styles in terms of Subject Combination and Gender

Subject Combination	Gender	Number of Student Teachers					
		ILS	DLS	CLS	COLS	ALS	PLS
1. Mathematics, Chemistry, Physics	Male	3	11	-	4	-	2
	Female	3	16	1	8	-	3
2. Mathematics, Chemistry, Biology	Male	1	3	-	2	-	1
	Female	2	9	1	3	-	3

Subject Combination	Gender	Number of Student Teachers					
		ILS	DLS	CLS	COLS	ALS	PLS
3. Mathematics,	Male	2	8	-	3	-	2
Physics,	Female	3	12	-	7	-	2
Biology							
4. Mathematics,	Male	-	1	-	1	-	1
Geography,	Female	2	1	1	3	-	3
History							
5. Mathematics,	Male	2	-	1	4	-	3
Geography,	Female	3	6	-	5	-	3
Economics							
6. Mathematics,	Male	1	7	-	2	-	3
History,	Female	1	10	1	8	-	2
Economics							
7. Mathematics,	Male	-	2	-	1	-	1
Chemistry,	Female	-	-	-	1	-	1
Economics							
8. Mathematics,	Male	2	2	1	2	-	1
Physics,	Female	1	7	-	3	-	1
Economics							

Note. ILS = Independent Learning Style
DLS = Dependent Learning Style
CLS = Competitive Learning Style
COLS = Collaborative Learning Style
ALS = Avoidant Learning Style
PLS = Participant Learning Style

Findings for Student Teachers' Engagement in Learning Mathematics

Student teachers' engagement in learning mathematics was analyzed by descriptive statistics. The mean for student teachers' engagement is described in Table 5.

Table 5 Mean and Standard Deviation for Student Teachers' Engagement

<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>M</i>	<i>SD</i>
216	84	117	101.19	8.49

The student teachers' engagement is identified as high-level ($X > \bar{X} + 1 \text{ SD}$), moderate level ($\bar{X} - 1 \text{ SD} < X < \bar{X} + 1 \text{ SD}$), and low-level ($X < \bar{X} - 1 \text{ SD}$) based on Mean $\pm$ 1 SD. If the engagement result of student teachers is larger than (109.68), it is assigned as those student teachers have a high level of engagement. If the engagement result of student teachers is less than (92.7), it is assigned as those student teachers have a low level of engagement. In addition, if it is between (92.7) and (109.68), it is assigned as these student teachers are moderate level of engagement.

Table 6 Levels of Student Teachers' Engagement

Engagement Level	Frequency	Percentage (%)
Low Level	42	19.4
Moderate Level	136	63.0
High Level	38	17.6

According to Table 6, it can be interpreted that most student teachers had a moderate level of engagement in learning mathematics.

Findings for Student Teachers' Learning Styles to Their Engagement in Learning Mathematics

The relationship between each type of learning style and the engagement of student teachers was delved into using the Spearman rank-order correlation.

Table 7 Correlation between Student Teachers' Learning Styles and their Engagement

	Spearman's rho	Engagement
Independent Learning Style	Correlation Coefficient	.917**
	Sig (2-tailed)	.000
	N	26
Dependent Learning Style	Correlation Coefficient	.622**
	Sig (2-tailed)	.000
	N	95
Competitive Learning Style	Correlation Coefficient	.531(ns)
	Sig (2-tailed)	.278
	N	6
Collaborative Learning Style	Correlation Coefficient	.527**
	Sig (2-tailed)	.000
	N	57
Avoidant Learning Style	Correlation Coefficient	.
	Sig (2-tailed)	.
	N	0
Participant Learning Style	Correlation Coefficient	.505**
	Sig (2-tailed)	.003
	N	32

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

ns = not statistically significant.

Based on the results of the correlation, it can be concluded that there was a positive correlation between student teachers' independent learning styles, dependent learning style, competitive learning style, collaborative learning style, participant learning style, and their engagement in learning mathematics. Therefore, there was an increase in student teachers' engagement accompanied by an increase in student teachers' learning styles.

Discussion

The following points are discussed as the results of the study.

Discussion for Research Question 1

According to the results of the study, dependent learning style had the highest mean (34.09) and avoidant learning style had the lowest mean (17.06) among six learning styles – independent learning style, dependent learning style, competitive learning style, collaborative learning style, avoidant learning style, and participant learning style. Among six different learning styles, most student teachers (44%) preferred the dependent learning style and no student teacher (0%) preferred the avoidant learning style. The result of this research was also in line with the findings of Cardino and Ortega-Dela Cruz (2020) in which the most preferred learning style was dependent learning style and the least preferred learning style was avoidant learning style among two hundred and seventy-seven ninth grade students. Most students had dependent learning style preferences due to the nature of the subject. Most students may depend heavily on teachers and friends for learning tasks. Some students may find group work enjoyable, some may be attentive and responsive to coursework requirements, some may emphasize high marks and attention from teachers and some may prefer to work alone and need little direction or attention from teachers. Therefore, teachers need to understand different ways in which students acquire, retain, and apply knowledge learned to be able to adapt instruction to students' different styles of learning.

