EFFECT OF YOGA PRACTICES ON COGNITIVE FATIGUE OF HIGH SCHOOL STUDENTS

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ABSTRACT

Yoga, an elixir that works on almost every new age predicament. It is not a solution only for grown-ups but also for young children and can help them lead a better lifestyle as they grow up. Yoga helps to improve memory function in children, the direct benefit of which would be better academic performance in children. Yoga is integral to their physical and mental health. To combat the mounting stress and to fulfill the charge of taking care of oneself, one can resort to practicing yoga routinely. The main objectives of the study are (i) to find out the effect of yoga practices on the cognitive fatigue of high school students. An experimental method was applied for this study. Pretest and posttest equivalent group design was used for conducting the experiment The sample study consisted of 64 IX std students from St. Joseph's High School, Palayamkottai, Tirunelveli District. There were 32 students in each control and experimental group. Cattel's Culture Fair intelligence test was used to establish homogeneity. The cognitive Fatigue Scale was developed and validated by the investigator for this experiment. T-test and ANCOVA were used for data analysis. Based on the result of the study, it can be concluded that yoga practices made a strong effect on cognitive fatigue by reducing high school students.

Keywords : *Yoga Practices, Cognitive Fatigue, Academic stress.*

Introduction

Schoolchildren of today are much busier than past generations. School, homework, sports, and family expectations are all competing for today's children's attention. Students face academic stress and mental exhaustion as a result of their extensive study habits. They have trouble paying attention, have low endurance, and have reduced mental capacity. They can concentrate effectively at first, but their ability to concentrate decreases over time. Students with significant academic stress have been reported to have depression, anxiety, behavioral issues, and irritability. Yoga makes the students more positive, shifts their energy back and helps them to bounce back from cognitive fatigue.

Review of Related Studies

Sievertsen, Francesca, Gino, and Marco Piovesan (2015) explored that cognitive fatigue influenced students' performance on standardized tests. Linden, Frese, and Meijman (2003) explored cognitive fatigue and the control of cognitive processes. The findings indicated that compromised executive control under fatigue, which may explain the typical errors and sub-optimal performance, is found in fatigued people. Maher et al. (2015) explored the issue of cognitive fatigue in children and adolescents with physical disabilities. Findings identified that cognitive fatigue was a substantial issue for children and adolescents with physical disabilities. Latha (2013) investigated the role of yoga training in the nature of work and cognitive fatigue. The scores of pre-test and post-test on the multidimensional fatigue inventory revealed a significant reduction in fatigue level.

S. SERMATHANGAM
Research Scholar, Department of Education, Manonmaniam Sundaranar University, Tirunelveli, TamilNadu, India.
Dr. H. DEEPA
Associate Professor, Department of Education, (DD & CE) Manonmaniam Sundaranar University, Tirunelveli, TamilNadu, India.

Need and significance of the study

Yoga benefit the brain in ways that improve cognitive performance, attention, and memory. Yoga can help to reduce stress, add confidence, make a clear mind and produce a sense of peace. The investigator provided asanas, breathing practices, and relaxation to the students which are suggested by the yoga naturopathy medical officer that helps the students to reduce their cognitive fatigue. So, the investigator makes an attempt to provide yoga practices and assess the cognitive fatigue of students.

Objectives of study

1. To know how far the two groups of high school students differ in their cognitive fatigue before giving treatment.
2. To know how far the two groups of high school students differ in their cognitive fatigue and its dimensions after giving treatment.

Hypotheses of study

1. There is no significant difference between the pre-test scores of the control group and the experimental group high school students in their cognitive fatigue and its dimensions.
2. There is no significant difference between the post-test scores of the control group and the experimental group high school students in their cognitive fatigue and its dimensions.

Methodology

Experimental method is used for the study. The IX standard students studying in St. Joseph's Matriculation School in Palayamkottai, Tirunelveli District were selected for the study. Cattel's Culture Fair Intelligence Test and Cognitive Fatigue Scale (2021) were used. 't'-test is used for analysis.

Pre-test Analysis (Cognitive Fatigue)

Hypothesis 1 : There is no significant difference between the pre-test scores of both the control group and experimental group high school students in their cognitive fatigue and its dimensions.

Table 1

t-test for the pre-test scores of the control group and experimental group high school students in their cognitive fatigue and its dimensions.

