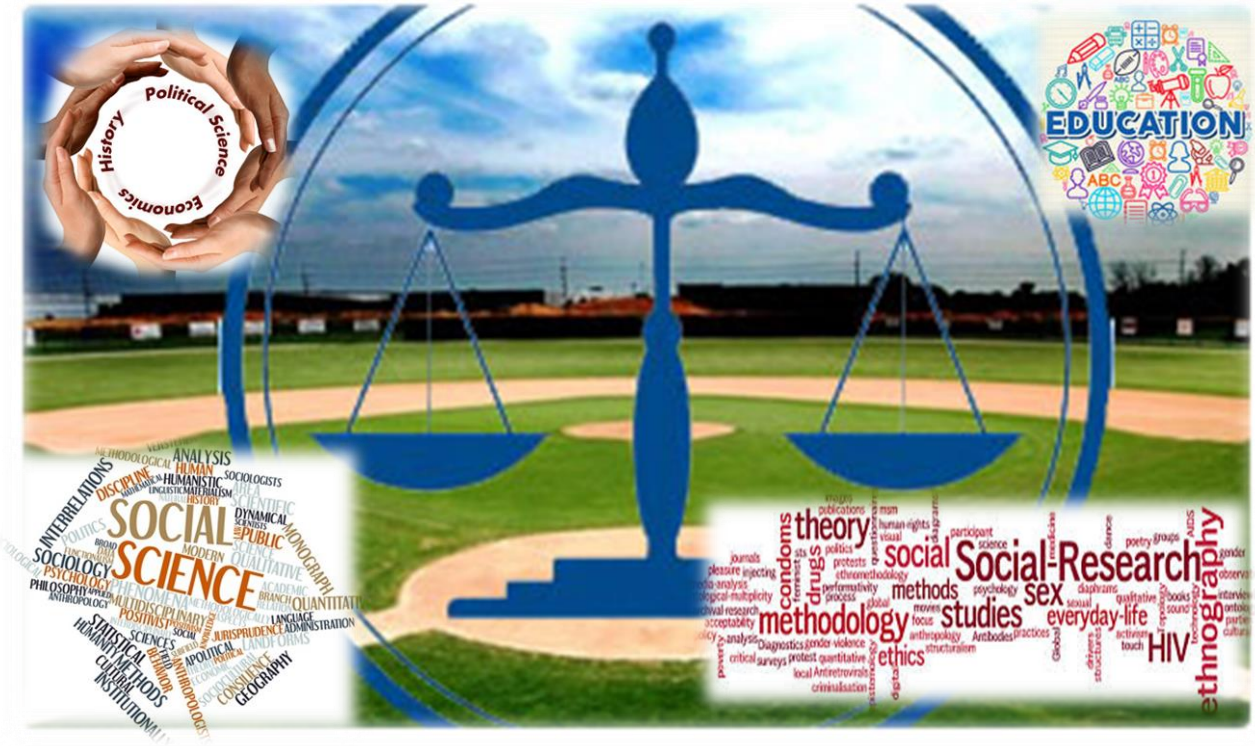

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Research Article

Effect of motivation on memory in High school students

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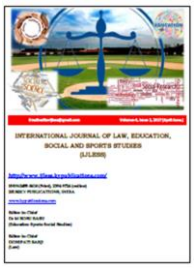

