

HIGH SCHOOL STUDENTS' MOTIVATED STRATEGIES FOR LEARNING AND STUDENT ENGAGEMENT

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Abstract

The main purpose of this study was to investigate high school students' motivated strategies for learning and student engagement. Descriptive survey method and quantitative research designed were used. A total of 435 students (Grade10 and 11) from 5 districts in Yangon region. The Motivated Strategies for Learning Questionnaire (MSLQ) and Student Engagement Instrument (SEI) were used as the research instrument. The alpha value for MSLQ and SEI were (.757) and (.780) respectively. In this study, female had significant higher mean scores in motivated strategies for learning than male. And, STEAMS 1 (Bio:) students were significant higher mean scores in expectancy component than STEAMS 2 (Eco:) students. Then, STEAMS 2 (Eco:) students were significant higher mean scores in affect component than STEAMS 1 (Bio:) students. Moreover, students from school 5 were significant higher mean scores in motivated strategies for Learning than those from school 1, 2, 4 and 7. Again, female were significant higher mean scores in student engagement than male. And, there were no significant differences in student engagement by subject combination. But, STEAMS 2 (Eco:) students were significant higher mean scores in teacher-student relationships than STEAMS 1 (Bio:) students. Besides, students from school 5 were significant higher mean scores in student engagement than those from school 2 and 7. The results indicated that high school students' motivated strategies for learning were moderate positively related with student engagement ($r = .672, p < 0.001$). It can be said that the higher the high school students' motivated strategies for learning, the higher the student engagement. By the regression analysis, adjusted R^2 was .519. The value, expectancy and resource management were the strong predictor of student engagement. This study could be used by Department of Basic Education (DBE) to support for improving high school students' motivated strategies for learning and student engagement.

Keywords: Motivated Strategies for Learning Questionnaire, Student Motivation, Student Engagement

Introduction

Students are future citizens who can become "Nation's most need." Learners' interest in lessons can offer academic achievement for them. The negative learning environment and dissatisfaction of students in the classroom make the obstacles of students' motivation. Schools were closed worldwide during COVID-19 pandemic, so most students lost opportunities to learn the lessons with friends in the classroom. Although teachers make effort to teach students, some students have boredom, aggression to others, disruptive behavior which lead to be students as lack of engagement in the classroom. Consequently, disengaged students have conflicts with teachers including their parents, the loss of mutual respect and violence to others which create stress for teachers. Perie, Rebecca, Anthony and Lutkus (2005) agreed that students' low engagement with academic activities would contribute to their dissatisfaction, negative experience, and dropping out of school (as cited in Halif et al., 2020). There are classroom challenges which are full of problems in the classroom, like the students' not accomplishing the tasks, not actively participating in classroom activities and disappointment in the lessons. Subsequently, the unmotivated students may use drugs, deal with criminals, and absent for school days. Finally, these students may drop out of school. Motivation and engagement have been described as students' energy and drive to

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engage, learn, work effectively, and achieve to their potential at school and the behaviors that follow from this energy and drive.

Purpose of the Study

The main purpose of this study is to examine high school students' motivated strategies for learning and student engagement.

Research Questions

This study is guided by the following research questions;

1. Are there any significant differences in student motivation and learning strategies by gender, subject combination and schools?
2. Are there any significant differences in student engagement by gender, subject combination and schools?
3. Are there the relationships between high school students' motivated strategies for learning and student engagement?
4. Does students' motivation and learning strategies predict student engagement?

Definitions of Key Terms

Student Motivation. Student motivation is defined as a process where the learners' attention becomes focused on meeting their scholastic objectives and their energies are directed towards realizing their academic potential (Christophel, 1990).

Student Engagement. Student engagement refers to a “student's willingness, need, desire and compulsion to participate in, and be successful in, the learning process promoting higher level thinking for enduring understanding” (Bomia et al., 1997).

Review of Related Literature

Motivation can be something that keeps us ‘moving’. Motivation can also be a feeling of satisfaction/success when being engaged in worthwhile learning. Beer et al. (2010) state that motivation is considered an essential element to engage learners and thereby enhance students' learning experiences (as cited in Gedera & Williams, 2015). **Self-determination Theory (SDT)** is a theory of human motivation to explain students' classroom behavior, learning process, and relationship with the environment (Núñez & León, 2015). SDT focuses on intrinsic motivations and the basic psychological needs (Deci & Ryan, 2012).

