

Level of Self-Regulated Learning Strategies among Bachelor Science Degree Students

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Abstract

The present study is an attempt to assess the Level of Self-Regulated Learning Strategies among Bachelor Science Degree Students with Different Combination of Subjects who affiliated to University of Mysore. Convenience sampling technique was used to select the Colleges in Mysore city. Proportion random sampling technique was used to draw final year from different types of colleges giving representation to their Gender and Different Combination of Subjects. Totally 254 Students were selected according to the table of Krejcie and Morgan. The Motivational Strategies for Learning Questionnaire (MSLQ) was employed to assess the Level of SRLS in total and component wise. Descriptive statistics have been employed to analyze the data descriptively. The findings indicated majority of Students have exhibited average Level of SRLS in total and in all its Scales.

Keywords: Level, Self-Regulated Learning, Strategies, Different Combination of Subjects.

Self-Regulated learning (SRL) is a theory which has been applied and investigated in many areas especially in academic learning. Research in Self-Regulated academic learning areas include student grades, university classes, computer use, Internet use, web-based courses, mathematics, language of literature, science, nutrition, accounting, and agriculture (Zimmerman, and Schunk, 2001; Zimmerman, 2001). Considerable research has demonstrated a positive relationship between Self-Regulation Strategies and Academic Achievement (AA). The measurements for Self-Regulated academic learning are also developed in many ways: self-reporting questionnaires (Pintrich, Smith, Garcia,

and McKeachie, 1991; Wolters, Pintrich, and Karabenick, 2003); structured interviews (Zimmerman, and Martinez-Pons, 1986, 1988); and teachers' ratings (Zimmerman, and Martinez-Pons, 1988; Winne, and Perry, 2000).

The AA is dependent on several factors. One of the decisive factors in AA, is using of Learning Strategies. Learning Strategies are some processes that help individuals to learn "how to learn", "how to advance their learning issues," and "how do deeply and effectively to their learning." Learning Strategies include a broad range of strategies. One of these strategies is SRL, which consists of three Components: Cognitive, Metacognitive Strategies and Management

Strategies. This concept has been introduced in recent years and many studies have been devoted to it (Azizi, 2014).

Zimmerman (1989, p. 329) describes Self-Regulated Learners as the Students who “personally initiate and direct their own efforts to acquire knowledge and skills rather than relying on teachers, parents, or other agents of instruction.” The Self-Regulated Learner is aware of his/her own efforts to accomplish the intended outcome. This awareness makes an effective learner as one who recognizes the relationships between the different Learning Strategies and the social and environmental outcomes (Zimmerman and Martinez-Pons, 1988). A main feature of Self-Regulated Learning (SRL) is metacognition. Metacognition refers to the awareness, knowledge, and control of cognition; the three processes that make up Metacognitive self-regulatory activities are planning, monitoring, and regulating (Pintrich et al., 1991). Other aspects of SRL include time management, regulating one’s own physical and social environment; and the ability to control one’s effort and attention (Pintrich, 1995).

Using the SRLS help Students learn how to adjust their own learning and how to use appropriate strategies to regulate their learning. Then if Students use appropriate strategies to set their own Learning Strategies, they will enjoy higher AA (Azizi, 2014).

The present study assesses the Level of Self-Regulated Learning Strategies (SRLS) in total and Scale wise among B.Sc Degree Students with Different Combination of Subjects - Physics, Mathematics and Computer Science (PMCs), Physics, Chemistry and Mathematics (PCM), Chemistry, Botany and Zoology (CBZ).

Methodology

The population of this study includes final year Students of 9 Degree colleges affiliated to UOM and located in Mysore city, Karnataka State, India, having science subjects in different combinations as PMCs, PCM and CBZ. All these colleges are categorized into 4 different type – University of Mysore Constituent College (UOMCC), Government (Govt) College, private (Pvt.) Aided and private (Pvt.) Unaided College.

Two colleges were excluded from the population, as there were no Students in the final year B.Sc program. Although total No. of colleges is 11, the total number of Colleges

constituting the population of the study is only 9. Total number of the Students studying in the final year B.Sc with PMCs, PCM and CBZ combinations was 754 (PMCs- 234 Students, PCM- 323 Students and CBZ- 188 Students).

Convenience sampling technique was used to select 4 colleges in Mysore city. One college was selected under each type of college: UOMCC, Govt. College, Pvt. Aided and Pvt. Unaided College. All the 4 Colleges constituting the sample of the study are affiliated to UOM. Proportionate random sampling technique was used to draw final year Students from different types of colleges giving representation to their gender and Different Combination of Subjects. Totally 254 Students were selected according to the table of Krejcie and Morgan (Hassanzadeh, 2003) - PMCs 64 Students, PCM 120 Students and CBZ 70 Students.