ABSTRACT
Who we are and how we interact with the world around us hinges on long term memory, the ability to remember past events and experiences. Many memories are created in school; we can often clearly picture encounters with our teachers and classmates or school field trips that we went to. At the same time, memory is critical for success in school, supporting language comprehension, as well as arithmetics. Despite the centrality of memory for academic attainment, there have been few attempts to specify the key mechanisms by which children harness their developing memory systems to learn in school. There is arich body of literature in psychology and neuroscience on the mechanisms that underlie various forms of memory and their development, but there have been few attempts to draw links between this well controlled, mechanistically detailed research and the richer ,more complex world of classroom instruction. Laboratory based research on executive functions and motivation has provided important insights that are shaping educational practices. Students' motivation has a direct and powerful impact on their social interactions and academic achievement. Students with the same abilities and prior knowledge may perform quite differently, based on their motivation. With the intention to explore the effect of motivation on memory a pilot study was conducted on 10 students each from SSLC,CBSE and ICSE(total 30 students)
The sample consisted of five girls and five boys from each board. Study Habit Inventory (Palsane and Sharma, 1989)was administered on all the students. This inventory measures eight areas- budgeting time, physical conditions, reading ability, note taking, memory, learning motivation, taking exams and health.
Spearman's rank difference correlation was used to examine the relationship between learning motivation and memory. The result indicate a high positive correlation for SSLC students, low positive correlation for ICSE students and a low negative correlation for CBSE students.
Keywords: motivation, memory ,academic achievement, classroom environment, student involvement and ability.

1. Introduction

Motivation is usually defined as an internal state that arouses ,directs and maintains behaviour. What choices do people make about their behaviour? How long does it take to get started? What is the intensity or level of involvement in the chosen activity? What causes a person to persist or to give

up? What is the person thinking and feeling while engaged in the activity? These are some of the questions on which motivation focuses. Motivation to learn is defined as "a student tendency to find academic activities meaningful and worthwhile and to try to derive the intended academic benefits from them". Motivation to learn also includes the quality of the student's mental efforts. For example ,reading the text 11 times may indicate persistence, but motivation to learn implies more thoughtful, active study strategies, such as summarizing, elaborating the basic ideas, drawing graphs of the key relationships ,and so on.

Memory is nothing but retention of information over time, which involves encoding ,storage and retrieval. Students need to be motivated to learn so that they are cognitively engaged- to think deeply about what they study. Both intrinsic and extrinsic factors contribute to motivation to learn, level of involvement by a student and finally on their academic performance.

2.0 Review of literature

The following are few studies conducted with regard to variables tested in this study.

In [1] a study by Vishnu .P.Murthy,Kathryn C.Dickerson,(2016),motivation significantly influences learning and memory.The reviewed research supports an adaptive model of memory in which an individual's motivational state (i.e.learning under states of reward or punishment) shapes the nature of memory representations in service of future goals.The impact of motivation on learning and memory,therefore,has very clear implications for and applications to educational settings.

As in [2] ,Alexandre.G and Patrick .G (2017) found that autonomous motivation is associated with school achievement,but the relation has been largely heterogeneous across studies.In their sample of 272 university students it was found that explicit autonomous motivation was positively associated with academic achievement for students with average –to-high levels of working memory capacity,but only if their motivation operated synergistically with high implicit autonomous motivation.

In [3] ,study by Ewa.A.M,Daphne B,Sophie .S(2016) found that motivational relevance can prioritize information for memory encoding and consolidation based on reward value.Existing evidence suggests that the neurotransmitter dopamine boosts the formation of declarative memory for rewarded information and may also control the generalisation of reward values.

In [4] Brown K.W, Goodman R.J,Ryan R.M,Analayo B (2016) suggested that training in mindfulness improves attention and working memory.This study also found evidence for meditation of the mindfulness training—episodic memory relation by intrinsic motivation.These findings indicate that mindful attention can beneficially impact motivation and episodic memory,with potential implications for educational and occupational performance.

In [5] ,study by Isabelle T,Oliver J,Dieter .F (2016) investigated the compensatory impact of motivation to learn on memory performance with age.Results showed no age differences on the recall of positive stories, whereas the recall of negative and neutral stories was lower forolder than young adults.In conclusion, motivational aspects may lead to the equivalent memory performance of young and older adults.