Motivated Strategies for Learning

Teaching strategies can influence intrinsic motivation. Intrinsic motivation, also known as self-motivation, refers to influences that originate from within a person which cause a person to act or learn. There are essentially two sections to the MSLQ, a motivation section, and a learning strategies section. The motivation section consists of students' goals and value beliefs for a course. The learning strategy section includes students' use of different cognitive and metacognitive strategies. In addition, the learning strategies section concern student management of different resources.

Motivational Scale

There are three components in motivational scale such as value, expectancy and affect components. Value component includes three subscales which are intrinsic goal orientation, extrinsic goal orientation and task value. Intrinsic goal orientation concerns the degree to which

the student perceives herself to be participating in a task for reasons such as challenge, curiosity, and mastery. Extrinsic goal orientation concerns the degree to which the student perceives herself to be participating in a task for reasons such as grades, rewards, performance, evaluation by others, and competition. Task value refers to the student's evaluation of the how interesting, how important, and how useful the task is (Duncan & McKeachie, 1991). Expectancy Component composed of two subscales, control learning belief and self-efficacy for learning and performance. Control learning beliefs refers to students' beliefs that their efforts to learn will result in positive outcomes (Duncan & McKeachie, 1991). Self-efficacy for learning and performance includes judgments about one's ability to accomplish a task as well as one's confidence in one's skills to perform that task (Duncan & McKeachie, 1991). Only one subscale of affect, test anxiety has been found to be negatively related to expectancies as well as academic performance. Test anxiety is thought to have two components: a worry, or cognitive component, and an emotionality component (Duncan & McKeachie, 1991).

Learning Strategy

The two important components of learning strategies are cognitive and meta-cognitive strategies and resource management. Cognitive and meta-cognitive strategies include rehearsal, elaboration, organization, critical thinking and metacognitive self-regulation. Basic rehearsal strategies involve reciting or naming items from a list to be learned. Elaboration strategies include paraphrasing, summarizing, creating analogies, and generative note-taking. These help the learner integrate and connect new information with prior knowledge. Organization strategies are clustering, outlining, and selecting the main idea in reading passages. Critical thinking refers to the degree to which students report applying previous knowledge to new situations in order to solve problems, reach decisions, or make critical evaluations with respect to standards of excellence. Metacognition in metacognitive self-regulation in which refers to the awareness, knowledge, and control of cognition (Duncan & McKeachie, 1991). Resource management (component) includes time and study environment management, effort regulation, peer learning and help seeking. Time and study environment management involves scheduling, planning, and managing one's study time. Effort management is self-management, and reflects a commitment to completing one's study goals, even when there are difficulties or distractions (Pintrich, Smith, Garcia & McKeachie, 1991). Peer learning is that collaborating with one's peers has been found to have positive effects on achievement. Dialogue with peers can help a learner clarify course material and reach insights one may not have attained on one's own (Boud, Cohen & Sampson, 1999). Help Seeking includes both peers and instructors. Good students know when they don't know something and are able to identify someone to provide them with some assistance (Duncan & McKeachie, 1991).

Student Engagement

According to Kuh (2009), student engagement is generally defined as the term usually used to represent constructs such as quality of effort and involvement in productive learning activities (Reeve et al., 2004, as cited in Abd Hamid, 2016). There are five components in student engagement such as teacher- student relationships, control and relevance of schoolwork, peer support for learning, a future aspiration and goal and family support for learning. Positive teacher-student relationships motivate teachers to devote additional time and resources (Hamre & Pianta, 2001). Teachers who feel enthusiastic about their work are able to foster higher student motivation and better learning outcomes (Keller et al., 2014, as cited Aldrup et al., 2018). Control refers to

the extent to which students feel that they have control over their learning, they are more likely to be engaged and motivated, which can lead to better academic outcomes (Connell & Wellborn, 1991). Relevance refers to the degree to which students perceive that the material they are learning is meaningful and applicable to their lives (Ainley & Hidi, 2014). Peer support for learning is the process of students helping each other learn, grow and succeed academically. It can take many forms, such as tutoring, mentoring, study groups, and collaborative projects (Roscoe & Chi, 2007). A future aspirations and goals for students are to develop strong communication and interpersonal skills, which are essential for success in both personal and professional life. A study by Epstein (2001, as cited in Hill, 2015) found that parental involvement of family support for learning in education can take many forms, including volunteering at school, attending parent-teacher conferences, and helping with homework. The study found that when parents are involved in their children's education, students are more likely to have better attendance, higher grades, and higher test scores.

Method

Descriptive survey method and quantitative research design were used in this study.