Discussion for Research Question 2

The results of the study showed that among two hundred and sixteen student teachers, most student teachers (63%) had a moderate level of engagement and the least student teachers (17.6%) had a high level of engagement. The findings support the study of Lam and Jimerson (2008) that affective, behavioral, and cognitive engagement in school is an important construct associated with student success. It can be viewed as an asset associated with positive student outcomes, and a happy classroom atmosphere. When student teachers have a good relationship with their teachers and classmates and feel a sense of belonging to their school (affective engagement), they may be more likely to participate in class discussions and activities (behavioral engagement), and over time this can lead to a stronger commitment and investment in their learning (cognitive engagement). Therefore, teachers should have high expectations for student learning, positive teacher-student relationships, and enthusiasm for teaching to promote student teachers' behavioral, affective, and cognitive engagement in learning mathematics.

Discussion for Research Question 3

The correlation results indicated that there was a positive correlation between student teachers' independent learning style, dependent learning style, competitive learning style, collaborative learning style, participant learning style, and their engagement in learning mathematics. Therefore, there was an increase in student teachers' engagement accompanied by an increase in student teachers' learning styles. The finding of this study is similar to the study of Halif et al., (2018) whose result is that there is a significant positive relationship between students' learning style and their engagement. Student engagement can be improved when teachers use effective pedagogy that is relevant to the student's preferred learning styles in the classroom, and when students are engaged, they learn more and perform better. Teachers should

prepare various learning activities that can give students multiple learning experiences to meet their preferred learning styles.

Recommendations

Based on the research findings, some recommendations can be made for further research studies.

- (1) To carry out this study, participants were randomly selected from Sagaing University of Education. Therefore, further studies should be conducted in other universities of education and education degree colleges. As the sample size was limited in this study, the results cannot be generalized to a larger population. Further studies should be carried out about this problem with a larger sample.
- (2) This study was conducted by classifying student teachers' learning preferences by Grasha-Riechmann Learning Styles Scales (GRLSS). Other studies can be implemented with other different classifications of learning styles.
- (3) This study explored the relationship between student teachers' learning styles and their engagement in learning mathematics using a cross-sectional survey research design. Further studies can be conducted with other research designs to get more reliable data.
- (4) This study was carried out with student teachers who are specialized in learning mathematics. Other studies can be conducted with other participants who are specialized in learning other subjects.
- (5) In addition, further study can be investigated to explore the moderating factors (learner motivation, teachers' teaching styles, culture, and student behavior) between student teachers' learning styles and their engagement in learning mathematics.

Conclusion

Education is an essential and indispensable part of human life (Aggarwal, 2010). Teachers play a vital role in ensuring quality education delivery. Teachers use various methods such as lectures, small group activities, and hands-on learning activities to dispense knowledge to students. Effective teaching and learning cannot occur without a congenial classroom environment and student engagement.

This study was carried out to explore student teachers' learning styles and their engagement in learning mathematics at Sagaing University of Education. In line with the objectives of the study, a cross-sectional survey was carried out. To achieve these objectives, three research questions were set down. The data were collected from two hundred and sixteen student teachers who specialized in mathematics at Sagaing University of Education during 2023-2024 academic year by using two research instruments, namely, a questionnaire for student teachers' learning style and a questionnaire for student teachers' engagement in learning mathematics. The collected data were analyzed by using descriptive statistics and Spearman rank-order correlation. It was found that the findings of the study serve the intended research purpose and research questions of the study.

In investigating the different types of learning styles preferred by student teachers in learning mathematics at Sagaing University of Education, the results revealed that student teachers' most preferred learning style was dependent learning style and student teachers' least

preferred learning style was avoidant. Educators can use this awareness to maximize student learning and support effective education by developing teaching methods that incorporate various learning styles.

In exploring the levels of student teachers' engagement in learning mathematics at Sagaing University of Education, it was found that most student teachers had a moderate level of engagement and the least student teachers had a high engagement level. Engaged students tend to perform better academically, develop important skills, and enjoy class more.

In examining the relationship between student teachers' learning styles and their engagement in learning mathematics at Sagaing University of Education, the findings showed that there was a statistically significant strong positive correlation between student teachers' independent learning style and their engagement in learning mathematics, and there was a statistically significant moderate positive correlation between student teachers' dependent learning style, collaborative learning style, participant learning style, and their engagement in learning mathematics. Then, there was a moderate positive correlation between student teachers' competitive learning style and their engagement in learning mathematics, but not statistically significant. Thus, teachers should use different teaching strategies and provide multiple learning experiences that will meet student teachers' different learning styles. When students have the opportunity to learn in their preferred ways, they will be motivated to engage in learning activities that lead to improved educational outcomes.

Teachers can learn student teachers' learning styles, strengths, interests, goals, challenges, and backgrounds by using questionnaires, surveys, interviews, portfolios, or other tools. According to the engagement of students, teachers can use their interests, strengths, and learning preferences in designing relevant and meaningful tasks to create appropriate learning opportunities. Overall, an awareness of learning style and student engagement is meaningful when used as a self-development guideline for both teacher and student. To stimulate student learning engagement, teachers should use a variety of teaching styles to accommodate or stimulate the learning styles of students. In this way, teachers can maximize student learning, keep the instruction fresh and more engaging for students, and support an effective education system by developing teaching methods that incorporate various learning styles.

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