Educational Administration: Theory and Practice
2024, 30(5), 15449-15454
ISSN: 2148-2403
https://kuey.net/

Research Article

Investigating the Impact of Socio - Emotional Competence on Self Regulated Learning among IX Standard Students

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Citation: J. Rubina, et al (2024) Investigating the Impact of Socio - Emotional Competence on Self Regulated Learning among IX Standard Students, *Educational Administration: Theory and Practice*, 30(5), 15449-15454
DOI: 10.53555/kuey.v30i5.9227

ARTICLE INFO

ABSTRACT

This research study investigates the relationship between self-regulated learning (SRL) and socio-emotional competence (SEC) among IX standard students, with respect to medium of instruction, birth order, and science achievement. SRL refers to students' ability to plan, monitor, and regulate their learning process, while SEC involves managing emotions, establishing positive relationships, and making responsible decisions. This research study explores whether these competencies differ based on students' birth order, the medium of instruction, and their academic performance in science. A sample of students from various schools was selected, and standardized tools were employed to assess SRL and SEC. The findings indicate significant differences in SRL and SEC with respect to medium of instruction and birth order, while science achievement exhibited a positive correlation with both. These findings have implications for developing curricula, emphasising the need for specialised methods to improve students' socioemotional and self-regulation in a variety of learning environments.

Key words: Self-regulated Learning, Socio - Emotional Competence, Science achievement

Introduction

In today's educational situation self-regulated learning (SRL) and socio-emotional competence (SEC) are important for students' overall development and academic success. SRL involves goal-setting, self-monitoring, and motivation, empowering students to take control of their learning. SEC equips students with the emotional intelligence to manage their feelings, empathize with others, and make decisions in both personal and social contexts. As academic pressure intensifies in secondary school, especially in science education, these competencies become essential for sustaining academic achievement and personal well-being. The role of external factors such as medium of instruction and birth order can significantly impact SRL and SEC. The medium of instruction often influences cognitive and linguistic abilities, which may, in turn, affect learning strategies and emotional understanding. Birth order has been linked to personality development, which can influence both regulatory learning habits and social-emotional skills. Finally, students' achievement in science, a subject that demands a structured approach to learning and emotional resilience, provides a relevant context for examining these competencies.

Literature Review

Pandey, A. 2017 Conducted a study on "Impact of Medium of Instruction on Self-Regulated Learning". To examine the effect of medium of instruction on self-regulated learning among secondary school students The tool used were Self-Regulated Learning Questionnaire (SRLQ) the sample is 600 secondary students (English and regional language-medium schools) Statistical analysis such as t-tests, ANOVA were used.The findings revealed that English-medium students showed significantly higher SRL than regional language-medium students. |

Verma, S. 2020 Conducted a study on "Socio-Emotional Competence and Medium of Instruction". To analyse the effect of medium of instruction on socio-emotional competence. The tool used were Socio-Emotional Competence Scale (SECS). The study included a sample of 500 secondary school students. The data

were analysed using t-tests, Chi-square. The results indicated that there is no significant differences found in SEC based on medium of instruction, but English-medium students performed slightly better in empathy.

Kumar, R. 2018 Conducted a study on "Self-Regulated Learning and Academic Performance". To find out the relationship between self-regulated learning and academic performance in science.Self-Regulated Learning Strategies Inventory tool were used . sample size is 350 students from higher secondary. Statistical analysis such as Pearson correlation, regression analysis were used .The findings showed that a strong positive correlation was found between SRL and science achievement.

Owens, C. 2016 Conducted a study on "Socio-Emotional Learning in Science Classes". To explore how socio-emotional competence impacts collaborative learning in science classes . The tool used were Social and Emotional Competence Questionnaire (SECQ). The study included a sample of 320 students from middle school .The data were analysed using ANOVA, qualitative analysis .The findings revealed that Higher socio-emotional competence led to better group performance in science activities.