Participants

The sample of this study consists of 435 students (High school students) from seven Basic Education Schools in Yangon Region. The participants of this study were chosen from five districts of Yangon region. The sample for this study is described in the following table (See Table 1).

Table 1 Characteristics of the Collected Number of Participants in Yangon Region

No	School	Districts	Students		Subject Combination		Total
			Grade 10	Grade 11	STEAMS 1	STEAMS 2	
1	School 1	Mayangone	31	29	25	35	60
2	School 2	Thingangyun	29	34	25	38	63
3	School 3	Thanlyin	35	30	35	30	65
4	School 4	Kyauktadar	44	21	42	23	65
5	School 5	Mayangone	30	30	34	26	60
6	School 6	Mayangone	30	30	30	30	60
7	School 7	Hlegu	31	31	31	31	62
	Total		230	205	222	213	435

Note. STEAMS= Science, Technology, Engineering, Arts, Mathematics and Sports

Instruments

The Motivated Strategies for Learning Questionnaire (MSLQ) of Hilpert et al. (2013) developed from the original MSLQ (Pintrich et al., 1991). It contains 81 items and two sections

with 5 components. Eight of the 81-items are reverse scored (No. of items for 51, 58, 65, 69, 70, 71, 73 and 78). The motivation section of the MSLQ includes 31 items and the learning strategies section of it includes 50 items. This questionnaire (MSLQ) involves five-point Likert scale and Cronbach's alphas was .757. Student Engagement Instrument (SEI) of Betts et al. (2010) contains 33 items and 5 subscales; 9 items in teacher-student relationships, 9 items in control and relevance of school work, 6 items in peer support for learning, 5 items in a future aspiration and goals, and 4 items in family support for learning. This questionnaire (SEI) concerns four-point Likert scale. Cronbach's alphas was .780.

Data Collection

The pilot study was conducted during the first week of December, 2022 with the sample of 60 students (Grade 10 and 11) from No. (4) Basic Education High School, Insein Township in Insein district. For real data collections, test administration was conducted on last week of January, 2023 by paper surveys.

Results of the Study

To investigate the components of high school students' motivation and learning strategies, the descriptive analysis was conducted and the data were showed in Table 2.

Table 2 Descriptive Analysis for Components of High School Students' Motivated Strategies for learning

Variables	N	No. of Items	Minimum Scores	Maximum Scores	Mean Mean	Mean %	SD
Value	435	14	23	69	55.39	79.13	6.550
Expectancy	435	12	26	60	44.48	74.13	5.587
Affect	435	5	5	25	17.23	68.92	4.419
Cognitive &Metacognitive Strategies	435	31	41	147	104.45	67.39	15.820
Resource Management	435	19	28	89	64.56	67.96	8.888

Note. Mean%= Mean Percentage, *SD*= Standard Deviation

According to the results of Table 2, the mean percentage of value component was 79.13% (the highest) and subscale of cognitive and metacognitive strategies was 67.39% (the lowest).

In order to find out significant differences in high school students' motivation and learning strategies by gender, independent sample t-test was conducted (see Table 3).

Table 3 The Result Independent Sample *t*- test for High School Students' Motivated Strategies for learning by Gender

Variables	Gender	N	Mean	<i>t</i>	<i>df</i>	<i>p</i>
Value	Male	230	54.53	-2.912**	433	.004
	Female	205	56.35			
Expectancy	Male	230	44.34	-.563	432	.574
	Female	205	44.64			
Affect	Male	230	16.80	-2.124*	433	.034
	Female	205	17.70			
Cognitive & Metacognitive Strategies	Male	230	103.33	-1.567	433	.118
	Female	205	105.71			
Resource Management	Male	230	63.23	-3.375**	431.021	.001
	Female	205	66.05			
Motivation & Learning Strategies (Overall)	Male	230	282.27	-2.881**	432	.004
	Female	205	290.45			

* The mean difference is significant at 0.05 level

** The mean difference is significant at 0.01 level

Based on the results of Table 3, there were significant differences in motivated strategies for learning (overall), value, affect and resource management by gender. These findings indicated that mean scores of female students in value component were significant higher than that of male students. Next, the scores of female students in affect component were significant higher than that of male students. Then, there were significant mean scores of female students in resource management than male students.

