

Perceived Benefits of Incorporating Yoga into Classroom Teaching: Assessment of the Effects of “Yoga Tools for Teachers”

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Abstract

With rising health issues among children and adolescents in America such as obesity and diabetes, getting physically active becomes ever more important. Yoga, as an ancient system of exercise, has a great potential to teach children to be mindful of factors that impact their health and improve their total well-being. The purpose of this study was to examine the perceived benefits of incorporating yoga-based activities into classroom teaching as a result of implementing the Yoga Ed. Tools for Teachers program. One hundred and three physical education and classroom teachers were trained by certified Yoga Ed. instructors for two days. These teachers, in turn, implemented the yoga-based activities for 5 - 15 minutes daily for a year. At the completion of this period, questionnaires from 550 parents and 661 students as well as 103 teachers were analyzed. Triangulation of the data provided solid evidence suggesting that yoga-based activities produced perceived benefits in such areas as mental well-being, social well-being, physical well-being, and daily behaviors. The data analyses also revealed barriers teachers encountered during implementation and what they did to overcome these barriers. The results were discussed with regard to their future implications for yoga programs appropriate for schools in the United States (US).

Keywords

Yoga, Yoga Ed. Tools, Physical Education Teaching

1. Introduction

The current health status of U.S. school children causes great concerns for educators and parents. Lack of regu-

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lar physical activity is believed to contribute to the childhood obesity epidemic which is associated with premature mortality rates in the US (U.S. Department of Health and Human Services, 2000; Zimmerman et al., 2013). In addition, lack of physical activity also causes many other related health issues among children in the US such as increased stress, poor sleep, and decline in mental health (McPhie & Rawana, 2012). Childhood and adolescence pose more and more stressors in today's society when the demands of a situation exceed an individual's ability to cope with and resolve the problem, resulting in emotional, behavioral, and cognitive disturbances that can adversely affect a person's physical and mental well-being (McCance, Forshee, & Shelby, 2006). Under stress many young people resort to unhealthy ways of coping such as over-eating and use of drugs, resulting in health crises (Kottler & Chen, 2011).

Because children spend many hours at schools where infrastructure already exists for physical activity, school-based programs may contribute to reversing the negative trends in physical activity. In fact, schools have been asked to help foster health habits and increase students' level of physical activity (Pate et al., 2006; Sallis et al., 1997). In addition, physical education programs in schools have been recommended as ideal settings to begin the early promotion of health and emphasize the importance of physical activity (U.S. Department of Health and Human Services, 2000). While the benefits of traditional physical activity programs are still evident, more and more educators have resorted to non-traditional and mindfulness interventions for their holistic effects on the health of children (e.g., Burke, 2010).

Yoga, as an ancient system of exercise, is being used more and more by people of all ages to promote overall health and fitness. There is also a progressive trend toward use of yoga as a mind-body complementary and alternative medicine intervention to improve specific physical and mental health conditions. Yoga has been recommended as a great supplement to current physical activities at schools because it emphasizes individual abilities rather than competition, making it attractive to all children, including those with physical limitations and lack of involvement in organized sports. Yoga also has the potential to reduce obesity and other health issues. Since yoga is hailed as a mindfulness exercise (Burke, 2010), it enhances one's self-awareness including breathing, posture, diet, and behaviors, and it has the potential to influence the whole person. Research with adults and limited research on children has provided some evidence that yoga practice leads to improvements in one's life in all the areas examined in the student questionnaire. Yoga practiced by adults reduces anxiety (Brown & Gerbarg, 2005), and improves relaxation (Smith, Hancock, Blake-Mortimer, & Eckert, 2007; Waelde, Thompson, & Gallagher-Thompson, 2004). A recent review of research on the effects of yoga practice on children produced moderate evidence suggesting benefits for cardiovascular health, physical functioning, and behavior (see Galantino et al., 2008 for a review). Yoga research on children also points to improved attention and emotional control (Jensen & Kenny, 2004).

Although it would be ideal for physical education teachers to deliver yoga classes on a regular basis, with the tightening of school budgets, it can be attractive for classroom teachers to deliver physical activity curricula. Research shows that enabling classroom teachers to deliver physical activity could be an economic solution to a daunting health crisis faced by our nation's youngsters (Sherman, Tran, & Alves, 2010). It is natural for classroom teachers to feel intimidated by incorporating yoga into their curriculum, but given proper training, it is quite feasible. Yoga appears to be simply a stretching activity, but the variety and sequencing of postures coupled with the practice of deep breathing creates an extremely diverse and effective method of enhancing a range of health-related fitness skills.

