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TEACHERS' ROLES IN DEVELOPING SELF-REGULATED LEARNING STRATEGIES AMONG STUDENTS OF PUTTALAM DIVISION IN SRI LANKA

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ABSTRACT: Developing Learning to learn related competencies is given prominent in the Sri Lankan School curriculum. Self-learning is given a most prominent place in the teaching-learning process. Self-Regulated Learning (SRL) means that students can practice self-control in their cognition, behaviour, and feelings to achieve their learning goals. In this context, students can generate patterns of cognition, behaviour, and feelings themselves to achieve their target learning goals. Teachers in the classroom can impact students' self-regulated learning skills. Based on the available data for the period from 2013 to 2017, it was observed that the achievement levels of the students in the Tamil medium secondary schools in the division were low. The main purpose of this study was to find out teachers' role in developing self-regulated learning among students in the Tamil-medium secondary schools in Puttalam. To achieve the purpose of the study, there were three research questions formulated: What are the teachers' perceptions towards SRL strategies that are used by students?, What are the SRL strategies that teachers use to develop self-regulated learning practices among students? and What are the techniques that teachers use in their teaching process to develop SRL practices among students? A total of 72 teachers were selected from 12 Tamil medium secondary schools in the Northern Educational Division in the Zonal Education of Puttalam using a stratified sampling technique. A developed questionnaire was employed to collect data from the teachers. Based on the analysis of the data, it was found that teachers opined that the students' use of the following SRL strategies was low: resource management (M=2.3, SD= 0.7) and self-evaluation (M=2.3, SD=0.8). In addition, teachers also stated that students had moderate practice in other SRL strategies: setting goals, planning, help-seeking, building the environment, memory, meta cognitive skills, self-motivation, self-control, and self-monitoring. It was also found that teachers stated that they were at a high level of usage in the SRL strategies of setting goals, planning, responsibility, time management, resource management, help-seeking, building the environment, self-organization, memory meta cognitive skills, self-motivation, self-monitoring and self-evaluation in their teaching-learning process. However, majority of teachers rarely used some of the relevant SRL strategies in their teaching process. Further investigation using qualitative approaches is required, especially classroom observation of whether they are using such techniques in their teaching-learning process. It is recommended that teacher training programmes should make teachers aware about the SRL practices and train them on it, which would facilitate the improvement of students' learning achievements.

KEYWORDS: Self-Regulated Learning, Secondary Schools, Teachers' Role

I. INTRODUCTION

Learning refers as the one's experiences which gain through the influence on behaviour, knowledge and thinking skills. Social cognitive theorists believe that one's behaviour is the key to the learning [1]. Self-regulatory is one of approach rooted in social cognitive theories, is getting much attention in recent time. Many researchers defined the concept of self-regulated learning (SRL) related to terms such as self-control, self-discipline, and self-command. Self-regulation means one's ability to achieve one's goals using his cognition, behaviour, and feelings. SRL refers to self-generated feelings, thoughts, and behaviours directed toward reaching one's personal goals [2]. Some may mix up with SRL and self-directed learning (SDL). SRL differs from self-directed learning. SDL is developed based on the work of Malcom Novels (1975) and it was

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developed based on adult education, but SRL was based on cognitive psychology [3]. However, both SRL & SDL have a common set of phases in the process of self-learning. DiBenedetto and Zimmerman [4] postulate that students with self-regulated learning abilities can control their learning environment and the learning strategies so they have higher achievement levels than students who have fewer self-regulated learning skills. Therefore, teachers should be aware of self-regulated learning skills and strategies. It will help the teachers to help students to develop their own SRL skills to perform. In this context, it is vital to investigate teachers' roles in developing self-regulated learning skills among students at the school level. Teachers can also motivate students towards SRL practices by employing teaching-learning strategies and directing students towards to set up with their own planning, goal setting, organising the environment, responsibility for learning, and self-evaluation.