In order to find out the significant differences in high school students' motivated strategies for learning by subject combination, independent sample t-test was again computed (see Table 4). These findings (Table 4) showed that there were significant differences in expectancy and affect components by subject combination in motivated strategies for learning (MSL) for overall scores. Firstly, STEAMS 1 (Bio:) students were significant higher mean scores in expectancy than STEAMS 2 (Eco:) students. Secondly, STEAMS 2 (Eco:) students were significant higher mean scores in affect component than STEAMS 1 (Bio:).

Table 4 The Result of Independent Sample *t*- test for High School Students' Motivated Strategies for Learning by Subject Combination

Variables	Gender	N	Mean	<i>t</i>	<i>df</i>	<i>p</i>
Value	STEAMS-1(Bio:)	222	55.12	-.890	433	.374
	STEAMS-2(Eco:)	213	55.68			
Expectancy	STEAMS-1(Bio:)	222	45.06	2.220*	432	.027
	STEAMS-2(Eco:)	213	43.87			
Affect	STEAMS-1(Bio:)	222	16.59	-3.102**	433	.002
	STEAMS-2(Eco:)	213	17.89			

Variables	Gender	N	Mean	t	df	p
Cognitive & Metacognitive Strategies	STEAMS-1(Bio:)	222	105.71	1.701	433	.090
	STEAMS-2(Eco:)	213	103.14			
Resource Management	STEAMS-1(Bio:)	222	65.09	1.252	433	.211
	STEAMS-2(Eco:)	213	64.02			
Motivation& Learning Strategies (Overall)	STEAMS-1(Bio:)	222	287.56	1.021	432	.308
	STEAM-2(Eco:)	213	284.64			

* The mean difference is significant at 0.05 level

** The mean difference is significant at 0.01 level

Note. STEAMS 1 (Bio:)= Students learn the subjects (Myanmar, English, Mathematics, Chemistry, Physics and Biology)

STEAMS 2 (Eco:)= Students learn the subjects (Myanmar, English, Mathematics, Chemistry, Physics and Economics)

Next, to obtain the significant differences in high school students' motivated strategies for learning by schools, descriptive statistics were again computed (see Table 5).

Table 5 Mean, Standard Deviation and ANOVA Results of High School Students' Motivated Strategies for learning by Schools

Variables	School	N	Mean	SD	F	p
Value	School 1	60	55.37	7.317	1.442	.197
	School 2	63	54.46	5.398		
	School 3	65	56.08	6.646		
	School 4	65	54.66	5.157		
	School 5	60	57.13	7.445		
	School 6	60	55.72	5.869		
	School 7	62	54.40	6.550		
Expectancy	School 1	60	43.27	5.668	5.584***	.000
	School 2	63	42.45	5.810		
	School 3	65	45.05	5.094		
	School 4	65	44.80	5.133		
	School 5	60	47.23	4.240		
	School 6	60	45.42	6.554		
	School 7	62	43.18	5.180		
Affect	School 1	60	18.12	5.587	3.795**	.001
	School 2	63	17.51	3.992		
	School 3	65	15.29	4.196		
	School 4	65	17.57	4.482		
	School 5	60	17.23	4.323		

Variables	School	N	Mean	SD	F	p
	School 6	60	16.50	4.052		
	School 7	62	18.45	4.866		
Cognitive & Metacognitive Strategies	School 1	60	101.82	15.783	4.411***	.000
	School 2	63	103.03	14.612		
	School 3	65	105.49	15.112		
	School 4	65	106.85	17.269		
	School 5	60	111.42	13.331		
	School 6	60	104.35	18.037		
	School 7	62	98.19	13.416		
Resource Management	School 1	60	63.80	15.820	7.229***	.000
	School 2	63	62.59	8.161		
	School 3	65	66.74	8.956		
	School 4	65	61.94	7.987		
	School 5	60	68.90	8.569		
	School 6	60	66.92	7.070		
	School 7	62	61.31	9.743		
Motivation & Learning Strategies (overall)	School 1	60	282.37	8.958	5.136***	.000
	School 2	63	280.15	8.888		
	School 3	65	288.65	32.138		
	School 4	65	285.82	30.298		
	School 5	60	301.92	23.754		
	School 6	60	288.90	32.731		
	School 7	62	275.53	21.112		

** The mean difference is significant at 0.001 level

*** The mean difference is significant at 0.001 level

By the ANOVA results of Table 5, there were significant differences in all components of motivation and learning strategies except value component including MSL (overall) scales by schools. To get the more detailed information and which school had greatest difference, Tukey HSD comparison procedure was conducted (see Table 6).