The purpose of this study was to examine the perceived benefits of incorporating yoga-based activities into classroom teaching as a result of implementing the Yoga Ed. Tools for Teachers program. A Carol M. White Physical Education Program (PEP) grant was awarded to The Accelerated School (TAS). The grant funded Yoga Ed™ trainings for classroom teachers, physical education teachers and yoga instructors. The Tools for Teachers is a very important component of Yoga Ed. trainings that was offered to both physical education and classroom teachers with the expectation that they would incorporate 5 - 15 minutes yoga-based activities into their curriculum and serve as a model for fitness and health.

2. Method

2.1. Participants

Completed surveys from 103 teachers, 550 parents, and 661 students (average age = 9.71; SD = 2.98) were processed and as many as 54 returned questionnaires were disqualified for their incompleteness or modifications

(see **Table 1** for the demographics of student participants). All the participants agreed to participate in the study and received and returned a signed letter of informed consent/assent. Teachers were trained by certified yoga instructors from Yoga Ed. funded by the PEP grant. Students were from mid-to-low socioeconomic status public schools or from a charter school in the western United States).

2.2. The Yoga Ed. Tools for Teachers Workshop

The Yoga Ed. Tools for Teachers is a very important component of Yoga Ed. It was offered to physical education and non-physical educational teachers from other schools. Instructors from Yoga Ed. offered a 2-day workshop in which participating physical education or classroom teachers learned yoga-based activities designed for the K-12 classroom. Under the supervision of certified Yoga Ed. instructors, classroom and physical education teachers learned such important techniques as breathing, postures, yoga-based games, and visualization. They also learned how to teach their students to relax, become more responsible, and become physically active through teaching and personal modeling. When teachers finished their 2-day training, they signed a contract to deliver simple 5 - 15 minutes yoga-based exercises on a daily basis. This program did not require any previous yoga experience. Implementation of the yoga-based activities in schools required no extra space or equipment. In addition to yoga-based activities, effective behavior and class management techniques were also taught during the workshop.

2.3. Development of Written Surveys

The authors, who served as external evaluators of the effectiveness of Yoga Ed. Tools for Teachers, developed four written questionnaires in both English and Spanish to survey teachers, students, and their parents. This triangulation of data was to insure that the perceptions of three perspectives could converge on similar conclusions. The student surveys were designed to determine the students' perceptions of the benefits they had received from participation in the yoga-based activities, organized by their teachers, who had been trained by certified Yoga Ed. instructors. These benefits included: 1) mental well-being (e.g., relaxation, concentration, calmness, self-confidence, joy and happiness), 2) social well-being (e.g., ability to get along with others, listening skills), 3) physical well-being (postures, sleep, fatigue, eating and diet), and 4) positive behaviors (e.g., responsibility, behavioral changes) (see **Table 2** for details). These items of assessment are consistent with the areas of study that have dealt with yoga.

Table 1. Demographics of 661 student participants.

Age	Females (n = 328)	Males (n = 333)
5	26	16
6	22	26
7	29	32
8	46	35
9	75	83
10	25	20
11	27	21
12	22	24
13	36	42
14	14	12
15	1	2
16	3	4
17	4	2
18	0	2
19	0	2
20	2	4
21	2	0

Table 2. Student self survey questions.

If you have additional comments, please use the space on the back of the survey.

1 = Strongly disagree. 2 = Disagree. 3 = Neutral. 4 = Agree. 5 = Strongly agree.

Comparing myself to how I was before my classroom teacher began using the yoga tools in the classroom,

1. I have become more relaxed in daily living.
2. I have had fewer or no behavioral problems at school.
3. I have become more responsible in managing my daily tasks.
4. I am more focused on school work
5. I can sleep better.
6. I am more energetic.
7. I am more aware of what I eat.
8. I have gained more knowledge about nutrition.
9. I start to eat more healthy foods.
10. I am getting along better with my family and friends.
11. I am a better listener today.
12. I can calm down more quickly once I feel upset.
13. I know more about my body.
14. I have better body postures.
15. I feel more confident in myself.
16. I am happier and laugh more often.
17. I enjoy school work and sports more than before.
18. I like myself more.

The parent questionnaire was based on the same 18 items from the student survey questionnaire, because the researchers wanted to ensure that parents who had many opportunities to observe their children would have similar observations of the changes in their children's behaviors and well-being.