Cognitive Fatigue and its Dimensions	Group	N	Mean	SD	t-value	p-value	Remarks
Deficiency in cognitive performance	Control	32	50.9375	18.5384	2.293	0.025	S
	Experimental	32	41.4062	14.4621			
Attention & concentration problems	Control	32	22.5	8.489	0.399	0.691	NS
	Experimental	32	21.625	9.0473			
Inadequate academic performance	Control	32	46.1562	15.0999	1.534	0.13	NS
	Experimental	32	40.625	13.7083			
Mental Exhaustion Problems	Control	32	28.5	9.652	0.325	0.746	NS
	Experimental	32	27.75	8.7951			
Insufficient endurance ability	Control	32	24.9688	8.4413	0.762	0.449	NS
	Experimental	32	23.2188	9.8725			
Cognitive Fatigue (Total Pre-test Score)	Control	32	1.73062	55.2594	1.403	0.166	NS
	Experimental	32	1.54622	49.7015			

S-Significant at 5% level of significance NS-Not Significant at 5% level of significance.

In the above table, since the p-value for deficiency in cognitive performance is less than 0.05, the null hypothesis is rejected at 0.05 level of significance. Hence, it is concluded that there is a significant difference between the Pre-test scores of control and experimental groups high school students in their deficiency in cognitive performance.

Post-test Analysis (Cognitive Fatigue)

Hypothesis 2 : There is no significant difference between the Post-test scores of both the control group and the experimental group high school students in their cognitive fatigue and its dimensions.

Table 2

t-tests for the Post-test scores of the control group and experimental group high school students in their cognitive fatigue and its dimensions.

Cognitive Fatigue and its Dimensions	Group	N	Mean	SD	t-value	p-value	Remarks
Deficiency in cognitive performance	Control	32	46.2188	16.0699	6.238	0.00	S
	Experimental	32	26.4062	8.03564			
Attention and concentration problems	Control	32	23.1562	8.37858	4.72	0.00	S
	Experimental	32	14.5	6.11714			
Inadequate academic performance	Control	32	48.375	16.3997	6.116	0.00	S
	Experimental	32	26.6875	11.5492			
Mental Exhaustion Problems	Control	32	28.5625	10.2986	4.875	0.00	S
	Experimental	32	17.7812	7.10172			
Insufficient endurance ability	Control	32	23.4375	9.15084	4.871	0.00	S
	Experimental	32	13.8438	6.35564			
Cognitive Fatigue (Total Post-test Score)	Control	32	1.72E+02	54.8238	6.334	0.00	S
	Experimental	32	98.3125	36.9598			

S-Significant at 5% level of significance.

In the above table, since the p-values for cognitive fatigue and all its dimensions is less than 0.05, the null hypothesis is rejected at 0.05 level of significance. Hence, it is concluded that there is a significant difference between the Post-test scores of control and experimental group high school students in their cognitive fatigue and its dimensions.

Findings of Study

1. There is no significant difference between the Pre-test scores of control and experimental group high school students in their cognitive fatigue. But there is a significant difference between the pre-test scores of control and experimental group high school students in their deficiency in cognitive performance. The mean difference showed that the control group has greater cognitive fatigue than the experimental group.
2. There is a significant difference between the post-test scores of control and experimental group high school students in their cognitive fatigue and its dimensions. The mean difference showed that the control group students have greater cognitive fatigue and its dimensions than the experimental group students.

Interpretation of Study

1. The investigator found from pre-test analysis that the high school students of the control group are having a greater deficiency in cognitive performance than that of the experimental group. Deficiency in cognitive performance of control group students may be induced by slowness in thinking, difficulty in remembering, and difficulty in understanding.
2. This finding of research work evidence indicated that yoga practices reduce the cognitive fatigue of high school students. Practicing yoga daily helps them to pay attention to their studies because doing asanas enables active cell growth for cognition and learning.

Conclusion

Based on the findings of the study and its interpretation, the Research Scholar's perception, and the basis of critical literature available, the investigator has drawn some conclusions based on the research questions. The findings of the current study show that yoga practices are significantly effective on cognitive fatigue of high school students doing yoga practices and that of students not doing yoga practices.

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integrates as one. The paper highlights how teachers are the sole torch-bearers of this integration in the CLIL approach and how a "hybrid" teacher comes into the forefront with the content and language teachers' collaborative efforts. It also highlights the importance of teachers' workshops to help with the approach. This study is limited in terms of respondents it reached and provided the scope for more research on the approach, making it more acceptable in the Indian educational system.

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influenced by one or more socio-demographic predictors. The significant predictors were the type of school, area of residence, mother's education, and a class of study.

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