Table 6 The Result of Multiple Comparisons of (Post-Hoc) Test for High School Students' Motivated Strategies for learning by Schools

Variables	Schools (I)	Schools (J)	Mean Difference (I-J)	p
Expectancy	School 5	School 1	3.967**	.001
		School 2	4.782***	.000
		School 7	4.056**	.001
	School 6	School 2	2.965*	.042
Affect	School 1	School 3	2.824**	.006
	School 4	School 3	2.277*	.046
	School 7	School 3	3.159**	.001
Cognitive & Metacognitive Component	School 4	School 7	8.653*	.029
	School 5	School 1	9.600*	.013
		School 2	8.385*	.044

Variables	Schools (I)	Schools (J)	Mean Difference (I-J)	p
		School 7	13.223***	.000
Resource Management Component	School 3	School 4	4.800*	.024
		School 7	5.432**	.007
	School 5	School 1	5.100*	.019
		School 2	6.313**	.001
		School 4	6.962***	.000
	School 6	School 7	7.594***	.000
		School 4	4.978*	.020
	Motivation & Learning Strategies (overall)	School 5	School 7	5.610**
School 1			19.550**	.005
School 2			21.772**	.001
School 4			16.101*	.033
		School 7	26.384***	.000

*The mean difference is significant at 0.05 level

**The mean difference is significant at 0.01 level

***The mean difference is significant at 0.001 level

According to the Table 6, school 5 had higher mean scores in expectancy than school 1, 2 and 7. Then, students in school 6 had significant mean scores in expectancy from school 2. Second, school 1, 4 and 7 had higher mean scores in affect than school 3. Third, school 4 had significant higher mean scores in cognitive and metacognitive strategies (CMS) than school 7. Besides, students in school 5 had more ideas to relate the course than students in school 1, 2 and 7.

Fourth, the mean scores of school 3 in resource management were significant from school 4 and 7. Then, school 5 had higher significant mean scores in resource management than school 1, 2, 4, 7. Moreover, school 6 had higher significant mean score in the same components than school 4 and 7.

To find out the mean percentage and standard deviations of **subscales of student engagement**, the descriptive analysis was conducted again (see Table 7).

Table 7 Descriptive Analysis for Subscales of Student Engagement

Variables	N	No. of Items	Minimum Scores	Maximum Scores	Mean	Mean %	SD
Teacher Student Relationships	435	9	12	36	27.09	72.25	4.642
Control & Relevance of School Work	435	9	9	36	27.10	75.28	4.139
Peer Support for Learning	435	6	6	24	17.54	73.08	3.115
A Future Aspiration & Goal	435	5	8	20	17.20	86	2.761
Family Support for Learning	435	4	4	16	13.21	82.56	2.339

According to the results found in Table 7, the mean percentage of a future aspiration and goal was 86 % (the highest) and subscale of teacher-student relationships was 72.25% (the lowest).

Then, to get the differences of mean scores which gender has significant differences in student engagement, the independent sample t-test was conducted (see Table 8).

Table 8 The Results of Independent Sample *t*-test for Student Engagement by Gender

Variables	Gender	N	Mean	<i>t</i>	<i>df</i>	<i>p</i>
Teacher Student Relationships	Male	230	26.55	-2.586**	433	.010
	Female	205	27.70			
Control & Relevance of School Work	Male	230	26.39	-3.821***	433	.000
	Female	205	27.88			
Peer Support for Learning	Male	230	17.27	-1.911	433	.057
	Female	205	17.84			
A Future Aspiration & Goal	Male	230	16.58	5.159***	428.96	.000
	Female	205	17.89			
Family Support for Learning	Male	230	13.10	-1.073	433	.284
	Female	205	13.34			
Student Engagement (overall)	Male	230	99.90	-4.072***	433	.000
	Female	205	104.65			

***The mean difference is significant at 0.001 level

**The mean difference is significant at 0.01 level

Based on the results (Table 8), female students were higher mean scores than male students in teachers-student relationships, control relevance and school work, a future aspiration and goal and student engagement (overall) scales than male.

Again, to find the significant differences in student engagement by subject combination, independent sample t-test was computed (see Table 9).