The teacher survey questionnaire consisted of eight Likert-scale questions and two open-ended questions. The eight Likert-scale questions represented the same four areas of benefits practice of yoga was supposed to bestow upon the students, with the first question addressing the quality of training they had received to prepare for the implementation of the yoga-based activities. The two open-ended questions were designed to assess the barriers they had encountered during the implementation and what they had done to overcome these barriers. This information is valuable to teachers who will carry on the same tasks in the future (see [Table 3](#)).

2.4. Procedures

Testing materials and procedures were approved by the institutional review board and the local school district boards. The teachers were trained between April 2007 and August 2008 by certified Yoga Ed. instructors. The teachers signed a contract to implement the yoga-based activities as part of their curriculum. At the end of one-year implementation, they agreed to send their surveys back to TAS. The students and their parents agreed to complete the questionnaires and return them to TAS.

2.5. Data Analysis

Data analyses for the Likert-scale questions were analyzed using SPSS Version 19. We ran basic descriptive statistics to assess the perceived benefits of yoga activities. Open-ended questions were analyzed by examining the content of their answers and identifying the themes that emerged from the answers given by 102 teachers.

3. Results

All the survey data were analyzed with SPSS Version 19. The researchers first generated descriptive statistics. A

Table 3. Post-implementation teacher survey (Yoga Ed. Tools Program).

1 = Strongly disagree. 2 = Disagree. 3 = Neutral. 4 = Agree. 5 = Strongly agree.

Please put a number in the designated space to indicate your level of agreement the following statements.

1. The training I received at Yoga Ed/The Accelerated School has proven sufficient for me to implement the yoga program.
2. The yoga program I implemented has improved the cognitive functioning and hence school performance of the recipients.
3. The yoga program I implemented has enabled my students to focus better on important tasks at hand.
4. The yoga program I implemented has improved the social skills of my students.
5. The yoga program I implemented has improved the emotional maturity of my students.
6. The yoga program I implemented has improved the self-esteem of the students.
7. The yoga program I implemented has contributed to a reduction of behavioral problems among my students.
8. The yoga program I implemented has enabled my students to become better in caring for themselves.

Please answer the following questions carefully.

What kinds of barriers did you encounter as you implemented the yoga program?

What did you do when you encountered these barriers?

score of 3 is interpreted as a neutral response. Scores 4 and 5 represent positive responses while 1 and 2 negative responses. The mean score of 3.5 and above indicates a positive effect.

3.1. Student Survey Results

The results of the student surveys showed that yoga practice had produced positive changes in all the areas surveyed, since their average scores were all above 3.5. When we examined the negative and positive responses, the overwhelming responses were positive. The most notable changes students had identified in the 18-question survey included the area of mental well-being and physical well-being (see [Table 4](#) and [Table 5](#)).

The student survey data indicated that yoga practice yielded positive changes in the domains of mental, emotional, physical, and interpersonal growth. The most notable positive changes students identified in themselves as a result of yoga practice include joy (mean = 4.18), self-esteem (mean = 4.21), enthusiasm (mean = 4.04), confidence (mean = 4.17), knowledge of human body (mean = 4.02), posture (mean = 4.01), energy (mean = 4.0), interpersonal relationships (mean = 4.02), sleep (mean = 3.90), and concentration (mean = 3.92).

3.2. Parent Survey Results

The parent survey data demonstrated that, in general, yoga practice led to positive perceived changes in their students in all the surveyed domains of mental, emotional, physical, and interpersonal growth. However, the most notable areas of improvement include joy (mean = 4.04), self-esteem (mean = 4.04), enthusiasm (mean = 4.04), confidence (mean = 4.04), concentration (mean = 3.91), and sleep (mean = 3.89). It appears that parent perceptions of the benefit yoga practice created were less positive than those by students themselves (see results in [Table 6](#) and [Table 7](#)).

3.3. Teacher Survey Results

There were a total of 103 teachers who participated in the study. They received yoga training, delivered the instruction, and completed surveys. The majority of the teachers believed that the implementation of the yoga program had delivered the predicted benefits for their students (see [Table 8](#) and [Table 9](#)).

Teacher surveys did not assess individual students' improvement in emotional, mental and physical well-being, but provided their overall assessment of improvement in emotional, mental, and physical well-being. It can be seen from [Table 8](#) and [Table 9](#) that teachers believed that the yoga training they received was adequate for delivering yoga instruction (mean = 4.17), and the implementation of yoga instruction in their classrooms was conducive to producing positive changes in students' concentration (4.17), social skills (mean = 4.03), emotional maturity (mean = 4.03), self-esteem (4.03), and self-care (mean = 4.08).