In addition, it was observed that the achievements of secondary students in Tamil medium schools in North Puttalam Education division was low. School third term test results of last three years (2015 - 2017) and General Certificate Examination Ordinary Level (G.C.E O/L) examination (2013 - 2017) had shown that the achievement level of students in Tamil medium secondary schools was low. Table 1 shows that students' pass rate in the compulsory subjects in Grades 9-10 at the five selected schools from Puttalam education zone (2015-2017). Approximately 40 percent of the students did not pass even their Tamil language. It is observed that over 65% of students did not get pass marks 40 marks or above in the subjects Mathematics and Science. Similarly, around 80% students dd not pass in the subject of English.

Table 1: The proportion of students who received more than 40 marks in the in the third term-examination in the Tamil Medium schools in the North Education division of Puttalam 2015-2017

Subject	**2015**		**2016**		**2017**	
	Grade 09	**Grade 10**	**Grade 09**	**10**	**Grade 09**	**Grade 10**
Religion	62%	65%	59%	68%	60%	58%
Tamil Language	53%	44%	65%	65%	65%	63%
English	13%	15%	22%	13%	16%	09%
Science	35%	25%	37%	30%	28%	27%
Mathematics	32%	28%	25%	23%	35%	29%
History	25%	32%	33%	39%	49%	33%

Source: Puttalam North Education division [5]

Puttalam Educational Zone consists of five educational divisions: Puttalam North, Puttalam South, Kalpitiya, Anamaduwa and Pallama educational divisions. Table 2 shows the percentage of students who passed the GCE (O / L) examination in the last five years (2013-2017). In view of this, the Puttalam North division comparatively, lagging than other educational zones.

Table 2: G.C.E (O/L) Pass rates of Puttalam Education Zone (%)

Education Divisions	**2013**	**2014**	**2015**	**2016**	**2017**
Puttalam South Division	62.80	55.69	54.50	58.51	68.63
Puttalam North Division	58.47	55.13	54.98	56.74	57.52
Katpitiya	51.98	54.21	49.71	51.09	54.33
Anamaduwa	66.02	72.89	65.15	67.31	75.25
Pallame	60.55	57.40	62.75	61.15	70.28

Source: Department of Education of North Western Province [6]

Although, there are various factors influence on students' achievement level, students' self-regulated learning practices are the most significant factor in their success [7]:[8]. Students with SRL practices showed high achievement levels in their subjects [9]. Teachers in the schools have opportunity to develop self-learning practices and encourage students towards the self-learning. The school curriculum introduced by National Institute of Education (NIE) emphasis on developing "learning to learn related competencies" among students. Teachers are trained by various pre- and in-service programs inculcating techniques in developing self-learning

practices. In this context, it is vital to assess at what extent teachers are influence on their students in developing self-regulated learning practices. Therefore, the present study aimed to assess the teachers' roles in developing self-regulated learning among students in Tamil-medium secondary schools in Puttalam. To achieve the purpose, the following research questions (RQ) were also set up:

RQ1: What are the teachers' perceptions towards SRL strategies that are used by students?

RQ2: What are the SRL strategies that teachers use to develop self-regulated learning practices among students?

RQ 3: What are the techniques that teachers use in their teaching process to develop SRL practices among students?