Table 9 The Results of Independent Sample *t*-test for Student Engagement by Subject Combination

Variables	Subject Combination	N	Mean	<i>t</i>	<i>df</i>	<i>p</i>
Teacher Student Relationships	STEAMS-1(Bio:)	222	26.64	-2.062*	433	.040
	STEAMS-2(Eco:)	213	27.56			
Control & Relevance	STEAMS-1(Bio:)	222	26.85	-1.262	433	.216
	STEAMS-2(Eco:)	213	27.34			
Peer Support for Learning	STEAMS-1(Bio:)	222	17.38	-1.092	433	.276
	STEAMS-2(Eco:)	213	17.71			
A Future Aspiration	STEAMS-1(Bio:)	222	17.24	.316	433	.752
	STEAMS-2(Eco:)	213	17.15			
Family Support for Learning	STEAMS-1(Bio:)	222	13.27	.515	433	.607
	STEAMS-2(Eco:)	213	13.15			
Student Engagement	STEAMS-1(Bio:)	222	101.38	-1.300	433	.194
	STEAMS-2(Eco:)	213	102.92			

*The mean difference is significant at 0.05 level

As the results of Table 9, there were significant differences in teacher-student relationships by subject combination; STEAMS 2 (students) had higher mean scores than STEAMS 1 (students).

Next, to obtain the significant differences in student engagement by schools, descriptive statistics were again computed (see Table 10).

Table 10 Mean, Standard Deviation and ANOVA Results of Student Engagement by Schools

Variables	Location	N	Mean	SD	F	p
Teacher Student Relationships	School 1	60	27.15	4.632	4.735** *	.000
	School 2	63	25.94	4.842		
	School 3	65	27.94	4.730		
	School 4	65	27.06	4.000		
	School 5	60	28.65	3.691		
	School 6	60	27.93	4.916		
	School 7	62	25.03	4.732		
Control & Relevance of School Work	School 1	60	26.60	4.142	2.892**	.009
	School 2	63	25.98	4.661		
	School 3	65	27.83	4.163		
	School 4	65	27.09	4.130		
	School 5	60	28.63	3.488		
	School 6	60	27.02	4.304		
	School 7	62	26.53	3.561		
Peer Support for Learning	School 1	60	16.98	3.056	1.516	.171
	School 2	63	17.48	3.207		
	School 3	65	18.03	3.142		
	School 4	65	17.42	3.041		
	School 5	60	18.05	3.078		
	School 6	60	17.95	3.159		
	School 7	62	16.89	3.036		
A Future Aspiration & Goal	School 1	60	16.80	2.892	2.172*	.045
	School 2	63	16.51	3.042		
	School 3	65	17.55	2.640		
	School 4	65	16.72	2.577		
	School 5	60	17.82	2.347		
	School 6	60	17.58	2.965		
	School 7	62	17.44	2.653		
Family Support for Learning	School 1	60	12.85	2.161	.635	.702
	School 2	63	12.98	2.549		
	School 3	65	13.42	2.351		
	School 4	65	13.25	2.610		
	School 5	60	13.52	2.347		
	School 6	60	13.33	2.305		
	School 7	62	13.11	2.009		
Student Engagement (overall)	School 1	60	100.38	12.924	3.763**	.001
	School 2	63	98.89	12.078		
	School 3	65	104.77	13.400		
	School 4	65	101.54	11.747		

Variables	Location	N	Mean	SD	F	p
	School 5	60	106.67	9.773		
	School 6	60	103.82	13.340		
	School 7	62	99.00	11.333		

*The mean difference is significant at 0.05 level

**The mean difference is significant at 0.01 level

***The mean difference is significant at 0.001 level

For the aim of searching which school has the greatest difference, Tukey HSD was calculated (see Table 11).

Table 11 The Result of Multiple Comparisons of (Post-Hoc) Test for Student Engagement by Schools

Variables	Schools (I)	Schools (J)	Mean Difference (I-J)	p
Teacher- Student Relationships	School 3	School 7	2.906**	.006
	School 5	School 2	2.713*	.017
		School 7	3.618***	.000
	School 6	School 7	2.901**	.008
Control & Relevance of School Work	School 5	School 2	2.649**	.007
Student Engagement (overall)	School 5	School 2	7.778**	.008
		School 7	7.667**	.010

*The mean difference is significant at 0.05 level

**The mean difference is significant at 0.01 level

***The mean difference is significant at 0.001 level

The results (Table 11) indicated that school 3 had higher mean scores in teacher-student relationships (TSR) than school 7. Next, school 5 had higher mean scores in TSR than school 2 and school 7. And, school 6 had higher mean scores than school 7. Then, school 5 had significant higher mean scores in control and relevance of school work than school 2. Finally, there were significant differences in student engagement (overall). The higher mean scores in school 5 can be seen than school 2 and school 7.