In [6], Timothy J.Cleary and Anastasia .K (2017) examined the relations among background variables(socioeconomic status,prior mathematics achievement),motivation variables (self efficacy,task interest,school connectedness),self-regulated learning behaviours, and performance in middle school mathematics courses. The key finding was that both cognitive (i.e. self efficacy)and behavioural (i.e.self-regulated learning) latent factors served as key mediators in the model,with each of these factors exhibiting unique effects on mathematics performance after controlling for prior achievement.

As in[7] a study by Nonna O,Emrah D,Ariel Y.D, John L (2012) showed that dopamine neurons, in addition to being activated by reward, can be activated by novelty in the absence of

reward.The computation of novelty is thought to occur in the hippocampus and is carried to the dopamine cells of the VTA through a polysynaptic pathway.

3.0 Materials and methods

Study habit inventory by M.N.Palsane and Sadhana sharma (1989) was used to assess the study habit of high school students. It has 45 items with three alternative answers:

a) Always , b) sometimes, c) rarely or never.

It measures eight areas namely memory, health ,reading ability ,note taking, learning motivation, budgeting time, physical condition and taking examination.

Scoring: A score of 2 is awarded for always, 1 for sometimes and 0 for never responses. Statements with a strick mark are scored in reverse order.

Reliability and validity: The reliability coefficient by test retest method was found to be 0.88 and by using split half method, the coefficient of correlation was 0.56 between odd and even items.

Methodology: Problem: To study the relationship between motivation and memory in high school students.

Aim: To examine the correlation between motivation and memory.

Hypothesis: It was hypotheses that students with higher motivation to learn will be having better memory.

Variables: Personality variables

Study habits (motivation and memory)

Demographic variables

a) Gender and b) school board (SSSLC,CBSE,ICSE)

Sample: Thirty students belonging to eighth standard (15 girls and 15 boys),10 students each from SSLC,CBSE and ICSE from south Bengaluru .

Procedure: Firstly permission from the respective school principal and class teacher was obtained. After establishing rapport with the students and assuring strict confidentiality of the responses the inventory was administered .The students were asked to provide their demographic details and clear any doubts with regard to meaning of any word.

Table 1. Showing the means ,standard deviations SD and range for the three boards.

	SSLC N=10		CBSE N=10		ICSE N=10	
	motivation	memory	Motivation	memory	Motivation	Memory
Mean	9.0	5.9	9.6	5.0	8.9	5.1
SD	0.93	1.28	1.34	1.48	1.52	0.87
Range	2	4	4	4	5	2

Table 2.showing spearman's rank difference correlation coefficient for the three boards

SSLC N=10	CBSE N=10	ICSE N=10
0.91	-0.09	0.05

Table 3. Showing mean, standard deviation SD and range for girls and boys on the two Variables

	Girls N=15		Boys N=15	
	Motivation	memory	Motivation	memory
MEAN	8.86	5.6	9.4	5.0
SD	1.84	0.72	1.29	1.6
RANGE	5	3	4	5

Table 4. Showing spearman's rank difference correlation between motivation and Memory for girls and boys

Girls N=15	Boys N=15
0.23	0.05

5.0 Result and Discussion

Responses were scored and statistical analysis was done .Descriptive statistics of (mean and range) and inferential statistics of spearman's rank difference correlation coefficient as used.

The mean(9.4) for boys is greater for learning motivation , whereas for memory girls have a greater mean (5.6)

With regard to different school boards, for motivation highest mean (9.6)is for CBSE and for memory the highest mean (5.9) is for SSLC

The rank difference correlation was found to be 0.23 and 0.05 for girls and boys respectively thereby showing positive correlation between motivation and memory .

The correlation for SSLC was highest with 0.91 , for ICSE it was 0.05 and for CBSE it was negative correlation of -0.09

Therefore we accept the hypothesis that higher the motivation better is the memory of students.

6.0 Conclusion

a) There is a positive correlation between motivation and memory for students belonging to SSLC and ICSE board.
b) There is a negative correlation ,though negligible between motivation and memory for CBSE students.
c) There is a positive relation between motivation and memory for both girls and boys.

7.0 Acknowledgement

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