Table 4. Results from student surveys based on 18 questions.

Questions	Total responses	Positive responses	Neutral responses	Negative responses
Relaxation	660	440	153	67
Behaviors	660	409	164	87
Responsibility	659	437	152	70
Concentration	652	449	133	70
Better sleep	645	436	114	95
Less fatigue	648	457	131	60
Eating awareness	654	420	152	82
Knowledge in nutrition	656	419	149	88
Eating better	654	426	148	80
Friends and relatives	655	469	137	49
Better listening	650	447	147	56
Calmness	660	439	129	92
Knowledge of human body	650	463	130	57
Posture	632	458	118	56
Confidence	588	448	100	40
More joy	585	444	92	49
Enthusiasm	584	420	95	69
Self-esteem	575	435	100	40

Table 5. Descriptive statistics for student surveys Yoga Ed. tools based on 18 questions.

	N	Mean	SD
Relaxation	660	3.87	1.118
Behaviors	660	3.77	1.141
Responsibility	659	3.87	1.081
Concentration	652	3.92	1.073
Better sleep	645	3.90	1.252
Less fatigue	648	4.00	1.092
Eating awareness	654	3.80	1.161
Knowledge in nutrition	656	3.80	1.162
Eating better	654	3.86	1.125
Friends and relatives	655	4.02	1.076
Better listening	650	3.94	1.056
Calmness	660	3.85	1.179
Knowledge of human body	650	4.02	1.093
Posture	632	4.01	1.112
Confidence	588	4.17	1.052
More joy	585	4.18	1.058
Enthusiasm	584	4.04	1.198
Self-esteem	575	4.21	1.091

Table 6. Results from parent surveys based on 18 questions.

Questions	Total responses	Positive responses	Neutral responses	Negative responses
Relaxation	545	340	159	46
Behaviors	538	328	163	47
Responsibility	548	343	165	40
Concentration	547	382	132	33
Better sleep	548	358	153	37
Less fatigue	541	323	164	54
Eating awareness	545	336	145	64
Knowledge in nutrition	547	326	158	63
Eating better	546	305	175	66
Friends and relatives	543	350	156	37
Better listening	547	353	138	56
Calmness	547	315	173	59
Knowledge of human body	488	325	141	22
Posture	487	318	137	32
Confidence	491	371	94	26
More joy	494	372	96	26
Enthusiasm	495	370	92	33
Self-esteem	496	373	93	30

Table 7. Descriptive statistics for parent surveys.

	N	Mean	SD
Relaxation	546	3.72	0.951
Behaviors	540	3.75	1.016
Responsibility	550	3.77	0.932
Concentration	548	3.91	0.924
Better sleep	549	3.89	0.976
Less fatigue	543	3.71	1.006
Eating awareness	547	3.70	1.011
Knowledge in nutrition	549	3.70	1.038
Eating better	548	3.63	1.055
Friends and relatives	546	3.83	0.961
Better listening	548	3.74	0.992
Calmness	548	3.63	0.986
Knowledge of human body	491	3.84	0.892
Posture	490	3.79	0.905
Confidence	492	4.04	0.919
More joy	495	4.04	0.917
Enthusiasm	495	4.04	0.934
Self-esteem	496	4.01	0.902

Table 8. Results from teachers' post-implementation surveys based on 8 questions.

Questions	Total responses	Positive responses	Neutral responses	Negative responses
Yoga Ed. training	103	81	17	5
Cognitive benefit	96	63	29	4
Attentional focus	103	77	23	3
Social skills	97	69	21	7
Emotional maturity	101	72	19	10
Self-esteem	88	61	24	3
Behavioral improvements	94	64	24	6
Self-care	96	69	24	3

Table 9. Descriptive statistics for post-implementation teacher surveys.

Questions	N	Mean	SD
Yoga Ed. training	103	4.17	0.909
Cognitive benefit	96	3.98	0.951
Attentional focus	102	4.17	0.880
Social skills	97	4.03	0.984
Emotional maturity	101	3.99	1.015
Self-esteem	88	4.03	0.928
Behavioral improvements	94	3.99	0.978
Self-care	95	4.08	0.883

Teacher survey data also solicited answers from teachers about the barriers they encountered during implementation. The most commonly cited barriers include space restrictions, student resistance, time constraints, parental resistance/misunderstandings, and lack of support from peer teachers (see [Table 10](#)).