Table 12 Relationship between High School Students' Motivated Strategies for Learning and Student Engagement

Variables	Student Engagement (SE)
High School Students' Motivated Strategies for Learning (MSL)	.672***
Significant	.000
N	435

*** Core

The results of correlation analysis showed a significant statistical relationship between high school students' motivated strategies for learning and student engagement was .612*** (r = .612,

N = 435, $p = .000$). This represents a moderate positive correlation and was statically significant at the 0.001 level. It can be interpreted that if the level of high school student’s motivated strategies for learning is high, their engagement will be high.

Regression Analysis for the Prediction of Student Engagement

In order to observe, the best predicting subscales of high school students’ motivation for learning strategies to student engagement, linear regression analysis was completed. The results were shown in Table 13 and 14.

Table 13 Model Summary of Student Engagement

Model	R	R ²	Adjusted R ²	Std. Error of The Estimate	F
1	.724 ^a	.524	.519	8.596	94.347***

The results of Table 13 and 14 proved that the components of value, expectancy and resource management were statistically high positive correlation to student engagement. It can be supposed that the higher the value, expectancy and resource management, the higher the student engagement. The adjusted R² value is .519. This indicates that (52%) of the variance in occurring student engagement could be explained from high school student’s motivated strategies for learning.

Table 14 Multiple Regression Analysis on Each Subscales of high School Students’ Motivated Strategies for Learning and Student Engagement

Variables	Unstandardized Coefficients		Standardized Coefficients	t	p
	B	Std. Error	β		
Student Engagement (constant)	14.004	4.771		2.935**	.004
Value	.685	.086	.363	7.997***	.000
Expectancy	.344	.106	.155	3.247**	.001
Affect	.152	.100	.054	1.518	.130
Cognitive & Metacognitive Strategies	.040	.036	.051	1.099	.272
Resource Management	.435	.063	.311	6.951***	.000

**The Mean Difference Is Significant At 0.01 Level

***The Mean Difference Is Significant At 0.001 Level

This study was based on moderate value (52%) of adjusted R-square. The model equation to predict the student engagement from high school students’ motivation and learning strategies is,

$$SE = 14.004 + .685VL + .344EXP + .435RM$$

- Note. SE = Student Engagement
- VL = Value
- EXP = Expectancy
- RM = Resource Management

It has described those components for value ($\beta = .363$), expectancy ($\beta = .155$), and resource management ($\beta = .311$), were found the strong predictors of student engagement of seven basic education schools from five districts in Yangon Region.

Discussion

The main purpose of this study was to study high school students' motivated strategies for learning and student engagement. Generally, to get the mean and standard deviation of high school students' motivated strategies for learning, descriptive analysis was carried out. In these results, value component was the highest mean percent scores, and cognitive and metacognitive strategies of these scores were the lowest in all components. First, concerning high school students' motivated strategies for learning (MSL), there were significant differences in value competency, affect component, resource management and overall scales by gender. Female students were significant higher mean scores in value competency than male students. This finding did not agree with the study of Chit and Thant (2016), there were no differences for value components by gender.

Then, female students were significant higher mean scores in affect component. It may be interpreted that female students felt more upset emotion when they took the exam than male students.

Next, in resource management strategies female students were significant higher mean scores than male students. This means, female students asked their teachers to clarify concepts they did not understand well than male students. Likewise, in overall scales of MSL, female students were the highest mean scores than male students. This finding is consistent with the study of A Me Me Thwe (2016) who found that female students possess higher science motivation than male students.

Second, the findings from independent sample t-test were found significant differences in MSL expectancy, affect components by subject combination, but no significant differences in overall scales. Initially, in expectancy components, STEAMS 1 (Bio:) students were significant higher mean scores than STEAMS 2 (Eco:) students. STEAMS 1 (Bio:) students had more abilities to learn the course in appropriate ways than STEAM 2 (Eco:) students. In contrast, in affect component, STEAMS 2 (Eco:) students had significantly higher mean scores than STEAM 1 (Bio:) students. It can be determined that STEAMS 2 (Eco:) students. had more worry about the exam than STEAMS 1 (Bio:) students.

Then, there were significant differences in MSL (overall) scales, expectancy, affect, cognitive and metacognitive strategies, and resource management strategies by schools.

First, school 5 had significant higher mean scores in expectancy than school 1, 2 and 7. That is, students in school 5 realized that not learning the material well would be their own fault, more than the latter schools. School 6 had significant higher mean scores in expectancy than school 2. It may be assumed that students in school 6 had higher understanding that not learning interestingly the course will become faults by them than students in school 2.