Lee, Y. 2015 Conducted a study on "Science Achievement and Self-Regulation". To evaluate the impact of self-regulation on science achievement in middle school The tool used were Science Achievement Test, SRL scale.The study included 300 middle school students .The data were analysed using Pearson correlation, multiple regression .The study found a Self-regulated learning significantly predicted science achievement, particularly in experiments and inquiry tasks.

Methodology

In this study, the investigators employed a survey method. The sample comprised 749 students from Chennai and Tiruvallur districts in higher secondary schools. For the study, stratified sampling was employed.

Tools used

- Social Emotional Competence Questionnaire prepared by the Investigator
- Self-Regulated Learning (Motivated Strategies for Learning Questionnaire) - MSLQ (1991) Developed and standardized by Paul Pintrich and team.

MSLQ encompasses 31 items, assessing students' Intrinsic Goal Orientation, Extrinsic Goal Orientation, and Task Value as components of their value-related motivation. It includes Control Beliefs, Self-Efficacy for Learning and Performance as components within the Expectancy domain, and it considers Test Anxiety as an Affective Component. The learning strategies section consists of 50 items, including 8 negative items. These encompass Cognitive Strategies, which involve Metacognition and comprise Rehearsal, Elaboration, Organization, Critical Thinking, and Metacognitive Self-Regulation. Resource Management strategies encompass Time and Study Environment, Effort Regulation, Peer Learning, and Help Seeking. The reliability of the scale is evident, with Cronbach's alphas was found to be ranging from .52 to .93 for all items, underscoring its effectiveness in assessing various aspects of student motivation and learning strategies. Socio Competence scale consists of 58 items with dimensions consisting of Self Awareness, Social Awareness, Emotional Management, Responsible Decision making. The data collected, classified subjected to statistical test of significance using SPSS for testing the hypothesis is formulated by the investigator.

Analysis and Interpretation

H.1 Self Regulated Learning and Socio Emotional Competence do not significantly differ due to the differences in the selected variables: Medium of Instruction, Birth order, and Science achievement

Differences
Hypothesis

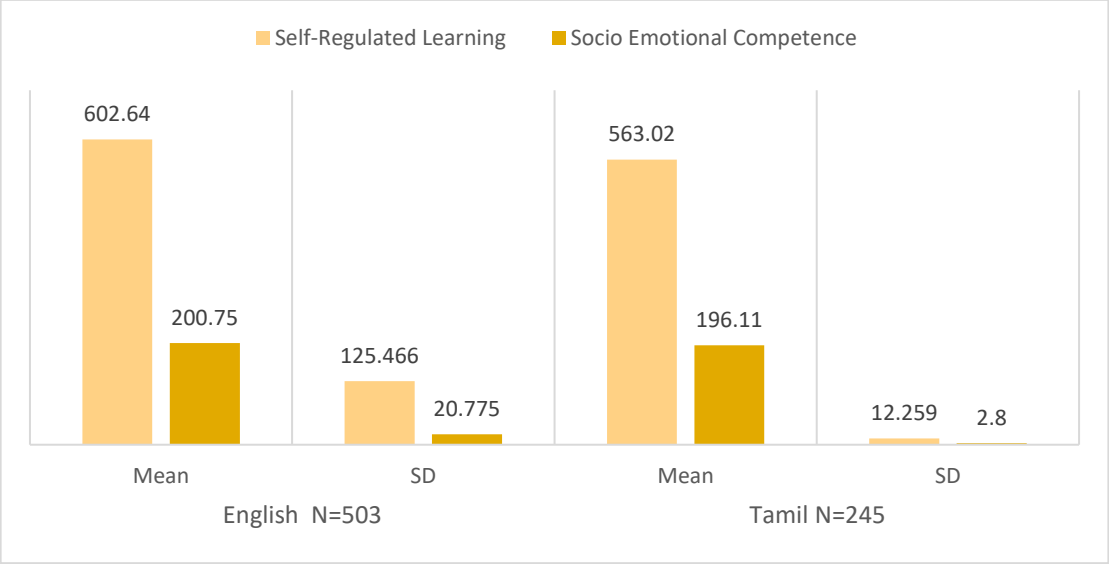
H.1There is no significant difference in Self Regulated Learning and Socio Emotional Competence due to differences in Medium of Instruction.
t - test is used to verify this