II. LITERATURE REVIEW

Several theorists explain about what is SRL and its process. They presented different phases in the SRL process. One of the underlying theories for the concept of SRL is Bandura's social cognitive theory (1986). According to social cognitive theory, social and cognitive factors impact on students' learning. Bandura illustrated *a reciprocal determinism model* which consisted of closely connected three important factors; behaviour, cognitive and environment which are influence on one's learning [1]. Further, there are three processes in one's self-regulation namely self-observation, self-judgment, and self-reaction. These processes influence learners' motivation and their actions towards self-regulatory learning [10][11]. Based on the Bandura's social cognitive theory, Zimmerman developed three different models on SRL: Triadic analysis model; Cyclical model; and Multi level model [12]. Zimmerman [13] in his first model, explained similar interconnected the three factors as Bandura explained in his theory. Later, Zimmerman [14] presented a cyclical model which consisted of sequential three phases: forethought, performance, and self-reflection. According to Zimmerman and Campillo [15], each phase has sub processes. Forethought phases has two sub processes namely task analysis and self-motivation beliefs. Likewise, there are two sub processes in the performance phase: self-control and self-observation. In the third phase, there are two more sub processes such as self-judgement and self-reaction. Later, Zimmerman and Moylan [16] included some more new metacognitive strategies at the performance phase. In the forethought phase, the learners examine about their tasks, set small and larger goals, plan how to achieve the goals, and various inspirational convictions energies the process and impact the initiation of learning strategies. In the performance stage, the learners really execute the tasks, while they screen how they are advancing, and utilize various discretion methodologies to keep themselves cognitively engaged in and roused to complete the undertaking. At last, in the self-reflection stage, pupils evaluate how they have played out the task, making attributions about their prosperity or disappointment. These attributions produce self-responses that can decidedly or adversely impact how the pupils approach the undertaking in later performances [17] [12]. Zimmerman [14] presented another model on SRL called multi-level model which has four phases: observation, emulation, self-control, and regulation [12]. Pintrich [18] presented his model o SRL. In this model there were four phases: (1) Forethought, planning and activation; (2) Monitoring; (3) Control; and (4) Reaction and reflection. Each phase has four different areas of regulation such as cognition; motivation; behaviour; and context. In despite of various models in SRL, Zimmerman' theory is become popular in the field of education over the last three decades in relation to self-regulated learning. The cyclical model of SRL is relevant to the recent past and is clearly illustrated different phases and sub processes in the SRL process. The cyclical model of Zimmerman [17] is the most effective way to promote self-regulated learning in students. According to the Kistner et al., [19], Zimmerman's cyclical model enhances individual learning. Because the individual has effectively controlled their capabilities and achieve their targeted goals through learning experiences. Zimmerman's cyclic model has been used in most of the studies on self-regulated learning [20] [21] [22] [23]. As the cyclical model has its three phases and subprocess, it is easy to identify the variables influence on one's self-regulatory learning. Therefore, the present study also employed Zimmerman's cyclical model to assess the student's practices towards SRL. Figure 1 shows the three phases of cyclical model. The sub processes and strategies are shown in Table 3.

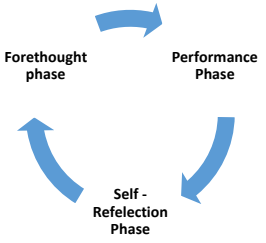

Figure 1: Three phases of Zimmerman Cyclical model

Source: Adopted based on Zimmerman and Moylan [16]

Table 3: Sub processes and strategies of Cyclical model

Phase	Sub process		Strategies
1. Forethought phase	**1.1 Task Analysis**	1.1.1 Goal Setting	
		1.1.2 Strategic Plan	
	1.2 Set Motivational belief	1.2.1Self Efficacy	
		1.2.2 Outcome expectation	
		1.2.3 Task value	
		1.2.4 Interest	
		1.2.5 Goal Orientation	
2. Performance Phase	**2.1 Self Observation**	2.1.1 Meta Cognitive monitoring	
		2.1.2 Self Recording	
	2.2 Self-Control	2.2.1 Meta cognitive nature	• Task analysis • Self-Instruction • Imagery • Time management • Environment structuring • Help seeking
		2.2.2 Motivational Nature	• Interest incentives • Self-Consequences
3. Self-Reflection	3.1 Self Judgment	3.1.1 Self Evaluation	
		3.1.2 Casual attribution	
	3.2 Self reaction	3.2.1 Self satisfaction	
		3.2.2 Adaptive /Defensive decision	

