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Academic Performance and Therapeutic Breathing

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Academic performance and Therapeutic Breathing



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Abstract



This paper explores using breathing techniques to boost the academic performance of students and describes how teachers can foster the technique in their classrooms. The innovative study examines the differential impact of therapeutic breathing exercises, called *pranayama*, on students' academic performance. The paper introduces approaches to therapeutic breathing exercises as an alternative to improve school performance, as well as the self-regulatory behavior, which is known to correlate with academic performance. The intervention consisted of two breathing exercises, (1) deep breathing, and (2) alternate nostril breathing. It is a quantitative study spanning over a year with about 100 third graders was conducted using daily breathing exercises to investigate the impact of pranayama on academic performance. Significant cumulative gain-scores were found for students who practiced the approach.



Popularity of a belief is not the same thing as the validity of the belief.



Research Question

- What's the impact of breathing techniques on students' academic performance?

Background Information



- It is a recognized Jr. High School (Nursery-8th grade). The medium of instruction is English. The average class size is 50 students per class. Students come from lower socioeconomic backgrounds. The average salary per month is 3000-5000 Rs.
- Classes are split into two sections.
- The school time is 7:30 am to 1:40 pm.
- There is classroom teacher and math and computer teacher. They follow NCERT curriculum.

Conceptual Framework



**Deep
Breathing**

**Alternate
Nostril
Breathing**

Children practicing alternate-nostril breathing pranayama





Literature Review

- Deep breathing and alternate nostril breathing, purport to provide the therapeutic benefits affecting memory and brain cells (Telles, et al 2007).
- More oxygen and better circulation, affect the central and autonomic nervous systems (Brosnan, 1982; Lalvani, 1999)
- In a 2005 meta-review of analysis of several studies, Richard Brown, MD and Patricia Gerbarg, MD, reported that yogic deep breathing was extremely effective in addressing depression, anxiety and stress related disorders.



Literature Review

- Pranayama as a promising intervention for cognitive, social, emotional, behavioral, and academic difficulties (Nardo & Reynolds, 2002; Peck, Kehle, Bray, & Theodore, 2005)
- Pranayama promotes self-control, attention and concentration, self-efficacy, body awareness, and stress reduction (Nardo & Reynolds, 2002)



Literature Review

- Yoga programs in elementary schools that incorporate balancing, bending, and stretching exercises have been a growing area of research (Berger, Silver, & Stein, 2009)
- Mind-body techniques teach children to improve their attention skills, which can help their performance in school (Steiner, et al. 2013, p. 816).
- There is empirical evidence for the efficacy of breathing exercises on behavior modification (Peck, et al. 2005, Steiner, et al. 2013)

Methodology



Experimental Research Design, grade levels were randomly assigned.

Independent Variable – Therapeutic Breathing Exercise

Dependent Variables –Unit Test Scores (Math, English and Hindi)

Measures – Unit test scores

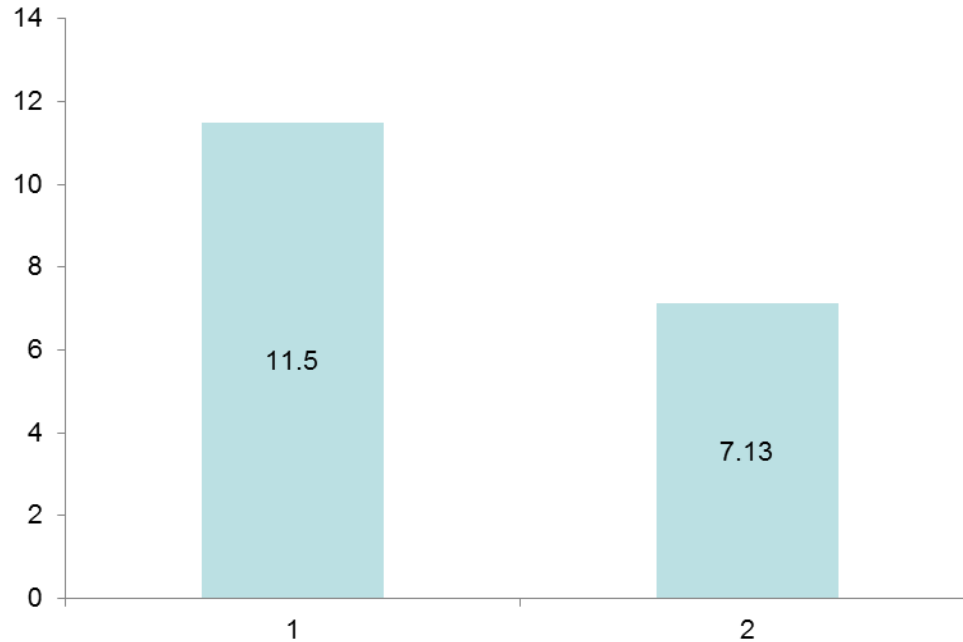
The effectiveness of the intervention (independent variable) on unit test score differences (the dependent variable) was evaluated by ANCOVA with the covariate of English pretest scores (due to multiple comparisons, between Hindi, English, Math and Cumulative gains).

Demographic Information



Experimental	Control
Grade 3 N= 54	Grade 3 N= 51

Findings



1 = Experimental Group
2 = Control Group

Average Gain Point Improvement between Experimental and Control Groups

Findings



Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	995.204 ^a	2	497.602	13.386	.000	.237
Intercept	3115.067	1	3115.067	83.801	.000	.494
English Unit Test1	344.879	1	344.879	9.278	.003	.097
Therapy Breathing	386.645	1	386.645	10.401	.002	.108
Error	3196.796	86	37.172			
Total	11401.000	89				
Corrected Total	4192.000	88				

a. R Squared = .237 (Adjusted R Squared = .220)

Findings



- Students from treatment group showed increased attention span and attendance rates, stayed on task and paid greater attention to teacher directions with minimal referrals for behavioral issues.
- Teachers noted a general enthusiasm among students when they practiced pranayama.

Limitations of the Study



- The study was conducted in one school, thus interpretation of the results of this study should be made with caution and cannot be generalized.

Implications



- Future research should include replication with larger number of students.
- Studies with a longer term follow-up would provide more data regarding the sustainability of the effects of the intervention.

Presenters' bio



Dr. Abha Gupta, currently an Associate Professor of Language and Literacy Education at Old Dominion University, Norfolk, Virginia, has been the past director of ODU's Reading Center and the federally funded America Reads Program. Her main research interests center on language and literacy development. Dr. Gupta received a doctorate degree from the University of Arizona in Tucson. She has numerous publications in literacy education and has made many presentations at international, national, state and local conferences. She is an educational consultant with Educational Testing Service (ETS) and has received research grants at corporate, federal and state levels. Dr. Gupta is a member of the International Reading Association's Title One Reading Committee.

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Presenters' bio

Ms. Seema Maira is principal of DAV Public School in Modinagar in India. She received her masters degree in Linguistics from University of Delhi. Her interest is in working with children from low socio-economic background.

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Presenters' bio



Dr Smita Sinha is head of the department of Linguistics at Berhampur University in India. Her research interest includes socio linguistics, Language teaching, multilingualism, Language education policy for tribal minorities, tribal linguistics and endangered languages. She received Shiksha Ratan award by India International Friendship Society, New Delhi in 2010.

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Absence of
opportunity to learn
should not be
interpreted as
absence of ability to
learn.