Table: 1 Showing the Critical Ratio of the Difference in* Medium of Instruction *in Self Regulated Learning and Socio Emotional Competence

Dependent Variables	English N=503		Tamil N=245		t-test for equality of Means			
	Mean	SD	Mean	SD	Mean Diff	t-Value	df	Sig.
Self-Regulated Learning	602.64	125.47	563.02	120.26	39.615	4.15	745	0.000
Socio Emotional Competence	200.75	20.78	196.11	21.72	4.641	2.83	746	0.005

The P-value is 4.15 with 745 degrees of freedom (df), and the significance level is 0.000. This p-value is below of 0.05, suggesting that the difference in self-regulated learning between the two groups is significant. Students in English medium had a high mean score in self-regulated learning compared to students in Tamil medium .The mean difference between the two groups is 39.615, indicating that English-medium students exhibited greater self-regulated learning capabilities.

The t-test for socio-emotional competence a p-value of 2.825 with 746 degrees of freedom, resulting in a p-value of 0.005, which is below the 0.05 significance level. This indicates that the difference in socio-emotional competence between the two groups is significant.



Differences Due to Birth Order
H.2 Hypothesis
There is no significant difference in Self -Regulated Learning and Socio- Emotional Competence due to differences in Birth Order.

Table 2 Showing One Way ANOVA Showing the Differences in Self Regulated Learning and Socio Emotional Competence due to Birth Order

Dependent Variables	Source	Sum of Squares	Mean Square	F	df	Sig
Self-Regulated Learning	Between Groups	478031.740	159343.913	10.583	3	0.000
	Within Groups	11217472.997	15057.011		745	
Socio Emotional Competence	Between Groups	7816.049	2605.350	5.923	3	0.001
	Within Groups	328161.706	439.895		746	

The significance level for self-regulated learning was 0.000, which is less than 0.05 level. There is significant differences in self-regulated learning among students based on their birth order. The significance level for socio-emotional competence was 0.001, which is below 0.05, indicating significant differences in socio-emotional competence among students based on their birth order.