Most of the participants provided steps they had taken to reduce the impact of or remove the barriers while implementing the programs. The most outstanding themes that emerged from their answers include creative adaptation, self-help/training, improving communication with parents and students, seeking help from administration, and starting with something easy and manageable (see [Table 11](#)).

4. Discussion

The current study assessed the perceived benefits of participating in yoga-based activities incorporated into classroom teaching as a result of implementing the Yoga Ed. Tools for Teachers program. The data of the perceived benefits were obtained from the teachers who delivered yoga instruction, the parents whose children were involved in the intervention program, and the students who participated in the Yoga program. The results of this study showed that practicing yoga has been viewed as instrumental to enhancing mental focus, reducing negative behaviors, increasing physical vigor, improving awareness and practice of eating, enhancing communication with family and friends, and enhancing emotional resilience and joy.

Data triangulation involving students, parents, and teachers provide extra assurance that the assessed effects are verifiable and reliable. The survey data from students, parents, and teachers all showed that yoga practice may have facilitated development of concentration and attention in a school setting. These data are consistent with previous studies that found benefits of yoga practice with children with attention problems (e.g., [Abadi et al., 2008](#); [Harrison et al., 2004](#); [Peck et al., 2005](#)). Even though we did not collect data of student academic achievement in this study, perceived benefits in concentration and attentional focus should contribute to academic success.

The results from this study have clearly indicated that yoga practice improved emotional health, as indicated

Table 10. Barriers encountered during the implementation of the yoga program.

Emergent themes	Number of times mentioned
Lack of space	21
Lack of time (curriculum related)	20
Student resistance/Peer issues	15
Parental resistance/Misunderstandings	14
Lack of resources	11
Curriculum issues	6
Resistance from administration	5
Lack of training/knowledge	5

Table 11. Steps taken to remove or reduce the impact of implementation barriers.

Emergent themes	Number of times mentioned
Integrate into current curriculum	10
Approach parents	7
Started with breathing	6
Starting with small groups/Easy exercises	5
Used artistic innovations	5
Self-help/Take extra classes	4
Better communication with students	4
Persistence/Motivation	4
Do it outside first	3
Seek yoga support group	3
Seek administrative help	2

by increases in perceived self-confidence, level of joy, and self-esteem. These emotional indicators suggest that students who practice yoga may feel less stressed and more resilient when confronted with stressful situations. This finding also confirms the previous studies suggesting the benefits of yoga in reducing anxiety and enhancing positive affect (e.g., [Gloeckner & Stück, 2005](#); [Platania-Solazzo et al., 1992](#)). Considering the stress children and adolescents are faced with at school on a daily basis ([Kottler & Chen, 2011](#)), yoga can serve as a great remedy for reducing negative affect and distress.

The current study also suggests that yoga practice has contributed to improved physical well-being. Data from three sources have supported the claim that yoga practice has facilitated knowledge of human body, eating awareness, and body posture as reported by the student participants, their parents, and their teachers. The survey data showed that teachers, students, and parents all agree that participation in school-based yoga program for a year produced positive behavioral changes.

The current study has much to offer for future school-based yoga activity programs. First, teachers with minimum training in yoga can produce large effects on students. Second, students who get support from parents can produce positive changes in their lives. Third, it is important to have a structure in which students are exposed to healthy way of living.

Despite the significance of the current study, the generalizability of its results is restricted by its limitations. First, it was not a controlled and randomized study. The way each teacher delivered yoga instruction was not controlled for and verified. Second, the reliability and validity of surveys used for assessing the effects of Yoga instruction had not been established prior to testing. Finally, it was assumed that the parents and students who were involved in the study had been given equivalent instructions as to how to fill out the surveys and this assumption was too difficult to be confirmed. However, this present study is the first study that contained a large population that involved triangulation of data and involved predominantly Hispanic and African populations with limited access to yoga. Future researchers should use a randomized and controlled design if possible. More

information should be gathered about the qualifications of teachers and more hard data should be collected to correlate yoga practice with GPA, health indices and so on.

5. Conclusion

The current study has much to offer for future school-based yoga activity programs. First, teachers with minimum training in yoga who incorporate daily yoga-based techniques in the classroom can produce large effects on students. Second, students who get support from parents can produce positive changes in their lives. Third, it is important to have a structure in which students are exposed to healthy ways of living. And most important, the data provided solid evidence suggesting that yoga-based activities produced perceived benefits in students' mental well-being, social well-being, physical well-being, and daily behaviors.

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