Source: Adopted based on Panadero and Alonso-Tapia [24]

In addition, there are number of empirical works have been carried out around the world using these three models and frameworks of SRL by Zimmerman. Paris and Paris [25] studied classroom applications of research on self-regulated learning in which they aimed to find out the impact of SRL in learning achievements. By using an action research design in two groups of students, they found that SRL strategies had an impact on the students' learning. Likewise, Jahanshir and Sohhra [26] in their study on the effect of teaching self-regulated learners, have found that employing self-regulated learning strategies helped to promote the self-regulated learning skills among the students. In contrast, Satler [27], in his study on developing self-regulated learners in secondary schools, had found that there was a lack of awareness about SRL among the teachers in Australia. Mutua [28] worked on finding out the relationship between learning achievements and motivation while Abbasian and Hartoonian [29] investigated the relationship between SRL strategies and language skills of students. Finally, they found the students with self-regulated learning skills have higher skills in language. Alpaslan et al., [30] found that students' SRL practices had contributed positively in their academic performance. Abrami et al., [31] assessed 62 teachers and 1200 students in Canada on SRL strategies and found that the SRL strategies were new to the teachers. Spruce and Bol [32] found from their study teachers' SRL practices in the classroom was very low even though they have aware about the SRL practices. In Sri Lankan context, few studies have been emerged recently. Kugamoorthy [33] in her study aimed to investigate how activity-based learning impact on SRL practices. Kugamoorthy [33] found that activity-based learning in a classroom made students to regulate their learning strategies successfully. Jayawardena et al., [34] investigated four Sri Lankan science teachers on their SL practices in the classroom. They have used Pintrich and Zusho's [35] SRL model and found that majority of teachers were using SRL practices and motivating students towards SRL. In contrast, De Silva [36] conducted an action research to develop SRL skills among distance mode students using KWL method. She found that KWL method is contributed positively in developing SRL skills among the students.

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III. METHODOLOGY

The study employed a survey research design using a quantitative approach. The target population of the study was 358 Tamil-medium schools' teachers from 12 schools in the Northern Puttalam Education Division. 72 teachers (20%) were selected by using a stratified sampling technique representing the 12 Tamil-medium schools in the division. A questionnaire had been developed based on the teaching-learning strategies of Abrami, et al., [37], Abrami and Aslan [38], and Mutua [28]. There were 20 items included for measuring the self-regulated learning strategies of students and 60 items were included to find out the teachers' SRL strategies. The developed questionnaire's content validity was tested by getting opinions from experts on its relevancy. Further, it was piloted with 15 teachers and Cronbach's alpha values were observed. There were .970 Cronbach's alpha value for learning strategies and .952 value for teachers' teaching-learning strategies. Similarly, the developed instrument was tested by using a test and re-test method.

IV. RESULTS AND DISCUSSION

RQ1: What are the teachers' perceptions towards self-regulated learning strategies that are used by students?

Based on the analysis of data, teachers affirmed that students' usage of the following SRL strategies was low: Resource management (M=2.3, SD= 0.7) and Self-Evaluation (M=2.3, SD=0.8). In addition, teachers stated that students had moderate practice in other SRL strategies. Table 4 shows the mean and standard deviation values on the teachers' views of students' usage of SRL strategies.

Table 4. Mean and Standard Deviation values of Learning strategies

	SRL Learning Strategies	Mean	Standard Deviation	Level
01	Setting goals	2.628	2.287	Moderate
02	Planning	2.785	1.372	Moderate
03	Resource management	2.361	0.774	Low
04	Help-seeking	2.868	1.383	Moderate
05	Building the environment	2.625	0.895	Moderate
06	Memory	2.653	0.807	Moderate
07	Meta cognitive skills	2.715	1.412	Moderate
08	Self-motivation	2.819	2.469	Moderate
09	Self- control	2.694	1.376	Moderate
10	Self-monitoring	2.777	0.929	Moderate
11	Self-evaluation	2.375	0.825	Low