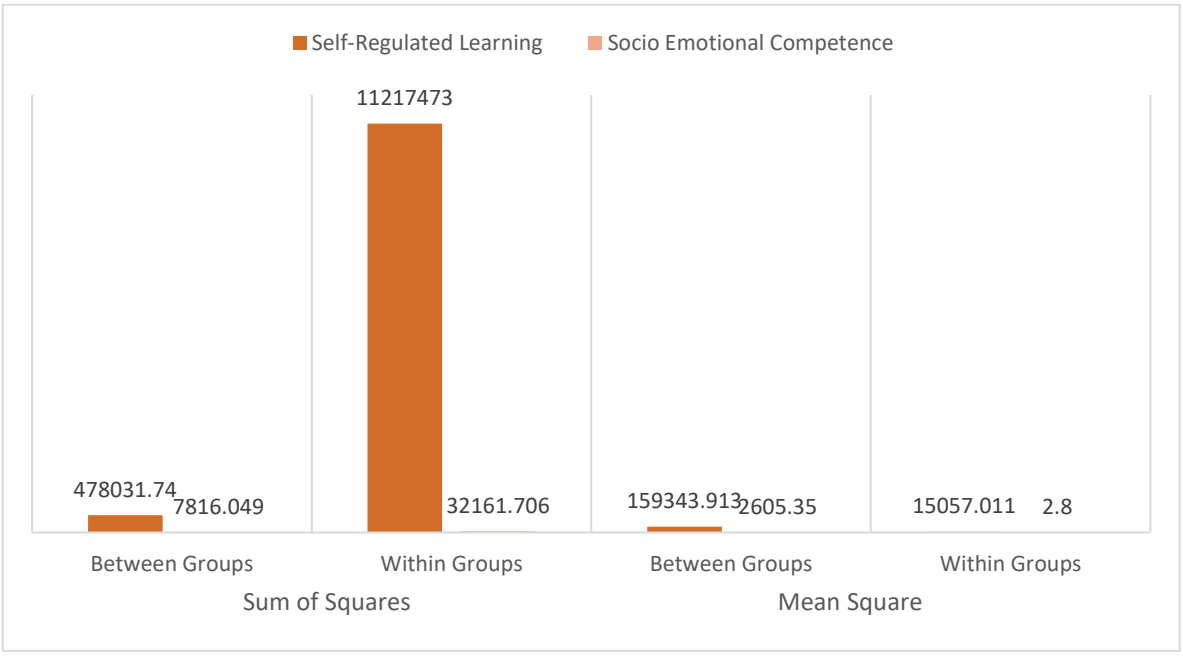
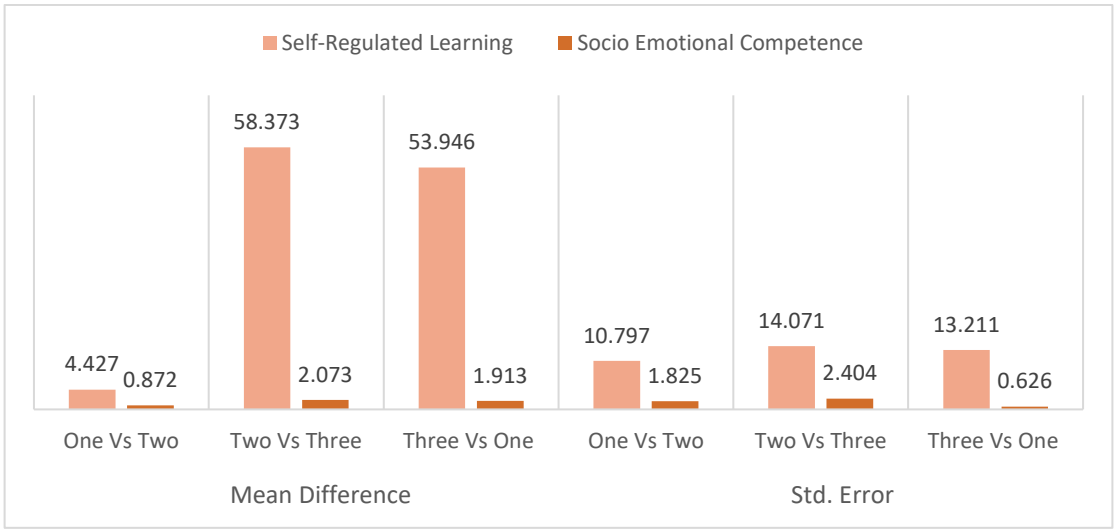


Table 2a: Multiple Comparisons - Results of Post HOC Tests

Dependent Variable	Sub Samples	Mean Difference	Std. Error	Sig
Self-Regulated Learning	One Vs Two	4.427	10.797	0.977
	Two Vs Three	58.373	14.071	0.000
	Three Vs One	53.946*	13.211	0.000
Socio Emotional Competence	One Vs Two	0.872	1.825	0.964
	Two Vs Three	2.073	2.404	0.824
	Three Vs One	1.913	0.626	0.014

The significance value is 0.977, indicating no significant difference in self-regulated learning between these two groups The significance value (Sig.) is 0.000, suggesting a significant difference in self-regulated learning between these two groups. Group three performed significantly better than group two.
The significance value is 0.000, indicating a significant difference in self-regulated learning between these groups. Students in group three exhibited significantly higher self-regulated learning than those in group One.
The significance value is 0.014, indicating a significant difference in socio-emotional competence between these groups. Group three exhibited higher socio-emotional competence compared to group One.