The Motivational Strategies for Learning Questionnaire (MSLQ) was used in this study to assess the self regulated Learning Strategies. This tool was designed at Research National Center of Michigan University (1986) to improve teaching and learning in high schools. Then it was extended to collegiate courses in order to measure the orientation of Students motivation and use them for learning. This tool consisted of two sections: i) Motivation ii) Learning Strategies.

In this study, only LS section (part II) was used. In this part, there are 2 Components- (i) Cognitive and Metacognitive Strategies ii)Resource Management Strategies- and it has 9 Scales, each consisting of multiple items- Rehearsal Scale, Elaboration Scale, Organization Scale, Critical Thinking Scale, Metacognitive Self-Regulation Scale, Time and Study Environment Scale, Effort Regulation Scale, Peer Learning Scale and Help Seeking Scale. In total, this part of questionnaire (Learning Strategies) included 50 items. Each item has 7 Levels of responses as given below:

1	2	3	4	5	6	7
Not at all true of me						Very true of me

If student thinks the statement is very true of her/his, the box of 7 is to be crossed (X), if a statement is not at all true of student, the box of 1 is to be crossed (X). If the statement is more or less true of student, find the number between 1 and 7 that best describes him/her. In this study Cronbach alpha reliability coefficient in total was found out and it was 0.93.

Table 1. Descriptive statistics for the data on the sample of the study with respect to SRLS

SRLS	PMCs				PCM				CBZ			
	Min	Max	Mean	S.D	Min	Max	Mean	S.D	Min	Max	Mean	S.D
Organization	8	28	19.31	4.88	5	28	20.03	5.80	9	28	20.50	5.20
Meta Cognitive Self-Regulation	28	82	55.61	11.19	20	81	58.87	11.31	26	83	59.37	13.44
Peer Learning	4	21	13.52	4.24	5	21	14.70	4.35	3	21	14.50	4.86
Time and Study Environment	26	53	36.36	6.06	13	50	36.07	7.57	16	54	36.11	8.26
Effort Regulation	9	25	16.70	3.29	4	28	17.89	4.52	7	28	16.31	4.38
Critical Thinking	11	35	22.72	6.14	5	35	23.78	6.07	10	35	23.76	7.09
Rehearsal	7	27	18.48	4.25	5	28	19.32	5.25	4	28	19.69	5.59
Help Seeking	5	25	17.41	4.55	4	28	18.44	4.71	7	28	18.61	4.67
Elaboration	8	42	28.75	4.79	8	42	29.58	7.80	10	42	30.89	7.75
Total SRLS	141	310	228.67	40.34	119	316	238.68	41.69	130	324	239.74	46.51

This is a descriptive research and survey method. The investigator personally visited all the selected colleges and administered the above said tools to the final year B.Sc Degree Students. The Students were instructed how to respond to the tool namely Motivational Strategies for Learning Questionnaire. Further clarifications were offered on the questions/doubts raised by them and they were requested to cooperate with the Investigator for successful completion of the research. The responses of the Students to both the tools were scored as per the directions given in the manual.

The analysis was done using SPSS (Statistical Package for Social Science) version 15.0: Descriptive statistics like Mean, Standard Deviation, frequency and percentage have been employed to analyze the data descriptively.

Findings

To meet the objective of the study, Mean and Standard Deviation for the scores obtained by the Bachelor of Science Degree Students on SRL (in total and Strategy wise) were calculated and the details are presented in Table 1.

The Students with Different Combination of Subjects - PMCs, PCM and CBZ were categorized into 3 groups of different Levels i.e. Below Average, Average and Above Average based on the common criteria $M \pm \sigma$ as detailed below:

Below $M - \sigma$	→	Below Average
Between $M - \sigma$ and $M + \sigma$	→	Average
Above $M + \sigma$	→	Above Average

Table 2. Score limits for different Level groups with respect to SRLS (in total and Scale wise) with Different Combination of Subjects - PMCs, PCM and CBZ

Combination	PMCs			PCM			CBZ		
	Below Average	Average	Above Average	Below Average	Average	Above Average	Below Average	Average	Above Average
Score limits Organization	Below 13	14 and 24	above 25	below 13	14 and 26	above 27	below 14	15 and 26	above 27
Score limits Meta Cognitive Self-Regulation	below 43	44 and 67	above 68	below 47	48 and 70	above 71	below 45	46 and 73	above 74
Score limits Peer Learning	below 8	9 and 18	above 19	Below 9	10 and 19	above 20	below 9	10 and 19	above 20
Score limits Time and Study Environment	below 29	30 and 42	above 43	below 27	28 and 44	above 45	below 27	28 and 44	above 45
Score limits Effort Regulation	below 12	13 and 20	above 21	below 12	13 and 22	above 23	below 11	12 and 21	above 22
Score limits Critical Thinking	below 16	17 and 29	above 30	below 17	18 & 30	above 31	below 16	17 and 31	above 32
Score limits Rehearsal	below 13	14 and 23	above 24	below 13	14 and 25	above 26	below 13	14 and 25	above 26
Score limits Help Seeking	below 12	13 and 22	above 23	below 13	14 and 23	above 24	below 13	14 and 23	above 24
Score limits Elaboration	below 20	21 and 36	above 37	below 21	22 and 37	above 38	below 22	23 and 39	above 40