When looking at teachers' perceptions of the self-regulated learning strategies that students used, fewer students used learning strategies such as resource management and self-evaluation. Teachers believed that students were moderate in using the strategies of setting goals, building the environment, memory, self-control, self-monitoring, planning, help-seeking, meta cognitive skills, and self-motivation. Similarly, several researchers have found in their studies that learning strategies are important in developing self-regulated learning. For example, Paris and Paris [25] found that the group of students who controlled with the self-regulated learning strategies have higher learning achievements than other groups of students.

RQ2: What are SRL strategies that teachers use to develop self-regulated learning practices among students?

The second part of the questionnaire was used to identify teaching-learning strategies used by teachers for developing SRL practices among students. Teachers can play a significant role in developing SRL practices among the students by introducing SRL strategies through their teaching and learning process. Teachers were asked about how they involved in developing the SRL strategies: Setting goals; Planning; Responsibility; Time management; Resource management; Help-seeking; Building the environment; Self-organisation; Memory; Meta cognitive; Self-motivation; Self-monitoring; and Self-evaluation. The teachers' teaching-learning strategies to develop SRL practices among students are shown in Table 5. Based on the analysis of data, it was found that there was a moderate usage of teaching-learning strategies by teachers in Setting goals (M= 2.958), Responsibility (M=3.552), building the environment (M=3.507), and Meta cognitive skills (M=3.317). However, there is a high level of practice in other teaching-learning strategies related to developing SRL practices.

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Table 5. Teaching-learning strategies related to SRL

	Strategies	**Mean**	**Standard Deviation**
01	Setting goals	2.958	2.1624
02	Planning	4.274	3.9763
03	Responsibility	3.552	2.1423
04	Time management	4.118	1.1566
05	Resource management	3.701	1.9328
06	Help-seeking	3.984	3.5212
07	Building the environment	3.507	2.0485
08	Self-organisation	4.058	3.0830
09	Memory	4.032	6.677
10	Meta cognitive	3.317	2.3720
11	Self-motivation	4.037	2.1266
12	Self-monitoring	3.854	1.4577
13	Self-evaluation	3.950	4.9152

In addition, overall responses of teachers are shown in the table 6 in which the percentage level of each strategies that teachers used, is depicted. It was found in relation to the teaching-learning strategies in developing SRL that teachers used the following strategies moderately: setting goals, taking responsibilities, building the environment, and higher order skills among students. Teachers rarely try to improve students' goal setting (39.57%) strategy. In addition, the strategies such as resource management (40.47%), building the environment (35.47%), memory (34.75%), high cognitive skills (34.7%), self-monitoring (39.15%), and self-evaluation (36.83%) were used sometimes by teachers.

There have been several studies dealing with the self-regulated learning strategies of teachers. In the study titled "Self-regulated learning in the teachers' role", Moos and Ringdal [39] found that adequate self-regulated learning skills were not developed among student-teachers in their teacher training programmes. Therefore, they suggested that teachers need to develop relevant knowledge and skills to develop self-regulated learning skills through the teacher training programmes. Bird [20] suggested that teachers should update and develop their teaching-learning skills to make students ready for learning. He also found that factors such as students' interaction in the classroom, students' awareness, analysing skills, facing challenges, and observing learning influence the SRL of the students. Similarly, Jahanshir and Soghra [26] also found that the use of teaching-learning strategies could improve students' self-regulated learning skills.