Differences Due to Science achievement

H.3 A Linear Combination of the Variable namely Self Regulated Learning and Socio Emotional Competence significantly predicts Science Achievement.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.193	0.037	0.033	24.770

ANOVA

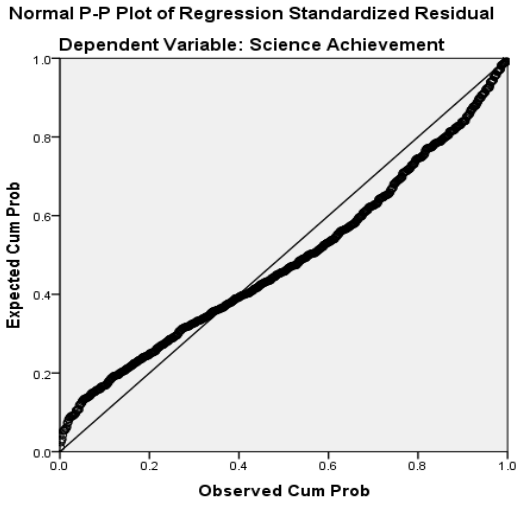
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	17687.175	3	5895.725	9.609	0.000
	Residual	457707.064	746	613.548		
	Total	475394.238	749			

The R-value is 0.193, indicating a weak positive relationship between the predictors (Self-Regulated Learning and Socio-Emotional Competence) and Science Achievement. The F-value (9.609) tests the overall significance of the model, which shows that the model is significant (p = 0.000), meaning that the linear combination of Self-Regulated Learning and Socio-Emotional Competence significantly predicts Science Achievement.

Coefficients

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	24.970	8.906		2.804	0.005
	Self Regulated Learning	0.202	0.199	0.039	1.014	0.311
	Socio Emotional Competence	0.562	0.161	0.157	3.477	0.001

The significance value (p = 0.005) shows that this intercept is significant. The t-value (1.014) and p-value (0.311) indicate that this effect is not significant, Self-Regulated Learning does not significantly predict Science Achievement in this model. The t-value (3.477) and p-value (0.001) indicate that this relationship is significant, Socio-Emotional Competence significantly predicts Science Achievement.



Results and Discussions

The significant difference in self-regulated learning between English-medium and Tamil-medium students shows the need for specific activity in Tamil-medium schools. These efforts could include self-regulated learning strategies into the curriculum and training teachers to encourage these skills. Addressing socio-economic differences and giving Tamil medium students similar resources and teaching methods as those in English-medium schools may help reduce the gap. The results also show that birth order has a strong influence on both self-regulated learning and socio-emotional competence in students. This suggests that birth order can

impact a person's personality, behavior, and development. The differences in self-regulated learning and socio-emotional competence based on birth order suggest that education needs to consider these individual factors. Teachers and parents should understand how birth order affects learning and emotional development so they can offer the right support for each child. This might include helping younger children develop self-regulation skills and giving all children chances to improve their social and emotional abilities.

Conclusion

The results of this study show the importance of looking at the Medium of instruction, birth order, and science achievement when thinking about students' self-regulated learning (SRL) and socio-emotional competence (SEC). Students who learn in different medium of instruction have different ways of managing their own learning and handling emotional and social challenges. Also, students who perform better in science tend to have stronger SRL and SEC skills, which not only help them do well in school but are also shaped by their success. To improve students' academic performance and emotional well-being, especially in science, schools should focus on helping students develop both SRL and SEC skills. Based on these findings, schools should create more supportive learning environments by using teaching methods that are personalized and consider cultural differences.

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