Second, school 1, 4 and 7 had higher significant mean scores in affect than school 3. It can be described that students in school 1, 4 and 7 thought and worried about the consequences of failing for taking their test more than students from school 3. Third, school 4 had higher significantly mean scores in cognitive and metacognitive strategies than school 7. It can be stated

that students for school 4 memorized keywords to remind them in their class more than students from school 7. Moreover, students from school 5 tried to inquire to concepts they were studying that they did not understand more than students from school 1, 2 and 7.

Fourth, in resource management, school 3 had significant higher mean scores in than school 4 and 7. Hence, students from school 3 worked hard to do well in their class if they did not like more than students from school 4 and 7. Finally, school 5 had higher mean scores in in resource management than school 1, 2, 4 and 7. Besides, school 6 had significant higher mean scores in resource management than school 4 and 7. Finally, school 5 had higher mean scores in MSL (overall) scales than school 1, 2, 4 and 7.

Normally, descriptive analysis had carried out to measure the mean scores of student engagement. This finding indicated that a future aspiration and goal had the highest mean scores, and teacher-student relationships had the lowest mean scores in all five subscales.

Firstly, significant differences can be seen in teacher-student relationships, control relevance of school work, a future aspiration and goal, and student engagement (overall) scales by gender. It can be said that female students had significant higher mean scores in teacher- student relationships than male students in these subscales. Female students were cared by their teachers more than male students.

Next, female students had significant higher mean scores in control relevance of school work than male students. It can be said that female students learn their lessons carefully and they liked tests than male students. Then, female students had significant higher mean scores in a future aspiration and goal than male students. It can be observed that, female students believed that school had important for achieving their future goals more than male students.

Second, there were significant differences in teacher-student relationships by subject combination, but no significant differences in student engagement (overall) scales by subject combination. STEAMS 2 (Eco:) students were significant higher mean scores in teacher-student-relationships than STEAMS 1 (Bio:) students. It can be explained that STEAMS 2 (Eco:) students were filled their needs by their teachers more than STEAMS 1 (Bio:) students.

Third, there were significant differences in teacher-student relationships, control and relevance of school work and student engagement (overall) scales. It can be described that students in school 3, 5 and 6 had higher mean scores in teacher- student relationships than those in school 7. Students in school 3 and 6 felt more safety at school than students in school 7. Then, students in school 5 had higher mean scores in teacher- student relationships than students in school 2. It can be stated that students in school 5 thought their teachers had open and honest with them than those in school 2.

Next, students in school 5 were significant higher mean scores in control and relevance of school work than those in school 2. It can be interpreted that students in school 5 had more habits that they checked their school work whether they understood or not than those in school 2. Likewise, students in school 5 had significant higher mean scores in student engagement (overall) scales than those in school 2 and 7.

Chiefly, the study investigated that high school students' motivated strategies for learning (MSL) and student engagement (SE) were moderately and positively correlated and statistically significant at 0.001 level. Consequently, it can be concluded that the higher the high school

students' motivated strategies for learning, the higher the student engagement. This finding agrees with earlier findings of Xiong et al (2015) who found that students' motivation correlated to their engagement. After all, by the linear regression analysis, the components for value, expectancy and resource management were strongly predictors on student engagement in this study.

Summary and Conclusions

First, concerning in motivated strategies for learning (MSL), female students had significant highest mean scores than male students in overall scales by gender. And, there were no significant differences in overall scales in MSL by subject combination. Next, school 5 had significant higher mean scores in MSL (overall) scales than school 1, 2, 4 and 7.

Second, for student engagement, there were significant differences in student engagement (overall) scales by gender. Female students had higher mean scores than male students in overall scales. And, there were no significant differences in overall scales in student engagement by subject combination. Besides, there were significant differences in student engagement (overall) scales by schools. In this case, students in school 5 had higher mean scores in student engagement (overall) scales than those in school 2 and 7.

By the study, there were moderately and positively correlated and statistically significant between high school students' motivated strategies for learning (MSL) and student engagement (SE) at 0.001 level. Consequently, it can be determined that the higher the high school students' motivated strategies for learning, the higher the student engagement.

Finally, teachers, parents, school leaders, responsible persons from Department of Basic Education (DBE) should provide high school students' needs and opportunities for their learning to get positive outcomes and to enjoy for learning according to the school situation. This study will support importance of high school students' motivated strategies for learning and student engagement for their satisfaction in school without leaving their school, friends and teachers.

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