Score limits Total SRLS	below 187	188 and 269
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Considering the score limits as per Table No. 2, the frequency and percentage of Students under each Level on each of the criterion variables were found out and presented in the table No.3. and graph No. 1.

Table No. 3. indicated that more than 67.71% of Students have exhibited average Level of SRLS in total and in all its Scales where as very less percentage of Students (more or less equal percentage on both the Levels) have exhibited either below average or above average Level of SRLS in total and all its Scales.

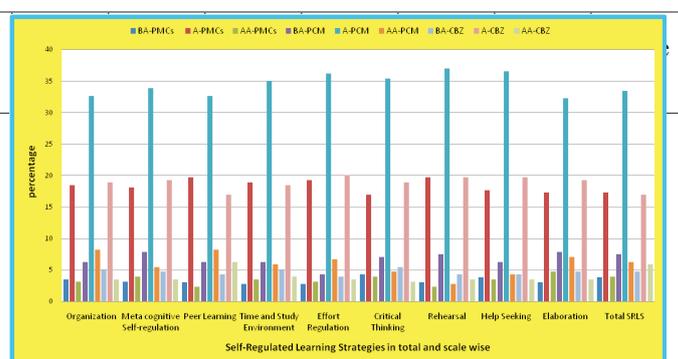


Fig. 1. Graph of B.Sc Students with PMCs, PCM and CBZ combination of different Levels of SRLS (in total and Scale wise)

Table 3. Details of B.Sc Students with PMCs, PCM and CBZ combination of different Levels of SRLS (in total and Scale wise)

SRLS	PMCs						PCM						CBZ						Total					
	Below Average		Above Average		Below Average		Above Average		Below Average		Above Average		Below Average		Above Average		Below Average		Above Average		Below Average		Above Average	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Organization	9	3.54	47	18.50	8	3.15	16	6.30	83	32.68	21	8.27	13	5.12	48	18.90	9	3.54	38	14.96	178	70.08	38	14.96
Meta Cognitive Self-Regulation	8	3.15	46	18.11	10	3.94	20	7.87	86	33.86	14	5.51	12	4.72	49	19.29	9	3.54	40	15.74	181	71.26	33	12.99
Peer Learning	8	3.1	50	19.69	6	2.36	16	6.30	83	32.68	21	8.27	11	4.33	43	16.93	16	6.30	35	13.73	176	69.3	43	16.93
Time and Study Environment	7	2.8	48	18.90	9	3.54	16	6.30	89	35.04	15	5.91	13	5.12	47	18.50	10	3.94	36	14.22	184	72.44	34	13.39
Effort Regulation	7	2.8	49	19.29	8	3.15	11	4.33	92	36.22	17	6.69	10	3.94	51	20.08	9	3.54	28	11.07	192	75.59	34	13.38
Critical Thinking	11	4.3	43	16.93	10	3.94	18	7.09	90	35.43	12	4.72	14	5.51	48	18.90	8	3.15	43	16.9	181	71.26	30	11.81
Rehearsal	8	3.1	50	19.69	6	2.36	19	7.48	94	37.01	7	2.76	11	4.33	50	19.69	9	3.54	38	14.91	194	76.39	22	8.66
Help Seeking	10	3.9	45	17.72	9	3.54	16	6.30	93	36.61	11	4.33	11	4.33	50	19.69	9	3.54	37	14.53	188	74.02	29	11.41
Elaboration	8	3.1	44	17.32	12	4.72	20	7.87	82	32.28	18	7.09	12	4.72	49	19.29	9	3.54	40	15.69	175	68.89	39	15.35
Total SRLS	10	3.9	44	17.32	10	3.94	19	7.48	85	33.46	16	6.30	12	4.72	43	16.93	15	5.91	41	16.1	172	67.71	41	16.15

Discussion

It is found from this study that the higher percentage of Students from all combinations of subjects - PMCs, PCM and CBZ are at average Level in SRLS in total and all its Scales, with little variation among the Scales.

The above findings could be explained like this. It seems there is no deliberate effort on the part of teachers to promote SRLS among Students and enable them to perform better. As most of the Students are interested in learning and determined to achieve their goal is to complete the Degree without their knowledge about SRLS, they might have used different Strategies as the occasion demanded.

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