Table 6: Teachers' facilitating roles in developing SRL Strategies among students (%)

	Strategies	Never	Rarely	Sometime	Often	Always
01	Setting goals	1.75	39.57	26.72	30.25	1.75
02	Planning	0.4	5.62	17.9	46.0	29.7
03	Responsibility	3.8	20.0	24.3	38.8	17.35
04	Time management	0	1.4	11.8	60.4	26.4
05	Resource management	0.35	13.9	40.47	30.8	14.47
06	Help-seeking	0.7	3.7	25.1	46.2	22.95
07	Building the environment	0	8.67	35.47	31.82	21.52
08	Self-organisation	0	3.96	23.56	45.28	27.24
09	Memory	0.6	7.05	34.75	34.3	23.31
10	Meta cognitive	6.68	29.8	34.7	20.9	7.9
11	Self-motivation	0	3.2	23.7	45.8	27.2
12	Self-monitoring	0	27.8	39.15	17.9	15.1
13	Self-evaluation	0.7	9.75	36.83	34.37	18.42

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RQ 3: What are the techniques that teachers use in their teaching process to develop SRL practices among students?

In addition to the strategies that teachers adopted in their teaching, teachers were also asked to reflect on their teaching approaches which could motivate students in using self-regulated learning practices. Table 7 shows, teachers' responses for their teaching approaches which they used. Majority of teachers rarely used in the following techniques which are quite significant in developing SRL practices among students.:

- I advise students on how to engage in self-learning (52.8%),
- At the beginning of the lesson, I ask the students to summarize what they have learned in the previous lesson (44.4%),
- I help students solve problems related to learning in groups (34.7%)
- I offer a variety of activities to reach students of learning and resilience (55.6%)

However, majority of teachers used the techniques such as articulating learning goals, checking students' homework, guiding students in their self-learning, allowing student to ask questions about the lesson making small groups according to the students' ability, evaluating students' activities on their own and using different methods to assess students' learning progress. De Silva [36] found from her action research that students were developing their SRL skills when the teachers used SRL methods in their teaching process. Therefore, students' academic achievements could be improved by developing SRL strategies.

Table 7: Teaching approaches in developing SRL (%)

	Items	**Never**	**Rarely**	**Sometime**	**Often**	**Always**
a	I articulate learning goals.		4.2	15.3	54.2	26.4
b	I check students' homework.	-	-	6.9	44.4	48.6
c	I advise students on how to engage in self-learning.	-	52.8	25.0	22.2	-
d	At the beginning of the lesson, I ask the students to summarize what they have learned in the previous lesson.	-	44.4	13.9	38.9	2.8
e	I help students solve problems related to learning in groups.	1.4	34.7	16.7	29.2	18.1
f	I personally guide students.	-	23.6	22.2	33.3	20.8
g	I offer a variety of activities to reach students of learning and resilience.	9.7	55.6	26.4	8.3	
h	I confirm that by asking questions about the lesson taught whether it reached to them or not	-	38.9	20.8	40.3	-
i	I keep students running in small groups according to their ability.	1.4	1.4	27.8	52.8	16.7
j	I guide students to recover and evaluate activities on their own.		1.4	9.7	66.7	22.2
K	I use different methods to assess students' learning	-	-	13.9	66.7	19.4

V. CONCLUSION AND RECOMMENDATIONS

At present, there is more emphasis on students' learning rather than teaching. The teacher's role in the teaching-learning process is that of a facilitator. Self-regulated learning is a good practice to help students perform better. Teachers also should encourage students to use SRL practices in their learning. Therefore, teachers should be more aware of SRL and its strategies to develop SRL practices among the students. In this study, teachers had a satisfactory role in using SRL strategies for their students. However, it would help them if they could have more knowledge and skills regarding SRL. Then they would contribute more in developing SRL among students. Therefore, it is recommended to incorporate knowledge and skills related to SRL in the in-service teacher training programmes. The study was conducted using quantitative approach using questionnaire which might not be resulted to get correct insights on actual teachers' roles in developing SRL among students. Therefore, it is also recommended to focus on the teacher's roles using a qualitative approach

along with the quantitative approach to get more insight into the role. Further study is also recommended, using teachers from other geographical areas and other media of instruction.

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